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ON A

PROPOSED GRANT FROM THE
GLOBAL ENVIRONMENT FACILITY TRUST FUND

IN THE AMOUNT OF US\$ 6.0 MILLION

TO THE

REPUBLIC OF PANAMA

FOR A

RURAL PRODUCTIVITY AND CONSOLIDATION OF THE ATLANTIC
MESOAMERICAN BIOLOGICAL CORRIDOR PROJECT

April 25, 2006

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CURRENCY EQUIVALENTS

(Exchange Rate Effective January 31, 2006)

Currency Unit = Balboa
1 Balboa = US\$1

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AIP	Annual Implementation Plan
ANAM	National Environment Authority
CCA	<i>Comisión Consultativa Ambiental</i> (Consultative Environmental Commission)
DBC	Department of Biological Corridors
FM	Financial Management
GOP	Government of Panama
MBC	Mesoamerican Biological Corridor
MBC-P	Panamanian Mesoamerican Biological Corridor
MIDA	Ministry of Agricultural Development.
NGO	Non-governmental Organization
NRM	Natural Resource Management
PAMBC	Atlantic Mesoamerican Biological Corridor Project
PIP	Project Implementation Plan
POA	Annual Operating Plan
SINAP	National Protected Areas System
SMAP	<i>Sistema de Monitoreamiento de Areas Protegidas</i> (Protected Areas Monitoring System)
SNMDB	<i>Sistema Nacional de Monitoreamiento de Biodiversidad</i> (National Biodiversity Monitoring System)
TA	Technical Assistance
UAM	<i>Unidad Ambiental Municipal</i> (Municipal Environmental Unit)

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PANAMA

Rural Productivity and Consolidation of the Mesoamerican Biological Corridor Project

CONTENTS

	Page
A. STRATEGIC CONTEXT AND RATIONALE	1
1. Country and sector issues.....	1
2. Rationale for Bank involvement	4
3. Higher level objectives to which the project contributes.....	5
B. PROJECT DESCRIPTION	8
1. Financing instrument	8
2. Project Development Objective	8
3. Project Global Environmental Objective and Key Indicators.....	8
4. Project components.....	9
5. Lessons learned and reflected in the project design.....	10
6. Alternatives considered and reasons for rejection	12
C. IMPLEMENTATION	12
1. Institutional and implementation arrangements.....	12
2. Monitoring and evaluation of outcomes/results.....	15
3. Sustainability and Replicability	15
Critical risks and possible controversial aspects.....	16
D. APPRAISAL SUMMARY	18
1. Economic and financial analyses	18
2. Technical.....	18
3. Fiduciary	19
4. Social.....	19
5. Environment.....	20
6. Safeguard policies.....	21
7. Policy Exceptions and Readiness.....	23
Annex 1: Country and Sector or Program Background	24
Annex 2: Major Related Projects Financed by the Bank and/or other Agencies	31

Annex 3: Results Framework and Monitoring	32
Annex 4: Detailed Project Description.....	40
Annex 5: Project Costs	49
Annex 6: Implementation Arrangements	50
Annex 7: Financial Management and Disbursement Arrangements.....	54
Annex 8: Procurement Arrangements	60
Annex 9: Economic and Financial Analysis	65
Annex 10: Safeguard Policy Issues.....	68
Annex 11: Project Preparation and Supervision	82
Annex 12: Documents in the Project File	83
Annex 13: Statement of Loans and Credits.....	84
Annex 14: Country at a Glance	85
Annex 15: Incremental Cost Analysis	87
Annex 16: STAP Roster Review	95
Annex 17: Selection of Project Area.....	109
Annex 18: Maps.....	147

A. STRATEGIC CONTEXT AND RATIONALE

1. Country and sector issues

Significant Global Biodiversity. Panama, an upper-middle income country that bridges North and South America in the midst of Atlantic and Pacific Oceans, has extreme economic inequality: around 40% of its population lives in poverty, half destitute, ranking it as one of the most unequal countries in the region. It is also one of the most biologically diverse countries in the world but faces serious threats to natural habitat conservation. It is a critical link in the Mesoamerican Biological Corridor (MBC), with more than 12,600 plant species (1,300 endemic and nearly 200 threatened). Of its 2,950 species of vertebrates, more than 100 are threatened and 121 are endemic (and a far larger number share endemism with only Colombia or Costa Rica). Nearly ten percent of bird species worldwide can be found in Panama, and twelve species are found only in Panama. Of the country's twenty threatened bird species, four are endemic and nine are found in only one other country. Nearly fifty species of threatened amphibians, many of which are critically endangered, are found only in Panama and neighboring Costa Rica. These include numerous species of tiny but colorful tree frogs and poison dart frogs that have become a symbol of MBC forest biodiversity. The habitat of the critically endangered *Oedipina maritima* salamander is less than ten km² and is declining. Among other spectacular rainforest species, Panama is also home to substantial populations of wide-ranging jaguars and harpy eagles, which require vast tracts of land under native vegetative cover in order to survive.

Challenges to Global Biodiversity in Panama. Yet this biodiversity is threatened on several fronts. The advance of the agricultural frontier and spontaneous colonization at the rate of 50,000-80,000 hectares per year are rapidly shrinking the country's forests and protected areas. Soil and water resources, particularly on the Pacific side of the country, have been depleted because of traditional agricultural practices and inadequate conservation measures. Indigenous production systems, with their low-intensity land use, long rotation periods, and plentiful forests for hunting and gathering, are increasingly becoming unsustainable due to economic pressures and are being replaced by farming systems emphasizing monoculture without rotation, leading to depleted soils and encouraging greater expansion of the agricultural frontier. These threats are heightened by rural poverty that drives the population to areas with a relatively intact natural resource base and a high level of globally significant biodiversity. With unsustainable land practices that people bring with them and the lack of capacity by both public and private stakeholders to create sustainable land use, development, and management plans further exacerbate the degradation of natural resource base. For example, watershed degradation from deforestation and unsustainable land use has accelerated soil erosion, sedimentation, and pollution of fresh water sources. As a result, many farmers have emigrated to Darien and Bocas del Toro provinces, located at the southern and northern terminus, respectively, of the Panamanian segment of the MBC (MBC-P), where resources are still abundant but fragile. Once there, these farmers replicate unsustainable production systems, resulting in adverse impacts on some of the important habitats for endemic species found in Panama and in the MBC between Costa Rica, Panama and Colombia.

Conservation Efforts to Date. In 1994, nearly one-third of Panama's land was set aside to establish the National Protected Areas System (*Sistema Nacional de Áreas Protegidas*, SINAP).

Some 65 Protected Areas have been established under the SINAP, with twelve National Parks, nine Forest Reserves and two Protected Forests constituting 85 percent of lands under SINAP.

The Government of Panama has already passed significant legislation in support of biodiversity, such as: the Environmental Education Law (1992); the Forestry Law (1994); the Environmental Impact Assessment Law (1994); the Wildlife Law (1995). The General Environment Law (*Ley 41*) of July 1998 created the National Environment Authority (*Autoridad Nacional del Medio Ambiente*, ANAM) and laid out an ambitious framework for the management, conservation and preservation of Panama's natural resources and environmental assets. More recently, in its *Strategy of Conservation for Sustainable Development*, ANAM sets forth a five-year vision (2004-2009) aimed at: (i) forging stronger co-management partnerships for Protected Areas with local governments, NGOs, the private sector and civil society; and (ii) building institutional and normative capacity in ANAM to act in these areas. Panama is also a signatory to a series of international treaties with regard to biodiversity (e.g., Convention on Biological Diversity, RAMSAR, CITES).

Decentralization and Biodiversity Conservation. *Ley 41* authorizes ANAM to transfer selected activities associated with environmental management to the provincial and district levels. Effectively, such decentralization has led to the formation of Consultative Environmental Commissions (*Comisiones Consultativas Ambientales*- CCAs) at each of these levels, provide a forum for civil society to address environmental concerns and make recommendations to ANAM on the management of lands under SINAP. Some 20 percent of Protected Areas are already co-managed by ANAM with local NGOs, municipalities and other entities and thirteen Protected Areas are directly managed by entities other than ANAM. In a similar vein, indigenous peoples – through their respective *comarcal* CCAs -- directly manage about 10 percent of SINAP protected territory, much of which remains under its original forest cover and is critical for biodiversity conservation. These co-management efforts have been adequate, but often suffer from inadequate funding and high staff turnover.

The Panama Atlantic Mesoamerican Biological Corridor Project – PAMBC (1998-2005). The PAMBC, co-financed under a GEF grant of US\$8.4 million, successfully piloted the co-management of natural resources through partnerships between communities and ANAM to (i) raise awareness of the MBC-P, its natural resources and the threats to biodiversity within it; and (ii) promote viable productive systems that generate both economic and financial benefits for rural communities in Protected Areas and associated buffer zones and positive outcomes for globally significant biodiversity. Important results under the PAMBC include:

- Following a Community-Driven Development (CDD) matching grants mechanism, 118 rural communities implemented 100 subprojects, primarily in agroforestry, at an average cost of US\$19,800 and benefiting about 38,000 people, 50% of whom were indigenous and residing within the MBC-P.
- Local stakeholders, through a process of consultation and public validation, prepared and implemented management plans in four priority Protected Areas (i.e., *La Amistad*, *San San Pond Sak*, *Volcán Baru*, *Palo Seco*) and an Action Plan for co-management of the *comarca* Ngöbe-Buglé, *La Amistad* and *Palo Seco*. Rapid Ecological Evaluations, undertaken jointly by ANAM and local stakeholders, resulted in vegetation maps (1:50,000) and biological data

bases for five Protected Areas, enabling the preparation of their respective management plans.

- ANAM produced vegetation and ecosystem maps (scale 1:250,000) -- initially in 2000 and later updated in 2004 – which provide accurate, basic biodiversity information for Panama, detect where deforestation has occurred and demonstrate its association with human emigration into the MBC-P.
- Some 361 community volunteers, 297 indigenous and 153 non-indigenous leaders were trained in activities relating to the co-management of priority Protected Areas in SINAP.
- ANAM initiated the first national monitoring of water quality in 24 rivers and produced interactive hydrological maps, to aid in biodiversity conservation and ecosystem health.

Despite these gains, some of the areas with globally significant biodiversity including RAMSAR sites, UNESCO's Biosphere Reserves, and tracts of forest areas within the MBC-P, remain severely threatened. Little remains today of the tropical dry forest -- traditionally favored for human settlement in Panama. Although relatively large areas of tropical humid and mountain forest remain undisturbed, these tracts lack adequate management, even where Protected Areas have been demarcated. Key threats to these areas include:

- **Conversion:** One of the key threats to the natural ecosystems and habitats in Panama is the advance of the agricultural frontier, through land clearing for cattle ranching and timber harvesting. Forest and Protected Areas have been converted at a rate of 50,000 – 80,000 hectares annually. The conversion pressure has been magnified by the influx of poor peasants, particularly from the Pacific side where the soil and water resources have been severely depleted, to the Atlantic side which has some of the remaining critical habitats and biological diversity of global significance.
- **Lack of Policy and Weak Enforcement:** Although the General Environment Law (*Ley 41*) of July 1998 provides for a decentralized framework of environment and natural resources management, municipalities in Panama lag far behind their counterparts in other Latin American countries with respect to local governance and financial autonomy. Local governments execute less than 2 percent of total public sector expenditures, restricting their opportunity to develop capacity for planning, budgeting, for providing services or maintaining infrastructure. Until recently, the SINAP was largely centrally administered by ANAM, as local implementation capacity had been weak. The PAMBC, as noted above, invested in training and capacity-building for local leaders, permitting more effective decentralization and co-management of the SINAP, yet more will be required to consolidate the desired local participation in conserving Protected Areas.
- **Species extraction and over-exploitation:** With the influx of emigrants and unregulated growth in tourism, hunting and illegal harvesting increasingly threaten wildlife and forest products. In some areas, hunting for large cats and mammals threatens the survival of biodiversity of regional and global significance. Selective harvesting of threatened species and over-exploitation, in particular marine resources (e.g., over-fishing, turtle hunting and

coral extraction), are major concerns for conservation efforts to date by the government, NGOs and international donors.

- **Mining:** In Coclé Province, some 27 concessions have been requested to further develop the mines of Petaquilla and Molejón, which could adversely impact Omar Torrijos National Park and the Donoso Forest Reserve. Small-scale mining is also on the rise, with the possible use of gold mining pumps in several rivers, such as El Caimito. A continued upward trend in copper and gold prices could activate mining works would affect about 2,000 hectares in these areas.
- **Infrastructure:** Fragmented development approaches pose threats to the sustainability of many forests and Protected Areas. Construction of hydroelectric plants and access roads adversely impact not only the terrestrial but also marine ecosystems. Coupled with the lack of policy and weak enforcement of existing policies in many Protected Areas, even the much needed rural infrastructure has had a severely negative impact on endemic species of global importance.

The proposed project specifically addresses these key threats facing Panama and its natural resource base by reducing: (i) **the push factors** (e.g., natural resource depletion, deforestation, rural poverty) spurring human migration to the areas of global conservation importance within the MBC-P; and (ii) **the pull factors** (e.g., over-exploitation, illegal harvesting, lax enforcement regime) by consolidating and strengthening the implementation of existing management plans to ensure the conservation of globally significant biodiversity. Greater decentralized management of SINAP would be directly fostered, as would more effective implementation of existing management plans in selected Protected Areas of the SINAP, in line with the objectives of *Ley 41*.

Both the proposed project and the partially-blended IBRD operation deploy a demand-driven mechanism in order to leverage local communities in addressing these factors.¹ Rural producer organizations, under the IBRD operation, would implement small-scale investments to increase their market orientation and value-added, in an effort to reduce the push factors that advance the agricultural frontier, especially in the Pacific region. Investments in frontier communities and the adoption of more environmentally friendly and sustainable land uses would also stabilize the agricultural frontier and reduce pressures on sites of key environmental importance. The proposed GEF operation finance small-scale environmental subprojects proposed and implemented by organized community associations to conserve biodiversity of global significance and, combined with a greater role in the co-management of Protected Areas, would contribute to reducing the pull factors that have led to natural resource depletion and degradation in Protected Areas of Panama.

2. Rationale for Bank involvement

The Government of Panama has requested World Bank assistance in preparing the proposed project. The Bank has acquired broad international experience with legal, institutional, and

¹ The partially-blended IBRD operation, Rural Productivity and Sustainable Development (P064918) is under preparation and slated for Board presentation in early FY07.

technical frameworks for local governance strengthening, participatory approaches, indigenous peoples' policies, natural resource management and biodiversity conservation. During the last ten years, the Bank has been a leader in Latin America in promoting more localized and decentralized initiatives in biodiversity conservation. These approaches have led to efficient program administration and positive outcomes by reducing bureaucracy and reinforcing accountability among all stakeholders. The proposed project would build on and consolidate the accumulated knowledge and experiences, by building upon human and social capital advancements supported under the PAMBC. The proposed project will deepen community participation; promote sustainability of Protected Areas and mainstream biodiversity conservation in rural development activities.

The Bank-financed Panama Land Administration Project-PRONAT (7045-PA) also contributes to the proposed project through a series of activities, namely: (i) socioeconomic and land tenure studies in five targeted Protected Areas (i.e., PILA, Palo Seco, San San Pond Sak, Barú Volcano, Lagunas de Volcán Wetland) conducted in 2003; (ii) community consultations to define the boundaries of the Naso-Teribe Comarca in Bocas del Toro in 2002; and (iii) aerial photography and field work to identify critical biodiversity areas in Omar Torrijos National Park.

3. Higher level objectives to which the project contributes

The proposed project is fully consistent with the Panama Interim Strategy Note (August 2005) and the Rural Strategy for Latin America and the Caribbean (Reaching the Rural Poor in the Latin America and Caribbean Region, July 2002). More specifically, it supports the key priorities of reducing poverty and inequality and fostering environmentally sustainable development. The proposed project would also contribute to the Government of Panama's efforts to achieve one of the Millennium Development Goals: ensuring environmental sustainability by integrating the principles of sustainable development into country policies and programs and by reversing the loss of natural resources, specifically biodiversity of global significance.

This project is an integral part of the larger Mesoamerican Biological Corridor (MBC), a region-wide initiative comprising the five southern states of Mexico and the Central American countries of Guatemala, Belize, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama. The MBC intends to conserve biological and ecosystem diversity in a manner that fosters sustainable social and economic development. Its specific aims are to (a) protect key biodiversity sites; (b) connect these sites with corridors managed in such a way as to enable the movement and dispersion of animals and plants; and (c) promote forms of social and economic development in and around these areas that conserve biodiversity while being socially equitable and culturally sensitive. The MBC involves a wide range of actors, including national and local governments, nongovernmental organizations (NGOs), local communities, and international donors.

The GEF operational program goal supported by the project. The proposed project supports the GEF Focal Area of Biodiversity, particularly OP2 (Coastal, Marine and Freshwater Ecosystems), OP3 (Forest Ecosystems) and OP4 (Mountain Ecosystems) by (i) reducing biodiversity losses due to human activities through conservation and sustainable use within Protected Areas, (ii) mainstreaming biodiversity conservation and sustainable use into productive activities, and (iii) encouraging the integration of biodiversity issues within rural development in key ecosystems of Panama.

Under the Focal Area of Biodiversity, the project also addresses SP1 (Catalyzing Sustainability of Protected Areas) by: (i) developing new capabilities within ANAM to coordinate, monitor and supervise the co-management activities of local partners and integrate them with the Protected Areas Monitoring System (SMAP) and the National Biodiversity Monitoring System (SNMDB); (ii) catalyzing community and indigenous conservation initiatives in Protected Areas; (iii) building capacity for long-term SINAP sustainability; (iv) removing barriers to facilitate public/private partnerships; and (v) seeking to bolster the revenue base of ANAM for managing the SINAP by exploring options for payment for environmental services (PES), as well as alternative funding mechanisms (e.g., carbon funds, service concessions, eco-tourism). The project also supports SP2 – (Mainstreaming Biodiversity in Production Landscapes and Sectors) by strengthening the capacity of ANAM, community associations, NGOs and academic institutions to: (i) develop the regulations and procedures for environmental land use planning and water basin co-management at the local or municipal level; (ii) assist selected communities in the implementation of small-scale investments that adhere to existing land use management plans; (iii) support decentralized environmental management in selected districts; and (iv) promote the principles and processes of natural resource management and bio-diversity protection in rural development.

Furthermore, the proposed project would support the development for environmental services markets whereby farmers would be contracted for adopting land use practices that generate valuable ecosystem services. Contracting of environmental services will be piloted at priority areas in two critical watersheds in Panama that provide and enhance these services to off-site consumers as well as generate environmental benefits at local, national and global levels. These services may include changes in land use practices (e.g., agro-forestry, forest management, conservation, re-forestation, aforestation), sustainable agricultural production systems that increase water quality and base flows, improve regulation of groundwater and surface flow, and maintain or enhance biological diversity. The project would also support enhanced biological diversity and changes in land use practices that diminish threats to and reduce over exploitation of critical ecosystems, including buffer zones and corridors of global significance.

Link to the proposed IBRD operation. The proposed GEF-funded project is partially blended with an IBRD operation of US\$36.0 million (currently under preparation) in support of the Rural Productivity and Sustainable Development project, which is expected to be presented to the Board in early FY07. The IBRD operation would primarily finance a matching grants scheme for rural producer associations in order to foster the formation and consolidation of productive alliances, thereby increasing market access, producer incomes and rural employment. GEF funds would complement the use of IBRD loan resources through *inter alia* (i) incremental support to SINAP to build local capacity for environmental management; (ii) pilot initiatives in PES to boost own-revenue generation by ANAM; and (iii) environmental subproject investments for community associations in Protected Areas and buffer zones.

Project Targeting (see Annexes 4 and 16). The proposed project specifically targets (i) selected Protected Areas (i.e., 14 among the 65 that comprise the SINAP); (ii) designated corridors between these Protected Areas that are deemed critical to achieving conservation of globally important biodiversity; and (iii) productive landscapes, within a strategy focused on relieving identified pressures affecting globally important biodiversity in these selected Protected Areas

and designated corridors. The following criteria were applied in the targeting of specific Protected Areas:

- *environmental*: importance of ecology and biodiversity (RAMSAR, UNESCO Biosphere Reserves, Mesoamerican Biological Corridor); state of conservation of the eco-system; threat of major importance; and impact of population.
- *institutional*: coherence between the objectives of the National Environmental Strategy and rural development; priorities of ANAM in the Strategic Participatory Plan of SIA 2002-2006; and the existence of other projects with independent funding.
- *socio-economic*: poverty levels as determined by national studies; areas with probability of poverty exceeding 50%; and monthly median household income less than US\$163.

Applying these criteria, the proposed project would concentrate interventions in 28 districts and two indigenous *comarcas*, namely: (i) eighteen districts and one *comarca* in the Pacific region (i.e., Herrera, Los Santos, Veraguas, *comarca* Ngöbe-Buglé); and (ii) ten districts and 2 *comarcas* in the Atlantic region (i.e., Bocas del Toro, Chiriqui, Veraguas, Cocre, Colon, and *comarcas* Ngöbe-Buglé and Kuna Yala). SINAP Management priorities already identified by ANAM were also applied in the determination of the targeted districts and *comarcas*. Table 1 highlights selected Protected Areas targeted under the project, the key threats to biodiversity, proposed activities and expected outcomes.

Table 1: Selected Global Biodiversity Values, Key Threats, Activities and Expected Outcomes

Global Biodiversity Values	Key Threats	Project activities to address threats	Expected results/ outcomes at end of project
National Parks (Six Protected Areas targeted)			
<i>Parque Internacional La Amistad (PILA), Bocas del Toro-Chiriquí, 207,000 hectares</i>		Biosphere Reserve UNESCO	
6 life zones; 400 bird species (<i>Harpia Harpya</i>); 100 mammal species; 91 amphibian species.	Land clearing by poor peasants; infrastructure: Roads and hydro plants; hunting; over-exploitation of natural resources.	Strengthening SINAP; eco-friendly production; environmental education; district-level land use planning.	Adoption and implementation land-use plan; # ha under ecofriendly production; reduce hunting by 40%.
<i>Santa Fe, Veraguas, 72,636 hectares</i>			
Pacific (dry) isolated mountain-sea ecosystem; 3 life zones; habitat for 3 endangered species and 3 threatened species; lack of scientific background information.	Hunting for large cats and mammals; land clearing to open land for cattle; deforestation; lack of government presence.	Continue support to co-mgt; environmental education; promote ecofriendly production; support social capital building through CCs.	reduce forest clearing rate; reduce hunting by 50%; # ha under ecofriendly production.
<i>Cerro Hoya, Veraguas-Los Santos, 32,557 hectares</i>			
Water divide Atlantic-Pacific; mountain ecosystem; 7 ecoregions; 1,577 flora species (37 endemic); 167 bird species; 72 amphibian species.	Deforestation (high) and new access roads; invasion of park lands by poor peasants; inadequate solid waste mgt; land titling irregularities; hunting	Support co-mgt with local govt. and community participation; promote ecofriendly production;	New park mgt arrangements working; reduced deforestation rate; # ha under ecofriendly production.
<i>Omar Torrijos, La Pintada/Coclé, 25,275 hectares</i>			
Isolated mountain ecosystem; 4 life zones; 1,332 flora species; 200 mammal species; 959 bird species (180 of "special interest", 34 "rare").	Deforestation: 3,000 HA affected; potential mining activities; new access roads.	District-level land use planning; ecofriendly production; analysis of PA mgt options; local govt. strengthening.	Land use plan adopted; mgt arrangements working; # ha under ecofriendly production.
Forest Reserves and Forest Preservation (three Protected Areas targeted)			
<i>Donoso, Colón (proposed protected area), 10,000 hectares</i>			

Mature mountain ecosystem, with over 1,100 flora species; home of big cats (jaguar) and eagles (<i>Harpia</i>).	Land clearing for cattle, timber; mining (copper and gold)	Local institutional capacity building for NRM; promote ecofriendly production;	NRM monitoring system established; # ha under ecofriendly production.
<i>Palo Seco (BPSP), Bocas del Toro, 125,000 hectares</i>			Biosphere Reserve UNESCO
Intermountain ecosystem with 4 life zones and 8 distinct ecosystems; 248 bird species; 61 mammal species.	Growing pressure to open more land for cultivation and cattle; extraction of timber and non-timber products; Access roads without environmental controls.	Support UAMs; implement mgt plan; promote ecofriendly production; education on env and NRM.	Improved compliance of EMP for access road; # ha under ecofriendly production; Reduced hunting.
Wildlife Sanctuary (three Protected Areas targeted)			
<i>Corregimiento No.1 Narganá, Kuna Yala, 100,000 hectares</i>			
225 km of coastline, coral reefs and sea grasses; 69 coral species; 70 fish species.	Inadequate waste mgt (solid, water, industrial); coral extraction for land filling; over-fishing selected species.	Develop participatory EMP; Support compliance with EMP; Promote ecofriendly productive systems; education on environment and NR.	EMP adopted and implementation under way; # has under ecofriendly productive options; Solid waste management plan under implementation; Agreed fishing sites.
RAMSAR Wetlands (two Protected Areas targeted)			
<i>Damani-Guaribiara, distritos de Kusapín y Kankitú en Comarca Ngöbe-Buglé, 24,0895 hectares (proposed protected area)</i>			
RAMSAR site. 180 bird species, 39 threatened; 56 mammal species (29 threatened).	Loss of habitats and decrease of animal population; deforestation (Orey, palmito); turtle hunting.	Development of EMP; institutional capacity-building for NRM; promote ecofriendly production.	EMP adopted and implemented; # ha under ecofriendly production; Agreed turtle protection areas.
Total hectares targeted under proposed project: 675,775			

B. PROJECT DESCRIPTION

1. Financing instrument

The total project cost is US\$18.4 million. A GEF grant of US\$6.0 million is proposed, with counterpart financing from the Government of Panama of US\$1.0 million, along with project beneficiary contributions of US\$1.0 million. The project would be partially blended with an IBRD Specific Investment Loan (to be presented separately) estimated at US\$36.0 million, from which additional co-financing of US\$10.0 million would be available.

2. Project Development Objective

The Project Development Objective of the partially-blended Rural Productivity and Sustainable Development Project is to contribute to increased income and employment of small-scale rural producers in Panama.

3. Project Global Environmental Objective and Key Indicators

The Project Global Environmental Objective is to conserve biodiversity of global importance and protect important forest, mountain and marine-coastal ecosystems in Panama.

Global Environmental Outcome Indicators

- By end of project (EOP), local and national institutional capacity is improved, as measured by the WWF/Bank Management Effectiveness (GEF BD SP 1) Tracking Tool to manage 14 protected areas (675,775 ha).

- By EOP, at least 50,000 ha of forests and other natural ecosystems of global biodiversity significance in the buffer zones of Protected Areas and biological corridors connecting them in the MBC-P under effective conservation (protection and sustainable management).
- By EOP, biodiversity of global significance is under effective conservation, as measured by vegetation cover and indicator species of conservation interest.
- By EOP, 60% of districts in the project area have incorporated biodiversity aspects into sector policies and plans and adapted appropriate regulations and implement plans accordingly.

4. Project components

Component 1 – Community Investments in Environmental Resources (US\$12.4 million total cost with US\$7.8 million of IBRD and US\$2.9 million of GEF) – would support small-scale investments in natural resource management and productive opportunities proposed by rural community and producer associations residing in fourteen Protected Areas and associated buffer zones. The component would provide matching grants to these associations to implement subprojects that contribute to conservation of biodiversity of global significance and represent viable and sustainable alternatives to improve their livelihoods. The component would also finance support services to these associations (e.g., mobilization, training, technical assistance) to facilitate their subproject preparation. Community and producer associations would contribute at least 10 percent of total subproject cost (in cash or in-kind). Subproject agreements would be signed between the beneficiary associations and ANAM. One of the key outputs of this component is that at least 450 natural resource, sustainable agriculture and conservation subprojects are implemented by community and rural producer associations.

Component 2 – Management of Natural Resources and Strengthening of SINAP (US\$2.9 million total cost with US\$1.4 million of IBRD and US\$1.4 million of GEF) – would improve the management of SINAP at the national, provincial, comarcal and district levels by (i) fortifying the co-management arrangements under existing land management plans in targeted Protected Areas; (ii) improving information and monitoring systems and support conservation of at-risk ecosystems; (iii) financing local environmental education programs and promote the formation of Consultative Environmental Commissions (CCAs), Municipal Environmental Units (UAMs) to increase civic participation in decentralized co-management of Protected Areas; and (iv) developing pilot schemes of payment for environmental services (PES) and explore opportunities for self-financing by ANAM to maintain and sustain Protected Areas. Key outputs would include: (i) mean GEF Biodiversity Tracking Tool for the fourteen targeted Protected Areas increases from 45 to 60 by project completion; (ii) 28 district-level CCAs and UAMs established, trained and operating; and (iii) PES program for improved land use piloted in two project sites and a replication strategy is developed.

Component 3 – Monitoring, Evaluation, and Project Management (US\$2.8 million total cost with US\$0.8 million of IBRD and US\$1.6 million of GEF) – would improve ANAM's national capacity for monitoring the SINAP and evaluating biodiversity conservation interventions through: (i) the purchase of needed hardware and software for the Protected Areas Monitoring System (SMAP) and the national monitoring system for biodiversity (SNMDB) and

(ii) training to build technical capacity for both the SMAP and the SNMDB and integrate them with the National Environmental Information System (SINIA). The component would also support the integration of SINIA with the Interamerican Biodiversity Information Network (IABIN), the Operations Secretariat of which will be located in Panama. Finally, incremental costs of the Department of Biological Corridors of ANAM (DBC/ANAM), including field supervision would be supported.

Table 1: Project Costs and Co-Financing, by Component

Components	Project Financing									
	IBRD		GEF		Beneficiaries		GOP		TOTAL	
	US\$ million	%	US\$ million	%	US\$ million	%	US\$ million	%	US\$ million	%
1. Community Investments in Environmental Resources										
1a. Environmental Investment Subprojects	6.0	65%	2.3	38%	0.9	10%	0.0	0%	9.3	51%
1b. Support for Natural Resources Management	1.8	58%	0.6	7%	0.0	0%	0.7	23%	3.2	17%
Subtotal	7.8	63%	2.9	45%	0.9	7.5%	0.7	6%	12.4	68%
2. Management of Natural Resources and Strengthening of SINAP	1.4	48%	1.4	49%			0.1	3%	2.9	16%
3. Monitoring, Evaluation, and Project Management										
3a. Monitoring and Evaluation	0.0	0%	1.0	12%	0.0	0%	0.4	28%	1.4	8%
3b. Project Management	0.8	55%	0.6	45%	0.0	0%	0.0	0%	0.4	7%
Subtotal	0.8	27%	1.6	59%	0.0	0%	0.4	15%	2.8	15%
TOTAL	10.0	55%	6.0	33%	0.9	5%	1.2	7%	18.1	100%

Note: Figures may not add up due to rounding.

5. Lessons learned and reflected in the project design

From the recently concluded PAMBC project, other donor projects in Panama including USAID funded projects and other similar projects in the Latin American region, the following lessons have been drawn and applied in the design of the proposed project:

Community Participation is an effective delivery mechanism for project benefits. The community's direct participation throughout the subproject cycle contributed to the creation of local self-management capacity. These lessons are drawn not only from Panama but also from similar participatory, demand-driven programs in the region (e.g., Northeast Brazil). The PAMBC generated benefits for communities in hard-to-reach areas, in regions that had previously received little or no technical assistance, information, or support for direct initiatives. Dissemination and management of the PAMBC, as noted in the ICR, were correctly targeted. The proposed project would adopt similar approaches as those piloted under the PAMBC and scale-up the opportunities for rural communities to access subproject benefits.

Co-management arrangements should be expanded and strengthened for existing Protected Areas management plans. Currently, thirteen of the 65 Protected Areas in SINAP are co-managed by NGOs, municipalities, and other entities in conjunction with ANAM. Furthermore, indigenous communities directly management about 10 percent of SINAP protected territory. The proposed project would promote increased local, environmental co-

management in the fourteen targeted Protected Areas by (i) building the capacity of partner organizations and ANAM and (ii) developing additional co-management arrangements, within the context of *Ley 41*, in order to effectively implement the existing management plans in these Protected Areas. The project will improve systematic technical support for subproject design while ensuring a closer link between subproject interventions and expected outcomes for biodiversity conservation.

Monitoring systems vital to confirm biodiversity conservation. Management decisions were sometimes handicapped by lack of good information on the status of biological diversity in some Protected Areas. Also, while subproject investments were satisfactorily implemented by community associations, the potential and actual contribution of these subprojects to conservation of biodiversity of global importance needs to be better analyzed *ex-ante* and measured *ex-post*. The proposed project would enhance the technical assessment of subproject proposals by ANAM by (i) confirming a tighter linkage with priorities of existing Management Plans in the targeted Protected Areas, especially in how the investments will address the threats to biodiversity of global importance; and (ii) supporting a monitoring and data gathering system (under Component 3) to measure biodiversity impact and the effectiveness of improved co-management in Protected Areas.

Revenue generation essential for sustained decentralized environmental conservation. PAMBC demonstrated that CCAs, particularly at the district level, can increase civil society participation and build more effective local stewardship of environmental assets. However, assured funding sources are required to ensure their long-term operation. The proposed project would support grant financing for innovative productive investments aimed at increasing local incomes through sustainable natural resource management and conservation of globally significant biodiversity.

Stakeholder participation builds “win-win” scenarios. Under the PAMBC, ANAM focused attention, funds and energy on local communities, indigenous *comarcas* and Protected Areas, through (i) the inclusive consultative process for preparing the management plans and subprojects, (ii) the extensive training and communications outreach campaigns, and (iii) the establishment of 6 CCAs at the provincial, municipal and *comarca* levels to promote citizen involvement and advice on environmental matters. This proved to be an important step in decentralized management of SINAP, as prescribed under *Ley 41*. Other GEF-supported projects in the region have shown that involving local – particularly indigenous – populations and institutions in overall project design and implementation can improve long-term biodiversity conservation, both in Protected Areas and along production landscapes. The proposed project includes technical assistance for local NGOs and community associations to support expansion and consolidation of the CCAs in the fourteen targeted Protected Areas. Public consultations have already been conducted in priority areas to validate and strengthen project design.

“Rules of the game” must be clearly defined. An Operational Manual that orients local participation, defines technical criteria for subproject selection and delineates the responsibilities for all stakeholders, promotes greater transparency in project implementation and reduces the probability of discretionary decision making. The proposed project would (i) modify and update the Operational Manual for the PAMBC, specifically in areas concerning the environmental subprojects to deepen the selection criteria and ensure stronger links to global biodiversity

conservation; and (ii) undertake an enhanced communications strategy to disseminate project information to intended beneficiary communities and inform them of ways to participate.

6. Alternatives considered and reasons for rejection

A stand-alone GEF operation not linked to the proposed IBRD operation: would forego a significant opportunity to leverage funding for global biodiversity conservation and preservation with IBRD resources for greater rural productivity and improved incomes, thereby generating substantial benefits for both the rural population and the global commons.

No GEF project: would fail to capitalize on the advances made under the PAMBC, such as vegetation and ecosystems mapping and the “brand recognition” of the MBC by the Panamanian population, and further expand the establishment and consolidation of CCAs, particularly at the district level, in an effort to bring about more effective decentralized management of local biodiversity of global importance in Panama.

C. IMPLEMENTATION

1. Institutional and implementation arrangements

Implementation period: Six years

Executing Entities:

Community Associations/ Rural Producer Organizations: are groups formed of at least ten rural citizens with a common interest who organize into legally-constituted civil associations. They identify and prepare subproject proposals for funding under Component 1. Once funding is secured following a technical review by ANAM, these associations implement their subprojects, assisted both by technical specialists whom they contract and by technical assistance and training made available by DBC/ANAM (see below). Community associations also would contribute (in cash or in-kind) up to 10 percent toward total subproject cost.

Consultative Environmental Commissions (CCAs): consult with civil society, elected officials, other public sector entities and the private sector on environmental matters in their respective territories (e.g., province, district, *comarca*, municipal). By law, CCA membership consists of local authorities, including indigenous representatives, and delegates from other civil organizations. Under the PAMBC, significant training took place for provincial and *comarcal* CCAs; the proposed project would continue such support primarily at the district level within the fourteen targeted Protected Areas.

Municipal Environmental Management Units (UAMs): are attached to municipal government and address issues of conservation and preservation of the local natural resource base. *Ley 41* invests ANAM with the authority to transfer localized natural resource and environmental management to UAMs. Under the proposed project, the UAMs will be eligible to propose a limited number of demonstration subprojects (*subproyectos piloto*), based on local land use plans

or other environmental planning instruments, which, under community participation, would later be implemented in the project area.

Department of Biological Corridors/ANAM (DBC/ANAM): will be responsible for project implementation, working closely with; (i) community associations and rural producer organizations in the design and delivery of environmental subprojects funded under Component 1, (ii) MIDA to coordinate the implementation of sub-projects as well as the overall supervision of the partially-blended IBRD and GEF operations; and (iii) UAMs and CCAs in decentralized co-management arrangements under the implementation of existing Management Plans in the targeted Protected Areas.

MIDA: will execute the partially-blended IBRD operation and coordinate, through Component 1 under the proposed project, with DBC/ANAM in the implementation of environmental subprojects for rural producer organizations in the project area. Since the Bank task team designing the two operations is the same, there is a close coordination with ANAM and MIDA, and it will continue during project implementation as the two operations will be jointly supervised to ensure both cost effectiveness and institutional coordination in achieving project objectives by the end of the project.

Environmental Subproject Investment Cycle:

- Following an information and dissemination campaign, eligible community associations and rural producer organizations define investment priorities – in line with existing Management Plans for their respective Protected Area and the Project Operational Manual – and present proposals for subproject financing to DBC/ANAM.
- DBC/ANAM technically evaluates subproject proposals and confirms (i) compliance with the eligibility criteria described under sub-component 1A (see Annex 4); (ii) compliance with subproject technical, economic, social and environmental guidelines established in the Project Operational Manual and (iii) expected links to conservation of biodiversity, before releasing funds to community associations.
- A Subproject Agreement is signed between ANAM and the Community Association, spelling out the terms and conditions for the funding, execution, ownership, operation and maintenance of the approved subprojects.
- Resources for subproject implementation are then transferred directly to the Community Association's bank account.
- The Community Association contracts goods, works and technical assistance for subproject execution, bears responsibility for operation and maintenance of all investments, and may request technical assistance from pre-screened, qualified service providers to develop operation and maintenance arrangements for subproject investments.

Project Oversight. The Ministry of Economy and Finance (MEF) represents the Government of Panama vis-à-vis the Bank. MEF delegates day-to-day coordination of the project to the National Environment Authority (ANAM).

Project Coordination. ANAM, through its Department of Biological Corridors (DBC/ANAM), coordinates overall project activities, with the following specific duties: (i) review community subproject funding proposals for compliance with project guidelines and eligibility criteria set forth in the project Operational Manual; (ii) implement introductory training and technical assistance programs for all community associations with approved subprojects (including training on subproject implementation, contracting, O&M and financial management); (iii) supervise the community associations to ensure adequate quality control of subproject implementation; (iv) monitor project performance through inputs to the SNAP and the SNMBD; (v) prepare annual project implementation and physical performance reviews; and (vi) submit project Annual Operating Plans (POAs) to the Bank for no objection.

Project operational procedures: The project would be implemented according to detailed procedures defined in its Operational Manual. This Manual is based on that used in the previous PAMBC, which was satisfactory to the Bank, and will be updated to incorporate lessons learned during its implementation, as well as design innovations under the proposed project. Prior to negotiations, DBC/ANAM will make available to the Bank an updated draft Operational Manual.

Provision of technical services: Prior to project execution, DBC/ANAM will develop a roster of private technical service providers, including NGOs, from which community associations could identify and contract the appropriate type of services they require. The roster will identify providers (by region, area of expertise, skills and experience) that are available to assist community associations and rural producer organizations in subproject design and execution under Component 1 and capacity-building activities under Component 2. DBC/ANAM would periodically update the roster, through *ex post* performance evaluations of private providers in order to ensure a high quality of service in response to the needs of beneficiary community associations.

Accounting, financial reporting and auditing arrangements: Periodic supervision of the PAMBC project has consistently confirmed the satisfactory performance of the financial management system; this same system -- which complies with OP/BP 10.02 and the Guidelines for Assessment of Financial Management Arrangements -- will be used in the implementation of the proposed project. The Guidelines of Fiduciary Management for Community-Driven Development Projects (CDD Guidelines) will also be taken into consideration, where applicable. During preparation, the FM system was reassessed by a Bank FM Specialist and judged to be satisfactory (see Annex 7).

According to arrangements for Bank-financed projects in Panama, the annual audit of the project accounts for the period January 1 to December 31 will be carried out by independent auditors contracted under Terms of Reference acceptable to the Bank. The audit report will be submitted to the Bank no later than June 30 in the year following that for which the project accounts are audited. The year-end Financial Report will also serve as the Financial Statement of the Project, on which the independent auditors will express their opinion. The annual audit will also include a review of the eligibility of expenditures disbursed on the basis of Statements of Expenditure (SOEs), as well as on the Special Account, compliance with all financial covenants and a Management Letter on internal controls and recommendations. ANAM will comply with Panamanian standards, in line with norms and guidance of the International Federation of Accountants (IFAC), which are acceptable to the Bank.

2. Monitoring and evaluation of outcomes/results

A robust M&E system will be enhanced in the first year of project implementation by upgrading the existing M&E system developed under PAMBC. One of the major goals of the proposed project is to have systemic monitoring of project outcomes. Hence, the project, through component 3, is strengthening capabilities within ANAM: (a) to coordinate, monitor and supervise the co-management activities of local partners; (b) to monitor the impacts of sub-projects supported under component 1 in achieving global biodiversity benefits; and (c) to integrate these monitoring activities with existing monitoring systems including with the Protected Areas Monitoring System (SMAP) and the National Biodiversity Monitoring System (SNMDB).

Project implementation will be guided by a Results Framework (see Annex 3). The Tracking Tool for GEF Biodiversity Focal Area SP1 (Catalyzing Sustainability of Protected Areas) has already been applied to each of the fourteen targeted Protected Areas and will serve as a baseline for subsequent project activities. The project team coordinated with ongoing projects funded through USAID and other donors which have been instrumental in developing methodologies, and designing the monitoring and evaluation framework for the project. The GEF Biodiversity Focal Area SP2 (Mainstreaming Biodiversity in Production Landscapes and Sectors) tracking tool has also been helpful in designing the M&E system, in particular in devising realistic and monitorable output indicators. The Tracking Tool would be updated at least twice during project implementation - at the mid-term and at project completion.

DBC/ANAM will have overall responsibility for the Monitoring and Evaluation of project activities and manage inputs to the Protected Areas Monitoring System (SMAP) and the national monitoring system for biodiversity (SNMDB). During preparation, fiduciary management of the project was assessed by qualified Bank specialists and determined to be satisfactory. DBC/ANAM will maintain a simple financial system to compile project financial statements, using a computerized financial management system that was used under the PAMBC, and which is adequate for the accounting of projects with external financing. The system has the ability to classify financial information by project component, categories of disbursement and sources of financing; and produce useful financial reports (such as financial monitoring reports and Statements of Expenditures).

3. Sustainability and Replicability

Sustainability of project impact will be achieved through the project's support to the participatory process at every level – government institutions, communities and beneficiaries. The project beneficiaries play a key role in decision making, implementation, and cost sharing, thus increasing ownership. Project activities are designed to address the identified institutional weakness in managing SINAP by providing technical assistance and building capacity, both within ANAM and locally via co-management arrangements already tested under the PAMBC. In particular, the project will seek to ensure long-term impacts by creating an enabling policy and institutional environment through institutional strengthening activities for ANAM that will enhance its capacity to support improved local natural resources management and biodiversity conservation.

The proposed project also enhances the community awareness of sustainable natural resources management practices that promote conservation. Technical assistance is designed to create a cadre of experienced technical service providers to expedite subproject preparation and execution by eligible community associations in the project area. Furthermore, the roster of technical service providers established by DBC/ANAM helps to ensure quality design and execution of subproject investments by community associations, which also contributes to their expected sustainability. Subproject agreements – signed between community associations and DBC/ANAM -- would detail procedures for the continued operation and maintenance of the subproject investments. These activities will ensure institutional and financial sustainability of the project impacts.

Replicability

In addition to the measures described above to help the executing agencies and key local actors sustain project activities and impacts in the long run, the project includes numerous subprojects and initiatives specifically designed as pilots that would be replicated on a larger scale and in other Protect Areas of SINAP. Some of these activities, such as co-management arrangements for Protected Areas, PES mechanisms, and land use management are in innovative and evolving fields that should provide valuable lessons and potential replicability in other countries, regions, and sectors. The monitoring and evaluation sub-component has been included in the project to design and implement a robust monitoring and evaluation system which will generate lessons learned from the project. These lessons will be widely distributed to share experiences within the country and region.

4. Critical risks and possible controversial aspects

<i>Risk to PDO/GEO</i>	<i>Rating</i>	<i>Risk mitigation measures</i>
Inadequate national government commitment, budget and institutional support to execute the proposed project.	L	Annual counterpart financing by GOP is modest to ensure fiscal viability. Relative independence of ANAM will cushion the project from institutional shortcomings in the public sector structure.
Insufficient political will to support project activities through adequate and appropriate coordination among executing entities and local authorities.	M	Design of institutional structure for execution fully accepted and supported by the Government. Effective communication and positioning of the project to ensure political support.
Macroeconomic conditions increase threats to protected areas (e.g., illegal logging, expansion of the agriculture frontier).	M	Partially-blended IBRD operation will directly address macroeconomic “push” factors in order to reduce potential for expansion of the agriculture frontier. Co-management arrangements under Component 2 would bolster protected areas management, reducing the threat of encroachment and illegal activities. Component 3 contributes to more effective monitoring of protected areas under SMAP.
<i>Risk to component results</i>	<i>Rating</i>	<i>Risk mitigation measures</i>
Environmental subprojects are	M	Thorough threat assessment has already been completed in

successfully implemented yet produce no significant impact on global biodiversity conservation.		targeted Protected Areas and would be incorporated into the information strategy for Component 1 activities. Subproject screening (as detailed in the Operational Manual) requires strong, demonstrable links between subproject investments and biodiversity conservation. M & E arrangements will track subproject execution and determine impact on biodiversity.
Community associations and producer organizations unable to successfully implement environmental subprojects	M	Component 1 will finance necessary technical assistance to community associations for subproject preparation and implementation. ANAM will maintain a “positive list” of technical service providers to facilitate adequate access to needed advisory services by community associations. Project design incorporates good practice from the PAMBC on subproject delivery, as well as best-practice in CDD from other projects in the region.
Inadequate cooperation of local authorities (mayors, municipal councils, representatives of corregimiento) and central government officials.	M	Promotional activities prior to project implementation and <i>convenios</i> (Agreements) among institutions involved. Continuous communications flow among institutions and agencies.
Insufficient coordination between MIDA and ANAM hinders Component 1 activities regarding environmental subprojects.	L	ANAM solely administers the flow of funds for environmental subprojects; coordination with MIDA is operational in nature and clearly set forth in the Operational Manual, to which both ANAM and MIDA would adhere. Subproject implementation is primarily the responsibility of community associations and producer organizations, which have already demonstrated sufficient capacity.
Inadequate cooperation of local and national government officials, resistance to institutional changes, and insufficient willingness by communities to organize.	L	Adequate structure for project execution, promotion measures and resources promptly available for subproject execution.
Overall Risk Rating	M	

5. Loan Conditions and Covenants

There are no conditions of effectiveness. The following dated covenants have been included in the Grant Agreement:

- a) For processing of Environmental Investment Subprojects: Not later than 1 month after the Effective Date, the Recipient shall cause ANAM to prepare, satisfactory to the Bank, Environmental Investment Subprojects Guidelines for the approval, implementation, monitoring and evaluation of the Environmental Investment Subprojects, including, *inter alia*, (a) the eligibility criteria for Beneficiary CBOs, (b) the selection criteria for the Environmental Investment Subprojects (c) the investment sites screening criteria; and (d) the model forms for the Environmental Investment Subproject Agreements.

- b) Contracting of an administrator of funds: Not later than 1 month after the Effective Date, the Recipient shall cause ANAM to: (i) select, in accordance with the provisions of Section III.C of Schedule 2 to this Agreement and pursuant to terms of reference previously agreed with the Bank, an agent acceptable to the Bank, and thereafter (ii) following the carrying out of a financial management assessment thereof, to enter into an agreement for the administration of Grant proceeds (the Fiduciary Agency Agreement) with the agent finally retained, under terms and conditions satisfactory to the Bank.

D. APPRAISAL SUMMARY

1. Economic and financial analyses

Specific subproject investments implemented under the proposed project will be decided by eligible community associations applying a CDD methodology and are expected to be similar to those financed under the previous PAMBC. A review of the literature indicates that small-scale, participatory agroforestry investments in Panama have generated financial rates of returns of 20-25%.

To assess the viability of small-scale investments financed under the PAMBC, financial and economic analyses were conducted, based on activity models constructed from (i) field interviews with and data collected from PAMBC rural participants and (ii) desk reviews of subproject records on ANAM. Financial IRRs ranged were comparable to those found in previous studies for similar projects in Panama and further confirm that these investments are capable of sustained positive cash flows. Economic IRRs, while accounting for the in-kind labor contributions of participants as well as additional imputed benefits, are also satisfactory (see Annex 9).

Incremental Cost Analysis: The baseline project would focus on natural resource management of national importance. This project would also provide some global benefits. The GEF alternative boosts the global benefits provided by the project considerably. It supports the conservation and sustainable management of forest ecosystems in the MBC-P through explicitly targeting resources, via a matching grants CDD delivery mechanism, for conservation in critical ecosystems within the MBC-P, including forests, degraded forest lands and other critical conservation areas that have high biodiversity values of global significance, provide important services for watershed protection, and provide crucial environmental services for functioning ecosystems at the landscape level. The difference between the cost of the baseline scenario (US\$31.2 million) and the GEF alternative (US\$49.6 million) is estimated at US\$18.4 million, of which GEF is requested to co-finance US\$6.0 million.

2. Technical

The performance of ANAM in implementing the PAMBC was deemed to be satisfactory by the Bank. An effective communication campaign raised public awareness of the importance of the MBC-P and the international commitment by the GOP to protect and conserve it, resulting in the creation of constituency to address potential threats to the national's biological diversity.

Under the PAMBC, the project unit was supported by capable staff, many of whom have been retained for the proposed project. The participatory manner in which the annual operating plans for the PAMBC were developed and monitored served as a vehicle for internal communication and for ensuring that the project served ANAM's broader mandate. These procedures will be continued under the proposed project. In general, the regional offices of ANAM performed well, and worked in close coordination with ANAM's central offices.

3. Fiduciary

Project financial procedures, similar in scope to those successfully conducted by ANAM under the PAMBC, will be described in the Project Operational Manual and define the roles and responsibilities of ANAM, community associations, UAMs and other executing entities. The draft Operational Manual was submitted to the Bank prior to negotiations and include, among other financial procedures: (i) accounting policies and procedures including basis of accounting; (ii) cash flow charts with detailed processes; (iii) reporting requirements of the funds administrator, (iv) internal control procedures including criteria and procedures for processing payments; (v) records management and (vi) audit arrangements. A Financial Management Assessment (FMA) was carried out during project preparation in accordance with OP/BP 10.02 and the Guidelines for the Assessment of Financial Management Arrangements in World Bank Financed Projects. The Guidelines of Fiduciary Management for Community-Driven Development Projects (CDD Guidelines) were taken into consideration, where applicable.

A Procurement Capacity Assessment of ANAM was also conducted during project preparation. DBC/ANAM has prepared a Global Procurement Plan (GPP) for the life of the project, and a detailed procurement plan for the first 18 months of project implementation. This Plan will be required to be updated at least every 12 months. Consistent with new Bank policies, all procurement-related information would be included in the Procurement Plan and the Grant Agreement would refer to the Procurement Plan.

4. Social

A detailed social evaluation was conducted during project preparation to: (i) identify and characterize project beneficiaries; (ii) identify general needs of technical assistance and training to strengthen social and human capital of community institutions for self-management of natural resources; (iii) identify potential negative impacts associated with the proposed project activities focusing on indigenous and other vulnerable groups and design prevention and mitigation measures; (iv) incorporate lessons learned from the implementation of the Indigenous Peoples Development Plan of the PAMBC project into the proposed project; (v) prepare the Project's Indigenous Peoples Plan (IPP) to ensure that socio-cultural norms and preferences of the indigenous populations are adequately considered and respected in the project design and during its implementation; and (vi) develop a participation plan to ensure the beneficiaries' involvement in design, execution and evaluation of the project.

Assessment of the PAMBC validates this finding and attests to the inclusive aspect of the delivery mechanism to access project benefits. Rural communities will generate the demand for the new project, and will determine the types of environmental subprojects to be financed, in

accordance with the CDD delivery mechanism, existing Management Plans for the targeted Protected Areas and guidelines set forth in the Project Operational Manual. Some 75 percent of subprojects under the PAMBC were implemented by indigenous communities; nearly one-half of subproject beneficiaries overall were women. A major achievement of the PAMBC was to foster the creation of social capital within rural districts and communities. Affording organized rural communities the opportunity to determine investment priorities through participatory decision-making (i) reduces clientelism and political interference; (ii) strengthens the capacity of both communities and local governments to select, prioritize and implement investment decisions; (iii) creates partnerships between communities, local governments and other segments of civil society, and, more generally, increases the community voice in the use of public resources; and (iv) fosters citizenship through increased awareness of the social responsibilities of citizens, their representatives and public authorities in civic matters.

The project's beneficiary population is found in seven provinces and 28 districts of Panama, with a total population of approximately 660,000. Inside the project area, there are two different indigenous groups (Ngöbe-Buglé, Kuna-Yala), and two non-indigenous ethnic groups: the African Antilleans (descendants from the Antilles) and the Peasants who come from other areas of the country. The different types of beneficiaries that will participate in the project are: (i) rural population via eligible community associations (Latinos, African Panamanian, Peasants); (ii) indigenous peoples (also through eligible community associations); (iii) rural organizations of producers and community organizations, which support the productive, social and environmental development of their communities; (iv) local and municipal governments (e.g., UAMs); (v) indigenous peoples' traditional authorities; and (vi) sectoral entities, including MIDA and ANAM, in the strengthening of their functional role for the construction of human, social, economic and environmental capital in poor communities.

As an outcome of the Social assessment, a strategy to maximize inclusion in the project and access to benefits was developed and mainstreamed in project activities. The strategy consists of the following elements: (i) a communication strategy to promote an understanding in the project area, in a language and medium that is culturally appropriate to the target population; (ii) mobilization and capacity-building for local organizations, through workshops and other learning instruments; (iii) activities to forge collaboration and coordination among the various stakeholders in the project area; (iv) participatory monitoring of environmental subprojects by community associations; and (v) training of trainers activities to strengthen technical service providers that work with community associations in subproject preparation and implementation.

5. Environment

The proposed project builds on the experience and lessons learned from the PAMBC. This, combined with the activities under the proposed project, should have a strong overall positive environmental impact and advance global biodiversity goals by (i) strengthening management of Protected Areas and natural habitats and (ii) fostering environmentally sustainable productive activities in rural areas that encourage preservation of natural resources. Potential negative environmental impacts from productive activities and small public works are addressed through a robust identification, evaluation, and mitigation framework.

Environmental benefits will be monitored through baseline studies, impact evaluation studies, and data collection as described in Annex 3. Indicators of key environmental benefits include: (i) reduction of deforestation and increase in self-financing in Protected Areas; (ii) improvements to degraded lands and slowing of agricultural intervention in strategic areas for biodiversity conservation; (iii) increased populations of indicator species; and (iv) improved water quality in pilot watersheds.

Policy, regulatory, and institutional frameworks. An important focus of the proposed project is improving the policy, regulatory, and institutional frameworks for environmentally sustainable growth by (i) strengthening the capacity, norms, and mechanisms of ANAM to manage Protected Areas and natural resources, (ii) decentralizing environmental management by building the environmental capacity of municipal governments, sharing responsibility with local authorities, and including more local stakeholders (e.g., CCAs) in decision making, consultation, and implementation, (iii) developing local environmental land use, community action, and municipal development plans, and (iv) improving national systems for monitoring and evaluation of biodiversity and Protected Areas management.

Under the PAMBC, most subprojects were not subject to national norms for environmental impact assessment (EIA). However, since 1998, several key laws were enacted that now require more stringent EIA procedures for subprojects to be financed under Component 1, further ensuring that productive activities and small infrastructure do not have negative environmental impacts.

Enhancing rural livelihoods through sustainable productive activities. Subprojects implemented under Component 1 present the greatest potential for both positive and negative environmental impacts. The array of possible activities under the component includes captive breeding of native species, promotion of more efficient wood burning stoves and ecotourism, footbridges and nature trails (see Annex 10). These activities fall into two main categories: (i) productive activities that protect natural habitats; improve existing management practices; or create an economic and social interest in sustainable use of natural resources; and (ii) small works or activities that reduce existing negative environmental impacts. In all cases, natural resource management and environmental risk will be made more transparent through a demand-driven process of subproject selection, creation of planning frameworks at the municipal level, and application of appropriate national EIA and Bank safeguard policies. A detailed matrix of the costs, timetables, responsibilities, criteria, and training needs of mitigation measures for the potential impacts of each activity is contained in the project environmental management plan described in Annex 10 and will be included in the project Operational Manual.

Protecting human health from environmental risks and pollution. Many project activities will protect human health and reduce pollution: improved wood burning stoves will reduce indoor air pollution, latrines will reduce water born disease and training in improved agricultural practices and soil conservation will reduce erosion and vulnerability to landslides.

6. Safeguard policies

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP/GP 4.01)	X	

Natural Habitats (OP/BP 4.04)	X	
Pest Management (OP 4.09)		X
Cultural Property (OPN 11.03 , being revised as OP 4.11)	X	
Involuntary Resettlement (OP/BP 4.12)		X
Indigenous Peoples (OP/BP 4.10)	X	
Forests (OP/BP 4.36)	X	
Safety of Dams (OP/BP 4.37)		X
Projects in Disputed Areas (OP/BP/GP 7.60)*		X
Projects on International Waterways (OP/BP/GP 7.50)		X

Environmental Assessment (OP/BP/GP 4.01). The proposed project is category B, indicating that it does not have major potential negative environmental or social impacts, and adverse impacts are considered remediable. An EA process was conducted that included initial research and data collection, followed by a 7-day field mission with the support of 9 technical specialists to examine nearly 30 subprojects and contact 25 beneficiaries from the first phase of the project. A public consultation was conducted in March 2005 with participants from environmental NGOs, producer groups, grassroots organizations, indigenous communities, and others to present and discuss the results of the EA and get their feedback and observations. Although the subprojects identified by the EA in Component 1 are diverse and their potential impacts are numerous, the EA also includes an environmental management plan, which will be included in the Operational Manual, with a detailed matrix of mitigation measures, costs, timetables, criteria, and training requirements for each activity and potential impact. The EA also identifies applicable national environmental laws and specific EIA requirements.

Natural Habitats (OP 4.04) and Forests (OP 4.36). The project seeks to conserve natural habitats and biodiversity through (a) natural resources and Protected Areas management and (b) promotion of sustainable productive activities that could enhance, preserve or, at least, not degrade, the biodiversity value of such habitats. The project EA used a range of existing sources of information and *in situ* analysis to determine the location of natural habitats in the project area, their ecological functions, relative importance, threats, and management issues. This information has been combined with the analysis of possible project activities to determine potential negative impacts, screening procedures, and mitigation policies. Productive, natural resources and biodiversity subprojects that are explicitly intended to benefit natural habitats will be assessed through screening to determine what level of environmental analysis is required in each case.

The project triggers the Forests safeguard policy because it is expected to have an impact on the health and quality of forests, affect the rights and welfare of people and their level of interaction with forests, and bring about changes in the management, protection, and utilization of natural forests. These impacts are expected to be positive, and are one of the essential goals of the project. The project does not involve significant conversion or degradation of forest areas, but rather would seek to integrate forests into sustainable rural economic development and protect

* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas*

the vital local and global environmental services and values of forests through community-based natural resources and protected areas management and development.

Involuntary Resettlement (OP/BP 4.12). Restriction to access is unlikely to occur under the proposed project. Screening of subproject proposals would be guided by criteria set forth in the Operational Manual and monitored during implementation through the existing MIS used by ANAM under the PAMBC. Such criteria will include the potential for project activities (including management plan implementation) to result in restriction of access to resources within protected areas. In the unlikely event that the policy may be triggered in the course of project implementation, a Process Framework would be adopted for use in the project. An existing Process Framework which covers similar activities to those of the proposed project is already in place with ANAM for use under the Panama Land Administration Project (Ln. 7045-PA). During project appraisal, the Bank and ANAM will proactively review the existing Framework and update it as needed for its inclusion in the Operational Manual for the proposed project, in the event it would be required in the future.

Indigenous Peoples (OP/BP 4.10). Nearly 30 percent of the population in the project area is indigenous, and indigenous people account for a disproportionate share of rural poverty in Panama. Successful institutional arrangements between ANAM and indigenous authorities were implemented under the PAMBC to ensure the effective participation of indigenous people in the planning and implementation of management and conservation in priority geographic areas of the MBC-P. As discussed earlier, some 75 percent of subprojects were implemented by indigenous communities. The proposed project will continue to support and build on these experiences.

Detailed documents containing this information and a Participation Plan have been prepared by the GOP and are available in the project files and for public consultation in the World Bank InfoShop and the website of ANAM (see Annex 10).

7. Policy Exceptions and Readiness

The project does not require any exceptions from Bank policies and meets the Regional criteria for readiness for implementation.

Dated covenants included in Grant Agreement:

Annex 1: Country and Sector or Program Background

Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor Project

Country and Sector Issues

Although Panama is an upper-middle income country with a per-capita Gross National Income of US\$4,450 in 2004. Some 37% of the population lives in poverty and 17% are judged to live in extreme poverty (UNDP 2004). The poverty is concentrated in rural areas and more particularly in indigenous areas where 95% of the population is poor. The country suffers from one of the highest inequality coefficients in Latin America. The Gini coefficient for rural areas is about .56 and incomes per capita are a third the level of those in urban areas. Indigenous peoples are the poorest of the poor in Panama with incomes that averaged about US\$500 in 2000. Their communities (*Comarcas*) are concentrated in areas of important biodiversity and rank consistently lower in every scale of human well-being.

This situation of poverty contrasts with the country's exceptional natural assets represented by forest cover of 40% and protected natural areas of 32%, containing a rich variety of flora and fauna with regional and global importance. The Mesoamerican Biological Corridor in Panama (MBC-P) runs from the Colombian border at the Darien National Park to the Costa Rican border at the Parque Nacional La Amistad.

Significant Global Biodiversity. For its size, Panama is one of the most biologically diverse countries in the world. It has more than 12,600 plant species, of which about 1,300 are endemic and nearly 200 threatened. Of its 2,950 species of vertebrates, more than 100 are threatened and 121 are endemic (and a far larger number share endemism with only Colombia or Costa Rica). Nearly ten percent of all bird species can be found in Panama, and twelve species are found only in Panama. Of the country's twenty threatened bird species, four are endemic and nine are found in only one other country. Nearly fifty species of threatened amphibians, many of which are critically endangered, are found only in Panama and neighboring Costa Rica. These include numerous species of tiny but colorful tree frogs and poison dart frogs that have become a symbol of Mesoamerican forest biodiversity. The habitat of the critically endangered *Oedipina maritima* salamander is less than ten km² and under decline. Among other spectacular rainforest species, Panama is also home to substantial populations of wide-ranging jaguars and harpy eagles, which require vast tracts of land under native vegetative cover in order to survive.

Challenges to Global Biodiversity in Panama. Yet this biodiversity is threatened on several fronts. The advance of the agricultural frontier and spontaneous colonization at the rate of 50,000-80,000 hectares per year are rapidly shrinking the country's forests and protected areas. Soil and water resources, particularly on the Pacific side of the country, have been depleted because of traditional agricultural practices and inadequate conservation measures. Indigenous production systems, with their low-intensity land use, long rotation periods, and plentiful forests for hunting and gathering, are increasingly becoming unsustainable due to economic pressures and are being replaced by farming systems emphasizing monoculture without rotation, leading to depleted soils and encouraging greater expansion of the agricultural frontier. These threats are heightened by rural poverty that drives people to areas with a relatively intact natural resource base with a high level of globally significant biodiversity. With unsustainable land practices that

people bring with them and the lack of capacity by both public and private stakeholders to create sustainable land use, development, and management plans further exasperate the degradation of natural resource base. For example, watershed degradation from deforestation and unsustainable land use has accelerated soil erosion, sedimentation, and pollution of fresh water sources. As a result, many farmers have emigrated to Darien and Bocas del Toro provinces, located at the southern and northern terminus, respectively, of the MBC-P, where resources are still abundant but fragile. Once there, these farmers replicate unsustainable production systems, resulting in adverse impacts on some of the important habitats for endemic species found in Panama and in the MBC between Costa Rica, Panama and Colombia.

Conservation Efforts to Date. In 1994, nearly one-third of Panama’s land was set aside to establish the National Protected Areas System (*Sistema Nacional de Áreas Protegidas*, SINAP). Some 65 Protected Areas have been established, with twelve National Parks, nine Forest Reserves and two Protected Forests constituting 85 percent of lands under SINAP (Table A).

Table A: Protected Areas under SINAP, by Category

Category of Protected Area	#	Hectares ('000)	%
National Park	12	1,398	57%
Forest Reserve	9	346	14%
Protector Forest/Protected Passage	3	349	14%
Internationally Important Wetlands	4	120	5%
Wildlife Area	1	100	4%
Wildlife Refuge	9	39	2%
Biological Corridor	1	31	1%
National Marine Park	2	28	1%
Water Reserve	2	26	1%
Sub-total	43	2,437	99%
All Others	22	22	1%
TOTAL	65	2,459	100%

Source: National Environment Authority (ANAM)

The Government of Panama has already passed significant legislation in support of biodiversity, such as: the Environmental Education Law (1992); the Forestry Law (1994); the Environmental Impact Assessment Law (1994); the Wildlife Law (1995). The General Environment Law (*Ley 41*) of July 1998 created the National Environment Authority (*Autoridad Nacional del Medio Ambiente*, ANAM) and laid out an ambitious framework for the management, conservation and preservation of Panama’s natural resources and environmental assets. More recently, in its *Strategy of Conservation for Sustainable Development*, ANAM sets forth a five-year vision (2004-2009) aimed at: (i) forging stronger co-management partnerships for Protected Areas with local governments, NGOs, the private sector and civil society; and (ii) building institutional and normative capacity in ANAM to act in these areas. Panama is also a signatory to a series of international treaties with regard to biodiversity (e.g., Convention on Biological Diversity, RAMSAR, CITES).

Decentralization and Biodiversity Conservation. *Ley 41* authorizes ANAM to transfer selected activities associated with environmental management to the provincial and district levels. Effectively, such decentralization has led to the formation of Consultative Environmental Commissions (*Comisiones Consultativas Ambientales*- CCAs) at each of these levels, provide a forum for civil society to address environmental concerns and make recommendations to ANAM on the management of lands under SINAP. Some 20 percent of Protected Areas are already co-managed by ANAM with local NGOs, municipalities and other entities and thirteen Protected Areas are directly managed by entities other than ANAM. In a similar vein, indigenous peoples – through their respective *comarcal* CCAs – directly manage about 125,000 ha, much of which remains under its original forest cover and is critical for biodiversity conservation. These co-management efforts have been adequate, but often suffer from inadequate funding and high staff turnover.

The Panama Atlantic Mesoamerican Biological Corridor Project – PAMBC (1998-2005). The PAMBC, co-financed under a GEF grant of US\$8.4 million, successfully piloted the co-management of natural resources through partnerships between communities and ANAM to (i) raise awareness of the MBC-P, its natural resources and the threats to biodiversity within it; and (ii) promote viable productive systems that generate both economic and financial benefits for rural communities in Protected Areas and associated buffer zones and positive outcomes for globally significant biodiversity. Important results under the PAMBC include:

- Following a Community-Driven Development (CDD) matching grants mechanism, 118 rural communities implemented 100 subprojects, primarily in agroforestry, at an average cost of US\$19,800 and benefiting about 38,000 people. Some 50% of beneficiaries were indigenous and reside within the MBC-P.
- Local stakeholders, through a process of consultation and public validation, prepared and implemented management plans in four priority Protected Areas (i.e., *La Amistad*, *San San Pond Sak*, *Volcán Baru*, *Palo Seco*) and an Action Plan for co-management of the *comarca* Ngöbe-Buglé, *La Amistad* and *Palo Seco*. Rapid Ecological Evaluations, undertaken jointly by ANAM and local stakeholders, resulted in vegetation maps (1:50,000) and biological data bases for five Protected Areas, enabling the preparation of their respective management plans.
- ANAM produced vegetation and ecosystem maps (scale 1:250,000) – initially in 2000 and later updated in 2004 – which provide accurate, basic biodiversity information for Panama, detect where deforestation has occurred and demonstrate its association with human emigration into the MBC-P.
- Some 361 community volunteers, 297 indigenous and 153 non-indigenous leaders were trained in activities relating to the co-management of priority Protected Areas in SINAP.
- ANAM initiated the first national monitoring of water quality in 24 rivers and produced interactive hydrological maps, to aid in biodiversity conservation and ecosystem health.

Despite these gains, some of the areas with globally significant biodiversity including RAMSAR sites, UNESCO's Biosphere Reserves, and tracts of forest areas within the MBC-P, remain severely threatened. Little remains today of the tropical dry forest -- traditionally favored for human settlement in Panama. Although relatively large areas of tropical humid and mountain forest remain undisturbed, many lack adequate management, even where Protected Areas have been demarcated. Key threats to these areas include:

- **Conversion:** One of the key threats to the natural ecosystems and habitats in Panama is the advance of the agricultural frontier, through land clearing for cattle ranching and timber harvesting. Forest and Protected Areas have been converted at a rate of 50,000 – 80,000 hectares annually. The conversion pressure has been magnified by the influx of poor peasants, particularly from the Pacific side where the soil and water resources have been severely depleted, to the Atlantic side which has some of the remaining critical habitats and biological diversity of global significance.
- **Lack of Policy and Weak Enforcement:** Although the General Environment Law (*Ley 41*) of July 1998 provides for a decentralized framework of environment and natural resources management, municipalities in Panama lag far behind their counterparts in other Latin American countries with respect to local governance and financial autonomy. Local governments execute less than 2 percent of total public sector expenditures, restricting their opportunity to develop capacity for planning, budgeting, for providing services or maintaining infrastructure. Until recently, the SINAP was largely centrally administered by ANAM, as local implementation capacity had been weak. The PAMBC, as noted above, invested in training and capacity-building for local leaders, permitting more effective decentralization and co-management of the SINAP, yet more will be required to consolidate the desired local participation in conserving Protected Areas.
- **Species Extraction and Over-exploitation:** With the influx of emigrants and unregulated growth in tourism, hunting and illegal harvesting increasingly threaten wildlife and forest products. In some areas, hunting for large cats and mammals threatens the survival of biodiversity of regional and global significance. Selective harvesting of threatened species and over-exploitation, in particular marine resources (e.g., over-fishing, turtle hunting and coral extraction), are major concerns for conservation efforts to date by the government, NGOs and international donors.
- **Mining:** In Coclé Province, some 27 concessions have been requested to further develop the mines of Petaquilla and Molejón, which could adversely impact Omar Torrijos National Park and the Donoso Forest Reserve. Small-scale mining is also on the rise, with the possible use of gold mining pumps in several rivers, such as El Caimito. A continued upward trend in copper and gold prices could activate mining works would affect about 2,000 hectares in these areas.
- **Infrastructure:** Fragmented development approaches pose threats to the sustainability of many forests and Protected Areas. Construction of hydroelectric plants and access roads adversely impact not only the terrestrial but also marine ecosystems. Coupled with the lack of policy and weak enforcement of existing policies in many Protected Areas, even the much

needed rural infrastructure has had a severely negative impact on endemic species of global importance.

The proposed project specifically addresses these key threats facing Panama and its natural resource base by reducing: (i) **the push factors** (e.g., natural resource depletion, deforestation, rural poverty) spurring human migration to the areas of global conservation importance within the MBC-P; and (ii) **the pull factors** (e.g., over-exploitation, illegal harvesting, lax enforcement regime) by consolidating and strengthening the implementation of existing management plans to ensure the conservation of globally significant biodiversity. Greater decentralized management of SINAP would be directly fostered, as would more effective implementation of existing management plans in selected Protected Areas of the SINAP, in line with the objectives of *Ley 41*.

Both the proposed project and the partially-blended IBRD operation deploy a demand-driven mechanism in order to leverage local communities in addressing these factors.² Rural producer organizations, under the IBRD operation, would implement small-scale investments to increase their market orientation and value-added, in an effort to reduce the push factors that advance the agricultural frontier, especially in the Pacific region. Investments in frontier communities and the adoption of more environmentally friendly and sustainable land uses would also stabilize the agricultural frontier and reduce pressures on sites of key environmental importance. The proposed GEF operation finance small-scale environmental subprojects proposed and implemented by organized community associations to conserve biodiversity of global significance and, combined with a greater role in the co-management of Protected Areas, would contribute to reducing the pull factors that have led to natural resource depletion and degradation in Protected Areas of Panama.

Table A: Targeted Project Protected Areas, Key Threats, Activities and Results

<i>Global Biodiversity Values</i>	<i>Key Threats</i>	<i>Project activities to address threats</i>	<i>Expected results/ outcomes at end of project</i>
National Parks			
<i>Parque Internacional La Amistad (PILA), Bocas del Toro-Chiriquí, 207,000 hectares</i>		Biosphere Reserve UNESCO	
6 life zones; 400 bird species (<i>Harpia Harpya</i>); 100 mammal species; 91 amphibian species.	Land clearing by poor peasants; infrastructure: Roads and hydro plants; hunting; over-exploitation of natural resources.	Strengthening SINAP; implementation of eco-friendly production; environmental education; land use planning.	Adoption and implementation land-use plan; # HA under ecofriendly production; reduce hunting by 40%.
<i>Isla Bastimento, Bocas del Toro, 13,226 hectares</i>		Biosphere Reserve UNESCO	
Coral reef. with: 160 fish species; 82 mollusk species; 39 crustacean species; endangered turtles.	Increasingly unregulated tourism; over fishing (snail, lobster, octopus); agricultural expansion; tourism infrastructure.	Strengthen park mgt; Training in marine ecosystem mgt; Waste mgt.	Pilot mgt arrangement under way; Solid waste mgt under implementation; Seashore resource plan developed and agreed.
<i>Volcán Barú, Bugaba/Chiriquí, 14,000 hectares</i>		Biosphere Reserve UNESCO	
Volcanic mountain ecosystem; 5 life zones; 62 endemic flora species of 794 registered plants; 282 bird species; 139 mammal species; 39 reptiles species.	Deforestation and habitat fragmentation; hunting large cats and mammals; agrochemical usage; cattle expansion; Access roads (to antenna sites)	Improve PA mgt; potential PES site; land use planning; implementation of ecofriendly production.	Pilot PA mgt under way; land use plan developed and adopted by stakeholders; # HA under ecofriendly production; hunting reduced by 40%
<i>Santa Fe, Veraguas, 72,636 hectares</i>			

² The partially-blended IBRD operation, Rural Productivity and Sustainable Development (P064918) is under preparation and slated for Board presentation in early FY07.

Pacific (dry) isolated mountain-sea ecosystem; 3 life zones; habitat for 3 endangered species and 3 threatened species; lack of scientific background information.	Hunting for large cats and mammals; land clearing to open land for cattle; deforestation; lack of government presence.	Continue support to co-mgt; environmental education; promote ecofriendly production; support social capital building through CCs.	reduce forest clearing rate; reduce hunting by 50%; # HA under ecofriendly production.
<i>Cerro Hoya, Veraguas-Los Santos, 32,557 hectares</i>			
Water divide Atlantic-Pacific; mountain ecosystem; 7 ecoregions; 1,577 flora species (37 endemic); 167 bird species; 72 amphibian species.	Deforestation (high) and new access roads; invasion of park lands by poor peasants; inadequate solid waste mgt; land titling irregularities; hunting	Support co-mgt with local govt. and community participation; promote ecofriendly production;	New park mgt arrangements working; reduced deforestation rate; # HA under ecofriendly production.
<i>Omar Torrijos, La Pintada/Coclé, 25,275 hectares</i>			
Isolated mountain ecosystem; 4 life zones; 1,332 flora species; 200 mammal species; 959 bird species (180 of "special interest", 34 "rare").	Deforestation: 3,000 HA affected; potential mining activities; new access roads.	Land use planning; ecofriendly production; analysis of PA mgt options; local govt. strengthening.	Land use plan adopted; mgt arrangements working; # HA under ecofriendly production.
Forest Reserves			
<i>El Montuoso, Herrera, 10,375 hectares</i>			
Last remnants of mature local forest ecosystems; high biodiversity in fragmented patches of forest;	Deforestation and fragmentation of habitats; increased pressure to clear land for agriculture; land use conflicts.	Land use plan; promote ecofriendly production; support social capital building through CCAs	Reduce forest clearing rate; # HA under ecofriendly production.
<i>Donoso, Colón (proposed protected area), 10,000 hectares</i>			
Mature mountain ecosystem, with over 1,100 flora species; home of big cats (jaguar) and eagles (<i>Harpia</i>).	Land clearing for cattle, timber; mining (copper and gold)	Local institutional capacity building for NRM; promote ecofriendly production;	NRM monitoring system established; # HA under ecofriendly production.
Forest Preservation			
<i>Palo Seco (BPSP), Bocas del Toro, 125,000 hectares</i>			Biosphere Reserve UNESCO
Intermountain ecosystem with 4 life zones and 8 distinct ecosystems; 248 bird species; 61 mammal species.	Growing pressure to open more land for cultivation and cattle; extraction of timber and non-timber products; Access roads without environmental controls.	Support UAMs; develop mgt plan; promote ecofriendly production; education on env and NRM.	Improved compliance of EMP for access road; # HA under ecofriendly production; Reduced hunting.
Wildlife Sanctuary			
<i>Isla Iguana, Los Santos, 58 hectares</i>			
Small Island in the Pacific, surrounded by coral reefs; to the south original pacific dry forest composition; home to exotic biota; whale lookout point.	Unregulated, uncontrolled tourism; waste management.	Support development of a mgt arrangement for the island; tourist carrying capacity study and visitors calendar; education on environment and natural resources.	Park mgt, with financial sustainability, in place an operational; waste management implemented.
<i>Isla Cañas, Los Santos, 25,433 hectares</i>			
Humid Pacific island ecosystem; mangrove forest, with 6 varieties; reproduction site for turtles (up to 30,000 arrive to lay eggs at peak of season.)	Loss of local vegetation in favor of non-native species; risk of losing landing sites for turtles 225 inhabitants (in 2000) still remain in the island.	TA and financial support for turtle landing mgt; promote ecofriendly production; Education on env and natural resources; reserve mgt plan.	Implementation of key recommendation of Reserve mgt plan; adoption of ecofriendly production, in # HA; improved records on turtles' landings and life cycle.
<i>Corregimiento No.1 Narganá, Kuna Yala, 100,000 hectares</i>			
225 km of coastline, coral reefs and sea grasses; 69 coral species; 70 fish species.	Inadequate waste mgt (solid, water, industrial); coral extraction for land filling; over-fishing selected species.	Develop participatory EMP; Support compliance with EMP; Promote ecofriendly productive systems; Education on environment and NR.	EMP adopted and implementation under way; # has under ecofriendly productive options; Solid waste management plan under implementation; Agreed fishing sites.
RAMSAR Wetlands			
<i>San San Pond Sak, Bocas del Toro, 16,125 hectares</i>			RAMSAR site, UNESCO Biosphere Reserve
RAMSAR site no. 611; wetland, coastal plains, bays, sand bars, and beaches; 133 bird species (36	Access roads bringing migration and habitat fragmentation; turtle hunting (adults and eggs);	Develop mgt arrangement for the wetland; develop EMP corridor San San Pond Sak to	Pilot management arrangement under way; # HA under ecofriendly production;

threatened); 55 mammal species (24 threatened); 54 reptile species (7 threatened).	pollution (water and solid waste), threatening manatees and other species.	Palo Seco; promote ecofriendly production; develop and implement a turtle monitoring system.	Turtle monitoring system established;
<i>Damani-Guaribiara, distritos de Kusapín y Kankitú en Comarca Ngöbe-Buglé, 24,0895 hectares (proposed protected area)</i>			
RAMSAR site. 180 bird species, 39 threatened; 56 mammal species (29 threatened).	Loss of habitats and decrease of animal population; deforestation (Orey, palmito); turtle hunting.	Development of EMP; institutional capacity-building for NRM; promote ecofriendly production.	EMP adopted and implemented; # HA under ecofriendly production; Agreed turtle protection areas.
Total hectares: 675,775			

Annex 2: Major Related Projects Financed by the Bank and/or other Agencies
Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor
Project

Sector Issue	Project	Latest Supervision (ISR) Ratings (Bank-financed projects only)	
		Progress (IP)	Objective (DO)
Bank-financed			
Rural Poverty	Rural Poverty and Natural Resources (7847-PA)	S	S
Biodiversity Conservation; Environmental Mgt	Panama Atlantic Mesoamerican Biological Corridor (PA-GE-45937)	S	S
Land Administration	Land Administration (7045- PA)	MS	MS
Social Protection	Social Investment Fund (7837-PA)	S	S
Health, water supply and sanitation	Rural Health (3841-PA)	S	S
Education	Education (3994-PA)	S	S
Other development agencies			
IDB	National Environmental Program (PAN) (ongoing), Agricultural Services Modernization Program (ongoing), Panama Canal Sustainable Development Strategy (completed), Darien Sustainable Development Program (ongoing), Bocas del Toro Sustainable Development (ongoing), PRORURAL (preparation), Urban Municipalities (preparation)		
IFAD	Triple C: Sustainable Rural Development Project in the Provinces of Coclè , Colon, and Panama West (ongoing)		
UNDP	Darien GEF Biodiversity Project		
JICA	PROCAPPA: Panama Canal Watershed Conservation Project (ongoing)		
USAID	Developing plans for water quality in selected sub-watersheds within PCW; Natural Resource Management in the Canal Watershed; and Protected Area Management in Charges, Soberania and San Lorenzo National Parks.		
IP/DO Ratings: HS (Highly Satisfactory), S (Satisfactory), U (Unsatisfactory), HU (Highly Unsatisfactory)			

Annex 3: Results Framework and Monitoring

Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor Project

Results Framework

PDO/ Global Environment Objective	Outcome Indicators	Use of Outcome Information
The development objective of the proposed project is to contribute to increased incomes and employment of small rural producers in Panama.	The project development objective and the indicators are detailed and monitored through the partially blended IBRD project (P064918).	
The Project global environment objective is to conserve globally important biodiversity and protect associated forest, mountain and marine-coastal ecosystems in Panama.	<p>By EOP, local and national institutional capacity is improved, as measured by the WWF/Bank Management Effectiveness (GEF BD SP 1) Tracking Tool to manage 14 protected areas (675,775 ha).</p> <p>By EOP, at least 50,000 ha of forests and other natural ecosystems of global biodiversity significance in the buffer zones of Protected Areas and biological corridors connecting them in the MBC-P under effective conservation (protection and sustainable management).</p> <p>By EOP, biodiversity of global significance is under effective conservation, as measured by vegetation cover and indicator species of conservation interest.</p> <p>By EOP, 60% of districts in the project area have incorporated biodiversity aspects into sector policies and plans and adapted appropriate regulations and implement plans accordingly.</p>	Y1-Y6, information on each of these indicators will be collected and assessed to see if the project is having the intended impact. If not, adjustments will be made to project activities so as to achieve the desired impacts.

Intermediate Results One per Component	Results Indicators for Each Component	Use of Results Monitoring
Component 1: Community Investments in Environmental Resources	By EOP, community associations and rural producer associations implement at least 450 natural resource, sustainable agriculture and conservation subprojects in the project area.	Y1-Y6, every 6 months, these outputs indicators will be reported on in the project reports and as part of the supervision missions of the Bank. Information will be used to assess planned versus actual accomplishments and rhythm of execution. Adjustments will be

		made to annual operating plans when needed and justified.
Component 2: Management of Natural Resources and Strengthening of SINAP	<p>By EOP, protected area co-management agreements under implementation increases by at least 100%.</p> <p>By EOP, 28 district-level CCAs and at least two UAMs established, trained and operating with financing plans.</p> <p>By EOP, 1,000 local authorities and community leaders trained in environmental issues/regulations and preparation of municipal land use plans.</p> <p>By EOP, PES program piloted in two project sites and replication strategy developed.</p>	Y1-Y6, every 6 months, these outputs indicators will be reported on in the project reports and as part of the supervision missions of the Bank. Information will be used to assess planned versus actual accomplishments and rhythm of execution. Adjustments will be made to annual operating plans when needed and justified.
Component 3: Monitoring, Evaluation, Project Management and Supervision	<p>By end of Y1, a Monitoring and Evaluation system is functioning with a MIS producing monthly/quarterly progress reports.</p> <p>By end of Y2, functioning SMAP and SNMDB monitoring systems in place.</p> <p>By end of Y3, monitoring systems developed by the project are incorporated into national (SINIA) and other international systems.</p> <p>Communications strategy implemented, updated, and evaluated annually.</p>	Y1-Y6, every 6 months, these outputs indicators will be reported on in the project reports and as part of the supervision missions of the Bank. Information will be used to assess planned versus actual accomplishments and rhythm of execution. Adjustments will be made to annual operating plans when needed and justified.

Arrangements for results monitoring

Semiannual learning reviews by DBC/ANAM and Bank supervision missions would identify specific strengths and weaknesses in project implementation and adapt project design as needed. These improvements would be reflected in the POA and associated budget. Third-party, independent evaluators would be contracted by DBC/ANAM for technical, biodiversity and other studies, as well as mid-term and final project implementation and impact evaluations.

Institutional issues: Monitoring and evaluation of project outcomes/results (both intermediate and end of project) will be carried out by DBC/ANAM, whose staff will have the responsibility to collect, analyze, archive and distribute relevant and timely information to assist in effective decision making for project management. DBC/ANAM will hire additional staff to assist the execution of the project, including one administrative assistant, one accountant, one procurement specialist, two territorial coordinators, and communications and indigenous specialists. DBC/ANAM will also have its own operating budget, which includes funds for project

management, and those required for both project implementation and technical monitoring and evaluation.

Monitoring and Evaluation System: By the end of project year 1, a robust M&E system will be designed by enhancing the existing M&E system developed under PAMBC. ANAM's capacity will be strengthened, in particular to: (a) coordinate, monitor and supervise the co-management activities of local partners; (b) monitor the impacts of sub-projects supported under component 1 in achieving global biodiversity benefits; and (c) integrate these monitoring activities with existing monitoring systems including with the Protected Areas Monitoring System (SMAP) and the National Biodiversity Monitoring System (SNMDB). It provides greater accountability and incentives and strengthen ANAM's capacity for planning and monitoring of overall project activities. The M & E process will function as both a mechanism for assessing project impacts and a day-to-day management tool. The M&E system will also support the project supervision process by ensuring that baseline and follow-up data for the key performance indicators are collected and made available on an ongoing basis and at strategic times including project start-up (underway before project effectiveness), mid-term review and project closing.

Baseline: A baseline of the GEF SP1 Protected Area Tracking Tool has already been completed to assess the threats and key management issues in the fourteen targeted Protected Areas. Follow-up assessments will be conducted at both mid-term and project closing.

Monitoring of Vegetative Cover: Measurement of vegetative cover (as an Outcome Indicator) will be by aggregating the broader Protected Area level data on vegetative cover obtained as part of monitoring of project activities. The aggregate data on vegetative cover will indicate the area (in hectares) of primary forest or other vegetation types (e.g., regenerating secondary forest, specific agro-forestry systems, marine-coastal ecosystem, and freshwater wetlands) that are being conserved under the project, particularly in areas of subproject implementation. The biodiversity monitoring of vegetative cover conserved will be complemented, where feasible and appropriate, by site-specific data on selected indicator species (that will be chosen based on their conservation status, ecosystem representativeness, and ease of monitoring).

Monitoring of Biodiversity Conservation: Indicator species are particularly likely to be used in monitoring situations that would (i) verify that hunting is effectively controlled on some of the (relatively large) protected areas and buffer zones; and (ii) verify the biodiversity conservation value of specific environmental subproject investments.

PES monitoring: Site specific baselines studies will be performed before PES activities begin in the pilot area. Site specific follow-up evaluations will be carried out to measure impacts of land use changes on anticipated environmental services.

Monitoring reports: Specific project implementation monitoring data will be provided on agreed upon report formats, included in the project operational manual, and will be required for the Bank supervision missions.

Monitoring of Fiduciary Arrangements: Financial management and procurement capacity have been assessed during project preparation by Bank specialists and determined to be satisfactory. DBC/ANAM will submit quarterly financial management and procurement reports to the Bank. Monitoring and processing of procurement of services, goods, works and subprojects would be carried out by the DBC/ANAM staff. The annual planning processes would be monitored with specific indicators on planning performance defined in the Results Framework. The physical implementation of the project would be monitored based on the specific outputs and monitoring indicators for the project components as defined in the Results Framework. Information from the monitoring system would be analyzed by project management and disseminated according to the project's communication strategy to appropriate stakeholders. The project would provide project progress reports quarterly and an update on legal covenants compliance every six months to the Bank.

Semiannual and Annual Evaluations: Annual beneficiary evaluations are planned and sound quarterly project reporting will allow semiannual supervision missions to assess the status of obtaining key project outcomes. During these missions, learning workshops are planned to identify and discuss lessons learned during project implementation with project stakeholders and beneficiaries.

Mid-term evaluation. The Bank's supervision team, together with a team of external reviewers, will conduct a mid-term evaluation of the project execution. It will be conducted no later than two years after the first disbursement. The external review will focus on: i) assessing the degree of advancement in achieving project outcomes, ii) the evaluation of the functioning of the institutional arrangements for project implementation, iii) evaluation of the project operational manual, and iv) review of POA.

Final Evaluation. A final evaluation will be conducted in the last semester of project execution. The key objectives of the final evaluation will be to: i) assess the degree of compliance with the expected project results, ii) use the results to design a strategy for replication in future projects.

Arrangements for results monitoring

Outcome Indicators	Baseline	Target Values						Data Collection and Reporting		
		YR1	YR2	YR3	YR4	YR5	YR6	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
By EOP, local and national institutional capacity is improved as measured by the WWF/Bank Management Effectiveness (GEF BD SP 1) Tracking Tool to manage 14 protected areas (675,775 ha).	Baseline data for each PA	The Score for capacity building criteria increases to next level for at least 2 Pas	The Score for capacity building criteria increases to next level for at least 4 PAs.	The Score for capacity building criteria increases to next level for at least 8 PAs	The Score for capacity building criteria increases to next level for at least 10 PAs	The Score for capacity building criteria increases to next level for at least 12 PAs	The Score for capacity building criteria increases to the highest level for at least 14 PAs	Site specific evaluation	M&E System	DBC/ANAM
By EOP, at least 50,000 ha of forests and other natural ecosystems of global biodiversity significance in the buffer zones of protected areas and biological corridors connecting them in the MBC under effective conservation (protection and sustainable management).	Baseline	---	---	20,000 ha	30,000 ha	40,000 ha	50,000 ha	Yearly project reports	M&E System	DBC/ANAM
By EOP, biodiversity of global significance is under effective conservation as measured by	Baseline			MTR			EOP	Site specific evaluation	Specialized survey	DBC/ANAM

vegetation cover and indicator species of conservation interest.											
By EOP, 60% of districts in the project area have incorporated biodiversity aspects into sector policies and plans and adapted appropriate regulations and implement plans accordingly.	Baseline			MTR				EOP	Yearly project reports	MTR and Impact Evaluation Studies	DBC/ANAM
Results Indicators for Each Component											
Component 1:											
By EOP, community associations and rural producer organizations implement least 450 natural resource, sustainable agriculture and conservation subprojects in the project area.	None	50	120	240	360	450	450		Quarterly and Yearly project reports	M&E System	DBC/ANAM
Component 2:											
By EOP, protected area co-management agreements under implementation increase by at least 100%.	Baseline	---	20% increase	40% increase	60% increase	80% increase	100% increase		Yearly project reports	M&E System	ANAM

By EOP, 28 district-level CCAs established and trained.	18 CCAs	5 CCAs trained	12 CCAs trained 2 new CCAs established and trained	15 CCA trained 4 new CCAs established and trained	18 CCAs trained 6 new CCAs established and trained	18 CCAs trained 8 new CCAs established and trained	18 CCAs trained 10 new CCAs established and trained	Quarterly and Yearly project reports	Annual Study SNAP, SNMDB	DBC/ANAM
By EOP, at least two UAMs established, trained and operating with sustainable financing.	0 UAMs		1 UAM established and trained	2 UAM established and trained			2 UAM established, trained and operating with sustainable financing	Quarterly and Yearly project reports	Annual Study SNAP, SNMDB	DBC/ANAM
By EOP, 1,000 local authorities and community leaders trained in environmental issues/regulations and preparation of municipal land use plans.	None	200	450	600	800	900	1000	Quarterly and Yearly project reports	Annual Study SNAP, SNMDB	DBC/ANAM
By EOP, PES program piloted in two project sites and replication strategy developed	None			1 site	2 sites			Yearly project reports	M&E System	DBC/ANAM
Component 3: By end of Y1, a Monitoring and Evaluation system is functioning with a MIS producing monthly/quarterly progress reports	None	Project MIS implemented						Yearly project reports	Internal & External Evaluation	DBC/ANAM

By end of Y2, functioning SMAP and SNMDB monitoring systems in place	None	SMAP and SNMDB monitoring systems designed	SMAP and SNMDB monitoring systems implemented					Yearly project reports	Internal & External Evaluation	DBC/ANAM
By end of Y3, monitoring systems developed by the project are incorporated into national and international systems (SINIA and IABIN)	None	Feasibility of coordinating and incorporating project M&E system assessed.	Modalities have been agreed	Project M&E system incorporated.				Quarterly and Yearly project reports	Internal & External Evaluation	DBC/ANAM
Communications strategy implemented, updated, and evaluated annually.	None	Communication strategy designed and implemented						Quarterly and Yearly project reports	M&E system	DBC/ANAM

Annex 4: Detailed Project Description

Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor Project

The Project Development Objective of the IBRD-financed Rural Productivity and Sustainable Development Project (to which the proposed project is partially blended) is to contribute to increased income and employment of small rural producers in Panama.

The Project Global Environmental Objective of the proposed GEF-financed project is to conserve globally important biodiversity and protect associated forest and mountain ecosystems.

Global Environmental Outcome Indicators

- By end of project (EOP), local and national institutional capacity is improved, as measured by the WWF/Bank Management Effectiveness (GEF BD SP 1) Tracking Tool to manage 14 protected areas (675,775 ha).
- By EOP, at least 50,000 ha of forests and other natural ecosystems of global biodiversity significance in the buffer zones of Protected Areas and biological corridors connecting them in the MBC-P under satisfactory conservation (protection and sustainable management).
- By EOP, biodiversity of global significance is under satisfactory conservation, as measured by vegetation cover and indicator species of conservation interest.
- By EOP, 60% of districts in the project area have incorporated biodiversity aspects into sector policies and plans and adapted appropriate regulations and implement plans accordingly.

Project Area

The proposed project specifically targets (i) selected Protected Areas (among the 65 that comprise the SINAP); (ii) designated corridors between these Protected Areas that are deemed critical to achieving conservation of globally important biodiversity; and (iii) the productive landscape, within a strategy focused on relieving identified pressures affecting globally important biodiversity in these selected Protected Areas and designated corridors. The following criteria were applied in the targeting of specific Protected Areas:

- *environmental*: importance of ecology and bio-diversity (RAMSAR, UNESCO Biosphere Reserves, Mesoamerican Biological Corridor); state of conservation of the eco-system; threat of major importance; and impact of population.
- *institutional*: coherence between the objectives of the National Environmental Strategy and rural development; priorities of ANAM in the Strategic Participatory Plan of SIA 2002-2006; and the existence of other projects with independent funding.

- *socio-economic*: poverty levels as determined by national studies; areas with probability of poverty exceeding 50%; and monthly median household income less than US\$163.

Applying these criteria, the proposed project would concentrate interventions in 28 districts and two *comarcas*, namely: (i) eighteen districts and one *comarca* in the Pacific region (i.e., Herrera, Los Santos, Veraguas, *comarca* Ngöbe-Buglé); (ii) ten districts and 2 *comarcas* in the Atlantic region (i.e., Bocas del Toro, Chiriquí, Veraguas, Coclé, Colon, and *comarcas* Ngöbe-Buglé and Kuna Yala). Eligible communities would have: (i) levels of poverty that meet at least two of the socioeconomic criteria listed above; (ii) sufficient social and human capital to participate in productive activities; and (iii) vulnerable natural resources with real or potential threats to globally significant biodiversity. Management priorities already identified by ANAM for the SINAP were also applied in the determination of the targeted districts and *comarcas*. Table A presents the fourteen targeted Protected Areas, geographic coverage, date established and status of management plan.

Table A: Protected Areas in the Project Area

<i>Mgt Category, Area Name and Province</i>	<i>Surface Area (ha)</i>	<i>Established</i>	<i>Mgt. Plan</i>	<i>Int'l Recognition</i>
Nacional Parks				
1. PILA, Bocas del Toro-Chiriquí	207,000	1988	Legally Adopted	Biosphere Reserve
2. Isla Bastimento, Bocas del Toro	13,226	1988	Legally Adopted	Biosphere Reserve
3. Volcán Barú, Chiriquí	14,000	1976	Legally Adopted	Biosphere Reserve
4. Omar Torrijos, Coclé	25,275	1986	Legally Adopted	-
5. Cerro Hoya, Veraguas-Los Santos	32,557	1984	Legally Adopted	-
6. Santa Fe, Veraguas	72,636	2001	En elaboración	-
Forest Reserves				
7. Donoso, Colon	10,000	in process	under preparation	-
8. El Montuoso, Herrera	10,375	1977	Legally Adopted	-
			Legally Adopted	
Protector Forest				
9. Palo Seco, Bocas del Toro	125,000	1983	Legally Adopted	Biosphere Reserve
Wildlife Refuge				
10. Isla Iguana, Los Santos	58	1981	Operating Plan	-
11. Isla Cañas, Los Santos	25,433	1994	Operating Plan	-
12. Corregimiento No.1 Narganá, Kuna Yala	100,000	1994	Operating Plan	-
Internationally Important Wetlands				
13. Damián-Guaribiara, Comarca Ngöbe-Buglé	24,090		Operating Plan	RAMSAR Site
14. San San Pond Sak, Bocas del Toro	16,125	1994	Legally Adopted	RAMSAR Site Biosphere Reserve

<i>Mgt Category, Area Name and Province</i>	<i>Surface Area (ha)</i>	<i>Established</i>	<i>Mgt. Plan</i>	<i>Int'l Recognition</i>
Total	675,775			

Fuente: Servicio Nacional de Áreas Protegidas y Vida Silvestre, ANAM.

Eligible communities would normally have: (i) levels of poverty that meet at least two of the above listed socio-economic criteria; (b) a sufficient level of social and human capital to participate in productive activities; (c) vulnerable natural resources with real or potential threats; and (d) SINAP management priorities.

Project Components

Component 1 – Community Investments in Environmental Resources (US\$12.4 million total cost with US\$7.8 million of IBRD and US\$2.9 million of GEF) – would finance investments proposed by rural community associations and producer organizations in the targeted Protected Areas and associated buffer zones in support of improved management and conservation of natural resources and stronger capacity on the part of beneficiaries to sustainably manage and protect natural resources. The component is divided in two subcomponents:

Subcomponent 1A – Environmental Subprojects, administered by DBC/ANAM, would provide matching grants to eligible community associations in support of subproject investments for improved natural resource and environmental management in already designated Protected Areas and buffer zones, as well as income-generation from environmental goods that would be generated from the environmental assets in these areas. The matching grants would be demand-driven and support the costs of needed investments in small-scale infrastructure, technical assistance and other goods, works and services.

Each sub-project gets screened for its contribution to the project's overall objective of conservation of globally significant biodiversity, consistent with three indicative categories described below, proximity to the 14 selected protected areas, consistency with the agreed Protected Area Management plans, technical quality of the proposal, commitment to provide matching funds, consistency with the economic, social and environmental guidelines established in the Project Operational Manual, capacity for implementation, among other criteria. The project will include a list of excluded activities that are ineligible for funding under the project including but not limited to:

- practices or activities which promote resource degradation or contamination;
- projects requiring involuntary resettlement;
- subprojects whose results are to create conditions which further marginalize or overburden any component of a family or social group, in particularly, women;
- payment of taxes (direct or indirect);
- rental or purchase of lands, titling or fencing;
- payment of debts, dividends or for capital recovery;
- purchase of stocks, bonds or other investment instruments; and

- religious or political activities of any kind.

Eligible investments would be comprised of three indicative categories:

- a) environmentally- oriented agribusiness to add value to primary production;
- b) management of natural resources for alternative products in response to emerging ecomarkets (e.g. non-timber forest products (NTFP), ecotourism, handicrafts, captive breeding, environmental services); and
- c) investments to restore and maintain environmental assets (e.g reforestation, agroforestry, soil conservation).

Examples of potential sub-projects include:

- Farm diversification to add value to primary production;
- Sustainable livestock raising and silvopastoral systems (in buffer zones);
- Sustainable production, cultivation and marketing of NTFPs such as medicinal plants;
- Support to production and marketing of handicrafts;
- Support to initiatives for marketing of environmental services;
- Production of sustainable and renewable energy sources
- Restoration of degraded areas and small watersheds;
- Community ecotourism;
- Reforestation and agroforestry;
- Establishment of forest farms with native species;
- Development of ecological products and initiatives for socio-environmental certification;

Subproject grants would typically range from US\$10,000 to US\$30,000 for which beneficiaries would contribute at least 10 percent of total subproject cost (in cash or in-kind).

Subproject funds would be transferred directly to producer and community associations, under contract agreements signed with DBC/ANAM. The community associations would then be responsible for procurement, financial management, overall subproject execution and subsequent expense reporting to DBC/ANAM following subproject completion.

The Project Operational Manual would provide detailed guidance on eligibility for subproject financing; obligations and responsibilities of associations, ANAM and other stakeholders in implementation of the component; and flow of funds and financial reporting regarding the matching grants. The Manual would also include a detailed screening process to evaluate and prevent possible negative impacts of subprojects to the local environment.

Subcomponent 1B – Support for Natural Resources Management would foster and support the principles, processes and activities to promote conservation, protection, restoration, and sustainable use of natural resources and biodiversity. The most successful subprojects under the PAMBC were those carried out by the communities with greater

management capacity, organization, and a commitment to results, and which implemented activities compatible with the restrictions on natural resource use particular to their specific situation. Experience also showed that, in order to improve living conditions for the poor, the proposed project should bolster its assistance through greater integration of other factors such as development of rural enterprises and market mechanisms. Therefore, to give rural populations the ability over the long term to reduce poverty through income-generating activities compatible with appropriate natural resources management, the subcomponent would include technical assistance for the following:

- ***Improve the technical knowledge of local community and producer groups.*** Twenty-six workshops will be held with about 1,000 members of 100 organizations to evaluate and select those to be strengthened. Training activities and themes will be selected, and groups and organizations trained in technical areas such as alternative production methods, natural resources management, subproject administration and accounting, and marketing. On-demand technical assistance will be provided on a follow-up basis to meet specific needs as identified by community associations. Special attention will be given to support initiatives for the formalization of community and producer organizations (e.g., gaining legal status). Local project promoters will be trained to quickly disseminate information about the project and act as liaisons to local communities.
- ***Development of agribusinesses and NRM initiatives.*** The rural economy of Panama, particularly in the MBC-P, requires an improved agribusiness structure to provide the inputs, services, post-harvest processing, markets, and distribution that constitute the entire production chain. To ensure that productive activities are sustainable, environmentally conscious, have greater income-generating potential, and avoid bottlenecks, the project will fund activities to identify and select productive initiatives and the groups to develop them, train those groups and individuals, and help identify, prepare, and implement business plans for pilot projects in NRM and agribusiness.
- ***Subproject support.*** These activities will help local groups and organizations identify, prioritize, select, prepare, implement, and supervise environmental subprojects financed under subcomponent 1A. Experience from the PAMBC project makes clear that investment in this kind of technical assistance yields much more relevant, successful, and sustainable subprojects.
- ***Markets and commercialization.*** Special attention will be given to helping commercialize products and create markets by analyzing the products and services most appropriate for market development, identifying organizations, networks, or groups interested and capable of creating markets and providing marketing services, defining marketing strategies, and helping put those strategies in practice. Some strong candidates for further commercialization have been identified: cacao, plantain, ecotourism, artisanal crafts, organic agricultural products including roots and tubers, and non-timber forest products.

Key outcomes of this component include approximately 450 environmentally-oriented agribusiness, NRM, and biodiversity conservation subprojects completed, emphasizing conservation and recovery of habitats for biodiversity.

Component 2 – Management of Natural Resources and Strengthening of SINAP (US\$2.9 million total cost with US\$1.4 million of IBRD and US\$1.4 million of GEF) – would support ongoing actions by the Government of Panama to integrate social and environmental sustainability into development and poverty reduction strategies. This includes emphasizing issues of natural resources management, conservation of important biodiversity and ecosystems, and helping the National Environment Authority (ANAM) implement its policy of decentralizing environmental management by delegating more responsibility to local entities for protecting natural habitats and protected areas. It would also help strengthen and consolidate the MBC-P by increasing the financial self-sufficiency of key parts of the SINAP.

The validity of this approach is born out by the experience of the PAMBC project, which introduced a system of co-management (codified under the *Ley 41* in 1998) between local communities and ANAM that demonstrated the potential to enhance both habitat protection and quality of life for rural communities. The proposed project would strengthen and expand that model and promote new types of activities within it.

To achieve this, the component will (i) expand promotion of co-management arrangements toward the conservation of at-risk ecosystems; (ii) stimulate local participation and decentralization of environmental management by strengthening municipal governments and *Comarcas*, supporting local environmental education programs and establishing environmental consultative commissions (CCAs); and (c) develop a pilot scheme of payment for environmental services (PES) and explore other opportunities for self-financing by ANAM of natural Protected Areas.

If successful, the component would establish co-management systems in an additional 20 percent of priority Protected Areas and strengthen local capacity for land use and environmental management in these areas. These outputs would contribute to slow the rate of deforestation, protect biodiversity, and improve incomes and quality of life in rural communities.

This component will support the following three activities:

Strengthening of SINAP – aims to improve the environmental and financial viability of protected areas through a strategy that promotes sustainable use of natural resources and biodiversity by the populations that depend on those resources for their livelihoods. By improving the productive practices of populations within the protected areas and their buffer zones, and giving those communities a more direct stake and management role in the conservation and sustainability of the resources, threats could be reduced, financial capacity improved, and public and private co-management facilitated.

The following areas will be financed:

Increased co-management arrangements for Protected Areas. Currently, about 22 percent of Protected Areas have some form of co-management arrangement between

ANAM and NGOs, municipalities, or other partners. The subcomponent would support efforts by ANAM to prepare co-management regulations, legally formalize specific co-management arrangements, identify additional co-management opportunities in other Protected Areas, and select and train new partners for such arrangements. Under *Ley 41*, qualified local communities or NGOs may act as ANAM's agent in undertaking full or partial responsibility for management or monitoring activities in a Protected Area.

Support for conservation and at-risk ecosystems. A number of areas in the MBC-P are under threat from intrusion by agriculture, livestock, logging, and other activities. To help control those activities, the subcomponent would support, in partnership with other international projects, the preparation of participatory land use plans with local groups that are co-managing four high priority Protected Areas. Technical assistance will also be provided to (i) support actions to prevent and restore environmental quality in at-risk sites by instituting solid waste management plans and other measures; (ii) expand coverage and add activities to a river monitoring system set up under the PAMBC project to monitor water quality, identify causes of degradation, and pinpoint sources of pollution; and (iii) develop and disseminate norms and guidelines for environmental risk management.

Local Participation and Decentralization for Environmental Management – seeks to support decentralization of environmental management by helping transfer responsibility for local natural resources and environmental management to municipalities and providing technical support to carry out these functions. Activities will focus on selected municipalities that have demonstrated institutional capacity and commitment to develop environmental land use plans. The activities would include:

- ***Support to municipal governments and comarcas.*** Technical assistance would be provided to help ANAM establish, staff, train and equip Environmental Technical Units (UAMs) in the municipalities and *comarcas*, as provided for in Law 41. The UAMs would help manage, monitor, and control problems related to the environment and natural resources. Specifically, the subcomponent would assist four municipalities and one indigenous *comarca* in developing environmental land use plans that integrate natural resources management, pollution and environmental risks and social and economic dimensions.
- ***Establishing and training local Environmental Consultative Commissions (CCAs).*** *Ley 41*, (by means of Executive Decree 57) called for the establishment of CCAs at the national, provincial, district, and *comarca* level to act as consultative entities for civil society regarding environmental matters. The CCAs are composed of local authorities including representatives selected by indigenous people, local public entities, and civil society groups. The subcomponent would facilitate the establishment of the CCAs, help them develop local environmental agendas and work plans, and provide small amounts of initial operational financing.

- **Local environmental education programs.** Technical assistance and training would be provided to design and implement formal (in schools) and informal (in communities) environmental education programs in 28 selected districts near or within targeted Protected Areas.
- **Environmental management pilot subprojects.** The UAMs, with assistance from DBC/ANAM, would provide assistance to municipalities to identify, design, evaluate, implement, supervise, and monitor execution of small pilot investments in conformity with municipal environmental management plans and land use plans. Categories of possible projects include natural resources management, Protected Area administration, renewable energy, and environmental quality (the Operational Manual contains a detailed list of eligible types of investments). Pilot subprojects would be part of the municipal environmental management plan, respond to community demand, strengthen links between the rural population and environmental conservation, be consistent with the land use plans, resolve an existing local environmental problem, and include co-financing of at least 10 percent from the municipality.

Opportunities for Self-Financing – would develop alternative and potentially sustainable sources of financing for natural resource management and biodiversity conservation, with a particular focus on the development of payments for environmental services (PES). To support this objective, the following activities will be financed:

- **Piloting watershed-scale PES mechanisms:** would work with stakeholders in two priority watersheds to develop PES mechanisms. Specific watersheds have been identified during project preparation in the provinces of Los Santos and Coclé, and in the indigenous *comarcas* of Kuna Yala and Ngöbe-Buglé. The subcomponent would fund technical studies, technical assistance to stakeholders, and the negotiation process to develop specific PES.
- **Sustainable financing mechanisms for ANAM:** would strengthen ANAM's institutional capacity to design, develop, pilot, and manage a range of sustainable financing instruments for natural resource management and biodiversity conservation in Protected Areas. Alternatives include the potential for carbon fund financing of conservation activities and options for establishing an endowment fund for biodiversity conservation that would complement funding flows from users of water services.

Component 3 – Monitoring and Evaluation, and Project Management (US\$2.8 million total cost with US\$0.7 million of IBRD and US\$1.6 million of GEF) – The following subcomponents will be financed:

Subcomponent A. Monitoring and Evaluation: This would strengthen ANAM's national capacity for monitoring the SINAP and evaluating biodiversity conservation interventions through: (i) the purchase of needed hardware and software for the Protected Areas Monitoring System (SMAP) and the national monitoring system for biodiversity (SNMDB) and (ii) training

to build technical capacity for both the SMAP and the SNMDB and integrate them with the National Environmental Information System (SINIA). The component would also support the integration of SINIA with the Interamerican Biodiversity Information Network (IABIN), the Operations Secretariat of which will be located in Panama. Finally, incremental costs of the Department of Biological Corridors of ANAM (DBC/ANAM), including field supervision would be supported. See Annex 3 for details on project monitoring and evaluation.

Subcomponent B Project Management: This subcomponent will focus on project coordination, planning, and supervision. The project will finance computer and office equipment, incremental recurrent costs, consultants and administrative support to DBC/ANAM for procurement and financial management supervision.

Annex 5: Project Costs

Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor Project

US\$ million			
Project Cost By Component and/or Activity	Local	Foreign	Total
1. Community Investments in Environmental Resources			
1.1 Environmental Subprojects	9.2	-	9.2
1.2 Support Services for Natural Resource Mgt.	<u>2.1</u>	<u>0.8</u>	<u>2.9</u>
Sub-total	11.3	-	12.1
2. Management of Natural Resources and Strengthening of SINAP			
	2.6	0.1	2.7
3. Monitoring, Evaluation, and Project Management			
3.1 Monitoring and Evaluation	1.1	0.2	1.3
3.2 Project Management	<u>1.2</u>	-	<u>1.2</u>
Sub-total	2.3	0.2	2.5
Total Baseline Cost	16.2	1.1	17.3
Physical Contingencies	0.3	0.0	0.3
Price Contingencies	0.4	0.1	0.5
Total Project Costs¹	16.9	1.2	18.1

¹Identifiable taxes and duties are US\$0.6 m, and the total project cost, net of taxes, is US\$17.5 m. Therefore, the share of project cost net of taxes is 96.7%.

Annex 6: Implementation Arrangements

Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor Project

Executing Entities:

Community Associations/Rural Producer Organizations: are groups formed of at least ten rural citizens with a common interest who organize into legally-constituted civil associations. They identify and prepare subproject proposals for environmental subproject financing under Component 1 of the project. Once funding is secured following a technical review by ANAM, these associations implement their subprojects, assisted both by technical specialists whom they contract and by technical assistance and training made available by DBC/ANAM (see below). Community associations also would contribute (in cash or in-kind) up to 10 percent toward total subproject cost.

Consultative Environmental Commissions (CCAs): consult with civil society, elected officials, other public sector entities and the private sector on environmental matters in their respective territories (e.g., province, district, *comarca*, municipal). By law, CCA membership consists of local authorities, including indigenous representatives, and delegates from other civil organizations. Under the PAMBC, significant training took place for provincial and *comarcas* CCAs; the proposed project would continue such support primarily at the district level within the fourteen targeted Protected Areas.

Municipal Environmental Management Units (UAMs): are attached to municipal government and address issues of conservation and preservation of the local natural resource base. *Ley 41* invests ANAM with the authority to transfer localized natural resource and environmental management to UAMs. Under the proposed project, the UAMs will be eligible to propose a limited number of demonstration subprojects (*subproyectos piloto*), based on local land use plans or other environmental planning instruments, which, under community participation, would later be implemented in the project area.

Department of Biological Corridores/ANAM (DBC/ANAM): will be responsible for project implementation, working closely with (i) community associations and rural producer organizations in the design and delivery of subproject investments funded under Component 1 of the project and (ii) UAMs and CCAs in decentralized co-management arrangements under the implementation of existing Management Plans in the targeted Protected Areas.

MIDA: will execute the partially-blended IBRD operation and coordinate with DBC/ANAM on environmental subprojects implemented by rural producer organizations in the project area.

Environmental Subproject Investment Cycle:

- Following an information and dissemination campaign, eligible community associations and producer organizations define investment priorities – in line with existing Management Plans for their respective Protected Area and the Project Operational Manual – and present subproject proposals for funding under Component 1.

- ANAM technically evaluates subproject proposals and confirms (i) compliance with subproject technical, economic, social and environmental guidelines established in the Project Operational Manual and (ii) expected links to conservation of biodiversity, before releasing funds to community associations.
- A Subproject Agreement is signed between ANAM and the Community Association, spelling out the terms and conditions for the funding, execution, ownership, operation and maintenance of the approved subprojects.
- Resources for subproject implementation are then transferred directly to the Community Association's bank account.
- The Community Association contracts goods, works and technical assistance for subproject execution, bears responsibility for operation and maintenance of all investments, and may request technical assistance from pre-screened, qualified service providers to develop operation and maintenance arrangements for subproject investments.

Project Oversight. The Ministry of Economy and Finance (MEF) represents the Government of Panama vis-à-vis the Bank. MEF delegates day-to-day coordination of the project to the National Environment Authority (ANAM).

Project Coordination. ANAM, through its Department of Biological Corridors (DBC/ANAM), coordinates overall project activities, with the following specific duties: (i) review community subproject funding proposals for compliance with project guidelines and eligibility criteria set forth in the project Operational Manual; (ii) implement introductory training and technical assistance programs for all community associations with approved subprojects (including training on subproject implementation, contracting, O&M and financial management); (iii) supervise the community associations to ensure adequate quality control of subproject implementation; (iv) monitor project performance through inputs to the SNAP and the SNMBD; (v) prepare annual project implementation and physical performance reviews; and (vi) submit project Annual Operating Plans (POAs) to the Bank for no objection.

Project operational procedures: The project would be implemented according to detailed procedures defined in its Operational Manual. This Manual is based on that used in the previous PAMBC, which was satisfactory to the Bank, and will be updated to incorporate lessons learned during its implementation, as well as design innovations under the proposed project. Prior to negotiations, DBC/ANAM will make available to the Bank an updated draft Operational Manual.

Provision of technical services: Prior to project execution, DBC/ANAM will develop a roster of private technical service providers, including NGOs, from which community associations could identify and contract the appropriate type of services they require. The roster will identify providers (by region, area of expertise, skills and experience) that are available to assist community associations and rural producer organizations in subproject design and execution under Component 1 and capacity-building activities under Component 2. DBC/ANAM would periodically update the roster, through *ex post* performance evaluations of private providers in order to ensure a high quality of service in response to the needs of beneficiary community associations.

Accounting, financial reporting and auditing arrangements: Periodic supervision of the PAMBC project has consistently confirmed the satisfactory performance of the financial management system; this same system -- which complies with OP/BP 10.02 and the Guidelines for Assessment of Financial Management Arrangements – will be used in the implementation of the proposed project. The Guidelines of Fiduciary Management for Community-Driven Development Projects (CDD Guidelines) will also be taken into consideration, where applicable. During preparation, the FM system was reassessed by a Bank FM Specialist and judged to be satisfactory (see Annex 7).

According to arrangements for Bank-financed projects in Panama, the annual audit of the project accounts for the period January 1 to December 31 will be carried out by independent auditors contracted under Terms of Reference acceptable to the Bank. The audit report will be submitted to the Bank no later than June 30 in the year following that for which the project accounts are audited. The year-end IFR will also serve as the Financial Statement of the Project, on which the independent auditors will express their opinion. The annual audit will also include a review of the eligibility of expenditures disbursed on the basis of Statements of Expenditure (SOEs), as well as on the Special Account, compliance with all financial covenants and a Management Letter on internal controls and recommendations. ANAM will comply with Panamanian standards, in line with norms and guidance of the International Federation of Accountants (IFAC), which are acceptable to the Bank.

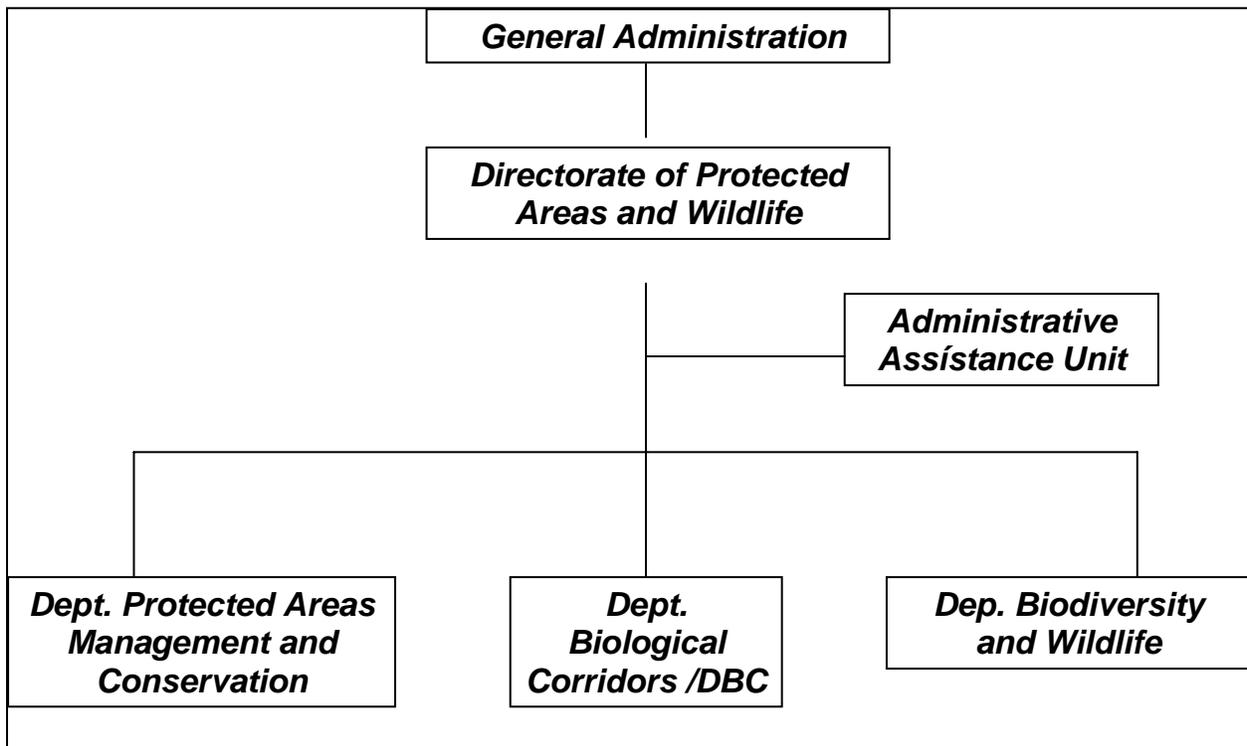


Figure A: ANAM Organizational Chart

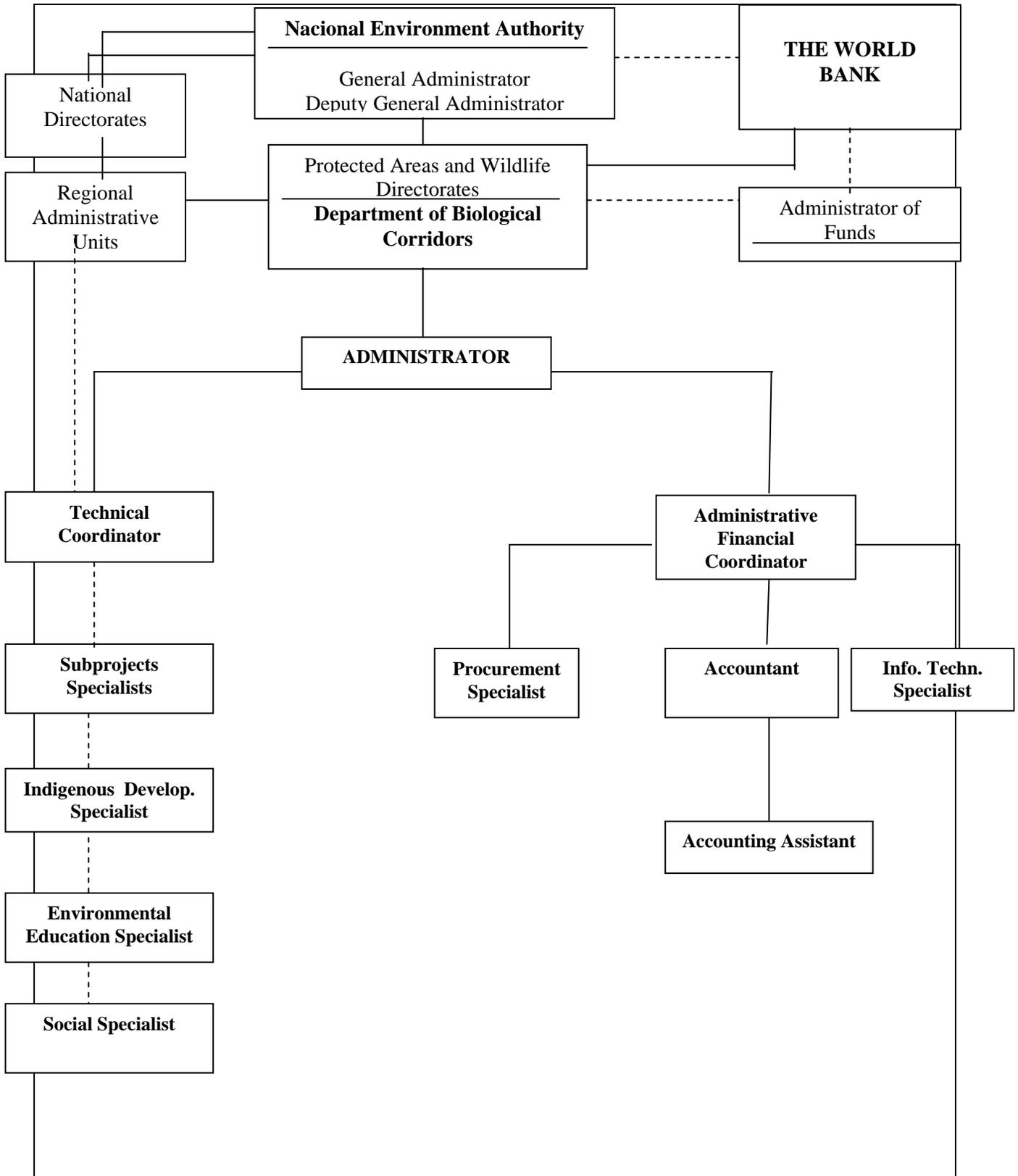


Figure B: Organizational Chart – Department of Biological Corridors-ANAM

Annex 7: Financial Management and Disbursement Arrangements
Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor Project

Summary Conclusion of Financial Management Assessment.

On the basis of the assessments performed, the financial management team presents the following conclusions:

- (i) The executing agency, the National Environment Authority (ANAM), will be responsible for managing the fiduciary aspects of the proposed project, through its Department of Biological Corridors (DBC/ANAM), which has recently been institutionalized within ANAM.
- (ii) The fact that the DBC/ANAM has ongoing experience managing projects financed by donors and the World Bank, for which it has basic administrative structure and systems in place, puts it in a good position to take over the financial management functions of the proposed project. The FM capacity assessment (FMA) has identified project-specific actions in order to strengthen the FM capacity of DBC/ANAM and enable it to carry out the financial activities of the proposed project effectively.
- (iii) Once DBC/ANAM carries out the proposed action plan presented in this assessment, it would have in place adequate FM arrangements that meet the Bank's minimum fiduciary requirements to manage the specific financial activities of the proposed project.

Organizational Arrangements and Staffing

The grant recipient will be the Republic of Panama, represented by the Ministry of Economy and Finance (MEF). Overall project coordination and administration will fall under the ANAM. Within ANAM, the DBC/ANAM will be directly in charge of FM tasks. These will basically include: (i) budget formulation and monitoring; (ii) cash flow management (including processing payments with the funds administrator, and submitting grant withdrawal applications to the Bank); (iii) maintenance of accounting records, (iv) preparation of in-year and year-end financial reports, (v) administration of underlying information systems, and (vi) arranging for execution of external audits. The recently closed PAMBC project financed by the World Bank was managed by DBC/ANAM, which puts it in a good position to take over the FM functions of the proposed project.

DBC/ANAM is currently operating with minimal staffing and has agreed to hire an FM Specialist (eligible for financing under the grant) to provide assistance with the Bank-financed project.

Activities (subprojects) under Component 1 would be implemented by organized community associations and rural producer organizations. Once subprojects under Component 1 have been identified, prepared and approved for funding, an agreement will be signed between ANAM and

the organized community association, which will specify the activities to be performed, the amount of the subproject and the disbursement calendar. Organized community organizations will be responsible for procurement activities to be performed during the implementation of the subproject, as well as administering funds, preparing reports, and managing payments to contracted participants.

Budget Planning

Between July and September of each year, DBC/ANAM will prepare its tentative investment program for the next year and submit it to the Planning Department of ANAM for inclusion in its overall budget. The program should be consistent with the budget policy provided by MEF, and be incorporated into the national budget for its submission to Congress in September. On the basis of the approved budget, DBC/ANAM will adjust as needed its project annual work (POA) and procurement plan, which will be reviewed by the Bank.

Accounting and Financial Reporting

Accounting Policies and Procedures. The main FM regulatory framework for the project will consist of: (i) Panamanian law governing budget management; (ii) ANAM operating manuals; and (iii) the DBC/ANAM operating norms. Project-specific FM arrangements that are not contemplated in the documents cited above will be documented in a concise FM section of the project operational manual. Among others, specific reference will be made to: (i) the internal controls appropriate for the project; (ii) the internal controls (e.g., payment terms and clearance of advances) related to agreements with communities; and (iii) the formats of project financial and audit reports.

Information Systems. It will be the responsibility of DBC/ANAM to maintain accounting records specific to the project, and ensure that project execution data is reported to ANAM on a timely basis to ensure its incorporation into the government's records. DBC/ANAM will maintain a simple financial system to compile project financial statements, using a computerized financial management system that was used under the PAMBC, and which is adequate for the accounting of projects with external financing. The system has the ability to classify financial information by project component, categories of disbursement and sources of financing; and produce useful financial reports (such as financial monitoring reports-IFRs and Statements of Expenditures -SOEs).

Financial Reports. On a *semestral basis*, as part of project progress reporting, DBC/ANAM will prepare and submit to the Bank an unaudited interim financial report containing: (i) a statement of sources and uses of funds and cash balances (with expenditures classified by subcomponent); (ii) a statement of budget execution per subcomponent (with expenditures classified by the major budgetary accounts); and (iii) a Designated Account activity statement (including a copy of the bank statement). The interim reports will be submitted not later than 30 days after the end of each semester. At the beginning, the IFRs will only be used for monitoring purposes. Once the system to produce IFRs has been tested, it may be used also for disbursement purposes, in which case, the following annexes would be required: (i) a summary statement of Designated Account expenditures for contracts subject to prior review and (ii) a summary statement of Designated Account expenditures for contracts not subject to prior review

On an *annual basis*, DBC/ANAM will prepare project financial statements including cumulative figures, for the year and as of the end of that year, of the financial statements cited in the previous paragraph. The financial statements will also include explanatory notes in accordance with the Cash Basis International Public Sector Accounting Standard (IPSAS), and ANAM’s assertion that grant funds were used in accordance with the intended purposes as specified in the Grant Agreement. These financial statements, once audited, will be submitted to the Bank not later than six months after the end of the Government’s fiscal year (which equals the calendar year). The supporting documentation of the semestral and annual financial statements will be maintained on the premises of DBC/ANAM, and made easily accessible to Bank supervision missions and to external auditors.

Flow of Funds

Currently, ANAM is contemplating the use of an administrator of grant funds, in which case, during implementation and upon DBC/ANAM’s request the Bank may proceed to process direct payments to the administrator’s account for eligible expenditures based on an agreed work program stipulated in the contract between ANAM and the administrator. The administrator would be contracted solely as a payment agent under terms and conditions acceptable to the Bank. An FM assessment would be conducted by the Bank before any advances are made, confirming that the administrator has the adequate administrative capacity, internal controls, and accounting and auditing procedures in place.

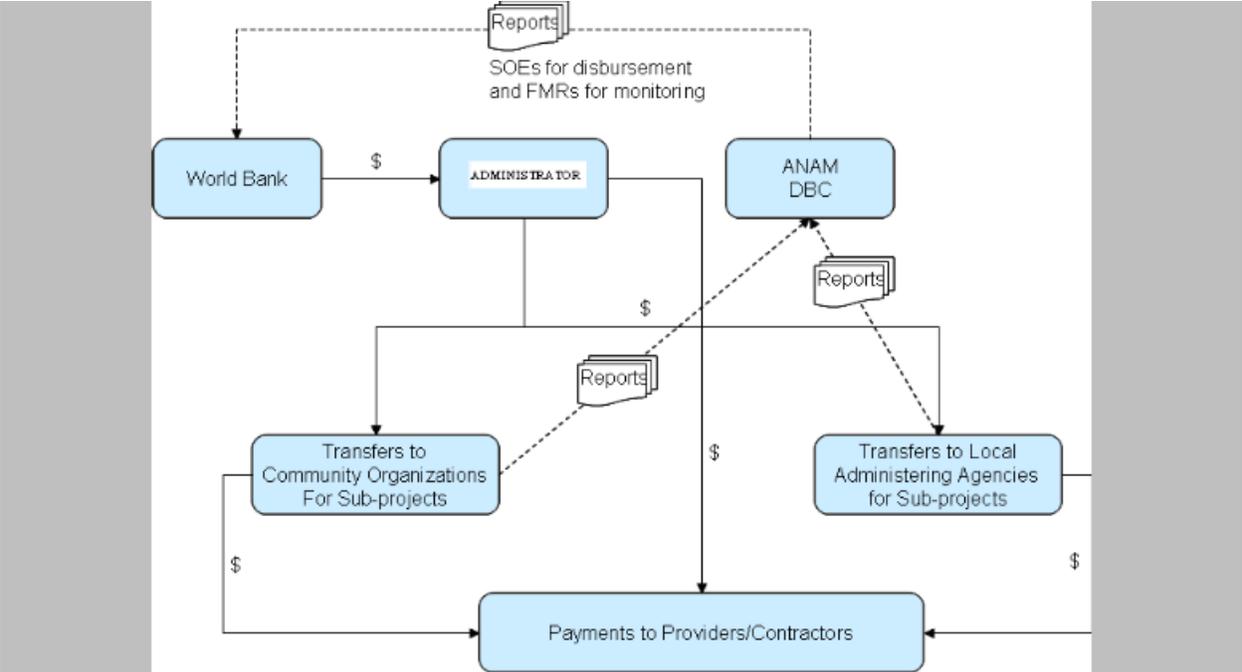


Figure A: Flow of Funds

World Bank Disbursement Method. The following disbursement methods may be used to withdraw funds from grant agreement: (1) Direct Payment, and (2) Reimbursement. Supporting documentation should be provided, as appropriate, with each Application for Withdrawal as set out in the Disbursement Letter. The minimum value of applications under any of these methods is US\$25,000 equivalent. During appraisal it was agreed that the advance method would not be used. However, should the need arise during implementation, the Bank has agreed, during negotiations, to review the disbursement arrangements to include the advance method. Any changes to the disbursement arrangements will be communicated in an amendment to the Disbursement Letter. Replenishment of the advance will be based on the submission of a withdrawal application by DBC/ANAM, supported by documentation showing that the grant proceeds previously withdrawn have been used to finance eligible expenditures. Supporting documentation will be in the form of SOEs, with the exception of payments related to contracts subject to the Bank’s prior review (see Annex 8), which will be reimbursed against full supporting documentation. In the future, and upon request from the recipient, if the Bank is satisfied that interim financial reports are adequate to support disbursements as summary reports, the method to support disbursements may be changed upon approval by the Bank. If this were the case, this will be reflected in an amendment to the disbursement letter.

All supporting documentation for payments using SOE procedures and other payments in general for project activities will be retained by DBC/ANAM for audit purposes and made available for Bank supervision.

Disbursement Deadline Date. Four months after the closing date specified in the Grant Agreement.

Flow of Funds – Subprojects. Once a subproject agreement is signed between DBC/ANAM and the organized community association, the organized community association will open a separate account for the subproject to receive the disbursements from DBC/ANAM. The account will be opened in a local bank with the first disbursement, which will be an advance based on the needs of the subproject for a determined period of time (but no more than 30% of the total value of the subproject). Subsequent disbursements will be made based on financial and physical progress report received from the community and reviewed by DBC/ANAM.

WB Disbursement Schedule

Expenditure Category	Grant Amount (US\$)	% of Expenditures to be Financed
1. Goods, Works, Non-Consultants Technical Services, Consultants, Training, and Operating Costs	3,260,000	100%
2. Environmental Subprojects	2,300,000	100%
3. Municipal Pilot Subprojects	240,000	100%
4. Unallocated	200,000	

Total	6,000,000	
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Audit Arrangements

Internal Audit. In the course of its regular internal audit activities vis-à-vis the institutional budget, ANAM’s internal auditors may include project activities in their annual work plans. If such audits occur, ANAM will provide the Bank with copies of internal audit reports covering project activities and financial transactions. However, ANAM’s internal audit department has limited capacity in terms of staffing (currently four qualified internal auditors) and does not currently have a manager. As a result, to mitigate the risk that the project may not be audited by ANAM’s internal audit department, the Bank will require semestral visits from the external auditors, resulting in the submission to the Bank of the correlated management letters.

External Audit. The annual project financial statements prepared by DBC/ANAM will be audited following International Standards on Auditing (ISA), by an independent firm (or the Controller General of Accounts, subject to prior agreement with the Bank) and in accordance with terms of reference (TORs), both acceptable to the Bank. The audit opinion covering project financial statements will contain a reference to the eligibility of expenditures. The scope of the audit will also include a sample review of subproject expenditures and procurement processes.

In addition, memoranda on internal controls (“management letters”) will be produced on a semi-annual basis.

The audit work described above can be financed with grant proceeds. DBC/ANAM will arrange for the first external audit within three months after Grant Effectiveness. Each audit engagement is expected to cover at least two years.

Risk Assessment Summary

The FM risk for this project has been assessed at *Modest*, as opposed to low, mainly because of the involvement of community organizations in the implementation of the project, which generally have limited financial management capacity. To mitigate the risk of mismanagement of funds by these organizations, actions, such as the development of a community subproject manual (to be shared with community organizations and local administering agencies) and the inclusion of community subprojects in the scope of the annual external audit, have been included in the FM arrangements. In addition, at the country level, the project implementation performance has been impaired in the past by cumbersome and often lengthy internal procedures on payment authorization. To mitigate the risk of delayed implementation, DBC/ANAM has decided to utilize a fund administrator on the conditions stipulated above in this Annex.

Financial Management Action Plan

Action	Responsible Entity	Completion Date ³
1. Prepare and reach agreement on the format of financial monitoring reports (IFRs).	DBC/ANAM	Before negotiations (Completed)
2. Prepare draft FM section of the project operational manual.	DBC/ANAM	Before negotiations (Completed)
3. Finalize draft audit TORs and short list.	DBC/ANAM	Before negotiations (Completed)
4. Finalize the TORs for key positions in DBC (including the FM Specialist and Accountant).	DBC/ANAM	Before negotiations (Completed)
5. Prepare a draft manual for the implementation of subprojects by community organizations and local administering agencies.	DBC/ANAM	Before effectiveness
6. Sign the contract with the administrator for administering the funds.	DBC/ANAM	Before effectiveness
7. Identify and, if possible, incorporate required incremental FM staff assistance.	DBC/ANAM	Before effectiveness
8. Chart of accounts finalized and creation of new company in the system.	DBC/ANAM	Before effectiveness
9. Final issuance of the draft documents prepared before negotiations (see above).	DBC/ANAM	Before effectiveness
10. Contract external auditors, based on short list satisfactory to the Bank.	DBC/ANAM	3 months after effectiveness

Bank FM Supervision Plan. A Bank FM Specialist should perform a supervision mission prior to Grant Effectiveness to verify the implementation of the unit and the FM system. After effectiveness, the FM Specialist must review the annual audit reports, should review the financial sections of the quarterly IFRs, and should perform at least one supervision mission per year.

³ This column solely presents the estimated completion date, not an indication of legal conditions.

Annex 8: Procurement Arrangements

Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor Project

General

Procurement for the proposed project would be carried out in accordance with the World Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" dated May 2004; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, and the provisions stipulated in the Grant Agreement. The general description of various items under different expenditure categories is described below. For each contract to be financed by the Grant, the different procurement methods or consultant selection methods, estimated costs, prior review requirements, and time frame are agreed between the Recipient and the Bank project team in the Procurement Plan. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

Procurement Summary

The total cost of the Project is US\$18.4 million, which includes US\$6.0 million of GEF financing. The Project components are the following: (a) **Component 1 – Investments in Environmental Resources** (GEF financing US\$2.9 million) which will finance goods, technical assistance and operating costs for implementation of subprojects by beneficiaries; (b) **Component 2 - Management of Natural Resources and Strengthening of SINAP** (GEF financing US\$1.4 million) would include consultant services, non consultant services, small equipment, vehicles, training and logistics expenses; and (c) **Component 3 – Monitoring, Evaluation, and Project Management** (GEF financing US\$1.6 million) which include procurement of goods, consultant services and operating costs to support DBC/ANAM in monitoring and evaluation.

The project will be managed by DBC/ANAM, which will be responsible for procurement activities conducted by ANAM at central level, and have the overall responsibility for monitoring and supervision of activities under subprojects carried out by the beneficiaries and that of technical service providers hired to assist community associations.

The menu of procurement methods to purchase goods, non-consulting services and consulting services contracted by DBC/ANAM, and under the subprojects are described below with estimated amounts summarized in Table A. The Operational Manual will detail procedures for the various procurement methods.

Procurement of Works

Small works for remodeling of DBC/ANAM offices and a monitoring and evaluation center will be contracted following shopping procedures based on request for quotations.

Procurement of Goods and Non-Consulting Services

Goods and non-consulting services contracts to be procured by DBC/ANAM under this project would include computer and software, vehicles, office equipment and furniture, and eligible non-consultants services for print or audiovisuals of dissemination materials. Neither International Competitive Bidding (ICB) nor National Competitive Bidding (NCB) methods are expected. Contracts for eligible goods and non-consulting services estimated to cost less than US\$50,000 per contract may be procured using shopping procedures based on a sample request for quotations from at least three qualified suppliers, using a model contract formulary agreed with the Bank

Selection of Consultants

Firms. With exception of the external auditing firm, no consultant contracts with firms are expected. The auditing firm will be selected following Least Cost Selection procedures (LCS). If any other contract with firm is required it would follow Quality-Cost Based Selection or Fixed Price Selection procedures and will be indicated in the Project Procurement Plan.

Individuals. Individual consultants will be hired to provide technical advisory and project support services and will be selected through comparison of qualifications of at least three qualified candidates, in accordance with provisions in Section V of the Consultant Guidelines. All contracting of technical assistance by individuals will be done using a model contract formulary agreed with the Bank.

Training

Training to be financed under the proposed project includes courses, seminars, workshops, and consultation meetings for dissemination and capacity building. The Bank will finance logistical and travel expenses, per diems of trainers and trainees, and training material using administrative procedures acceptable to the Bank. All technical assistance contracts for the provision of training will be governed by Bank's Guidelines for Consultants (May 2004).

Operating Costs

Operational costs will include reasonable incremental expenditures to carry out the project such as travel and per diem costs for ANAM technical and support staff contracted to assist DBC/ANAM project activities, utilities and communication expenses, including Internet connectivity, maintenance of office facilities and equipment; consumable office materials and supplies, including reactive materials to conduct water lab testing, as they may be required by sector agencies in support of community subprojects; logistics and project support services, printed or audiovisual materials for dissemination, selected taxes, travel and per diem of other agencies' staff involved in project supervision with DBC/ANAM, and reasonable overhead

expenditures incurred by DBC/ANAM. The Bank has confirmed that DBC/ANAM's administrative procedures for these purchases are acceptable.

Community Participation (CDD) Subprojects

Matching grants to community associations and rural producer organizations would support subproject investments in improved natural resource and environmental management, as well as income-generation from environmental goods. In both cases, the matching grants would be demand-driven and support the costs of needed investments in productive infrastructure, technical assistance and other goods, works and related services. Cost of subprojects is expected to be in a range of \$15,000-\$25,000. Eligibility, selection criteria for subprojects, pre-selection procedures of technical service providers to support administrative-financial activities in the subprojects of the communities, and subprojects' supervision by the communities and DBC/ANAM would be described in the Operational Manual.

Very small works are expected as components of approved subprojects and may include construction, rehabilitation or repair of existing facilities in rural communities. These works would be contracted by the organized community associations using shopping/commercial practices procedures detailed in the Operational Manual

Goods in subprojects would be of different types according to the nature of the productive subproject and may include seeds, tools, plants and other similar physical inputs.

2. Assessment of Agency Capacity to Implement Procurement

A Procurement Capacity Assessment of ANAM was carried out in Panama by Mr. Diomedes Berroa, PS and Ms. Rosa Valencia de Estrada, PS (Accredited Consultant), LCOPT, March 14-17, 2006.

Organization and Staffing. The principal contact for purposes of Bank's technical and administrative coordination will be the DBC/ANAM. The organization and staffing of the DBC/ANAM will be adjusted to serve better its new role under the institutional structure. Some of its qualified staff will remain in place with others key functions (Procurement and Accounting Specialists) to be contracted soon. The functional structure for implementation of the project in the DBC/ANAM will include a general coordinator, one technical coordinator, supervising a subprojects specialist, and one administrative-financial administrator supervising the accounting and procurement specialists. ANAM has a central procurement office, with seasoned staff with experience in procurement. With the expansion of project activities into more rural communities, it is likely that ANAM will require additional staff at the central level to ensure quality supervision of procurement activities in the subprojects. In addition, to maintain competencies, an Action Plan includes provision of training in Bank principles and procedures of core ANAM staff in the May 2004 Guidelines, as well as requiring an update of specific the chapter regarding procurement in the OM and applicable sections of the Subproject section as they may be applicable to procurement.

Quality control of all technical and contracting documents and technical and financial evaluation reports will be the responsibility of DBC/ANAM, operating under special institutional provisions to conduct procurement. The administrative-financial agent for ANAM, as mandated by the GOP, will be a key strategic partner in ensuring quality of procedures, participating as a voice

member in all evaluation committees. The technical team in the DBC/ANAM will also be responsible for monitoring and supervision of tasks pertaining to CDD, while the administrative-financial team will be engaged in the contracting of service providers, consultants' services, and other inputs to be required at central level. DBC/ANAM would be also responsible for planning, monitoring and administrative supervision, and reporting of IFRs to the Bank.

Operational Manual (OM). DBC/ANAM will update its OM to include the lessons learned from activities conducted under the PAMBC, especially to fine tune procedures to ensure successful outcomes of Community-Driven Development (CDD) procurement. The Action Plan in this assessment includes a specific activity to develop basic and user-friendly (step-by-step) information to communities and project staff on fiduciary policies and procedures for efficient use of documentation, accounting, and report on expenditures prior to disbursements. DBC/ANAM will be in charge of field-testing the processes and procedures in a few communities before implementation of this new section of the OM. Also to be included in the OM are the details on procurement review and approval steps within DBC/ANAM, including staff accountabilities, composition of technical and administrative evaluation committees, and time frames for approvals. Terms of reference for all staff involved in procurement and financial activities in the DBC/ANAM should also be part of the OM with profiles and selection of key staff acceptable to the Bank. Percentages or levels of contributions (labor or materials) agreed to be provided by the community association in the different types of contracts, should be detailed in the OM in order to ensure smooth administration of contracts and purchase orders, and ample knowledge of suppliers, contractors and consultants on the cost components in a contract under CDD procedures. The updated OM will be a condition of negotiations of the new project.

Procurement Environment and Professional Experience in Procurement. In general terms, it is presumed that the procurement environment in Panama has improved during the present Administration, after it lagged in recent years. The new Administration is in the process of preparing a new Procurement Law. The draft of this law has been shared with the Bank and its procurement specialists that are proposed to included issuance and enforcement of ethical measures that would apply to public procurement. In addition, all staff in DBC/ANAM is subject to a Code of Ethics and the law regulating the performance of public servants. Indeed, during the assessment the mission confirmed that present ANAM authorities and, in particular those in charge of project coordination and procurement, show a strong will for ethical behavior and have expressed their commitment to adhere to competitive selection and transparency in all procurement activities. Staff in ANAM enjoys good professional status.

Procurement Plan. ANAM is in the process of preparing its Global Procurement Plan (GPP) for the life of the project. The final GPC will be a condition for negotiations. In addition a detailed procurement plan for the first 18 months will be a condition of Board presentation. This Plan will be required to be updated at least every 12 months.

Overall Risk Assessment. The procurement activities under this project are very straightforward with a limited number of major contracts during project execution. However, in view of (a) the large component of CDD procurement activities in rural and distant communities, (b) the limited availability of detailed CDD procedures in the OM for subprojects to assist the communities, service providers, and DBC/ANAM in the monitoring and supervision of purchases in the subprojects, and (c) the process of full working institutionalization of DBC/ANAM, the

assessment of this project is considered HIGH. This assessment may be revised after the first year of execution based on implementation outcomes.

Frequency of Procurement Supervision. In addition to the prior review supervision to be carried out from Bank offices, the capacity assessment of the Implementing Agency recommends one post review per year.

3. Details of the Procurement Arrangement and Special Arrangements

Goods and Works and non-consulting services.

- (a) List of contract Packages which will be procured following ICB and Direct contracting: None expected.
- (b) The Procurement Plan will detail all contracts (including those signed with service providers), that would be contracted following NCB and shopping procedures by ANAM, which would be subject to ex-post review by the Bank.
- (c) All direct contracts by ANAM shall be subject to Bank's prior review.
- (d) The 18-month Procurement Plan for the Project will include information on the size of the annual subproject purse to be awarded to communities, supported by CDD arrangements. Direct contracting in support of subproject execution by rural community associations would follow procedures detailed in the OM.

Consulting Services.

- (a) List of Consulting Assignments with short-list of international firms: None
- (b) Selection of consultants (firms) for assignments estimated to cost above US\$100,000 equivalent, and any single source contract, regardless of cost, will be subject to prior review by the Bank.
- (c) Short lists composed entirely of Panamanian consultants: Short lists of consultants for services estimated to cost less than US \$200,000 per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.
- (d) The 18-month Procurement Plan will detail the thresholds of contracts with individual consultants that will be subject to Bank's Prior Review.

Annex 9: Economic and Financial Analysis

Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor Project

Overview

Specific subproject investments implemented under Component 1 of the proposed project will be decided by eligible community associations and rural producer organizations under a Community-Driven Development (CDD) methodology. As such, it is not known *a priori* how available resources for environmental subprojects will be allocated, and therefore a precise *ex ante* estimation of cost-effectiveness, rate of return and fiscal impact is not possible. However, environmental subprojects to be financed would, in general, be expected to be similar to those financed under the previous PAMBC.

In this Annex, a review of the secondary literature is first presented to confirm the appropriateness and viability of small-scale agroforestry investments in rural Panama, as these comprised the bulk of subproject investments under the PAMBC and are expected to weigh heavily in the proposed project. Second, an assessment is made of the cost-effectiveness and sustainability of selected subprojects under the PAMBC, including financial and economic rates of return.

Review of the Literature

*Smallholder perceptions of agroforestry projects in Panama.*⁴ Fischer and Vasseur (2002) examine the perceived socioeconomic and environmental impacts of five agroforestry projects in Panama, spanning from 1899-1997. Semi-structured interviews were conducted with 68 smallholders and later compared with interviews with thirteen agroforestry experts from the public sector, academia and NGOs. Average farm size of those interviewed was 6.8 ha., with average households of approximately seven individuals. Virtually all smallholders interviewed planted timber trees, mostly in woodlots (50%), but also in windbreaks (30%), live fences and *taungya* systems. While socioeconomic impacts were minimal – 84% of smallholders reported no change in their level of income – some 48% noted that reduced soil erosion and increased soil fertility were direct benefits from tree planting. Limited market development was frequently cited as a major constraint on profitability from agroforestry investments. The authors make a series of recommendations designed to increase agroforestry adoption by smallholders in Panama, many of which have been incorporated in the design of the proposed project (Table A).

Table A: Recommendations to increase agroforestry adoption by smallholders in Panama

Factors	Recommendations
Project design and management	<ul style="list-style-type: none">• Use participatory techniques to involve farmers at all stages of project design, implementation and monitoring• Ensure all community grps are involved, recognizing the distinct priorities of women.• Respect and listen to farmers' knowledge• Establish low-cost demonstration farms where possible
Economic Issues	<ul style="list-style-type: none">• Develop markets for diversity of species• Establish more marketing organizations
Policy framework	<ul style="list-style-type: none">• Reassess incentives encourage small-scale agroforestry systems^a• Provide secure land tenure to smallholders^b

⁴ *Agroforestry Systems* 54: 103-113, 2002.

Source: Fischer and Vasseur (2002)

^a Law No. 24; November 23, 1992; ^b see Panama Land Administration Project (PRONAT) financed under Ln. 7045

Economic and Institutional Analysis of Agroforestry Projects in Panama.⁵ Gomez (1995) analyzes two agroforestry projects: (a) Agroforestry Project for Community Development (INRENARE/CARE), executed 1986-89; and (b) Food Production and Community Development Through the Agroaquacultural Program (MIDA/WFP), executed 1986-97. The INRENARE/CARE project, executed in Coclé province, promoted tree cultivation as the principal component in production systems, including soil conservation. Four types of agroforestry systems were promoted: (a) woodlots, (b) *taungya* systems⁶; (c) live fences; and (d) windbreaks. Participating farmers organized in groups of 7-18 members, with each member's farm size of 3-6 hectares. The actual decision to adopt these alternative agroforestry systems rested with the producer groups; adoption rates were uniformly satisfactory. Internal rates of return to agroforestry investments ranged from 15.5% to 25% and were fairly robust when subjected to sensitivity analysis.

The MIDA/WFP project emphasized aquaculture with secondary activities that included tree plantation for watershed protection. The project worked with farmers on plot sizes of 5-25 hectares. Two agroforestry systems were promoted: (a) woodlots (at least 0.63 hectares) in agroaquatic ecosystems and (b) woodlot (at least (0.5 hectares) on the water source. Seedling production was undertaken through community nurseries also established under the project. Adoption rates for option (a) were estimated at 79%, yet much lower for option (b). IRRs were in the same range as the INRENARE/CARE project (see Table B).

Table B Financial Indicators, INRENARE/CARE and MIDA/WFP projects

Indicator	INRENARE/CARE		MIDA/EFP	
	<i>Taungya</i> system w/ <i>Acacia mangium</i> with corn; 1,100 trees per ha	Woodlot w/ <i>Acacia mangium</i> ; 1,100 trees per ha	Woodlot w/ <i>Acacia mangium</i> ; 1,600 trees per ha around fish ponds	Woodlot w/ <i>E. camaldulensis</i> ; 1,600 trees per ha around fish ponds
Description				
Area analyzed	1 ha.	1 ha.	1 ha.	1 ha.
Time horizon (years)	13	13	13	10
Main products	Poles, posts, corn and sawlogs	Poles, posts, corn and sawlogs	Posts, fuelwood, poles, sawlogs; pond protection	Posts, fuelwood, poles, sawlogs; pond protection
Benefit-Cost ratio	1.24	1.33	1.43	1.01
IRR	24.7	25	26.4	20.4
Payback Period	8	8	8	5

Source: Dean Current, Ernst Lutz and Sara Scherr (eds).

Cost-Effectiveness of subproject investments

Several aspects of project design help to ensure that the participatory CDD mechanisms for delivering subproject investments represent the least-cost, best alternative. First, the demand-driven nature of each subproject permits scarce resources to flow competitively where they are most

⁵ From Dean Current, Ernst Lutz and Sara Scherr (eds). *Costs, Benefits and Farmer Adoption of Agroforestry: Project Experience in Central America and the Caribbean*. World Bank Environmental Paper No. 14. 1995.

⁶ The *taungya* system is a temporal agroforestry system which combines production of forestry tree crops and agricultural crops on forest lands (see: <http://www.iita.org>)

needed. Community participation ensures that the chosen subproject is the best alternative for the local community, given both local knowledge and the information disseminated as part of the broader awareness campaign undertaken by DBC/ANAM as a precursor to preparing subproject proposals. Second, the use of standard technical designs for the most common types of subprojects (including corresponding cost parameters), first developed under the PAMBC and available for the proposed project, ensures that community associations employ least-cost models for subproject implementation. These standard designs also decrease search and information costs for community associations by providing established patterns of initiating and completing a subproject. Third, the delegation of subproject implementation directly to the community associations is expected to generate cost savings, when compared to comparable quality works implemented by public sector agencies. The contracting procedures will be prescribed in the Project Operational Manual (also utilized under the PAMBC) and require direct contracting by community associations through competitive processes on all subprojects.

Financial and economic analysis of PAMBC Subprojects

To assess the viability of small-scale investments financed under the PAMBC, financial and economic analyses were conducted, based on activity models constructed from (i) field interviews with and data collected from PAMBC rural participants and (ii) desk reviews of subproject records on ANAM. Financial IRRs are satisfactory and confirm that the sampled investments are capable of sustained positive cash flows. Economic IRRs, while accounting for the in-kind labor contributions of participants as well as additional imputed benefits, are also satisfactory (Table C).

Table C: Financial/Economic Assessment: PAMBC Subprojects

Category Subproject	#	%	Beneficiaries (#)	Cost (US\$)			IRR	
				Total	Per subproject	Per beneficiary	Fin.	Econ.
Agroforestry	66	66%	10,270	1,094,211	16,579	107	>25	20
Captive Breeding	12	12%	1,027	237,607	19,801	231	21	>25

Source: Field data, PAMBC

Annex 10: Safeguard Policy Issues

Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor Project

World Bank safeguard policies applicable to this project are Environmental Assessment, Natural Habitats, Pest Management, Forests, Cultural Property and Indigenous Peoples.

Summary of Environmental Analysis:

Overview. This project builds on the experience and lessons learned from the Panama Atlantic Mesoamerican Biological Corridor Project, PAMBC (1998-2005) and is expected to have a strong overall positive environmental impact and advance global biodiversity goals by (a) improving the effective management of protected areas and natural habitats and (b) fostering environmentally sustainable productive activities in rural areas that encourage preservation of biodiversity of global significance.

Project Summary: Project components include: (i) **Community Investments in Environmental Resources** provide grants to community associations and rural producer organizations to finance subproject investments in improved natural resources and environmental management, and to offer support services to beneficiaries to access these funds; (ii) **Management of Natural Resources and Strengthening of the SINAP** to promote co-management arrangements, local participation and decentralization of environmental management to municipal governments and *comarcas*, and to develop a pilot scheme for the Payment of Environmental Services (PES); and (iii) **Monitoring, evaluation, supervision and administration** to strengthen the government capabilities to monitor protected areas and biodiversity, and to supervise the project administration. The project would cover fourteen priority Protected Areas and their buffer zones.

Positive Environmental Impacts. Important overall environmental benefits of the project include reduction of deforestation and depletion rates of biodiversity, increase in self-financing in protected areas, improvements to degraded lands and slowing of agricultural intervention in strategic areas for biodiversity conservation, reduced soil erosion, improved habitat conditions for biodiversity and improved water quality in pilot watersheds.

Potential Adverse Environmental Impacts. The main potential for negative environmental impacts arises from the subprojects designed and financed through Components 1 and 3. Eligible investments for these subprojects would comprise three indicative categories: (a) environmentally-oriented agribusiness to add value to primary production; (b) management of natural resources for alternative products in response to emerging ecomarkets (e.g. Non-Timber Forest Products (NTFP), ecotourism, handicrafts, wildlife breeding, environmental services); and (c) investments to restore and maintain environmental assets (e.g reforestation, agroforestry, soil conservation). Subproject grants would range between US\$10,000 and US\$30,000 for which beneficiaries would contribute at least 10 percent of total subproject cost (in cash or in-kind). Subprojects involving involuntary resettlement will not be financed under the project.

Potential impacts that these investments could have on the local environment are diverse and include: (i) potential release of domesticated (rabbit and iguana) or exotic (tilapia) animal species from captive breeding and aquaculture; (ii) overexploitation of NTFP, overexploitation and bycatch in traditional scale-scale fishing; (iii) deforestation and erosion in agriculture activities; and (iv) sustainability or habitat impacts of agroforestry. Tables 1a and 1b describe the potential adverse impacts of subproject investments and associated mitigation measures.

Table 1a: Potencial Environmental Impacts from Subprojects and Mitigation Measures Proposed

<i>Componentes</i>	<i>Impacto</i>	<i>Medidas de Mitigación</i>
Ambiente Físico		
Suelos	<ul style="list-style-type: none"> Contaminación provenientes de materiales de desecho (envases de pinturas, bolsas de cemento, pedazos de hierro, tuberías de PVC, vidrios) 	Protección de superficie del suelo durante la construcción: control y limpieza diaria de sitios de construcción; provisión de servicios adecuados de eliminación de desechos de la construcción
Recursos Hídricos	<ul style="list-style-type: none"> Obstrucción de obras de drenaje Disminución de la calidad del agua, debido a contaminación Introducción de productos peligrosos en la construcción (potasa, barnices, aceites, ácidos, thinner, cilindros de gas) 	Atención especial al drenaje; Eliminación apropiada de aceites y otros materiales peligrosos; sistema adecuado de saneamiento y eliminación de desechos (especialmente en mercados, mataderos)
Calidad del Aire	<ul style="list-style-type: none"> Polvo durante la construcción Degradación de la calidad del aire interior (Ej.: ocasionado por fogones, estufas) Problemas de olores (Ej.: mercados, mataderos) Deposición inapropiada de desechos sólidos 	Riego de agua en los alrededores para minimizar la generación de polvo; localización apropiada del sitio del subproyecto; recolección diaria de desechos sólidos; mantenimiento del área limpia
Ambiente Acústico	<ul style="list-style-type: none"> Molestias ocasionadas por ruidos durante la construcción y operación 	Restricción de la construcción a ciertas horas que puedan causar molestias a los habitantes cercanos
Ambiente Biológico		
Hábitat Naturales	<ul style="list-style-type: none"> Alteración de los hábitat naturales 	Selección cuidadosa de sitios (especialmente nuevas estructuras); considerar sitios alternativos
Fauna y Flora	<ul style="list-style-type: none"> Pérdida o degradación de vegetación Alteración o destrucción de vida silvestre 	Minimizar pérdida de vegetación natural durante la construcción; consideración de sitios alternativos; examinar medidas especiales para especies sensitivas
Ambiente Social		
Estética y Paisaje	<ul style="list-style-type: none"> Escombros 	Limpieza diaria de sitios de construcción; provisión de sistemas adecuados de eliminación de desechos
Sitios Históricos/Culturales	<ul style="list-style-type: none"> Degradación de sitios Molestias a las estructuras 	Consideración de sitios alternativos; medidas especiales para protección de edificios y otros recursos/áreas culturales
Salud Humana	<ul style="list-style-type: none"> Desechos sólidos de los centros de salud 	Sistemas especiales para la eliminación de desechos médicos; participación comunitaria en la evaluación ambiental

Table 1b: Action Plan for Potential Mitigation Measures

<i>Tipo Subproyecto</i>	<i>Medidas de Mitigación</i>	<i>Presupuesto de Costos</i>	<i>Cronograma de Ejecución</i>	<i>Responsables de Ejecución</i>	<i>Criterios de Éxito</i>	<i>Capacitación Requerida</i>
Construcciones rurales menores	Protección de superficie del suelo durante la construcción	Plástico de alto calibre: US\$0.20/m	Durante la construcción de la obra	Empresa constructora	Funcionamiento estable de la obra	Trabajo en grupo: derechos y deberes
	Riego de agua en los alrededores para minimizar la generación de polvo (estación seca)	Dos (2) tanques de 55 gls./día: US\$2	Cada dos (2) días (estación seca) a partir de la construcción de la obra	Municipios, Juntas Comunales, CDS de Corregimiento y Comunidades	Uso comunitario adecuado de la obra	Mantenimiento de obras comunitarias
	Control y limpieza diaria de sitios de construcción	US\$0.25/día	Diario	Dirección Nacional de Evaluación y Ordenamiento Ambiental y Administraciones Regionales (ANAM)	Generación de ingresos adicionales a nivel familiar (Talleres Artesanales)	Manejo de desechos sólidos en la comunidad
	Eliminación apropiada de aceites y otros materiales peligrosos	Tanque especial de recolección US\$10	Al momento de utilizarlos durante la construcción	Dirección Nacional de Infraestructura Rural y Riego, Dirección Nacional de Desarrollo Rural (MIDA)	Mayor seguridad de las personas (Aceras y zarzos)	Ornato y Aseo Comunitario
	Restaurar la pérdida de vegetación natural	US\$2/m ² de grama o US\$0.05/cepa de hierba vetiver o US\$1/plantón	Al culminarse la obra	Ministerio de la Niñez, Juventud y la Familia (MINIJUNFA)	Mayor espacio para recreación de los niños y juventud (Parques)	
	Restricción de la construcción a ciertas horas que puedan causar ruidos (noches)	N/A	Durante la construcción de la obra	Direcciones Regionales (MINSAL)	Mejor ambiente para estudiar y por lo tanto disminución de la deserción escolar (Aulas, comedores, laboratorios)	
				Direcciones Regionales (MED)	Acceso a variados Programas de Educación Ambiental (Paneles Solares)	

Environmental Management Plan (EMP). The EMP identifies the requirements for subproject compliance with the national environmental impact assessment (EIA) regulations contained in Executive Decree No. 59, based on the following four categories: (a) full environmental assessment required; (b) specific environmental assessment required; (c) no environmental assessment but environmental analysis is required; and (d) no environmental assessment or analysis is required. These regulations are consistent with the Bank's environmental safeguards.

The EMP presents a detailed screening process with specific criteria and procedures that the DBC/ANAM staff would follow to evaluate proposed subprojects and assign them to a specific EIA category. The screening process will be included in the project Operational Manual; all proposed subprojects will be carefully reviewed during the feasibility phase and, where appropriate, mitigating measures will be designed and implemented. To aid the screening process, the EMP also includes a series of matrices that show potential impacts and mitigation measures for each subproject category and a corresponding matrix showing the costs, timetables, institutional responsibilities, indicators of success, and capacity building requirements for each mitigation measure.

Subprojects that involve investment in small civil works or production support would include a detailed description of specific environmental risks, potential negative impacts and mitigation measures that proponents would have to comply with during subproject execution. To aid this process, the OM will include a section that describes standard Environmental Rules for Contractors that identify best practices to prevent or mitigate negative environmental impacts. Agreements will be signed with subproject proponents to ensure adequate prevention and mitigation actions are conducted during subproject execution.

DBC/ANAM, in coordination with municipal governments and *comarcas*, will supervise the execution of subprojects to ensure that these actions are properly implemented and, when necessary, suggest additional corrective measures. These supervision activities will be part of the monitoring and evaluation of the Project and detailed in the OM.

Compliance with Safeguard Policies

Environmental Assessment (OP 4.01). The project's category B rating requires an environmental assessment to evaluate potential positive and negative environmental impacts and to make recommendations for measures to avoid, minimize, or mitigate adverse impacts. The EA was carried out by ANAM based on extensive reviews of relevant information, field visits and initial public consultations to discuss the project concept. A seven-day field mission was also conducted to examine some 30 community subprojects under the PAMBC project to assess their environmental impacts. Additional public consultations were also conducted in February 2005 with 54 participants from environmental NGOs, producer groups, grassroots organizations, indigenous communities, and others to present and discuss the results of the EA and get their feedback and observations. The EA is available in the World Bank InfoShop and on the website of ANAM.

The main contents of the EA include: (i) a description of the environmental characteristics of the project area; (ii) expected positive and potential negative environmental impacts of project

activities; (iii) a detailed review of national environmental regulations, namely the General Environmental Law (Law 41) and the EIA regulations (Decreto Ejecutivo No. 59), and the Bank's Operational Policies that would be applicable to all project activities; (iv) an EMP; and (v) a strategy to monitor and evaluate the environmental aspects of the project.

The EA discusses the role of ANAM as the government entity responsible for the implementation of the National Environmental Strategy, which includes a Strategic Participatory Plan, and an Inter-institutional Environmental System that promotes coordination among government agencies to integrate environmental policies across sectors. Strategies for the decentralization of environmental management responsibilities by ANAM to municipal governments are also discussed.

Natural Habitats (OP 4.04) and Forests (OP 4.36). The project seeks to conserve natural habitats and biodiversity through (a) natural resources and Protected Areas management and (b) promotion of sustainable productive activities that could enhance, preserve or, at least, not degrade, the biodiversity value of such habitats. The project EA used a range of existing sources of information and *in situ* analysis to determine the location of natural habitats in the project area, their ecological functions, relative importance, threats, and management issues. This information has been combined with the analysis of possible project activities to determine potential negative impacts, screening procedures, and mitigation policies. Productive, natural resources and biodiversity subprojects that are explicitly intended to benefit natural habitats will be assessed through screening to determine what level of environmental analysis is required in each case.

The EA report identifies potential negative impacts in activities such as agroforestry, aquaculture, captive breeding of native species, and other types of subprojects and sets out prevention and mitigation measures such as biodiversity inventories, careful site selection, evaluation of indirect and cumulative impacts, prevention of water contamination, and use of construction practices that minimize disruption to plant and animal populations.

The project triggers the Forests safeguard policy because it is expected to have an impact on the health and quality of forests, affect the rights and welfare of people and their level of interaction with forests, and bring about changes in the management, protection, and utilization of natural forests. These impacts are expected to be positive, and are one of the essential goals of the project. The project does not involve significant conversion or degradation of forest areas, but rather would seek to integrate forests into sustainable rural economic development and protect the vital local and global environmental services and values of forests through community-based natural resources and protected areas management and development.

Subprojects directly affecting forests may include nurseries, reforestation, ecotourism, improved woodstoves to reduce fuelwood needs, community management of forests and protected areas, soil stabilization programs, microwatershed management, environmental services pilot programs, and small-scale integrated, biodiversity-friendly agroforestry systems. The project's forest activities aim to maintain or enhance biodiversity and ecosystem functionality, and in many cases also provide environmentally appropriate, socially beneficial, and economically viable productive activities for rural and indigenous communities. Potential negative impacts will be addressed in the same way described for the Natural Habitats safeguard, including both

environmental and social risks and benefits, and particularly including impacts on indigenous communities where applicable.

Pest Management (OP 4.09). This project does not trigger the Bank's Pest Management Policy because it would not: (i) procure any pesticides (nor pesticide application equipment); (ii) lead to increase pesticide use; nor (iii) support pest management practices that are risky or unsustainable from an environmental or health standpoint.

Cultural Property (OP 11.03). There is a potential, but low risk to physical cultural property. Eco- or ethnotourism subprojects would seek to conserve rather than damage historic or cultural sites, and indigenous communities will have an active interest in preventing any damage to cultural property in the project areas within their lands. The Project Operational Manual will include procedures for all small works subprojects to ensure that the contractors, individuals, or organizations carrying out such activities understand the steps required to assess and if necessary protect any chance finds of cultural significance that they encounter.

Involuntary Resettlement (OP/BP 4.12). Restriction to access is unlikely to occur under the proposed project. Screening of subproject proposals would be guided by criteria set forth in the Operational Manual and monitored during implementation through the existing MIS used by ANAM under the PAMBC. Such criteria will include the potential for project activities (including management plan implementation) to result in restriction of access to resources within protected areas. In the unlikely event that the policy may be triggered in the course of project implementation, a Process Framework would be adopted for use in the project. An existing Process Framework which covers similar activities to those in the proposed project, is already in place with ANAM for use under the Panama Land Administration Project (Ln. 7045-PA). During project appraisal, the Bank and ANAM will proactively review the existing Framework and update it as needed for its inclusion in the Operational Manual for the proposed project, if the event it would be required in the future.

Indigenous Peoples (OP/BP 4.10). A detailed Social Assessment was conducted by ANAM during project preparation to: (i) identify and characterize project beneficiaries; (ii) identify general needs of technical assistance and training to strengthen social and human capital of community institutions for self-management of natural resources; (iii) identify potential negative impacts associated with the proposed project activities focusing on indigenous and other vulnerable groups and design prevention and mitigation measures; (iv) incorporate lessons learned from the implementation of the Indigenous Peoples Development Plan of the PAMBC project into the proposed Project; (v) prepare the Project's Indigenous Peoples Plan (IPP) to ensure that socio-cultural norms and preferences of the indigenous populations are adequately considered and respected in the project design and during its implementation; and (vi) develop a participation plan to ensure the beneficiaries' involvement in design, execution and evaluation of the project.

This section presents a summary of the methodology, results, conclusions and recommendations of the social assessment and the IPP. The IPP are available for public consultation in the World Bank InfoShop and the website of ANAM.

Methodology

The evaluation consisted of (i) an extensive review of existing socio-economic information and PAMBC project documents; and (ii) a wide process of consultations to different potential project beneficiaries and stakeholders in the project area. Consultation included 49 events with 350 participants including 8 workshops, 78 interviews with individuals, 20 group interviews with members of communities that participated in the PAMBC project, communities that did not, municipal, *corregimiento* leaders, SDCs, ANAM and MIDA regional and national staff, Agricultural Development Bank (BDA), Indigenous leaders, local producers organizations, PAMBC technical teams, local staff of Health and Education Ministries, and representatives of NGOs, some of which participated in the PAMBC project (FUDIS, Fundeprove, Aprosoc, Prodeso, Ideas, FOCIV).

For the preparation of the IPP additional participatory workshops and group and individual interviews of qualified informants from indigenous communities were conducted in Kuna-Yala, Bocas del Toro and Panama.

Principal Results

Project Beneficiaries

The project's beneficiary population is found in 7 provinces and 28 districts of Panama with a total population of approximately 660,000, with an even distribution of men and women. Inside the project area there are four different ethnic indigenous groups (Ngöbe-Buglé, Kuna, Naso-Tribe, Bri bri), in addition to the Afro-Hispanic descendants from the Caribbean Islands, and the peasants who come from other areas of the country. There are approximately 340,000 households in the project area, the majority of which are headed by men (73%) in most districts.

The different types of beneficiaries that will participate in the project are: (i) rural indigenous and non-indigenous populations, (ii) rural organizations of producers and community organizations, which support the productive, social and environmental development of their communities; (iv) local and municipal governments; (v) indigenous peoples' traditional authorities; and (vi) sectoral entities, including ANAM, in the strengthening of their functional role for the construction of human, social, economic and environmental capital in poor communities.

Indigenous Peoples in the Project Area

Based on the 2000 National Census, the indigenous population of Panama consists of 285,231 people (10% of the total population). There are 6 major ethnic groups: Ngöbe-Buglé, Kuna, Emberá, Wounaan, Naso or Teribes and Bri-Bri. Ngöbe-Buglé represent 60%, Kunas 21.6% and the rest include the remaining 18.4%. The remaining population is composed by *Afro-hispanics*, *Latinos* and other immigrant minorities. Indigenous territories represent 47% of the MBC-P region with a territory of approximately 13,000 km². The proposed project area will include the territories of the Ngöbe-Buglé, Kuna, Naso and Bri bri

Ngöbe-Buglé is the largest indigenous group in Panama. Their territories are located in the Provinces of Chiriqui, Bocas del Toro and Veraguas. Originally located in the high mountains of northern Panama, they have moved to coastal and low land areas in search for new lands and livelihoods and to avoid land tenure disputes and land degradation.

The Kuna constitute a strongly consolidated nation that has maintained its autonomy in the face of modern Panamanian society. Their territories include the *Comarcas* of Wargani and Madungandi in the Province of Panama and the archipelago of San Blás.

The Nasos are located along the Teribe river in the Province of Boca del Toro, this group has been historically confined to isolation and distance from western cultures. Their territory remains mostly well forested.

The Bri bri is a minority group located in the border with Costa Rica along the Yorokin river in the Bocas del Toro Province. They are related to the Bri bri groups of Costa Rica.

Socio-economic and demographic Information. The average population density of the project area (16 inhabitants/Km²) is lower than the national average. The population in indigenous groups is skewed towards younger age classes, with 40% of the Kuna Yala and Naso-Tribe and 51% of the Ngöbe-Buglé populations being between 0-14 years of age.

Indigenous groups are subject to conditions of extreme poverty. More than 93% of the Ngöbe-Buglé and 82% of the Kuna Yala populations have incomes lower than the minimum wage. Access to basic health, education and sanitation services are very limited to most communities. Rates of infant mortality in these communities are the highest in the country. Illiteracy is also high, with a rate of 38.5% in the Kuna Yala and 46% in de Ngöbe-Buglé *Comarcas*.

Legal and Institutional Aspects. The indigenous groups of the project area maintain institutional and political systems that are rich and complex, and entail different levels of consensus building. Social capital is expressed in highly organized leadership and decision-making systems, as well as in hierarchical institutions and cultural identity – elements that play a key role in biodiversity conservation.

Five of the seven indigenous territories are constituted in *Comarcas*. *Comarcas* are governed by General, Regional and Local Congresses, based on traditional authorities (*caciques*). The establishment and administration of *Comarcas* is ruled under the *Special Law for the Creation of Comarcas* and the *Organic Letter* of the Political Constitution of Panama. The PAMBC project actively supported the efforts of the Naso community to constitute their *Comarca*.

The current system based on indigenous authorities and indigenous congresses is relatively new. Conflicts between traditional and new leaders, political leaders and indigenous NGO's with regards to government decisions and promotion of indigenous perspectives are common in most *Comarcas*. Conflicts are usually aggravated by the influence of internal factors as well as federal government agencies, donors, and NGO's. During consultations, indigenous leaders have made it clear that political institutions that regulate each indigenous group should be the main

interlocutor with other social actors and collaborative government institutions working in the proposed project.

Management of Natural Resources and Biodiversity Conservation. Traditionally, indigenous communities have had a close interaction with the natural environment and their livelihoods depend on the use of natural resources. Communities in the project area have a broad knowledge about traditional uses of plants, animals soil and microclimate and their extractive and productive systems are largely sustainable. The General Environmental Law of 1998 (*Ley 41*) recognizes the rights of all indigenous peoples regarding traditional knowledge for the management and conservation of their natural resources. The increasing interaction of indigenous peoples with local and national markets for the trade of their products, however, poses some threats regarding fair trade and ecological sustainability that will require special attention during project execution.

The principal threats to biodiversity in the project area are associated with agricultural colonization, unsustainable agricultural practices, forestry investments, public and private infrastructure and mining projects. Under the pressure of the market economy, demographic growth and economic interests of private entrepreneurs, some communities are now using non-sustainable practices including large scale forest clearings for agriculture, overuse of marine ecosystems and extensive cattle ranching in steep slopes. Agricultural colonization is directly and indirectly associated with national development projects such as the road construction in the Chiriquí Province that threatens the Naso and Ngöbe-Buglé *Comarcas*, and road construction in the area of Narganá in the western limit of the Kuna-Yala *Comarca*.

Main Conclusions and Project Design Considerations

This section presents the main conclusions of the Social Assessment and the Indigenous Peoples Plan and also incorporates important lessons learned from the implementation of the IPDP of the PAMBC project. These conclusions and specific recommendations have been carefully incorporated in the design of the proposed project in each of its components and activities.

The ICR of the PAMBC project reports that the design and implementation of strategies to treat indigenous peoples and the corresponding Indigenous Development Action Plan were in general highly successful. ANAM was able to consolidate a new institutional framework that transformed the approach to managing protected areas, and which was participatory and inclusive of local communities and indigenous *Comarcas*.

Institutional development and participation strategies. Successful institutional arrangements between ANAM and indigenous authorities were implemented to guarantee an effective participation of indigenous people in the planning and implementation of management and conservation in priority geographic areas of the PAMBC. Important contributions of this project include: (i) an extensive training and communications outreach campaigns; (ii) support for the establishment of 6 Consultative Environmental Commissions (CCA) at the provincial, municipal and *Comarca* levels to promote citizen involvement and advise on environmental matters; (iii) support for the establishment of the new *Comarca* for the Naso-Teribe territory; and (iv) support for the establishment of the National Council for Indigenous Development. The proposed project will continue to support and build on these experiences.

Local capacity building for conservation and management of natural resources. An extensive training program was implemented in a range of topics that included project management, gender equality, technology transfer and environmental management. Some 300 indigenous leaders participated in this program. Support was also given to Regional Indigenous Congresses, *Comarca* planning units, local authorities and the newly established CCAs.

Major limitations and risks identified in capacity building activities relate to the inability of the project to respond to specific local needs of indigenous communities to strengthen both human and social capital. Training programs need to be more specifically designed to respond to these needs considering adequate technical levels and in local languages to maximize their impact to targeted indigenous groups. Training programs and technical assistance interventions also need to consider an appropriate timing to strengthen the different phases of development process that each community is experiencing.

Investments in Sustainable Management of Natural Resources. The PAMBC project was successful in supporting communities to develop investment subprojects to manage natural resources. One hundred subprojects were implemented benefiting nearly 35,000 rural inhabitants. Indigenous communities carried out 75% of these subprojects, accounting for 70% of the funding for this activity. Consultations indicate that an adequate level of appropriation of subprojects was achieved in most of these communities.

Important issues, however, need to be addressed to improve the quality and impact of these type of investments among indigenous communities. In general terms a more systematic technical support is required given the lack of experience of most communities. Subprojects also need to balance long-term environmental goals with short-term actions to increase income. Specific issues to consider include:

Technical assistance by private providers. ANAM contracted NGOs with legal recognition to help communities to identify and prepare subprojects. NGOs were also contracted to administer subproject funds on behalf of the beneficiary organizations. Not all NGOs, however, had the required local experience and technical and social skills to ensure successful results. Community leaders felt that these organizations sometimes failed to respond to specific needs contained in community action plans and that some subprojects that were ultimately presented by NGOs were not the ones that has been agreed with the community.

Economic impact of investment subprojects. Investments have had a limited impact in generating income and employment, particularly among women and young community members. In addition to a poor design and implementation of subprojects, access to local or national markets and commercialization skills of local products and services are important limitations in most communities. An important conclusion is that marketing and financial sustainability of subprojects needs to be more adequately addressed at the design stage.

Monitoring and evaluation. ANAM has had a limited capacity to supervise the design and implementation of subprojects and evaluate the important role that NGOs play in this process. This role is critical to ensure the quality of economic and environmental impacts and the

continuity communities need to improve results in subsequent phases of the subproject development.

Indigenous Peoples Plan

This section presents a summary of the main elements of the IPP that were considered during project preparation and that have been mainstreamed into the project's specific components and activities (Table 2). The IPP was prepared by the GOP and is available in the project files and for public consultation in the World Bank Infoshop and the website of ANAM.

Table 2: IPP Summary

General Objective	Main Project Activities
Participation and Strengthening of Local Governments and other Community Institutions	<ul style="list-style-type: none"> • Establish a permanent project promotion strategy based on participatory workshops and publications targeting specific indigenous groups and using local languages. • Conduct consultations with indigenous authorities to establish or update working agreements with ANAM. • Create and strengthen CCAs and ETU in indigenous <i>Comarcas</i> to improve environmental planning and sustainable management of natural resources based on a strong participatory approach. • Offer technical assistance for the legal constitution and development of community organizations. • Support other efforts to strengthen social capital including the continuous support for the formal establishment of the Naso-Tribe Territory and the strengthening of the National Council for Indigenous Development.
Capacity Building for sustainable management of natural resources and conservation of biodiversity	<ul style="list-style-type: none"> • Design and implement a training program to strengthen technical knowledge that responds to specific needs of indigenous communities and that takes into consideration women and the youth. • Offer specialized technical assistance to help communities design and implement sustainable productive subprojects. • Train, regulate and supervise NGOs and other private technical service providers to ensure that the assistance they offer to indigenous communities meets high standards and responds to their particular needs.
Investments in environmental management and sustainable use of biodiversity	<ul style="list-style-type: none"> • Establish co-management arrangements for protected areas between ANAM and the local governments and community organizations. • Support local indigenous governments to design, implement and supervise pilot investments in environmental management and land use plans. • Finance productive subprojects for the management of natural resources using criteria to ensure their financial and environmental sustainability and positive outcomes in income and employment for beneficiary communities.
Monitoring and evaluation	<ul style="list-style-type: none"> • Design and implement a participatory monitoring and evaluation system, coordinated by ANAM to ensure that project activities reach indigenous communities in response to their needs and expectations.

Borrower capacity to implement safeguard policy recommendations.

Together with World Bank safeguard procedures and application of international standards, Panama's tougher environmental regulations and capacity in recent years provide a good framework for implementing safeguard policies. Law 41 (1998), Executive Decree 57 (2000), Decree 59 (2000), and the subsequent modifications and codification of those decrees have created more robust environmental review procedures in the past 5 years. Decree 59 and its implementing regulations specifically require environmental impact analysis for a range of activities that were previously exempt. Law 41 also recognizes the rights of indigenous peoples on traditional knowledge for the management and conservation of their natural resources.

The executing capacity of ANAM has been strengthened through the PAMBC project, and will be the target of additional capacity building in the new project. Furthermore, a central feature of the project is a very strong program of training and capacity building of public and private actors at the municipal and local levels for both project development and implementation as well as for playing a more vital role in resources and protected areas management. In terms of safeguard compliance specifically, these various levels of training will help create better conceived projects with better analysis and more accountable implementation, but EIA evaluation and clearance of subprojects and the supervision of indigenous peoples' issues will still be the responsibility of ANAM, which will receive targeted technical assistance for this purpose.

In addition to the screening and review processes and training activities described above, safeguard monitoring will also be enhanced by the project's overall monitoring and evaluation system, which is the responsibility of ANAM and will be built on the successful M&E systems of the PAMBC Project Operation with improvements based on an evaluation by an external consultant. The M&E system will help monitor safeguard compliance by tracking indicators related to environmental and social goals including indigenous peoples issues.

Annex 11: Project Preparation and Supervision

Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor Project

	Planned	Actual
PCN review	05/02/2003	05/02/2003
Initial PID to PIC	06/03/2003	06/03/2003
Initial ISDS to PIC	06/03/2003	06/03/2003
Appraisal	04/17/2006	04/18/2006
Negotiations	04/24/2006	04/24/2006
Board/RVP approval	06/15/2006	
Planned date of effectiveness	09/15/2006	
Planned date of mid-term review	09/01/2008	
Planned closing date	12/01/2010	

Key institutions responsible for preparation of the project:

Ministry of Economy and Finance (MEF)
National Environment Authority (ANAM)

Bank staff and consultants who worked on the project included:

Name	Title	Unit
Diana Rebolledo	Language Program Assistant	LCSEO
Dinesh Aryal	Operations Analyst	LCSER
Diomedes Berroa	Sr. Operations Officer	LCOPR
Edward W. Bresnyan	Agricultural Economist	LCSER
Fabienne Mrocza	Financial Management Specialist	LCOAA
George Ledec	Lead Ecologist	LCSER
Gerardo Segura	Sr. Rural Development Specialist	LCSER
James W. Smyle	Sr. NRM Specialist	LCSER
Juan Martinez	Sr. Social Scientist	LCSEO
Juan Morelli	Consultant	FAO
Katharina Gamharter	Legal Associate	LEGLA
Matthew A. McMahon	Lead Agriculturalist, Task Manager	LCSER
Rosita Valencia de Estrada	Procurement Specialist	LCSPT
Solange Alliali	Sr. Counsel	LEGLA
Teresa M. Roncal	Operations Analyst	LCSER
Xiomara Morel	Sr. Finance Office	LOAG1

Bank funds expended to date on project preparation:

1. Bank resources: US\$143,970
2. Trust funds: US\$275,000
3. Total: US\$418,970

Estimated Approval and Supervision costs:

1. Remaining costs to approval: US\$35,000
2. Estimated annual supervision cost: US\$50,000

Annex 12: Documents in the Project File

Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor Project

Government Documents

1. Government's project document (ANAM/MIDA, Mar. 2006).
2. General Environmental Law of the Republic of Panama (Law No. 41) (Jul. 1998).
3. National Environmental Strategy – Panama. (ANAM, Feb. 1998).
4. Policy Guidelines of the National Environmental Authority (ANAM, Sep. 2005).
5. Financial Sustainability for National Systems of Protected Areas. Panama Country Support Plan (ANAM, Aug. 2005).
6. The Rural Economy and its Contribution to Reduce Rural Poverty (MIDA, Sep. 2003).
7. Benefits and Opportunity Costs of Biodiversity Conservation in the Atlantic Mesoamerican Biological Corridor of Panama (B. Aylward, Feb. 1998).
8. Systematization of experiences in the execution of community subprojects of the Panama Atlantic Mesoamerican Biological Corridor Project (ANAM, 2005).
9. National Strategy for the Payment of Environmental Services (ANAM, Nov. 2005).
10. Institutional Analysis (A. Paniagua, May, 2005).
11. GEF Tracking Tool of the 14 protected areas targeted under the Project (ANAM, Mar 2006).
12. Operational Manual (Apr. 2006).

Safeguard Documents

13. Environmental Assessment and Environmental Management Plan (F. Selles, Apr. 2005).
14. Social Assessment and Participatory Plan (A.L. Moreno, Apr. 2005).
15. Indigenous Peoples Plan (A.L. Moreno, Apr. 2005).

World Bank Documents

16. Detailed Project cost tables.
17. Financial management capacity assessment.
18. Procurement capacity assessment.

Annex 13: Statement of Loans and Credits
Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor Project

Project ID	FY	Purpose	Original Amount in US\$ Millions				Cancel.	Undisb.	Difference between expected and actual disbursements	
			IBRD	IDA	SF	GEF			Orig.	Frm. Rev'd
P055844	2002	PA Public Policy Reform TA Project	10.50	0.00	0.00	0.00	0.00	3.22	3.22	1.39
P050595	2001	PA LAND ADMINISTRATION	47.90	0.00	0.00	0.00	0.00	37.19	28.89	0.00
P052021	2001	PA BASIC EDUCATION II	35.00	0.00	0.00	0.00	0.00	23.41	23.41	0.00
P040179	1999	PA HEALTH PILOT	4.30	0.00	0.00	0.00	0.00	0.39	0.39	0.00
P045937	1998	GEF PA-PAMBC	0.00	0.00	0.00	8.40	0.00	0.12	8.30	0.00
Total:			97.70	0.00	0.00	8.40	0.00	64.33	64.21	1.39

PANAMA
STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars

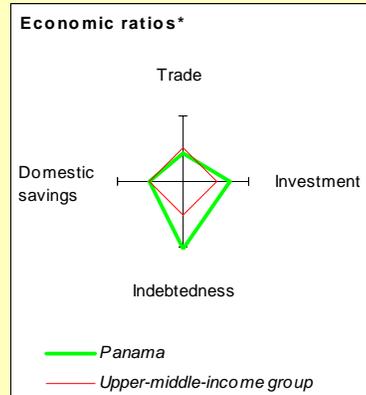
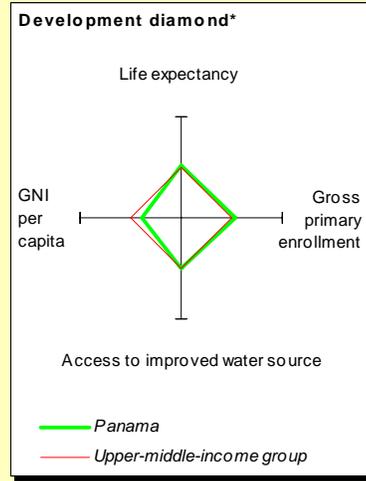
FY Approval	Company	Committed				Disbursed			
		IFC				IFC			
		Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
2003	Aguas Panama	5.50	0.00	0.00	9.18	5.50	0.00	0.00	9.18
1999	BANISTMO	12.94	0.00	0.00	10.86	12.94	0.00	0.00	10.86
1997/00	Banco General S.	25.00	0.00	0.00	0.00	25.00	0.00	0.00	0.00
2004	Continental-PAN	40.00	0.00	0.00	0.00	40.00	0.00	0.00	0.00
1998	ICA Panama	18.20	0.00	15.00	18.93	18.20	0.00	15.00	18.93
2004	La Hipotecaria	12.50	0.00	0.00	0.00	12.50	0.00	0.00	0.00
1995/00	Manzanillo	12.72	0.00	0.00	0.00	12.72	0.00	0.00	0.00
1999	PCRC	13.42	5.00	0.00	26.00	13.42	5.00	0.00	26.00
1999	Suinternacional	2.76	0.00	0.00	0.00	2.76	0.00	0.00	0.00
2003/04	UBCI	0.00	0.33	0.00	0.00	0.00	0.33	0.00	0.00
2002	UPO Panama	13.10	0.00	0.00	5.30	2.99	0.00	0.00	1.21
Total portfolio:		156.14	5.33	15.00	70.27	146.03	5.33	15.00	66.18

		Approvals Pending Commitment			
FY Approval	Company	Loan	Equity	Quasi	Partic.
Total pending commitment:		0.00	0.00	0.00	0.00

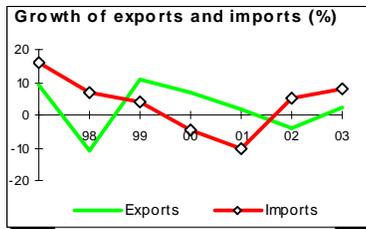
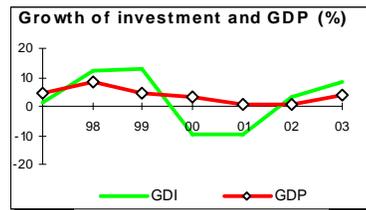
Annex 14: Country at a Glance

Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor

POVERTY and SOCIAL	Panama	Latin America & Carib.	Upper-middle-income		
2003					
Population, mid-year (millions)	3.0	534	335		
GNI per capita (Atlas method, US\$)	4,250	3,260	5,340		
GNI (Atlas method, US\$ billions)	12.7	1,741	1,788		
Average annual growth, 1997-03					
Population (%)	16	15	12		
Labor force (%)	2.3	2.1	18		
Most recent estimate (latest year available, 1997-03)					
Poverty (% of population below national poverty line)	37		
Urban population (% of total population)	57	77	76		
Life expectancy at birth (years)	75	71	73		
Infant mortality (per 1,000 live births)	19	28	19		
Child malnutrition (% of children under 5)	8		
Access to an improved water source (% of population)	90	86	89		
Illiteracy (% of population age 15+)	8	11	9		
Gross primary enrollment (% of school-age population)	110	129	104		
Male	112	131	104		
Female	108	126	104		
KEY ECONOMIC RATIOS and LONG-TERM TRENDS					
	1983	1993	2002	2003	
GDP (US\$ billions)	4.9	7.3	12.3	12.9	
Gross domestic investment/GDP	17.9	24.7	25.0	26.1	
Exports of goods and services/GDP	41.6	36.6	28.2	27.6	
Gross domestic savings/GDP	23.6	24.5	23.8	23.0	
Gross national savings/GDP	22.6	23.3	23.8	22.3	
Current account balance/GDP	..	-14	-12	-3.8	
Interest payments/GDP	6.0	1.1	4.1	4.1	
Total debt/GDP	89.7	92.6	67.5	65.2	
Total debt service/exports	..	7.6	37.4	20.5	
Present value of debt/GDP	79.5	..	
Present value of debt/exports	217.7	..	
	1983-93	1993-03	2002	2003	2003-07
<i>(average annual growth)</i>					
GDP	18	3.6	0.8	3.9	2.9
GDP per capita	-0.2	1.9	-0.7	2.4	1.1



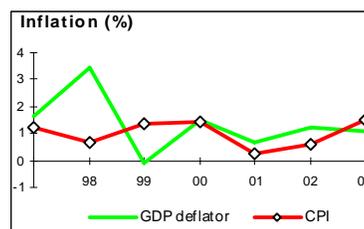
STRUCTURE of the ECONOMY	1983	1993	2002	2003
<i>(% of GDP)</i>				
Agriculture	8.5	7.7	5.7	5.6
Industry	17.3	17.1	13.8	13.6
Manufacturing	10.0	8.8	6.0	5.9
Services	74.2	75.1	80.5	80.8
Private consumption	57.7	60.3	63.1	69.6
General government consumption	18.7	15.1	13.1	7.4
Imports of goods and services	35.9	36.8	29.3	30.7
	1983-93	1993-03	2002	2003
<i>(average annual growth)</i>				
Agriculture	16	2.7	-1.9	1.5
Industry	17	1.7	-3.1	2.0
Manufacturing	2.1	1.2	-3.1	2.0
Services	18	4.1	1.8	4.5
Private consumption	2.4	4.3	5.8	5.0
General government consumption	-1.2	3.1	-2.4	4.4
Gross domestic investment	5.9	3.7	3.0	8.1
Imports of goods and services	1.3	3.5	5.3	8.1



Project

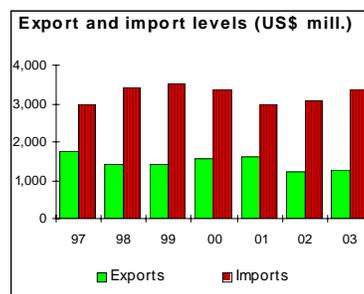
PRICES and GOVERNMENT FINANCE

	1983	1993	2002	2003
Domestic prices				
<i>(% change)</i>				
Consumer prices	2.1	0.5	0.6	15
Implicit GDP deflator	7.5	3.6	12	11
Government finance				
<i>(% of GDP, includes current grants)</i>				
Current revenue	..	18.7	16.1	15.8
Current budget balance	..	-0.7	0.0	-0.8
Overall surplus/deficit	..	-3.5	-19	-3.0



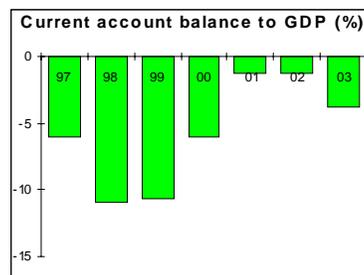
TRADE

	1983	1993	2002	2003
<i>(US\$ millions)</i>				
Total exports (fob)	..	1356	1210	1269
Bananas	..	201	109	..
Sugar	..	57	58	..
Manufactures	..	962	813	852
Total imports (cif)	..	2,195	3,070	3,383
Food	..	195	353	..
Fuel and energy	..	182	222	..
Capital goods	..	515	490	601
Export price index (1995=100)	66	94	103	105
Import price index (1995=100)	70	91	95	97
Terms of trade (1995=100)	94	102	107	108



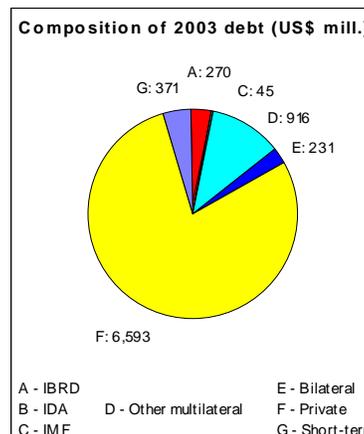
BALANCE of PAYMENTS

	1983	1993	2002	2003
<i>(US\$ millions)</i>				
Exports of goods and services	..	2,654	3,462	3,569
Imports of goods and services	..	2,667	3,605	3,960
Resource balance	..	-13	-143	-391
Net income	..	-293	-217	-320
Net current transfers	..	203	213	220
Current account balance	..	-104	-148	-491
Financing items (net)	..	193	209	600
Changes in net reserves	..	-90	-61	-109
Memo:				
Reserves including gold (US\$ millions)	..	597	1,169	1,269
Conversion rate (DEC, local/US\$)	10	10	10	10



EXTERNAL DEBT and RESOURCE FLOWS

	1983	1993	2002	2003
<i>(US\$ millions)</i>				
Total debt outstanding and disbursed	4,387	6,715	8,298	8,426
IBRD	253	241	287	270
IDA	0	0	0	0
Total debt service	491	282	1,677	942
IBRD	31	76	45	50
IDA	0	0	0	0
Composition of net resource flows				
Official grants	11	55	9	..
Official creditors	179	-98	56	13
Private creditors	52	-13	123	11
Foreign direct investment	79	170	57	..
Portfolio equity	0	0	0	..
World Bank program				
Commitments	159	0	0	0
Disbursements	77	0	30	16
Principal repayments	15	54	27	35



Annex 15: Incremental Cost Analysis

Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor Project

Context and Broad Development Goals

Panama, an upper-middle income country that bridges North and South America in the midst of Atlantic and Pacific Oceans, has extreme economic inequality: around 40% of its population lives in poverty, half destitute, ranking it as one of the most unequal countries in the region. In terms of biological diversity, the country ranks as one of the most biologically diverse countries in the world, particularly for its size. It has more than 12,600 plant species, nearly 200 threatened and about 1,300 are endemic. Of its 2,950 species of vertebrates, more than 100 are threatened and 121 are endemic (and a far larger number share endemism with only Colombia or Costa Rica). Nearly 10 percent of all bird species can be found in Panama, and 12 are found only in Panama. Of the country's 20 threatened bird species, 4 are endemic and 9 are found in only one other country. Nearly 50 species of threatened amphibians, many of which are critically endangered, are found only in Panama and neighboring Costa Rica. These include numerous species of the tiny but colorful tree frogs and poison dart frogs that have become a symbol of Mesoamerican forest biodiversity. The critically endangered *Oedipina maritima* salamander has an area of occupancy of less than 10 km² in a habitat that is under decline. Among other spectacular rainforest species, Panama is home to substantial populations of wide-ranging jaguars and harpy eagles, which require very large areas of land under native vegetative cover to survive.

This unique and rich biological diversity have faced increasing pressure and need concerted conservation and protection measures. Despite the accomplishments of the PAMBC, biodiversity in Panama continues to face many threats including from: (a) the advance of the agricultural frontier and spontaneous colonization; (b) new road projects offering access to undisturbed ecosystems; (c) mining in the mountainous zones of Veraguas, Chiriquii, San Blas and Darien and the coastal lowlands of Colon; (d) wildlife loss through habitat conversion, fragmentation and hunting associated with logging and colonization and with the changing agricultural practices of indigenous groups; (e) watershed degradation from unsustainable agriculture, lack of territorial planning instruments and serious land-use conflicts; and (f) coral extraction for land filling and over fishing of selected species. An additional issue for biodiversity conservation is the fact that some areas of importance for biodiversity lie outside of the protected areas system. While it may not be appropriate or realistic to formally protect those areas, it is important to manage them in such a way as to conserve as much as possible the biodiversity and ecological processes of interest. Current land use practices and policies are not in most cases consistent with this goal.

Recognizing the importance of these threats, the GOP has developed a coherent national strategy for the environment. One element of this strategy is to address the root causes leading to migration to the agricultural frontier and invasion of public forests and protected areas, while enhancing on-site protection for areas with global biodiversity. The multi-sectoral response to the interrelated issues of rural poverty, natural resources management, and biodiversity conservation would focus one set of instruments on the poorer and more populous central and

southern provinces of the Pacific to reduce out-migration that pushes the agricultural frontier (and invasions of public forests and protected areas); and another set within the MBC-P, to control access to high biodiversity areas and diminish both the pull factors and *in situ* threats to biodiversity.

The government strategy is supported by: the Environmental Education Law (1992); the Forestry Law (1994); the Environmental Impact Assessment Law (1994); the Wildlife Law (1995). The General Environment Law (*Ley 41*) of July 1998 created the National Environment Authority (*Autoridad Nacional del Medio Ambiente*, ANAM) and laid out an ambitious framework for the management, conservation and preservation of Panama's natural resources and environmental assets. More recently, in its *Strategy of Conservation for Sustainable Development*, ANAM sets forth a five-year vision (2004-2009) aimed at: (i) forging stronger co-management partnerships for Protected Areas with local governments, NGOs, the private sector and civil society; and (ii) building institutional and normative capacity in ANAM to act in these areas. Panama is also a signatory to a series of international treaties with regard to biodiversity (e.g., Convention on Biological Diversity - ratified on January 17, 1995; RAMSAR, and CITES).

Furthermore, the GOP, along with its development partners, has mobilized resources to many programs and activities being planned or currently underway in Panama that supports the country's development and environment agendas. Some of these programs include:

- **Rural sustainable development** aimed at reducing poverty levels, in specific locations of the country, at an estimated cost of US\$162.1 million largely financed by the IDB,⁷ FIS,⁸ and IFAD;⁹
- **Strengthening of the protected area system** to assure its environmental and financial sustainability, especially through interventions in specific locations of the country,¹⁰ at an estimated cost of US\$24.1 million financed by IDB;¹¹
- **Territorial planning and zoning** as a basis for long-term tenure security and environmentally sound resource use, at an estimated cost of US\$105.9 million, including financing from the IDB¹² and the World Bank¹³ for land titling (under the Panama Land Administration Project – PRONAT);
- **Strengthening of environmental management at the municipal level**, at an estimated cost of US\$0.9 million;
- **Strengthening of community organizations** in environmental management through training and capacity building, at an estimated cost of US\$1.2 million; and

⁷ Sustainable Development Program for Bocas del Toro, \$16.9 million; Sustainable Development Program for Darién, \$88.0 million.

⁸ Sustainable Development Program for the Ngöbe-Buglé Comarca, \$33.0 million.

⁹ Sustainable Development Program for Colón, Coclé and Western Panama, \$17.4 million.

¹⁰ For example, the National Environment Program's Phase II is focusing interventions in the Comarca Ngöbe-Buglé.

¹¹ National Environment Program, \$22.6 million.

¹² National Land Administration Program, \$32.0 million.

¹³ National Land Administration Program, \$72.4 million.

- **Establishment of a Environmental Investment Fund and Rural Investment Fund** to support initiatives in the project area developed by local organizations, communities and producer groups aimed at sustainable resource management, at an estimated cost of US\$28.5 million.

Baseline Scenario

Scope: To implement its development and environment strategies, the GOP has devised specific programs and activities, and made explicit commitment to reduce rural poverty by 25% by 2009. Several targeted programs have been, or are being, devised to address poverty and natural resources degradation. During the 1990s, the GOP concluded that its traditional top-down approach to addressing poverty alleviation and natural resources management had failed. Subsequently, the GOP, in collaboration with the Bank, has piloted demand-driven interventions, relying on local communities for their identification and implementation, under the PAMBC and the Poverty Reduction and Natural Resource Management Project, which together sought to: (i) create community capacity to directly identify and implement small-scale investments; (ii) promote sustainable use and conservation of natural resources and biodiversity of global significance; (iii) establish a demand-driven matching grants mechanism to finance these investments; (iv) integrate the biological corridor concept into sectoral strategies, local and regional planning and public investments; (v) monitor the status of biological diversity within the MBC-P; and (vi) reduce pressure on selected protected areas and *comarcas* within the MBC-P.

Both projects were successfully implemented and GOP is seeking to mainstream these methodologies in other activities focused on the rural poor. While these projects made notable progress in many areas, they did not address several issues of importance to long-term conservation success. For instance, they did not focus on solutions to the problem of long-term financing of the SINAP or support decentralization of environmental management, as permitted under *Ley 44*, both of which will be addressed by the proposed project and the partially-blended IBRD operation.

The proposed project, therefore, directly contributes to the government's strategy. The **Global Environmental Objective** of the proposed project is to conserve biodiversity of global importance and protect important forest and mountain ecosystems by (i) supporting investments in natural resource management and productive opportunities for rural community associations residing in the selected Protected Areas within SINAP and (ii) improving the effective management of SINAP at the national, provincial, comarcas and district levels.

Costs: In the absence of GEF Alternative, over the four-year period of project execution, the total expenditures (costs) associated with the Baseline Scenario are estimated to be US\$31.2 million as described below:

- Strengthened local capacity for planning, development and implementation of productive activities: It is expected that rural poverty and dependency on unsustainable management practices will be reduced through increasing the human and social capital of the rural poor, their communities, and local organizations and training them to define, prioritize, design, and execute basic social infrastructure and productive investments. It would support global environmental benefits by helping build one foundation of the project's decentralized

environmental management approach—more stable local communities and actors with the institutional capacity to carry out environmentally sustainable production—and also reduce the poverty pressures that often drive environmental degradation and limit the effectiveness of resources management. The total cost of the activities is expected to be US\$6.8 million.

- Targeted rural investment for income generation and NRM subprojects: Through the both the proposed project and the partially-blended IBRD operation, activities would (a) respond to the expressed demands of poor rural communities in the targeted Protected Areas; (b) follow CDD methodology by giving community associations direct responsibility for implementing subproject investments to promote their empowerment and sense of ownership; (c) identify viable alternatives for rural income; and (d) improve beneficiaries' access to services and markets. The total cost of the activities under the Baseline Scenario is expected to be US\$21.7 million.
- Project management and coordination: The activities envisaged this component is to facilitate the efficient execution of the project by optimizing the use of resources and supporting the management and institutional strengthening of key actors. The project coordination functions will include policy and operational coordination, support services, monitoring and evaluation, and information and communication. The total cost of the activities under the Baseline Scenario is expected to be US\$2.7 million.

Benefits: The benefits of the Baseline Scenario would help to reduce poverty with provision of infrastructure, community organization and capacity building, credit for micro-businesses, and support for environmentally sound forms of natural resource management. It would also reduce the push factors underlying the advance of agricultural frontiers in the Atlantic by stabilizing rural communities through poverty alleviation, land titling, and establishment of locally-managed development initiatives. Implementation of the Baseline Scenario would be extremely important for the development of Panama. Incomes of rural poor in the Pacific region would increase, thereby reducing incentives to migrate to new agricultural frontiers. Investments in rural communities and the adoption of more environmentally sustainable land uses would help stabilize these frontiers and reduce pressures on areas that provide critical environmental values. It would also help strengthen the protected area system and enhance municipal governmental capacity in sustainable development.

GEF Alternative

Scope: Through the GEF Alternative, the GOP would be able to undertake a more ambitious program that would generate global, national and local benefits in terms of biodiversity conservation. The Protected Areas targeted under the proposed project are precisely those rich in globally significant biological diversity and therefore form part of the GEF Alternative. Furthermore, the GEF Alternative includes specific measures to manage natural resources sustainably and mechanisms to conserve biological diversity of national, regional and global significance.

Costs: The total expenditures associated with the GEF Alternative Scenario are estimated to be US\$49.6 million and described below:

- Strengthened local capacity for planning, development and implementation of productive activities: (Same as the baseline)
- Sustainable management of natural resources and biodiversity conservation: Through the support to the government in integrating social and environmental sustainability into development and poverty reduction strategies, it is expected that long term sustainability of national resources management and biodiversity conservation will be achieved. Lessons learned from the first projects have been key factors influencing the design of the proposed project and its approaches including the introduction of a system of co-management between local communities and ANAM that demonstrated the potential to enhance both habitat protection and quality of life for rural communities. The proposed project would strengthen and expand that model and promote new types of activities within it. The total cost of the activities would be US\$8.5 million.
- Targeted rural investment for income generation and NRM subprojects:: In addition to the activities listed under the Baseline Scenario, activities would be included that contribute to the GEF Alternative Scenario - improved management and protection of natural resources and biodiversity of global significance. The total cost these activities under the GEF Alternative Scenario would be US\$30.6 million, with US\$8.9 million as an incremental cost.
- Project management and coordination: In addition to the activities envisaged in the Baseline Scenario, the activities under GEF Alternative will focus, through support for the SNAP and SNMBD, on monitoring of global environmental indicators and evaluation of the outputs and outcomes of GEF Alternative. In addition, incremental expenditures for project management incurred by the DBC/ANAM to achieve the GEF Alternative are also included. The total cost of these activities under the GEF Alternative Scenario would be US\$3.7 million, with US\$1 million as an incremental cost.

Benefits: The benefits of the GEF Alternative Scenario, in addition to those under the Baseline Scenario, would extend locally and globally beneficial outcomes for biodiversity conservation. The GEF Alternative would strengthen community organizations and build capacity, while supporting environmentally sound investments in NRM, ecosystem protection and habitat conservation. It would also reduce the push factors underlying the advance of agricultural frontiers in the Atlantic by stabilizing rural communities by establishing locally-managed and executed development initiatives. Furthermore, investments in rural communities and the adoption of more environmentally sustainable land uses would help stabilize these frontiers and reduce pull factors into these areas with critical environmental assets. It would also help strengthen the SINAP and enhance municipal governmental capacity in sustainable development.

Incremental Costs

The incremental cost, the difference in cost between the Baseline Scenario (US\$31.2 million) and the GEF Alternative (US\$49.6 million), is US\$18.4 million. In addition to global biodiversity benefits such as species protection and carbon sequestration, the proposed project will generate national and local benefits such as improved water services, strengthened capacity

of governmental agencies and local community groups, investments in social infrastructure, and sustainable productive activities in the MBC-P.

Of the incremental expenditures (costs) of \$18.4 million, the GEF is requested to fund \$6.0 million; the balance will be funded by the Government of Panama (through the World Bank loan and budgetary allocations) and the beneficiary community associations.

Table A: Incremental Cost Analysis

	Cost Category	US\$ Million	Domestic Benefit	Global Benefit
Component 1: Community Investments in Environmental Resources				
	Baseline	6.8	Poverty reduction in the project area with provision of infrastructure, community organization and capacity building and support for environmentally sound forms of NRM.	Adoption of environmentally sound land uses in project area in support of biodiversity conservation.
	GEF Alternative	6.8	Same as above.	Same as above.
	Incremental	0.0		
Component 2: Management of Natural Resources and Strengthening SINAP				
	Baseline	0.0		
	GEF Alternative	8.5	Reduced rate of loss/degradation of economically important forests, watersheds, soils, and fresh water and coastal zone resources in project area; improved rural quality of life; maintenance of natural resource option values; improved tenure security, reduced social conflicts, increased efficiency of resource production, and maintenance or improvement of water services and other environmental values; increased local public sector capacity to plan and implement env. mgt programs; and increased awareness of environmental issues in Panama.	Enhanced protection of biodiversity resources of global significance and related services such as carbon sequestration through improved mgt of existing protected areas; enhanced conservation of biodiversity in buffer zones and other areas critical for maintenance of landscape connectivity in the MBC-P; and improved targeting of interventions in areas critical for maintenance of landscape connectivity in the MBC-P.
	Incremental	8.5		
Component 3: Rural Investment Fund				
	Baseline	21.7	Planning and implementation of community subprojects, thereby resulting in improved efficiencies and development of social capital.	
	GEF Alternative	30.6	Incorporation of environmental and biodiversity criteria as part of the Rural Investment Fund; mainstreaming of environmental issues as part of the national policy of poverty reduction.	Improved efficiency and long term sustainability in globally significant biodiversity conservation.
	Incremental	8.9		
Component 4: Monitoring, Evaluation, Supervision and Monitoring				
	Baseline	2.7	Increased management capacity of natural resources management agencies (including ANAM) and non-governmental organizations.	
	With GEF Alternative	3.7		Effective management of investments and project monitoring aimed at long-term conservation and sustainable use

				<p>of globally significant biological diversity.</p> <p>Communication and dissemination strategy in operation.</p> <p>Monitoring system to track changes in biodiversity, land use and socio-economic factors applied to project participants and non-participants and to conduct ex-post analyses of factors affecting the success of pilot projects.</p>
	Incremental	1.0		
Total	Baseline	31.2		
	With GEF Alternative	49.6		
	Incremental	18.4		

Annex 16: STAP Roster Review¹⁴

Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor Project

Overall appraisal

This proposal aims at protecting the globally significant biodiversity of Panama and simultaneously helping reduce rural poverty. Poverty is frequently perceived as the major challenge for conservation in the developing world and the success of this project could provide important lessons for future work in Panama and elsewhere. This is a very important proposal with many ideas, but needs some clarifications. The reviewer got the impression that proponents have additional relevant information that has not been included in the text. The document is now difficult to follow, the logic for a GEF intervention not easy to see, and important pieces of information seem to be missing.

1. Suggestions to Improve the Presentation

The main body (MB) of the text could be made more self explanatory and reworked to contain all essential elements needed to understand what the project aims at (global benefits), their threats, proposed solutions and how outcomes will be achieved. At the very beginning a two paragraphs summary of the project would be most helpful.

The level of presentation in the MB is too general, more specifics are needed. Readers would benefit from seeing a text with enough specifics and a double logic: i) from threats to amelioration measures and to project components and activities (information in Annex 19 is insufficient and cannot be related to measures, components and solutions to threats), ii) incrementality in the investments. In the present version it is unclear what will be incremental and what is considered baseline (see Table 1 or the description of the project starting on paragraph 32). Reading Annex 4 does not lead to any further clarity regarding the criteria for incrementality to be used in practice. The Incremental Costs Analysis (Annex 15) is not clear either, and the reader may get the impression that the project aims to do the same as the baseline (impacts are mostly of the “improved”, “enhanced” type). The criteria for incrementality are especially missed in the strategy to allocate small grants (by far where most of the money will go).

Proponents may also want to further clarify how the project actually builds on previous initiatives from the WB, GEF and other agencies, and will eventually end up with a situation where threats are eliminated and BD is mainstreamed into the sectors. It would be most helpful if gaps were more clearly identified and the project’s strategy to deal with them explained early on in the MB

For example, baseline projects indicated in Annex 15 seem to target the same objectives as this proposal, including poverty and biodiversity of global significance. Projects listed in the table in

¹⁴ Based on GEF Project Brief, May 2005

Annex 19 also seem to aim in the same direction. Why are those insufficient? The description of the previous project is mostly made in terms of activities (Annex 23) and not of relevant achievements for biodiversity conservation (decreasing migration, decreased deforestation rates, conservation of Atlantic forests, etc). The project could be interpreted as being more of the same without having an idea of when it will be enough.

In particular, given the large sums of money in the baseline investments, it would be important to know why the amounts of this project would be enough to solve the issues. The reviewer suggests using tables showing target areas, threats to BD, measures to be supported, numbers of people, and expected achievements at the end of the project (Annex 19 is not enough and does not follow this logic). The linkages between the rural development in one area of the country and biodiversity conservation components in another, need to be expressed clearer.

The MB of the project is still vague in describing achievements at the end of the project. Current indicators are mostly in terms of “strengthening”, “improving” and similar comparisons. Better indicators compare unequivocally the situation at the beginning and end of the project, and are sharper in terms of what variable and where will it be measured. Both, biodiversity and mainstreaming indicators would be most useful.

2. Global Benefits

The MB is insufficiently clear in explaining the global biodiversity benefits of the project, in particular what is in the PAs and what BD would be protected outside them. Annex 19 contains some descriptions of biodiversity in protected areas.

In the current text it is difficult for an outside reader, not having appropriate maps, to imagine the geographical distribution of PAs, non-PAs biodiversity to be protected, where the population lives and their impact is felt and where the project will operate. It would be helpful to see more text explaining the geographical logic of the intervention and a quantitative appraisal of why the approach chosen will work. It would help to see a brief discussion of the main impacts of the previous project in terms of reducing migration and increasing conservation, and indications that the resources of this project would have the desired impacts. Macro and micro scale maps are needed to help the reader understand the linkages between rural development activities (projects) and biodiversity.

Proponents may want to further clarify what the proposal will actually do for conservation. Sometimes the reader gets the impression that biodiversity-friendly, conservation and environment are treated as if they were synonymous. It will be important that the text clearly indicates what will be done to protect and use native biodiversity and what would be goals and activities in the other areas. For example, developing agribusiness (Annex 4) can be seen as use of natural resources, it could be biodiversity and environmentally friendly, but it could lead to net losses of biodiversity unless other restrictions apply. A case in point, paragraph 46 of Annex 4 says that the “key inputs for success are the technical assistance, training, and institutional strengthening implemented through components A and B of the project, as well as the analysis and supervision required to ensure that subprojects chosen for grant funding are economically, *environmentally*, and socially sustainable and are implemented appropriately” (my emphasis).

Good indicators with times and places would help evaluate the potential global benefits of the project. The reviewer missed indicators such as the number of hectares of native forest conserved and/or used sustainably outside PAs, and the number of hectares restored with native vegetation.

3. Scientific and Technical Soundness of the Project

As mentioned, the MB needs adjustments to give a clearer idea of the precise locations of biodiversity, its unique attributes, human threats to biodiversity, and what activities will eliminate those threats and how sustainable field and institutional results would be.

The reviewer is concerned with the arrangement of having two local independent implementation units, linked to two government offices (Agriculture and Environment). Independent execution units can become a problem for mainstreaming of results at the end of the project. Too frequently after project completion these units disappear and little is left for sustaining the results.

Despite the efforts made, rural development and environment still read as too separate and the proposed arrangements for execution by two separate units linked to two different entities (MIDA and ANAM) only makes matters worse. These two entities do not have a tradition of collaboration in joint or complementary projects. Have other execution options been explored?

It would be helpful if based on previous experience in Panama and elsewhere, proponents explain how they will avoid these two problems.

In Annex 15 as part of the Incremental Costs Analysis, proponents make a difference between baseline efforts to alleviate poverty and biodiversity conservation, on the one hand and those of this project, on the other. The crucial differences for them (paragraph 7) are in the baseline lack of inter-sectoral coordination and lack of strategic targeting of the most important biodiversity areas. However, to this reviewer, proponents have not made their case strong enough and the same criticisms of lack of coordination and strategic action may eventually be applied to this project.

The MB indicates that a main source of impact in the field will be small grants to local people. The modality to give grant for small rural development projects needs to be better explained. This is where most of the money will go (ca \$ 30m), but there does not seem to be an overall strategic framework for these grants. Random allocation (from the perspective of the threats to biodiversity and their relative importance) of grants to rural people does not necessarily guarantee conservation benefits for native biodiversity, or the establishment/maintenance of biologically significant corridors or effective conservation. How many grants are needed and for what types of activities to achieve the goals? A strategic framework would help understand how the main threats would be timely eliminated. It is easy to see and it is in the text, that people tend to prefer grants that will improve their livelihoods and conservation comes later, after livelihoods have been brought to desired standards. How will the project make sure that biodiversity is conserved in this project? What information did consultations to the people provide regarding this question? Will all threats to all PAs be eliminated? What BD of global significance will have been protected outside PAs?

The document also suggests that the Mesoamerican Biological Corridor will be consolidated. But no indicators of impacts are provided, neither for the previous phase nor for the current proposal and the reader has a hard time understanding what is missing from the previous phase and what this one, mostly based on random small grants, will consolidate. What is a good indicator for consolidation of the Corridor at the end of the project? Good indicators would have helped understand exactly what is meant in many statements made.

Annex 4 contains a more detailed description of the project. There are several issues that came to the reviewer's attention. Annex 4 lists types of projects that would be eligible under the Sustainable Rural Development, but biodiversity is not mentioned. It would be appropriate to mention a few projects in which biodiversity is integrated and how this would be achieved. It would also be helpful to indicate broadly how this granting process would be mainstreamed after project completion.

Annex 4 states that environment and biodiversity will be mainstreamed into poverty reduction as part of ANAM's component. This is a big challenge for an environmental agency in any country. More explanations would help understand why this case it is reasonable to expect it to work. For example, how will a classification of land according to environmental norms done by ANAM have a real impact in the field? It seems that the project will have to work towards formal agreements at least with MIDA and municipalities (and probably other ministries) for them to agree on biodiversity and environment constraints for all programs to reduce rural poverty. Otherwise, plans may end up as another useless study in a drawer.

The description of opportunities for self-financing in Annex 4 read a bit naïve. On the one hand, this component will explore options as if nothing was known regarding trusts funds and other financial options in Panama. On the other, it assumes the detailed knowledge required to offering a payment for environmental services program with two pilot sites (associated with PAs). The text does not explain what consultations have been made, what environmental services were chosen, what legal frameworks exist, if there is willingness to pay for these services, if the amounts to be paid would cover the opportunity costs or maintenance costs for PAs, what the biodiversity benefits would be, etc. The Bank has gained significant experience with environmental services projects and is very likely to have enough information to substantiate this option.

Activities listed in Annex 4 regarding strengthening of the protected areas system seem unlikely to lead towards what is suggested in paragraph 42, that at the end of the project the whole National Protected Areas System would be sustainable or nearly so. A justification for this very important goal is needed. The reader needs to know about the number of PAs in the system, the number of people in and around them, the costs of maintaining a healthy PAs system and revenues to be collected. The sustainability is especially important to address.

4. Fit within the context of the goals of the GEF

In the MB, proponents indicate the proposal is consistent with four OPs and three (paragraph 16) or two (starting paragraph 23) Strategic Priorities. This reviewer agrees that there are many fits of activities with all these priorities, but would like to suggest there are some major tendencies. After reading the material the reviewer suggests focusing the text on OP3 and SP2.

5. Regional context

The project will help support the Mesoamerican Biological Corridor and will probably build on lessons learned from other projects dealing with environmental services in Mesoamerica.

6. Replicability

The goals of reducing poverty while simultaneously using and preserving native biodiversity is a major challenge in the whole developing world. This project could provide lessons and point towards examples on how to do it.

7. Sustainability

The explanations for the sustainability of the PAs system and of the biodiversity protected outside them needs to be better explained. The document refers to a plan to be developed during the first year to mainstream the project.

8. Stakeholder Involvement

No specifics provided in the MB. It would be useful to have a description of consultation processes during project preparation. The granting process will be highly participatory and handled largely by locals.

9. Capacity Building.

In the MB capacity building is mentioned but not enough details are provided regarding what will new things will ANAM, MIDA and local organizations be capable of doing at the end of the project. Annex 4, explains how capacities of communities and people will be improved to improve their livelihoods and some information may be transferred to the MB.

10. Miscellaneous Comments.

- Of special concern is the lack of clarity on what is baseline and incremental. It seems that in some parts of the text the distinction is based on what would be done anyway and what would be done if the project is approved. But this criterion does not work when allocating money to rural development grants. What would the criterion be here?
- In opinion of this reviewer the separation of environmental and agricultural issues is especially delicate in a mainstreaming project and very effort should be done to really mainstream biodiversity management into agriculture and poverty reduction ministries. The separation of projects proposed in Annex 4 component C is very arbitrary and does not lead to mainstreaming. Why are agribusiness, natural resource management, marketing and commercialization not under MIDA? As presented, the proposal may not lead to mainstreaming.
- Indicators (Annex 3) need to be more precise and quantitative, the suggestion is to avoid terms such as improved, increased, reduction, etc. and replace them by quantitative estimates. It also important to have impact indicators of the project and main components and process indicators. Activities done are not good indicators. Use contrasts between

situations at the beginning and end of the project. Monitoring will benefits from having indicators for all years of execution for all components. It would be most helpful in a project aiming at mainstreaming to have a set of good indicators of mainstreaming within ANAM and MIDA as well as of the successful interactions between the two institutions.

- Not all acronyms have been defined (for example ICR, PSIF). Please check them.
- There are still a few typos in the text.

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Response to STAP REVIEW:

WB General Response. This Project Brief is a pre-appraisal document. It lacks the specificity and all the project details that a final document would have. It has been presented for Work Program Inclusion at this pre-appraisal stage so that the GEF grant and IBRD loan can be approved about the same time in July. There is a 5 month lag time between submission of the project to GEFSEC and the soonest that CEO Endorsement can be given. If we waited to submit this document until after appraisal, the GEF grant would lag the Bank approval by 4 months.

1. Suggestions to Improve the Presentation

STAP Comment. *The main body (MB) of the text could be made more self explanatory and reworked to contain all essential elements needed to understand what the project aims at (global benefits), their threats, proposed solutions and how outcomes will be achieved. At the very beginning a two paragraphs summary of the project would be most helpful.*

WB Response. The MB of the text has been improved to provide logical flow from issues/threats to all essential elements to understand the project. Two introduction paragraphs were not provided in the Project Brief because of WB structure but are included in the GEF Executive Summary.

STAP Comment. *The level of presentation in the MB is too general, more specifics are needed. Readers would benefit from seeing a text with enough specifics and a double logic: i) from threats to amelioration measures and to project components and activities (information in Annex 19 is insufficient and cannot be related to measures, components and solutions to threats), ii) incrementality in the investments. In the present version it is unclear what will be incremental and what is considered baseline (see Table 1 or the description of the project starting on paragraph 32). Reading Annex 4 does not lead to any further clarity regarding the criteria for incrementality to be used in practice. The Incremental Costs Analysis (Annex 15) is not clear either, and the reader may get the impression that the project aims to do the same as the baseline (impacts are mostly of the “improved”, “enhanced” type). The criteria for incrementality are especially missed in the strategy to allocate small grants (by far where most of the money will go).*

WB Response. More specifics have been included in and a doable logic presented in the MB and table added, see table in Section A-3. Annex 19 has been improved to show how protected areas were selected based on key threats and how project activities will address them and expected outcomes and impacts from the project activities. Incrementality presentation has been improved in Section B-3, Annex 4 and Annex 15 (Incremental Costs Analysis). The criteria for incrementality and strategy to allocate small grants have been clarified in Section B-3 and Annex 4.

STAP Comment. Proponents may also want to further clarify how the project actually builds on previous initiatives from the WB, GEF and other agencies, and will eventually end up with a situation where threats are eliminated and BD is mainstreamed into the sectors. It would be most helpful if gaps were more clearly identified and the project's strategy to deal with them explained early on in the MB

For example, baseline projects indicated in Annex 15 seem to target the same objectives as this proposal, including poverty and biodiversity of global significance. Projects listed in the table in Annex 19 also seem to aim in the same direction. Why are those insufficient? The description of the previous project is mostly made in terms of activities (Annex 23) and not of relevant achievements for biodiversity conservation (decreasing migration, decreased deforestation rates, conservation of Atlantic forests, etc). The project could be interpreted as being more of the same without having an idea of when it will be enough.

In particular, given the large sums of money in the baseline investments, it would be important to know why the amounts of this project would be enough to solve the issues. The reviewer suggests using tables showing target areas, threats to BD, measures to be supported, numbers of people, and expected achievements at the end of the project (Annex 19 is not enough and does not follow this logic). The linkages between the rural development in one area of the country and biodiversity conservation components in another, need to be expressed clearer.

WB Response. Section A-3 clarifies how the project builds on previous initiatives from the WB and GEF. Gaps have been clearly identified and project strategy to confront them. While this project would contribute to eliminating threats to BD and support BD being mainstreamed into the sectors, expectations should not be that this project with only US\$18 million in incremental cost would completely eliminate the BD threats within the project area. Linkages between rural development and BD conservation components has been clarified. See Section A-1.

STAP Comment. The MB of the project is still vague in describing achievements at the end of the project. Current indicators are mostly in terms of “strengthening”, “improving” and similar comparisons. Better indicators compare unequivocally the situation at the beginning and end of the project, and are sharper in terms of what variable and where will it be measured. Both, biodiversity and mainstreaming indicators would be most useful.

WB Response. Achievements at the end of the project have been clarified. Indicators have been improved with specific and measurable BD and mainstreaming indicators. See Section B-1 and Annex 3.

2. Global Benefits

STAP Comment. The MB is insufficiently clear in explaining the global biodiversity benefits of the project, in particular what is in the PAs and what BD would be protected outside them. Annex 19 contains some descriptions of biodiversity in protected areas.

WB Response. It has now been clarified in the MB text what global BD benefits the project would bring and in what specific PA. See table in Section A-3.

STAP Comment. In the current text it is difficult for an outside reader, not having appropriate maps, to imagine the geographical distribution of PAs, non-PAs biodiversity to be protected, where the population lives and their impact is felt and where the project will operate. It would be helpful to see more text explaining the geographical logic of the intervention and a quantitative appraisal of why the approach chosen will work. It would help to see a brief discussion of the main impacts of the previous project in terms of reducing migration and increasing conservation, and indications that the resources of this project would have the desired impacts. Macro and micro scale maps are needed to help the reader understand the linkages between rural development activities (projects) and biodiversity.

WB Response. Maps have been commissioned and will be included in the final resubmission for GEFSEC by April 18, 2005. Population and their impacts have been clarified in MB text and Annex 19. Geographical logic has been presented and main impacts of previous projects and expected impacts of this project.

STAP Comment. Proponents may want to further clarify what the proposal will actually do for conservation. Sometimes the reader gets the impression that biodiversity-friendly, conservation and environment are treated as if they were synonymous. It will be important that the text clearly indicates what will be done to protect and use native biodiversity and what would be goals and activities in the other areas. For example, developing agribusiness (Annex 4) can be seen as use of natural resources, it could be biodiversity and environmentally friendly, but it could lead to net losses of biodiversity unless other restrictions apply. A case in point, paragraph 46 of Annex 4 says that the “key inputs for success are the technical assistance, training, and institutional strengthening implemented through components A and B of the project, as well as the analysis and supervision required to ensure that subprojects chosen for grant funding are economically, environmentally, and socially sustainable and are implemented appropriately” (my emphasis).

WB Response. Clarity has been given to the use of the terms, conservation, BD-friendly and environment in MB text. Goals and activities for protecting and using native BD have been clarified. See table in Section C-3.

STAP Comment. Good indicators with times and places would help evaluate the potential global benefits of the project. The reviewer missed indicators such as the number of hectares of native forest conserved and/or used sustainably outside PAs, and the number of hectares restored with native vegetation.

WB Response. Indicators have been improved. See table in Section C-3, B-3 and Annex 3.

3. Scientific and Technical Soundness of the Project

STAP Comment. As mentioned, the MB needs adjustments to give a clearer idea of the precise locations of biodiversity, its unique attributes, human threats to biodiversity, and what activities will eliminate those threats and how sustainable field and institutional results would be.

WB Response. MB text clarifies precise locations of biodiversity, its unique attributes, human threats to biodiversity, and what activities will eliminate those threats.

STAP Comment. The reviewer is concerned with the arrangement of having two local independent implementation units, linked to two government offices (Agriculture and Environment). Independent execution units can become a problem for mainstreaming of results at the end of the project. Too frequently after project completion these units disappear and little is left for sustaining the results.

WB Response. Two separate executing not coordinating units have purposefully been designed into the project because of past experience and the likelihood of increasing implementation effectiveness. In the First Operation, the design called for one unit with staff from both ministries. Within 18 months, disbursements had stalled because one institution, the one with the larger amount of resources of the project, was controlling the approval and use of the other institutions resources needed to execute the project. An amendment was requested and agreed upon with the Bank to separate the one unit into two technical execution units. This arrangement worked well for the rest of the project and both components were free to execute the project without being bogged down by the rhythm of the other institutions rate of execution. More importantly, neither minister could control the project resources of the other institutions. Additionally, Panama can be highly political and at times it can be a challenge to keep non-technical criteria out of decision making. This is particularly problematic when ministers and key staff are from a different political party or simply prefer to control the hiring of all project individuals. This proposed Project incorporates the lessons learned regarding the administration of the First Operation.

STAP Comment. Despite the efforts made, rural development and environment still read as too separate and the proposed arrangements for execution by two separate units linked to two different entities (MIDA and ANAM) only makes matters worse. These two entities do not have a tradition of collaboration in joint or complementary projects. Have other execution options been explored? It would be helpful if based on previous experience in Panama and elsewhere, proponents explain how they will avoid these two problems.

WB Response. As detailed above, other options were not viable given the experience in the First Operation and the political context of Panama. Arrangements for coordination are being made by: i) attempting to have both technical units in the same building to increase the likelihood of coordination; ii) the appropriate sectoral agency needs to sign off on all relevant plans and activities related to their competency; iii) one task manager from the Bank will oversee project execution; and iv) MOUs will be signed between the institutions defining the roles and coordination aspects related to execution, in addition to the detailed institutional and execution arrangements that will be detailed in the Operations Manual (OM).

STAP Comment. In Annex 15 as part of the Incremental Costs Analysis, proponents make a difference between baseline efforts to alleviate poverty and biodiversity conservation, on the one hand and those of this project, on the other. The crucial differences for them (paragraph 7) are in the baseline lack of inter-sectoral coordination and lack of strategic targeting of the most important biodiversity areas. However, to this reviewer, proponents have not made their case strong enough and the same criticisms of lack of coordination and strategic action may eventually be applied to this project.

WB Response. Incremental reason has been clarified in Annex 15.

STAP Comment. The MB indicates that a main source of impact in the field will be small grants to local people. The modality to give grant for small rural development projects needs to be better explained. This is where most of the money will go (ca \$ 30m), but there does not seem to be an overall strategic framework for these grants. Random allocation (from the perspective of the threats to biodiversity and their relative importance) of grants to rural people does not necessarily guarantee conservation benefits for native biodiversity, or the establishment/maintenance of biologically significant corridors or effective conservation. How many grants are needed and for what types of activities to achieve the goals? A strategic framework would help understand how the main threats would be timely eliminated. It is easy to see and it is in the text, that people tend to prefer grants that will improve their livelihoods and conservation comes later, after livelihoods have been brought to desired standards. How will the project make sure that biodiversity is conserved in this project? What information did consultations to the people provide regarding this question? Will all threats to all PAs be eliminated? What BD of global significance will have been protected outside PAs?

WB Response. Modality for giving grants has been clarified in Sections B-3 and Annex 4. The task team would like to have access to the crystal ball of the STAP reviewer to determine how many grants are needed and for what types of activities to eliminate BD threats in the project area? Anyone providing this information is purely guessing. The strategic framework was strengthened to show how BD will be conserve. Also, at least 30% of grant resources will go towards investments that conserve and protect BD.

STAP Comment. The document also suggests that the Mesoamerican Biological Corridor will be consolidated. But no indicators of impacts are provided, neither for the previous phase nor for the current proposal and the reader has a hard time understanding what is missing from the previous phase and what this one, mostly based on random small grants, will consolidate. What is a good indicator for consolidation of the Corridor at the end of the project? Good indicators would have helped understand exactly what is meant in many statements made.

WB Response. Impact indicators for the First Operation have been included. See Section A-1. Consolidation means to increase financing by various sources, i.e. BD Funds, Payments for Environmental Services, users fees, etc. of BD conservation and protection in the MBD and decentralizing park management to local entities, indicators have been provided.

STAP Comment. Annex 4 contains a more detailed description of the project. There are several issues that came to the reviewer's attention. Annex 4 lists types of projects that would be eligible

under the Sustainable Rural Development, but biodiversity is not mentioned. It would be appropriate to mention a few projects in which biodiversity is integrated and how this would be achieved. It would also be helpful to indicate broadly how this granting process would be mainstreamed after project completion.

WB Response. Subproject eligibility and types of subprojects for the entire project, including BD, have been included in Sections B-3 and Annex 4. It is not intended that the whole granting scheme be mainstream accept for potentially the Payment for Environmental Services work and a replication plan would be prepared during implementation from the lessons learned from the Panamanian experience. It would be premature to present such a plan or prescribe approach for mainstreaming this activity at this juncture.

STAP Comment. Annex 4 states that environment and biodiversity will be mainstreamed into poverty reduction as part of ANAM's component. This is a big challenge for an environmental agency in any country. More explanations would help understand why this case it is reasonable to expect it to work. For example, how will a classification of land according to environmental norms done by ANAM have a real impact in the field? It seems that the project will have to work towards formal agreements at least with MIDA and municipalities (and probably other ministries) for them to agree on biodiversity and environment constraints for all programs to reduce rural poverty. Otherwise, plans may end up as another useless study in a drawer.

WB Response. The Ministry of Agriculture has the legal mandate for poverty reduction and rural development. As part of the project, ANAM is assisting MIDA to mainstream environmental and BD conservation and protection into their rural development policies. This has been clarified in the MB, Section B-3.

STAP Comment. The description of opportunities for self-financing in Annex 4 read a bit naïve. On the one hand, this component will explore options as if nothing was known regarding trusts funds and other financial options in Panama. On the other, it assumes the detailed knowledge required to offering a payment for environmental services program with two pilot sites (associated with PAs). The text does not explain what consultations have been made, what environmental services were chosen, what legal frameworks exist, if there is willingness to pay for these services, if the amounts to be paid would cover the opportunity costs or maintenance costs for PAs, what the biodiversity benefits would be, etc. The Bank has gained significant experience with environmental services projects and is very likely to have enough information to substantiate this option.

WB Response. Subcomponent B-1 has been rewritten to clarify as much as possible with the limited knowledge we now have. We will be initiating studies in the next few weeks based on in country consultations that are now taking place. However, it must be clarified that while the Bank does have some experience, more than any other donor with PSA, this is no where close to being significant. All that are involved with PSA schemes are in our infancy and learning a great deal from each operation.

STAP Comment. Activities listed in Annex 4 regarding strengthening of the protected areas system seem unlikely to lead towards what is suggested in paragraph 42, that at the end of the

project the whole National Protected Areas System would be sustainable or nearly so. A justification for this very important goal is needed. The reader needs to know about the number of PAs in the system, the number of people in and around them, the costs of maintaining a healthy PAs system and revenues to be collected. The sustainability is especially important to address.

WB Response. The whole Panamanian Protected Areas System will not be sustainable nor nearly so by EOP. This project will contribute to this end but not achieve it. Too much to ask for a project that only has US\$18 million going to 14 out of 65 Protected Areas and buffer zones. The data about the number of people in and around the PAs in the project, the costs of maintaining a healthy PAs system and revenues to be collected for each PA are currently being collected to elaborate a sustainability strategy and how the project would contribute to such.

4. Fit within the context of the goals of the GEF

STAP Comment. In the MB, proponents indicate the proposal is consistent with four OPs and three (paragraph 16) or two (starting paragraph 23) Strategic Priorities. This reviewer agrees that there are many fits of activities with all these priorities, but would like to suggest there are some major tendencies. After reading the material the reviewer suggests focusing the text on OP3 and SP2.

WB Response. The task team agrees that the activities support OP3 and SP2 but also feel that they support catalyzing sustainability of protected areas. For this reason we maintain the support also for SP1.

5. Regional context

STAP Comment. The project will help support the Mesoamerican Biological Corridor and will probably build on lessons learned from other projects dealing with environmental services in Mesoamerica.

WB Response. Agreed.

6. Replicability

STAP Comment. The goals of reducing poverty while simultaneously using and preserving native biodiversity is a major challenge in the whole developing world. This project could provide lessons and point towards examples on how to do it.

WB Response. Agreed.

7. Sustainability

STAP Comment. The explanations for the sustainability of the PAs system and of the biodiversity protected outside them needs to be better explained. The document refers to a plan to be developed during the first year to mainstream the project.

WB Response. Sustainability of the PA system in the project intervention area is currently being studied. During appraisal, this plan will be reviewed and included in the Project Brief.

8. Stakeholder Involvement

STAP Comment. No specifics provided in the MB. It would be useful to have a description of consultation processes during project preparation. The granting process will be highly participatory and handled largely by locals.

WB Response. Information has now been provided on the consultation process that has transpired to date. A social assessment is currently being carried out in country so these sections of the document will be updated with information during appraisal (D-4, Annex 17 and 18).

9. Capacity Building.

STAP Comment. In the MB capacity building is mentioned but not enough details are provided regarding what will new things will ANAM, MIDA and local organizations be capable of doing at the end of the project. Annex 4, explains how capacities of communities and people will be improved to improve their livelihoods and some information may be transferred to the MB.

WB Response. The MB of the text has been clarified to show capacity goals of ANAM, MIDA and local organizations by EOP. See Section B-3 and Annex 4.

10. Miscellaneous Comments.

STAP Comment. Of special concern is the lack of clarity on what is baseline and incremental. It seems that in some parts of the text the distinction is based on what would be done anyway and what would be done if the project is approved. But this criterion does not work when allocating money to rural development grants. What would the criterion be here?

WB Response. Has been clarified in Sections B-3, Annex 4 and 15.

STAP Comment. In opinion of this reviewer the separation of environmental and agricultural issues is especially delicate in a mainstreaming project and very effort should be done to really mainstream biodiversity management into agriculture and poverty reduction ministries. The separation of projects proposed in Annex 4 component C is very arbitrary and does not lead to mainstreaming. Why are agribusiness, natural resource management, marketing and commercialization not under MIDA? As presented, the proposal may not lead to mainstreaming.

WB Response. Has been clarified in the MB in sections A-1 and above in previous responses.

STAP Comment. Indicators (Annex 3) need to be more precise and quantitative, the suggestion is to avoid terms such as improved, increased, reduction, etc. and replace them by quantitative estimates. It also important to have impact indicators of the project and main components and process indicators. Activities done are not good indicators. Use contrasts between situations at the beginning and end of the project. Monitoring will benefits from having indicators for all years of execution for all components. It would be most helpful in a project aiming at

mainstreaming to have a set of good indicators of mainstreaming within ANAM and MIDA as well as of the successful interactions between the two institutions.

WB Response. Indicators have been updated in sections B-2 and Annex 3.

STAP Comment. Not all acronyms have been defined (for example ICR, PSIF). Please check them.

WB Response. Done.

STAP Comment. There are still a few typos in the text.

WB Response. Corrected.

Annex 17: Selection of Project Area

Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor Project

Selection criteria for the project area.

To select areas where community investments would be concentrated that improve natural resources management, consolidate MBC-P actions, and conserve biodiversity of global significance, environmental, institutional criteria were used, as well as the socioeconomic condition of the populations inhabiting the Atlantic region. The results of the analysis of the selected Protected Areas are presented in Table 1 below and Appendix A to this Annex. A more detailed analysis of threats and mitigation strategies for selected project Protected Areas is presented in Appendix B to this Annex. The selection criteria were focused on the following aspects:

- a) *Importance of ecology and biodiversity.* This criterion is based on the site's importance for *in situ* conservation of natural and protected areas whose biological diversity is nationally, regionally, and/or internationally acknowledged. Sociocultural aspects, such as the presence of indigenous populations and their significance for the protection of the areas they inhabit, were also associated with this criterion.
- b) *Status of ecosystem conservation* refers to the classification by Dinerstein for each ecoregion (relatively intact, relatively stable, critical, endangered, vulnerable), complemented by field observations that identified aspects such as forest cover, connectivity of ecosystems, etc.
- c) *Threats and risks in areas under study.* These are associated with the real and potential impacts foreseen in the short and medium term on conservation areas; for example, increased number of settlers within the protected area or its buffer zone, expansion of the agricultural frontier, presence of activities incompatible with the protected area's soil capacity, etc.
- d) *Impacts of the population on protected area conservation.* Positive impacts were analyzed, i.e., those that are useful for promoting a change; and negative impacts that must still be controlled, e.g., conflict over soil use in various protected areas.

Table 1. Protected Areas Targeted by the Project

<i>Global Biodiversity Values</i>	<i>Key Threats</i>	<i>Project activities to address threats</i>	<i>Expected results/ outcomes at end of project</i>
National Parks			
<i>Parque Internacional La Amistad (PILA), Bocas del Toro-Chiriquí, 207,000 hectares</i>			Biosphere Reserve UNESCO
6 life zones; 400 bird species (<i>Harpia Harpya</i>); 100 mammal species; 91 amphibian species.	Land clearing by poor peasants; infrastructure: Roads and hydro plants; hunting; over-exploitation of natural resources.	Strengthening SINAP; implementation of eco-friendly production; environmental education; land use planning.	Adoption and implementation land-use plan; # HA under ecofriendly production; reduce hunting by 40%.
<i>Isla Bastimento, Bocas del Toro, 13,226 hectares</i>			Biosphere Reserve UNESCO
Coral reef. with: 160 fish species; 82 mollusk species; 39 crustacean species; endangered turtles.	Increasingly unregulated tourism; over fishing (snail, lobster, octopus); agricultural expansion; tourism infrastructure.	Strengthen park mgt; Training in marine ecosystem mgt; Waste mgt.	Pilot mgt arrangement under way; Solid waste mgt under implementation; Seashore resource plan developed and agreed.
<i>Volcán Barú, Bugaba/Chiriquí, 14,000 hectares</i>			Biosphere Reserve UNESCO
Volcanic mountain ecosystem; 5 life zones; 62 endemic flora species of 794 registered plants; 282 bird species; 139 mammal species; 39 reptiles species.	Deforestation and habitat fragmentation; hunting large cats and mammals; agrochemical usage; cattle expansion; Access roads (to antenna sites)	Improve PA mgt; potential PES site; land use planning; implementation of ecofriendly production.	Pilot PA mgt under way; land use plan developed and adopted by stakeholders; # HA under ecofriendly production; hunting reduced by 40%
<i>Santa Fe, Veraguas, 72,636 hectares</i>			
Pacific (dry) isolated mountain-sea ecosystem; 3 life zones; habitat for 3 endangered species and 3 threatened species; lack of scientific background information.	Hunting for large cats and mammals; land clearing to open land for cattle; deforestation; lack of government presence.	Continue support to co-mgt; environmental education; promote ecofriendly production; support social capital building through CCs.	reduce forest clearing rate; reduce hunting by 50%; # HA under ecofriendly production.
<i>Cerro Hoya, Veraguas-Los Santos, 32,557 hectares</i>			
Water divide Atlantic-Pacific; mountain ecosystem; 7 ecoregions; 1,577 flora species (37 endemic); 167 bird species; 72 amphibian species.	Deforestation (high) and new access roads; invasion of park lands by poor peasants; inadequate solid waste mgt; land titling irregularities; hunting	Support co-mgt with local govt. and community participation; promote ecofriendly production;	New park mgt arrangements working; reduced deforestation rate; # HA under ecofriendly production.
<i>Omar Torrijos, La Pintada/Coclé, 25,275 hectares</i>			
Isolated mountain ecosystem; 4 life zones; 1,332 flora species; 200 mammal species; 959 bird species (180 of "special interest", 34 "rare").	Deforestation: 3,000 HA affected; potential mining activities; new access roads.	Land use planning; ecofriendly production; analysis of PA mgt options; local govt. strengthening.	Land use plan adopted; mgt arrangements working; # HA under ecofriendly production.
Forest Reserves			
<i>El Montuoso, Herrera, 10,375 hectares</i>			
Last remnants of mature local forest ecosystems; high biodiversity in fragmented patches of forest;	Deforestation and fragmentation of habitats; increased pressure to clear land for agriculture; land use conflicts.	Land use plan; promote ecofriendly production; support social capital building through CCAs	Reduce forest clearing rate; # HA under ecofriendly production.
<i>Donoso, Colón (proposed protected area), 10,000 hectares</i>			
Mature mountain ecosystem, with over 1,100 flora species; home of big cats (jaguar) and eagles (<i>Harpia</i>).	Land clearing for cattle, timber; mining (copper and gold)	Local institutional capacity building for NRM; promote ecofriendly production;	NRM monitoring system established; # HA under ecofriendly production.
Forest Preservation			
<i>Palo Seco (BPSP), Bocas del Toro, 125,000 hectares</i>			Biosphere Reserve UNESCO
Intermountain ecosystem with 4 life zones and 8 distinct ecosystems; 248 bird species; 61 mammal species.	Growing pressure to open more land for cultivation and cattle; extraction of timber and non-timber products; Access roads without environmental controls.	Support UAMs; develop mgt plan; promote ecofriendly production; education on env and NRM.	Improved compliance of EMP for access road; # HA under ecofriendly production; Reduced hunting.
Wildlife Sanctuary			
<i>Isla Iguana, Los Santos, 58 hectares</i>			
Small Island in the Pacific,	Unregulated, uncontrolled	Support development of a	Park mgt, with financial

surrounded by coral reefs; to the south original pacific dry forest composition; home to exotic biota; whale lookout point.	tourism; waste management.	mgt arrangement for the island; tourist carrying capacity study and visitors calendar; education on environment and natural resources.	sustainability, in place an operational; waste management implemented.
<i>Isla Cañas, Los Santos, 25,433 hectares</i>			
Humid Pacific island ecosystem; mangrove forest, with 6 varieties; reproduction site for turtles (up to 30,000 arrive to lay eggs at peak of season.)	Loss of local vegetation in favor of non-native species; risk of losing landing sites for turtles 225 inhabitants (in 2000) still remain in the island.	TA and financial support for turtle landing mgt; promote ecofriendly production; Education on env and natural resources; reserve mgt plan.	Implementation of key recommendation of Reserve mgt plan; adoption of ecofriendly production, in # HA; improved records on turtles' landings and life cycle.
<i>Corregimiento No.1 Narganá, Kuna Yala, 100,000 hectares</i>			
225 km of coastline, coral reefs and sea grasses; 69 coral species; 70 fish species.	Inadequate waste mgt (solid, water, industrial); coral extraction for land filling; over-fishing selected species.	Develop participatory EMP; Support compliance with EMP; Promote ecofriendly productive systems; Education on environment and NR.	EMP adopted and implementation under way; # has under ecofriendly productive options; Solid waste management plan under implementation; Agreed fishing sites.
RAMSAR Wetlands			
<i>San San Pond Sak, Bocas del Toro, 16,125 hectares</i>		RAMSAR site, UNESCO Biosphere Reserve	
RAMSAR site no. 611; wetland, coastal plains, bays, sand bars, and beaches; 133 bird species (36 threatened); 55 mammal species (24 threatened); 54 reptile species (7 threatened).	Access roads bringing migration and habitat fragmentation; turtle hunting (adults and eggs); pollution (water and solid waste), threatening manatees and other species.	Develop mgt arrangement for the wetland; develop EMP corridor San San Pond Sak to Palo Seco; promote ecofriendly production; develop and implement a turtle monitoring system.	Pilot management arrangement under way; # HA under ecofriendly production; Turtle monitoring system established;
<i>Damani-Guaribiara, distritos de Kusapín y Kankitú en Comarca Ngöbe-Buglé, 24,0895 hectares (proposed protected area)</i>			
RAMSAR site. 180 bird species, 39 threatened; 56 mammal species (29 threatened).	Loss of habitats and decrease of animal population; deforestation (Orey, palmito); turtle hunting.	Development of EMP; institutional capacity-building for NRM; promote ecofriendly production.	EMP adopted and implemented; # HA under ecofriendly production; Agreed turtle protection areas.
Total hectares: 675,775			

In addition, several institutional criteria related to these regions' importance within ANAM's institutional management were evaluated. Specifically, the following aspects were included:

- a) *Consistency between the objectives of the National Environmental Strategy and the area under study*, to understand the ecoregion's importance in the environmental management strategy.
- b) *Priorities of ANAM's Strategic Participatory Plan*. The compatibility of actions proposed in the project was analyzed, in relation to the action priorities that ANAM has proposed to implement over the coming years.
- c) *Existence of other projects in the area* which are financing or may be implemented in the medium term and include activities related to natural resources management.

Districts in the Atlantic region were selected, containing natural and protected areas whose protection is essential for the conservation of the MBC-P. Districts in the Pacific region were also selected, containing at-risk protected areas and constituting this region's principal natural reserves, especially in the provinces of Herrera and Los Santos. Unlike under the PAMBC, in which investments were concentrated in Protected Areas and their buffer zones, the actions under

the proposed project require greater integration with municipalities as key actors to put into practice the environmental decentralization policy proposed by the General Environmental Law (*Ley 41*), prepare and put into practice land-use management plans, and promote local development, in which Protected Areas constitute an opportunity to improve the living conditions of those who reside there, while conserving significant global biodiversity.

In the Pacific region, four Protected Areas were selected that correspond to six districts of the central provinces (i.e., Herrera, Los Santos, and Veraguas). In the Atlantic region, priorities for execution continue to be in the MBC-P, incorporating two new areas: the district of Santa Fe in the north of the province of Veraguas and the district of Donoso on the coast below the province of Colón.

Co administrators of Protected Areas. Thirteen (22 percent) of the 65 Protected Areas of the SINAP are administered or co administered by NGOs, municipalities and other entities distinct from ANAM. By Protected Areas, they are: Humedal de Punta Patiño (ANCON), Parque Natural Metropolitano (Patronato), Área Silvestre Corregimiento No.1 Narganá (Congreso General Kuna), Paisaje Protegido Isla Galeta (ARI-ANAM), Área Protegida San Lorenzo (ANAM-ARI-IPAT-INAC), Reserva Forestal Fortuna (empresa privada), Monumento Natural Barro Colorado (ANAM-STRI), Peñón de la Honda (municipio), Peñón del Cedro de los Pozos (municipio), Pablo Arturo Barrios (municipio), Humedal Laguna de Chiriquí (municipio), Monumento Natural Pozos de Calobre (municipio) y el Área Recreativa El Salto de las Palmas (municipio).

APPENDIX A

RESULTS MATRIX COMPARATIVE ANALYSIS OF PRIORITY REGIONS

Protected Areas in the Project Area

<i>Mgt Category, Area Name and Province</i>	<i>Surface Area (ha)</i>	<i>Established</i>	<i>Mgt. Plan</i>	<i>Int'l Recognition</i>
Nacional Parks				
1. PILA, Bocas del Toro-Chiriquí	207,000	1988	Legally Adopted	Biosphere Reserve
2. Isla Bastimento, Bocas del Toro	13,226	1988	Legally Adopted	Biosphere Reserve
3. Volcán Barú, Chiriquí	14,000	1976	Legally Adopted	Biosphere Reserve
4. Omar Torrijos, Coclé	25,275	1986	Legally Adopted	-
5. Cerro Hoya, Veraguas-Los Santos	32,557	1984	Legally Adopted	-
6. Santa Fe, Veraguas	72,636	2001	En elaboración	-
Forest Reserves				
7. Donoso, Colon	10,000	in process	under preparation	-
8. El Montuoso, Herrera	10,375	1977	Legally Adopted	-
Protector Forest			Legally Adopted	
9. Palo Seco, Bocas del Toro	125,000	1983	Legally Adopted	Biosphere Reserve
Wildlife Refuge				
10. Isla Iguana, Los Santos	58	1981	Operating Plan	-
11. Isla Cañas, Los Santos	25,433	1994	Operating Plan	-
12. Corregimiento No.1 Narganá, Kuna Yala	100,000	1994	Operating Plan	-
Internationally Important Wetlands				
13. Damián-Guaribiara, Comarca Ngöbe-Buglé	24,090		Operating Plan	RAMSAR Site
14. San San Pond Sak, Bocas del Toro	16,125	1994	Legally Adopted	RAMSAR Site Biosphere Reserve
Total	675,775			

Source: Nacional Protected Areas and Wildlife Service, ANAM.

Bocas del Toro/Naso Territory/Chiriqui (PILA, V. Baru, Bastimento)

A. National Environmental Strategy Objectives consistent with Regional Management

1. Strengthen the development of sustainable productive activities;
2. Establish around the Almirante Punta Peña highway an environmental impact management and mitigation plan (PAMBC prepared the management plan in the area of influence of the Almirante-Punta Peña highway and the Naso Territory, but they need to be put into practice);
3. Carry out in-depth studies of the potential for harnessing hydropower in Changuinola, Teribe, Sixaola, and Cricamola;
4. Consolidate SINAP under the view of the MBC-P, ensuring the connectivity of different ecosystems; and
5. Promote citizen participation, including local and *comarca* authorities, in protected area planning and management.

ANAM PRIORITIES STRATEGIC PARTICIPATORY PLAN OF INTER-INSTITUTIONAL ENVIRONMENTAL SYSTEM

1. Sustainable use of natural resources and biodiversity
2. Land-Use Planning
3. Conservation and recovery of Watersheds

4. Strengthen measures for the conservation and recovery of critical ecosystems, using the system of payment for environmental services
5. Integrate communities in the protection and conservation of priority areas (Bastimento, PILA, Changuinola River Basin)
6. Strengthen public and private sector capacity for environmental management. Promote the use of environmental incentives
7. Strengthen inter-institutional coordination capacity to create synergies in the management and execution of common environmental thematic areas

VALUE OF ECOLOGY AND BIODIVERSITY

A large portion of this area forms part of the Talamanca ecoregion, located on the Atlantic slope and the mountainous chain between Panama and Costa Rica. This complex of protected areas (*PILA, BPPS, HSSPS, FORTUNA, BASTIMENTO*, includes Barú Volcano National Park (PNVB) in Chiriquí. It is one of the 200 globally recognized ecoregions due to its extraordinary biodiversity. It conserves nine types of vegetation ranging from lowland forests to highland cloud forests. The different altitudes and temperatures provide a natural environment for a broad diversity of plants and animals, and is the site of nationally and regionally endemic species. The PNVB contains the country's most elevated point, with flora and fauna species unique to the country. This is the area with the largest habit for tapirs and the only known manatee reserve (HSSPS). This site has a high number of endemic species and is recognized as a land bridge for biotic regions of North and South America.

Three indigenous ethnic groups coexist in the region: Teribes, Ngöbe-Buglé, and Bribri.

STATUS OF ECOSYSTEM CONSERVATION

- It is considered a relatively stable ecoregion, regionally outstanding, with high priority for conservation at regional scale.
- Most of its territory consists of protected areas and indigenous territories (the Ngöbe-Buglé Comarca and the Naso-Teribe territory).
- It maintains a wide variety of stable and relatively stable ecosystems.
- With regard to forest cover, the province conserves 73% of forest cover (PSIF 2000), most of it in protected areas.

MOST IMPORTANT THREATS TO THE REGION

1. Potential population increase due to natural growth and to the opening new routes of occupation, especially the Almirante-Punta Peña highway and the possible Cerro Punta-Boquete road that crosses in the northern part to Barú Volcano National Park, which would cause fragmentation of the ecosystem.
2. Occupation of protected areas, especially in the Palos Secos Protective Forest and Barú Volcano National Park, and the presence of squatters in PILA (according to the management plan there are nearly 500 squatters).
3. Presence of cattle ranching in various zones, including the Palos Secos Protective Forest, as well as the presence of abandoned pastures (Tscui, Chana Sur, Culebra, Nueva Zelandia, San San, Palo Seco). Overflights by the Bocas del Toro Regional Administration (2001) detected new deforested patches in Palo Seco and PILA.

4. The Land-Use Planning of the Almirante Punta Peña highway not put into practice, specifically in the section adjacent to the BPPS.
5. Persistence of poverty and extreme poverty among most of its residents, especially among indigenous populations, who subsist almost totally by using the area's natural resources.
6. The roads carrying equipment and materials to sites where the construction of hydroelectric plants is planned, if impact mitigation regulations are not supervised (Teribe-Changuinola hydroelectric plants).
7. Turtle hunting (adults and eggs) and agrochemical contamination that affects populations of manatees other lake and marine species in the HSSPS.

POPULATION'S IMPACTS ON CONSERVATION OF APs

Positive

- Presence of indigenous populations (Ngöbe-Buglé, Teribes, Bri-Bri) most of whom continue practicing agroforestry techniques with low environmental impact.
- Increased degree of acceptance by communities of ANAM's institutional presence, thanks to the efforts of CBMAP and their increasing awareness of the importance of conservation in APs.
- New associative forms of sustainable environmental-productive management supported by CBMAP and the formation of social and human capital in the region.
- Community organizations and environmental NGOs with interest in participating in local environmental management (Talamanca Action Plan).

Negative

- Conflict still persists over the use of land for extensive cattle ranching on soils ill-suited for this activity. In addition, excess humidity in the area sickens cattle, and makes this an activity with extremely low economic yield.
- Lack of economic resources and appropriate technology allow the continuation of poor soil use practices such as slash-and-burn, hillside farming, high crop rotation due to loss of soil quality which also brings about the deforestation of new areas.
- High level of non-legalization of lands including those within protected areas. The possibility of granting conditional titles and/or titles with farm management plans should be studied.

AVAILABLE FINANCING (PROJECTS)

Bocas del Toro Sustainable Development Program (\$16.9 mm):

Strengthening of management capacity (\$3.5 mm) includes: institutional strengthening of the municipalities of Changuinola, Bocas del Toro, and Chiriquí Grande, local organizations and producers' associations, government authorities, regional sectoral entities (MIDA, ANAM, MOP, MINSA, IPAT, AMP), and the negotiating commission BFC and PTP; preparation of urban planning in the three municipalities.

Sustainable management of natural resources and productive development (\$4.3 mm) includes: mitigation of natural risks; PSA proposal; strengthening of small producers; design and financing of pilot livestock, forest management, fishing, and tourism projects; design of management plan for marine-coastal areas, and ecotourism capacity; financing of productive and natural resources management projects.

Basic services and infrastructure (\$7.0 mm) includes: construction of bridge over Changuinola River, waste water treatment in that municipality, and financing of basic services subprojects.

TNC-USAID

Fisheries project to include a management plan for a marine park, organization of fishermen, environmental education on species in danger of extinction, training for local monitoring of fish captures and management regulations, including the establishment of a period of prohibition. A diagnostic has been carried out in the communities of Bastimento where the project will be executed. Proposal to promote a biological corridor linking PILA with the Bocas del Toro reefs.

National Environmental Program. Construction of waste water and solid waste collection and treatment works in the central canal of Changuinola. Financed by FOIAMI (\$100,280), and includes: construction of canal (100 mts) with inspection chambers and installation of concrete tank for primary and secondary treatment of waste water, training and teaching for users.

PRONAT. Socioeconomic and land tenure studies in PILA, Palo Seco, and San San Pond Sak Wetland (Bocas del Toro). Barú Volcano (2003) and Lagunas de Volcán Wetland (Chiriquí). In PILA and Barú Volcano it is proposed that conditional titles be granted for farms within parks, including the establishment of land use monitoring systems. Demarcation of critical areas of the Naso-Teribe territory. Community consultations were held to define the boundaries of the Naso-Teribe Comarca (Bocas del Toro) (2002).

Sustainable Development of Ngöbe-Buglé Comarca. Actions in rural populations of the districts of Bocas del Toro and Chiriquí Grande in Bocas del Toro; Boquete and Gualaca en Chiriquí near the Ngöbe-Buglé Comarca: technical assistance in technologies and marketing, financing of productive demand and infrastructure projects, training and use of techniques.

COCLÉ/ Penonome-Donoso-La Pintada-Ola. Includes Omar Torrijos Herrera National Park and its area of influence and the natural area of the Donoso forests on the Coast below Colón.

ENA OBJECTIVES CONSISTENT WITH REGIONAL MANAGEMENT

1. Identify the country's most important ecosystems and strengthen measures for their conservation and recovery
2. Strengthen actions aimed at the protection of the upper watersheds of rivers in APs and establish mechanisms for the conservation of mountain ecosystems
3. Increase the land area of forest plantations and forest management, integrating degraded lands in the national economy and granting incentives for reforestation
4. Promote Land-Use Planning in accordance with the Plan established by ANAM. (In 2003 PAN concluded land-use planning studies of Coclé, and this needs to be put into practice)
5. Promote citizen participation in protected area planning and management (in 2003 the PNGDOMT Management Plan was concluded), including local authorities

ANAM PRIORITIES STRATEGIC PARTICIPATORY PLAN OF INTER-INSTITUTIONAL ENVIRONMENTAL SYSTEM

1. Strengthen measures for the conservation and recovery of the country's most important ecosystems by: (a) promoting the protection of vulnerable or critical ecosystems; (b) determining indicators of quality and change; (c) establishing monitoring mechanisms.

2. Develop and consolidate water resources conservation programs by: (a) establishing the watershed as the planning unit; (c) reforesting the CH; (d) promoting activities dealing with sustainable development, training, technology transfer, etc.
3. Promote forest plantations and community forestry through the creation of incentives aimed at small and medium producers. Promote the sustainable use of non-timber products and by-products
4. Promote a land-use planning policy that establishes zoning, assessment, and soil uses.
5. Promote the decentralization of environmental management to local governments, creating the necessary capacities. Promote the participation and initiative of civil society organization in environmental management
6. Strengthen the inter-institutional coordination capacity to create synergies in the management and execution of common environmental thematic areas

VALUE OF ECOLOGY AND BIODIVERSITY

Omar Torrijos National Park and its area of influence: occupies 25,275 hectares. It is an isolated regional within the vulnerable center of the Mesoamerican Biological Corridor of the Panamanian Atlantic. Four of the zones of life (Tosi 1971) are located within the Park and correspond to the very wet premontane rainforest, very wet tropical rainforest, premontane rainforest, and mountain rainforest, the latter two being the Park's largest. Altitude and climate variations provide habitats for a wide variety of species of flora and fauna. 1,332 species of flora have been recorded in the Park, 13% of the country's total, including numerous plants endemic to Panama such as *Manetenia hydrophila*, *Anthurium coclense* and *A. Amicola*. There is also a wide variety of fauna: (a) approximately 200 mammal species (tapir, white-tailed deer, jaguar, *zaino*, etc.) of the 250 (80%) of fauna species known in the country); (b) 24 endemic bird species; (c) 34 "rare" bird species; (d) 406 of the 959 bird species, of which 180 are of special interest, abundant species of amphibians, bats (50% of the country's total) and reptiles, particularly the golden frog (*Atelopus zeteki*) protected by law in the country.

Donoso: Forms a forest block between the northern region of Omar Torrijos National Park (Coclé) and the east of the northwest of the province of Veraguas. According to ACP reports (Louis Berger 2002), in this region, together with Omar Torrijos National Park and the forest areas of the district of La Pintada, four forest associations area located: lowland forests, montane, submontane, and cloud montane. Over 1,100 species of floras have been identified, including several species with a southern and Mesoamerican distribution whose boundary is Panama. The best represented are those of the families Melastomataceae (14 genera and 57 species), Fabaceae (18 genera and 44 species), Rubiaceae (28 genera and 75 species), and Clusiaceae (10 genera and 29 species). Among ferns, the best represented is Polypodiaceae with 5 genera and 15 species. 26 endemic species have also been identified in Panama (*Matisia exalata*, *Calophyllum nubicola*, *Clethra coloradensis*, *Dendropanax panamensis*, etc.). There is also a large variety of species of herbaceous, shrublike, epiphytic, and parasitical plants, including various orchid species. With regard to fauna, a large number are found in Omar Torrijos National Park, especially reptiles, mammals, bats, and birds.

STATUS OF ECOSYSTEM CONSERVATION

Conservation status: The montane and cloud forests are considered “*Relatively Stable*,” principally because they are protected by Omar Torrijos National Park. The lowland forest is “*Endangered*,” while the submontane forest is in a “*Vulnerable*” situation.

The region’s characteristic of a biodiversity bridge between the biological systems of South and North America must be maintained to ensure the MBC’s continuity.

MOST IMPORTANT THREATS TO THE REGION

The principal risks to the integrity of ecosystems stems from threats such as deforestation, possible dams for the Canal’s operation, and mining.

- Deforestation: Nearly 3,000 ha of forests affected within Omar Torrijos Park either for cattle-raising or subsistence farming.
- Construction of possible dams for the operation of the Panama Canal which, although they will be executed in areas relatively far from the Park, may attract a large number of people and thus increase the zone’s vulnerability.
- Potential development of mining with major impact, through the opening of the Molejón and Petaquilla mines, in case copper and gold prices improve on the international market. An increase has also been observed in small-scale mining, indicating possible uses of machinery (pumps) in gold mining in several rivers (for example, El Caimito).
- Construction of rural roads (El Calvario – La Rica) due to the interest and need of populations to communicate with the Atlantic region.

POPULATION’S IMPACTS ON CONSERVATION OF APs

Positive:

- Especially in recent years, an extensive environmental education program has been carried out with the participation of students, educators, the adult population and authorities, as well as the development of projects that take advantage of the Park’s scenic beauty, which is helping the population to better understand the Park’s natural wealth and the importance of conserving it.
- Development of sustainable management projects, supported CBMAP and sustainable agriculture farms; nevertheless, the population assisted is relatively very small (less than 10% of residents) in relation to the population in the Park’s area of influence.
- Existence in several community organizations with an increase in the region’s social capital.
- Citizen culture of working as a group and experience in community reforestation processes.

Negative:

- Conflicts continue over the use of land for cattle-raising, especially by populations of emigrants from central provinces.
- Lack of adequate techniques for hillside farming which increases soil erosion.

AVAILABLE FINANCING (PROJECTS)

Triple C Project. Support to production and community services, including promotion and community organization (CCDS), extension and training of small producers, land titling, market promotion, and assistance to rural microenterprises, including watershed management; financing of productive activities through credits granted by a trust fund; infrastructure and community investments (roads, fords, paths, etc.)

PRONAT. Demarcation of critical areas having greater pressure on Omar Torrijos National Park (Cerro Hoya, Santa Fe, Cerro El Gaital). The phase of taking aerial photographs has been completed, and field work is being carried out.

Land titling/acp. Carry out a cadastral survey of the entire western region of the CHCP. Cadastre 213,112 ha corresponding to 7,000 titles (5,194 in rural village parcels, 1,200 in municipal ejidos). In addition, titling of 197,233 ha of agricultural and forest farms, in 134 rural villages with over 50 inhabitants and 9 municipal ejidos with over 500 inhabitants. Demarcation of 34 kms of Omar Torrijos National Park and 7,000 declarations of forest use.

Board of Nutrition. Sustainable agriculture farms.

KUNA YALA (NARGANÁ/AP, AILIGANDÍ, TUBUALÁ)

ENA OBJECTIVES CONSISTENT WITH REGIONAL MANAGEMENT

1. Identify the country's most important ecosystems and strengthen measures for their conservation and recovery
2. Control and reduce the generation of solid waste, establishing mechanisms to manage and recycle it
3. Reduce water pollution, controlling the dumping of untreated household or industrial waste water
4. Strengthen citizen participation in environmental issues, promoting community organization
5. Promote, encourage, and guide scientific and technical research on coastal marine resources to plan their management
6. Strengthen the planning and sustainable development of marine-coastal zones, establishing protection, recovery, and management measures
7. Biodiversity (Promote the sustainable use of marine-coastal species)
8. Promote indigenous cultures' traditional forms of sustainable use

ANAM PRIORITIES STRATEGIC PARTICIPATORY PLAN OF INTER-INSTITUTIONAL ENVIRONMENTAL SYSTEM

1. Strengthen measures for the conservation and recovery of the country's most important ecosystems, promote their protection through the SPA, and establish monitoring mechanisms
2. Prepare and review environmental quality standards, including marine waters and marine and coastal resources
3. Strengthen local governments to manage solid waste, recycling, and research
4. Integrate communities in the process of protecting and conserving priority areas
5. Promote and guide scientific and technical research on research to plan the marine-coastal zone
6. Strengthen the planning and sustainable development of the marine-coastal zone, establishing measures for the recovery and sustainable use of resources

VALUE OF ECOLOGY AND BIODIVERSITY

Kuna Yala includes a coastline of over 225 kms covered with mangroves and an archipelago with extensive networks of coral reefs and fields of sea grass in shallow waters of the continental platform (Clifton and Kim 1997). There are 49 species of coral that form reefs and another 20 species in 11 vertical settlement zones in reefs, one of the largest in the entire Caribbean. A large number of species live up to 45 meters. Coral reefs are the habitat for a wide diversity of species

and the major ecotourism attraction in the comarca. At least 70 fish species, used for food, preparing medicines (stingrays and sharks) and for ornamentation, have been identified.

STATUS OF ECOSYSTEM CONSERVATION

Despite a certain degree of disturbance, the Kuna Yala coral reefs are among the 10 areas of the planet whose coral reefs are still well conserved (STRI).

Forests are not too disturbed, thus conserving 88% of forest cover. According to residents of Isla Piro and in sites on the cordillera, nests of harpy eagles have been found, indicating a relatively high degree of forest conservation.

- Turtle populations have decreased.
- Decreased populations, reductions in size (lobsters), need to fish in deeper zone.
- extinction of shad
- reduction of fish capture.

MOST IMPORTANT THREATS TO THE REGION

Ecosystem change. Improper management of solid/liquid waste (fuel, heavy metals, fecal material).

- Use of coral for filling, damage to coral by boats (sailboats, motorboats) because sites for quays have not been determined.
- Trash/solid waste that destroy coral. Also due to soil erosion in watersheds and microcatchments.
- Irrational fishing of lobsters (over-fishing), sea turtles and green turtles.
- Lack of understanding of the perverse effects of pollution and of over-fishing on marine ecosystems.

POPULATION'S IMPACTS ON CONSERVATION OF APs

Narganá Protected Area (141,302 ha) , 3,206 Km² = 320,600 ha, Prohibition (Check where located) on lobster

AVAILABLE FINANCING (PROJECTS)

CBMAP/Subprojects (Solid Waste Management Project in Ustupo); PRONAT/delimitation of critical areas (Colón-Kuna Yala boundary); USAID researches possible cacao recovery project; Finnish proposal for small-scale solar energy; PEMANSKY/IDIKY; ITTO Forest Management (?)

VERAGUAS/Santa Fe National Park and its area of influence

ENA OBJECTIVES CONSISTENT WITH REGIONAL MANAGEMENT

1. Sustainable use of biodiversity - Solid waste
2. Potential use and development of the Santa María River Basin
3. Conservation of APs
4. Local participation in management of APs
5. Ensure ecosystem connectivity
6. Public and private strengthening for Natural Resources Management

ANAM PRIORITIES STRATEGIC PARTICIPATORY PLAN OF INTER-INSTITUTIONAL ENVIRONMENTAL SYSTEM

- Inventory of critical ecosystems
- Sustainable use of natural resources and biodiversity
- Strengthening of local governments with regard to solid waste collection and disposal
- Development of sustainable development actions in communities present in watersheds
- Assessment of water resources
- Land-Use Planning
- Watershed conservation and recovery
- Strengthening of measures for the conservation and recovery of critical ecosystems (PSA)
- Integrating communities in the protection and conservation of priority areas
- Developing plans, programs, and projects for the sustainable use of natural resources, with community participation
- Strengthening the public and private sectors' capacity for environmental management. Environmental incentives

VALUE OF ECOLOGY AND BIODIVERSITY

- Contains 7 of the 12 zones of life identified by Tosi.
- 4 of the country's 7 ecoregions are present.
- According to type of vegetation" Lowland ombrophyle forest
- Submontane ombrophyle forest
- Low montane ombrophyle forest.
- High montane ombrophyle forest.

FLORA - Of the 8,457 species of flora in the country, 1,577 are found in Veraguas, i.e., 18.6% of Panama's flora. Of importance are oncidium sp. and calumnea sp orchids and akallunkiae and A. Clichrophyllum anthuriums which are endemic to the region.

Fauna - Mammals. Of the 229 species registered in Panama, 45 are found in the PNSF and represent 19.6% of the mammals reported in the country.

The principal ones are Tapir (Tapirus bairdii), Jaguar (Pantera onca), nutria (Lontra longicaudis), giant anteater (Myrmecophaga tridactyla), and white-throated capuchin (Cebus capucinus)

BIRDS - 167 species were identified, of which 26 are in CITES Appendix 2 and two in Appendix I. High-altitude migratory birds have also been recorded: the barenecked umbrella (Cephalopterus globicallis), and the three-wattled bellbird (Procnia tricarunculata). Others such as the crested guan (Penelope purpuracens) and the great green macaw (Ara ambigua).

AMPHIBIANS AND REPTILES - In Veraguas 72 were reported, and in the area of the PNSF 29 species of amphibians and 18 of reptiles, the most important and with restricted distribution in the country.

STATUS OF ECOSYSTEM CONSERVATION

Stable ecoregion with high degree of conservation; 34% of the province is under some category of protection; 96% of the park contains nearly unaltered forests; Region with 6 protected areas; PNSSF interconnects the Ngöbe-Buglé Comarca and La Amistad International Park.

MOST IMPORTANT THREATS TO THE REGION

Tree cutting/Deforestation/ Fragmentation of habitat.

- Subsistence and sport hunting
- Degradation of riparian habitats/ Depletion of water sources.
- Construction of access roads.
- Agricultural practices incompatible with sustainable use of the environment.
- Monopolizing/ Speculation /Encroachment.

POPULATION'S IMPACTS ON CONSERVATION OF APs **POSITIVE**

- Acceptance of APs by communities and municipal authorities.

NEGATIVE

- Conflict over land use/cattle-raising.
- Poor soil use practices (hillside farming).
- Lack of conditional titling in APs. (See legal framework.)

AVAILABLE FINANCING (PROJECTS)

Currently, only the PPRN project is financing subprojects in the park's buffer area. UICN has prepared a project for the reforestation of the upper San María watershed but it still lacks donors for financing.

APPENDIX B

RESULTS MATRIX Analysis of Environmental Problems

Environmental Problems in the Kuna Yala Comarca

Region and its important for biodiversity conservation.

Kuna Yala consists of an over 255 km coastline covered with mangroves and an archipelago with extensive coral reefs and fields of sea grass in shallow waters of the continental shelf (Clifton and Kim, 1997).

According to Ventocilla et al (1995), in Kuna Yala there are 49 species of coral that form reefs and another 20 species in 11 vertical settlement zones in the reefs, one of the largest in the entire Caribbean. A large number of species live up to 45 meters. Coral reefs are the habitat for a wide diversity of species and are the comarca's principal tourist attraction. Despite several disturbances such as those indicated in this document, the Kuna Yala coral reefs are among the 10 areas of the planet with well-preserved reefs (STRI).

Mangroves are abundant with species such as *Rhizophora mangle*, *Avicennia spec.* and *Laguncularia racemosa*. Mangroves constitute the natural environment for biogenetic reproduction of fish, mollusks, crustaceans, algae, and other marine species.

Most Important Environmental Problems.

The problems with greatest impact directly affect the conservation of the marine environment and its resources. These are: (a) pollution by various agents; (b) coral extraction for land filling; and (c) overfishing of selected species.

Pollution of marine-coastal zones due to improper management of solid and liquid waste:

- Inorganic trash (cans, paper, plastic waste, metal, glass, nylon cords, etc.) dumped in the sea around islands, but also on land, for example in Cartí. Waste water drainage.
- Fecal material, detergents, and cosmetics dumped on the ocean floor
- Heavy metals (varnish, tar, car and flashlight batteries). Mass consumption of paints and lacquer to paint boats, hand-operated and car batteries for lighting and refrigeration

Threats to the Environmental and Natural Resources.

Improper waste management. Water pollution affects fish and coral, and plastic waste endangers fish, marine mammals, turtles, crabs, and birds who become entangled in nets or eat plastic particles.

Proposals to Address Problems.

The most important recommendation is to control the destruction of coral reefs, mangroves, turtle grasses, and ocean pollution. Thus, authorities (General and Local Congresses and communities) should identify with the concept of sustainable resource management. Various specific actions are proposed which could be implemented with the support of CBMAP and other public and private agencies, including indigenous organizations:

Environmental education and waste management plan. Develop an environmental education plan that includes information focused on critical environmental issues and the design of a plan to manage solid and liquid waste, similar to the successful environmental sanitation and education plan for Ustupo, financed by CBMAP.

Establishment/supervision of regulations. A large part of the negative impact items from the population's lack of understanding and the absence of regulations. However, it is a known fact that when regulations exist, they are well respected.

Support solar energy subprojects. CBMAP could support this initiative through community subprojects that benefit a large number of homes, replicating experiences of Phase I and reducing the use of batteries supervised by the Local Congress.

Technology transfer. Execute a training plan that includes techniques for hillside farming, contour planning, green manure and organic fertilizers.

Analysis of Environmental Problems in the Region of Donoso/Colón Coast below Colón

The Region and its importance in biodiversity conservation.

The Donoso region forms a block of forest between the northern region of the Omar Torrijos National Park (Coclé) and the east of the northwest of the Province of Veraguas. According to ACP reports (Louis Berger, 2002), in this region, together with Omar Torrijos National Park and the forest areas of the district of La Pintada, four forest associations are located: ??bosque perennifolio ombrófilo tropical latifoliado de tierras bajas (55,005 ha), bosque perennifolio ombrófilo tropical latifoliado submontano (6,622 ha), bosque perennifolio ombrófilo tropical latifoliado montano (1,046 ha) y perennifolio ombrófilo tropical latifoliado montano nuboso (282 ha). The latter two are located in Omar Torrijos National Park. (See Table No. 1)

Flora consists of species of neotropical distribution (around 50%), but also of regional distribution, i.e., distributed throughout South and Meso America. The quantity and variety of species increases according to the degree of existing conservation. Part of the flora is important for the human communities that inhabit the region since numerous species are used for food and medicine, to make handicrafts, for decoration, and as wood for various uses.

Over 1,100 species of flora have been identified, including species distributed throughout South and Meso America and whose boundary is Panama. 26 species endemic to Panama have been identified, including orchids.

Although unconfirmed, local residents indicate the presence of harpy eagles.

With regard to the degree of conservation, research indicates that lowland ??bosque perennifolio ombrófilo tropical latifoliado are “*Endangered*,” while the ??bosque perennifolio ombrófilo tropical latifoliado submontano is “*Vulnerable*.” The ??El bosque perennifolio ombrófilo tropical latifoliado montano y el nuboso are considered “*Relatively Stable*,” mainly because they are protected by Omar Torrijos National Park.

Most Important Environmental Problems.

It is necessary to state that the region maintains a high degree of conservation, thanks to various factors: (i) difficult access from populated sites; (ii) distance in relation to villages; (iii) the low number of villages located in almost the entire northern area of Omar Torrijos National Park and on the coastline, leaving a nearly intact biological corridor between them. The principal risks to the integrity of ecosystems stem from potential threats such as deforestation and mining.

Threats to the environment and natural resources.

Deforestation: Based on ACP studies (2003) in the western region of the CCP the principal problem is deforestation for livestock activities. A specific analysis of the Coclé del Norte sub-basin, an area of direct influence on the Donoso region, shows that from 1982-1986 and 1998-2000 the growth in areas for livestock activities was 24%. With regard to secondary forests affected, these decreased from 36,226 ha (1986) to 33,493 ha (2000). This meant a forest-to-pasture conversion of over 4% in the last 5 years. ACP studies show that in a 20-year period, new roads of penetration toward the Atlantic may be opened and livestock activities could use up nearly all lowland forests.

Mining. According to records of MICI's Bureau of Mining Resources, there are 27 requests for mining concessions, both for development and exploration, in the region. Of these, concessions for developing of the mines of Petaquilla and Molejón include significant capital because they have a contract with the State for their development. This would be activated once copper and gold prices are lower on the international market. It is estimated that mining works would affect about 2,000 ha.

Proposals to address problems.

Proposed actions include several presented by local researchers and ACP researchers, and those stemming from field consultations and visits.

(a) Proposals that may be supported by CBMAP:

- Land use planning. This would include the financing of the plan and regulations for use, in accordance with the area's characteristics, including the definition of conservation areas; the strengthening of municipal governments; and the modality of shared management between the municipality and ANAM.
- Subproject financing. Provide technical assistance and financing to the region's communities (most are located in the northern part of Omar Torrijos National Park and in the coastal zone) for subprojects with low impact on resources, to reduce the need to emigrate to forest zones. This would allow ANAM to deal more closely with communities.
- Monitoring and Supervision. CBMAP would help ANAM to design and implement a supervision and monitoring network to ensure compliance with land use planning and the participation of other actors in managing the area.

(b) Proposals by local authorities.

- Municipal authorities (Mayor and *corregimiento* representatives) have submitted a request to ANAM for the declaration of a protected area of at least 10,000 ha, as a means of halting the possible use of forests. However, ANAM's institutional presence in the region is weak as is the municipality of Donoso. This proposal should be studied in greater depth in order to determine management options.

Análisis of Environmental Problems in the Bocas del Toro Region/Naso Teribe Territory^{15/}

The Region and its importance in biodiversity conservation.

Bocas Del Toro: Includes the protected areas of La Amistad International Park (207,000 ha.), Palo Seco Protective Forest (125,000 ha.), San San Pond Sak Wetlands (16,125 ha.), Isla Bastimento Marine Park (16,125 ha.), and their areas of influence.

The Talamanca ecoregión, between Panama and Costa Rica, where this protected areas complex is located and including Barú Volcano Nacional Park in Chiriquí, is one of 200 ecoregions recognized internationally for its extraordinary biodiversity. The individual characteristics of this protected areas complex is described below:

La Amistad International Park contains around 200,000 hectares of forests on the Atlantic slope (Bocas del Toro), and the rest on the Pacific slope in Chiriquí. Three indigenous ethnic groups coexist in area of influence: Teribes, Ngöbe-Buglé, and Bribri. It contains nine types of vegetation, from lowland perennial ombrophyle tropical latifoliate forests to thick cloud forest and swamp (*páramo*) vegetation.

The different altitudes and temperaturas provide the natural environment for a wide diversity of plants and animals.

In the San San Pond Sak Wetlands types of vegetation are dominated by perennial forest. The orchid *Encyclia alata* (new report for Panama) has been reported in this zone, as well as a colony of manatees (*Trichechus manatus*), the country's most threatened species.

The most representative order is that of Passeiforms with 18 families. Besides the birds typical of swamp ecosystems, there are insectivores and frugivores; 46 species are special elements of which the bald-pate dove (*Columbia leucocephala*) has conservation ranking N1 and the muscovy duck (*Cairina moschata*) N2, as well as 9 species protected by Panama.

The Wetlands favor the presence of marine species, amphibians, macro-invertebrates such as aquatic insects, crustaceans, and mollusks.

In the Isla Bastimento Marine Park the existence of 155 plant species has been detected, of which 48 have priority conservation rankings, including *Ferdinandusa panamensis* and *Ruellia praeclara*. Marine communities are dominated by turtlegrass (*Thalassia testudinum*), manatee

¹⁵ En este análisis se han utilizado los informes Socio-Ambientales de los Planes de Manejo del PILA, Humedal de San San Pond Sak, Parque Marino Isla Bastimento y del Bosque Protector de Palo Seco, elaborados por ANCON durante 2001-2003 para el CBMAP. En el caso del PILA se complementó la información con el documento "Conservación Basada en Ecorregiones para el Complejo Ecorregional: Bosques Montanos de Talamanca e Istmicos del Atlántico y del Pacífico", elaborado por CI para CBM-CBMAP (2003).

grass (*Syringodium filiforme*), and *H. Decipiens*. Mangroves are of great importance in this area, with a predominance of red mangrove (*Rhizophora mangle*), black mangrove (*Avicennia germinans*), and white mangrove (*Laguncularia racemosa*) species.

The Park contains the second most important group of reefs on the country's Atlantic coast, the other is located in Kuna Yala. In coral reefs, 121 species of algae have been identified, as well as 160 species of fish, 82 species of mollusks, and 39 species of crustaceans, and endangered turtle species such as the hawksbill turtle (*Eretmochelys imbricata*) and the green sea turtle (*Chelonia mydas*).

Short- and mid-term alternatives that may promote development for the region. Development of the region's tourism potential, especially in islands

Most Important Environmental Problems.

The most relevant environmental problems are common to the entire region, and several of them are shared by all protected areas, i.e.:

- a) Practices incompatible with sustainable use of natural resources in agricultura and fishing, such as the use of soils unsuitable for agricultural and livestock activities, accompanied by inadequate agricultural practices (slash and burn), deforestation for extensive cattle ranching, and overfishing of selected species such as lobsters, snails, crabs, squid, and turtles, due to lack of regulations (prohibition) or non-observance of such regulations.
- b) Fragmentation of habitats and decrease in areas of connectivity due to the opening of access roads, colonization, and agricultural and livestock use. Those with the greatest impact are the Punta Peña-Almirante highway (1999), expansion of and improvements to the Gualaca Chiriquí Grande highway, and the construction (2000) of an embankment 1.2 kms long and 5 mts wide that crosses the San San Pond Sak Wetlands, which has destroyed part of these wetlands.
- c) Industrial dumping in the San San Pond Sak Wetlands and Changuinola. In the Changuinola region, this is done intensively for about 7,000 hectares of banana crops and to a lesser degree mechanized rice crops. This activity requires large amounts of agrochemicals which, through leeching, enter rivers and contaminate their source.

Increased tourism in the region, particularly in island areas. The Bocas del Toro region is the country's third largest tourist destination (after the Panama Canal and the San Blas Archipelago), particularly the part of the Bocas del Toro Archipelago where the Isla Bastimento Marine Park is located. Declared a tourism development zone by IPAT, it is visited by an average of 30,000 people/year¹⁶.

Threats to the environment and natural resources.

The practices with the most impact include:

¹⁶ Information from Isla Bastimento Marine Park Management Plan: Proposed Business Plan. Prepared by PROARCA/CAPAS/USAID, for the Nacional Environmental Authority. Panamá, 2001.

Practices incompatible with the sustainable use of natural resources in agriculture. Forest areas continue to be deforested for cattle ranching and subsistence farming. Generally, these activities are carried out in areas with steep slopes and in places with high precipitation, which causes soil loss from erosion. Sediment moves toward coastal marine zones, causing the death of coral reefs, one of Bocas del Toro's major tourist attractions. In 1999, burning destroyed 17,136 ha of grazing land and 59,919 ha of natural forests (ANAM 1999).

Reduction of soil fertility and itinerant migration. Another problem caused by deforestation is the loss of soil fertility, which causes the displacement of entire families who migrate to other areas that they colonize and where they repeat the same practices.

Overfishing. The uncontrolled exploitation of marine products creates a cycle of destruction for these resources, because it does not allow resources to recover naturally. The direct effects are smaller sizes and weights of fish catches, and depredation of juveniles or of egg-bearing females.

Fragmentation of habitats and decrease in areas of connectivity due to the opening of access roads, colonization, and agricultural and livestock use. Soil use for agricultural and livestock activities and the intensity of the selective cutting of native species are fragmenting ecosystems and decreasing the survival of species such as large felines that need large areas to survive. If these practices continue increasing in an uncontrolled manner, this may cause the definitive extinction of many of these species. The alteration of ecosystems may also lead to the definitive loss of species of flora and fauna.

Land speculation along the Almirante-Punta Peña highway stemming from greater ease of mobility of goods and people. The land use plan for areas near the highway has not yet been put into effect (CBMAP 2002).

Elimination of vegetation and alteration of the normal flow of circulation due to the embankment inside the SSPS Wetlands. That of its waters is altering the reproductive habitat of sea turtles, as an immediate consequence, and of the wetlands' other species.

Industrial dumping in the San San Pond Sak Wetlands and Changuinola. These contaminants generate sediments in bodies of water, directly affecting water quality. The greatest risk in the Wetlands is the survival of manatees due to water pollution and the loss of the sea grasses that they eat.

Increase in disorderly tourism. Increased tourism and migration from coastal villages to the Park have increased pressure on marine and coastal resources, coral reefs, sea grass fields, mangroves, and island forests.

Overfishing of several species. For example, there are signs of overfishing of some products (lobster, octopus, snail). Increased tourism has also increased the demand for food, especially for seafood.

Although ANAM staff are aware that disorderly tourism represents a high risk to the Park's ecological integrity, institutional presence is minimal due to limitations of staff (there is only 1

Park Director and 2 park wardens) and of operating resources. This means it is necessary to seek alternatives to increase institutional presence, monitor management by private promoters, and reduce risks to resources.

Proposals to address problems.

The proposed actions are to: (a) create synergies with the Bocas del Toro Sustainable Development Project; (b) collaborate with AMP on fishery management in Isla Bastimiento Marine Park; (c) finance additional projects of greater size and duration; and (d) carry out more in-depth environmental education/awareness efforts.

Synergies with Bocas del Toro PDS (IDB). This project includes a Natural Resources Management and Productive Development component for \$4.3 million, productive community projects, community infrastructure, recovery of critical areas in microcatchments, crop management, cattle-raising, forest management, training in tourism and fishery management, assistance with business management and marketing for around 1,350 producers.

Collaboration with AMP on fishery management in Isla Bastimiento Marine Park: CBMAP/ANAM could lead negotiations among AMP, fishermen's cooperatives, and Local Committees of the Isla Bastimiento P.I., to establish a method of monitoring fish captures (for example, lobster and crab) based on regulations agreed by all parties.

Increasing the economic size of subprojects: The financing of projects with greater impact is recommended (at least one per protected area) including TA, resources, and guidance on group organization, productive technology, product management, and marketing.

Strengthening environmental education/ training. It is recommended that environmental education and training efforts be continued, reaching new stakeholders such as the private sector and NGOs.

Establish Biological Corridors. Recent studies (Carbonell and Guevara 2003) in the Talamanca ecoregion identify biological corridors of importance for biodiversity conservation and habitat recovery: (a) Robalo River-Uyama River corridor which would connect the ecosystems of lowlands located at the mouth of both rivers; (b) SSPSak-La Gloria Caribbean corridor which, besides connecting important lowland forest fragments, should include conservation efforts in the banana plantations of the villages of Changuinola and Almirante; and (c) Teribe-SSPSak highland corridor, important for maintaining the biological processes between the region's high and low lands. A priori, it is estimated the SSPSak-La Gloria corridor is the highest priority because it would help to reduce the impact of contaminants in the SSPS Wetlands and improve the health of the population in Changuinola and Almirante.

Incorporation of local governments. Due to ANAM's institutional weakness in the region, this is an opportunity to incorporate local governments in the agreements reached on the recovery or conservation of biological corridors. In the case of the execution of the land planning scheme, these authorities play a key role in issuing permits and concessions and in supervising compliance with such permits and concessions.

The BT PDS has scheduled \$80,000 to construct artificial wetlands for waste treatment and \$113,000 for a solid waste management Project in Isla Colón.

Organize the system of Park entrance fees. Conditions exist to increase park income: increased number of tourists and no objection to the payment of entrance fees. An operational alliance must be established with IPAT for joint operation of tourist reception and services, including an entrance fee system. Thus, the following are proposed: (a) furnish the office provided by IPAT in CEFATI (furniture and computer equipment and programs) to operate as a center to collect fees for visits and other services.

The income received should be allocated to Park management so that staff can be hired to administer the CEFAT office, to pay additional park wardens, to construct tourist support infrastructure, and to finance the operating expenses of Park administration and supervision.

Concession of services. The ecotourism plans proposed in the management plans of Isla Bastimiento Marine Park and other APs^{17/}, identify a series of constructions to improve tourism (construction of paths, quays, snack bars, toilets, lodging, etc.) that may be awarded to private promoters.

Training in marine resources management. This training should be part of an environmental education plan to be carried out in the province.

Analysis of Environmental Problems in the Chiriquí Region

The Region and its importance in biodiversity conservation

The management of CBMAP in the province of Chiriquí was focused on the PILA and Barú Volcano National Park protected areas and their buffer areas, as well as on the Fortuna Forest Reserve's buffer area.

Barú Volcano National Park. This Park protects the sources of the most important rivers in the province of Chiriquí, such as the Chiriquí Viejo, Chico, Caldera, Gariché, David, and Cochea Rivers.

Five types of vegetation and two classes of soil uses are conserved, i.e., ??Bosque Perennifolio ombrofilo tropical latifoliado montano (923 ha., 6.68% of the total), ??B.P.O.T.L. altimontano (5,674 ha., representing 41.04% of the total area), ??B.P.O.T.L. nuboso (5,456.69 ha. or 39.47% of the total), ??B.T.O.T.L. nuboso achaparrado (41.70 ha., representing only 0.30% of the total), lava flow with sparse vegetation (699.13 ha., or 5.06%), productive system with ligneous natural/spontaneous ligneous vegetation (175.81 ha., representing 1.27% of the total area), productive system with natural/spontaneous ligneous vegetation (855.06 ha., 6.18% of the Park's total area which is 13,826.59 ha.).

There are 62 species that have only been registered in Chiriquí. In 2000 Guerra and Guinard carried out a plant and ecological inventory of ferns on the Cerro Punta-Boquete trail and

¹⁷ Refers to PILA, Bosque Protector de Palo Seco Protective Forest, and San San Pond Sak Wetlands.

registered 95 species of 39 genera. According to ANCON-CEPSA (2003) in a survey of flora, 316 registries were made, of which 269 (84%) are new. Considering all research until 2003, 794 plants, in 129 families, have been registered within and adjacent to the Barú Volcano National Park.

Fauna: Mammals: Fuenmayor and Muschet (2002) indicate the existence of 139 mammal species, including several shrews (*Cryptotis nigrescens*, *C. gracilis*), several bats (e.g., *Hyloncteris underwoodi*, *Sturnira mordax*), and various rodents such as *Orthogeomys cavador* and *Oryzomys albigularis*.

Birds: The highlands are world-renowned for their great diversity of birds^{18/}. In this Park 282 species of birds have been reported, divided into 15 orders and 36 families.

The Park's biological diversity:

Flora: In studies performed in the Park by Chavarría (1989) 32 species of monocotyledons and 119 species of dicotyledons were identified.

Reptiles and amphibians: The largest number of endemic national and regional species (31% and 64%, respectively) has been registered in Chiriquí. In the PNVB 39 species of reptiles distributed among 2 orders, 10 families, and 27 genera have been registered, as well as 46 species of amphibians distributed in turn among 8 families and 17 genera.

Fifteen species of primary fish have been registered, as well as 13 secondary and 5 peripheral. There is also a broad representation of macro-invertebrates, insects, crustaceans, mollusks, and ??bentos.

Most Important Environmental Problems

The most relevant environmental problems stem from soil use and environmentally unsustainable productive practices, the physical presence of villages within the Park, forest fires, and water and soil contamination by agrochemicals.

- a) Unsustainable agricultural practices. Carried out mostly on volcanic soils, agriculture (particularly vegetables) is the region's economic base.
- b) Hillside farming
- c) Slashing and burning
- d) Excessive use of agrochemicals.
- e) Extensive cattle ranching.
- f) Lumber extraction.
- g) Illegal hunting and illegal commerce of species.
- h) Road construction.
- i) Unregulated tourism development and construction of infrastructure.
- j) Intentional and accidental fires.
- k) Farms without proper title within the Park.

Threats to the environment and natural resources

¹⁸ Barú Volcano National Park forms part of the Talamanca ecoregion which extends from Costa Rica to the province of Coclé, considered one of the most important areas in the Americas for regionally endemic birds (AEA) (Angehr and Jordan, 1998; Sattersfield et al., 1998; Wege and Long, 1995).

Slashing and burning causing the fragmentation of habitats within the Park and in its areas of influence, and reduces the quantity and quality of forests available for many species.

The excessive use of agrochemicals is contaminating land and water environments and is affecting the quality of water for human consumption.

Large-scale cattle ranching is being practiced on the Park's boundaries, precisely where the Pacific montane forests begin, and is contributing to soil degradation.

Lumber extraction represents a threat to Pacific montane forests. The most affected species are oak [*mameicillo*] (*Quercus spp.*), *bambito* (*Ocotea spp.*), cedar (*cederla spp.*) and *siguas* (*Ocotea spp.*)

Wildlife. Of all the fauna registered in the Park, large felines are considered by ranchers as threats to livestock and as trophies for sport hunters.

The construction of stations and antennas at the top of Barú Volcano is threatening the ??bosque nuboso achaparrado.

The construction of trails, infrastructure for relaying radio and television signals, and improper disposal of solid waste such as trash are affecting the ??bosque nuboso achaparrado located at the top of volcano which gives the place scenic value.

Trash also causes pollution. Each year fires are started, affecting grasslands on the peak as well as on slopes and the Pacific montane forest.

Between 500 and 700 people have parcels within the Park. Most of them lack ownership titles or registration of rights of possession, even though they resided in the area prior to the Park's creation.

Proposals to address problems

The region's soils and climate are unique to country in terms of fertility. These microclimatic conditions favor the cultivation of vegetables, coffee, strawberries, flowers, etc. However, the topography and poor crop practices have contributed to annual losses of tons of valuable soils due to leaching. Despite training programs such as the French mission's project, the Amisconde project (financed by Conservation International) which has taught farmers proper planting methods (contour planting, construction of ridges against the slope, etc.), it will be necessary to continue training farmers with more demonstrative methods and with decreased use of agrochemicals, promoting organic farming instead. These actions should be executed by MIDA. Phase II of the CBMAP Project could support ANAM in organizing a new management model for the Park (such as a sponsorship) where different actors participate. In this case the municipalities of Boquete and Bugaba could participate, as well as the region's hotel owners, concessionaires of services within the Park, television and telephone companies, IPAT, area farmers, the region's conservation groups, the AES Panama company, owner of Los Valles Hydroelectric Plant whose principal tributary is the Caldera River whose source lies within the Park, etc. The project would support the financing of meetings, consultancies, etc.

The first actions to be carried out by the Park's new co-administrator will be the Park's effective protection (hiring a larger number of park wardens), constructing facilities for the development of ecotourism, and implementing a Park entrance fee policy until the Park achieves financial sustainability.

Land tenure conflicts should be resolved with the support of the Land Administration Project (PRONAT).

Analysis of Environmental Problems in the Northern Veraguas Region (Santa Fe National Park)

The Region and its importance in biodiversity conservation

This region forms part of the Talamanca montane forests, with four ecoregions and 7 of 12 zones of life. It protects a large part of the basin of the Santa María, Grande, Calovébora, and Veraguas River basin. The ecological assessment performed for the Park's creation determined the existence of seven types of vegetation, with the low tropical montane evergreen forests covering most (95%) of the Park's area, and the cloud forest covering 443.0 ha or 0.6% of the area. 2574.6 ha were detected among rocks with exposed soils, and areas with shrubs, stubble, and grazing land representing 3.4%; the remaining 14.5% could not be evaluated due to cloudiness. 37 species of endemic flora were determined for the Santa Fe area, such as the epiphytes *Oerstedella pseudoshummaniana* and *Columnnea perpulchra*.

Of the 117 mammal species registered in the province of Veraguas, 45 were located in the Park area, representing 19.6% of the country's mammals. The most important species include the tapir (*Tapirus bairdii*), jaguar (*Pantera onca*), panther (*Felis concolor*), and neotropical river otter (*Lontra longicaudis*), as well as the bat *Hylonycteris underwoodi*, a specie with a restricted distribution range, and the white-throated capuchin (*Cebus capucinus*) also protected by law and registered in CITES Appendix 2. With regard to birds in Veraguas, 430 species have been reported, representing 47% of all 929 registered in Panama. Of these, 167 species were registered in the Park's area during the study. The most important species include the bare-necked umbrella bird (*Cephalopterus glabricollis*), the three-wattled bellbird (*Procnias tricarunculata*), and the crested guan (*Penelope purpurascens*). 54 species of amphibians and 72 species of reptiles have been reported in Veraguas. During the study, 29 species of amphibians and 18 species of reptiles were determined, including the pipiens frog, the drab tree frog (*Smilisca sordida*), and salamanders such as *Bolitoglossa colonnea*, the latter indicating habitat quality.

Most Important Environmental Problems

Deforestation, the advancing of the agricultural frontier, land speculation. Practices incompatible with the sustainable use of the environment. Dumping and management of solid waste. Migration of colonists and indigenous peoples to the Park's border areas.

Threats to the environment and natural resources

Deforestation causes forest fragmentation, reducing the quantity of habitat and thus of species such as amphibians that are less visible in areas with a high degree of deforestation. Another effect is the depletion of water sources, and increased quantities of particles in suspension which affect riparian habitats.

The loss of plant cover causes soil compaction, reducing the soil's absorption capacity and causing many water points to dry up. This is a region of high precipitation and strong slopes, making agricultural and livestock practices such as slashing and burning unsustainable, especially for cattle raising.

Improper disposal of solid waste, for example in the community of Santa Fe, may in this case cause the contamination of water sources such as rivers and streams, health problems for the community, etc.

Invasion of squatters in the Park. The Santa Fe mayor's office estimates that about 2,000 people have migrated from the Ngöbe-Buglé comarca toward the Park's borders. Taking into account that each family needs one hectare per year for subsistence, this means that 2,000 hectares are deforested each year.

Land speculation. The problem of land speculation and the existence of fraudulently obtained property titles have been denounced by the community. If this practice continues, in several years important habitats for umbrella species such as the tapir and jaguar will be affected, as well as important watersheds such as the Santa María river basin.

Proposals to address problems

The problems of deforestation, environmentally incompatible agricultural and livestock practices, and land speculation are the most important threats to the protected area. Institutional presence by ANAM is minimal: one staff member who serves the Park and the area of San Francisco. It is evident that the existence of institutional weakness will not improve in the short and medium terms. Thus CBMAP's efforts in a second phase should be aimed at executing the following actions: (i) strengthening of the municipality of Santa Fe and other organizations existing in the community, aimed at working jointly with ANAM on the co-administration of the protected areas. The creation of an environmental unit in the municipality of Santa Fe could be financed. This unit would be in charge of solid waste management and disposal for the District of Santa Fe. Carrying out efforts to protect the PA in coordination with ANAM to halt colonization in the zone. Other actions that could be financed are: (ii) pilot projects dealing with agroforestry issues (coffee, citrus, vegetables, wetland rice, etc.), nurseries for fruit and timber trees, introduction of silvo-pastoral systems in cattle raising, marketing of agricultural and livestock products, and construction of facilities for the development of ecotourism projects (trails, visitors' center, etc.). Agricultural and livestock projects may be carried out in coordination with La Esperanza de los Campesinos R.L. cooperative which has 600 members and considerable influence and experience in the community. Facilities for ecotourism projects would be executed in coordination with the municipality. The Park's delimitation by the PRONAT project, accompanied by periodic supervision, would help to avoid new migrations to the zone.

Analysis of Environmental Problems in the Ngöbe-Buglé Comarca

The Region and its importance in biodiversity conservation

There is no specific information on biodiversity in the comarca, although in the MBC proposal regarding the characterization of priority areas the types of vegetation existing in the two proposed biological corridors with the comarca's territory are identified. These corridors are: the Ngutduoro or Mountain Corridor with an area of 137,539.9 ha., and the Valiente Peninsula-Chúcara River Biological Corridor with an area of 273,707 ha., of which 90,236 ha. correspond to land area and 183,471 ha. to marine area. The former contains lowland latifoliate tropical

ombrophyle evergreen forests (4.5%), lowland latifoliate tropical ombrophyle evergreen forests that are considerably affected (23.3%), submontane latifoliate tropical ombrophyle evergreen forests (43.8%), and submontane latifoliate tropical ombrophyle evergreen forests that are considerably affected. This proposed corridor encompasses territories within the comarca from the mountainous region of the central cordillera between the Fortuna Forest Reserve and the San Pedro and Calovébora River, and part of the districts of Kankintú (*corregimientos* of Guaiviara, Kankintú, Piedra Roja, Mununi, and Guoroni) and Kusapin (*corregimiento* of Río Chiriquí, Loma Yuca and Valle Bonito).

Most Important Environmental Problems

Deforestation, practices incompatible with the sustainable use of natural resources. Increased deforestation along river banks for grazing. Concessions for large-scale mining; constant expansion of the agricultural frontier. Slashing and burning. Endangered flora and fauna. Large-scale cattle ranching. Temporary migration zone.

Threats to the environment and natural resources

Deforestation and use of primary forests for subsistence crops. The exploitation of natural resources within the comarca is similar to the country's non-indigenous areas (deforestation through slashing and burning, large-scale cattle ranching, etc.). This is due to the phenomenon of acculturation that is occurring in the Ngöbe-Buglé comarca.

Large-scale cattle ranching on highly superficial, fragile soils on steep slopes (according to the strategic plan with credit facilities) has degraded large areas of land.

Low soil fertility makes it necessary to frequently rotate crop sites. Farming is currently carried out by felling small stands of trees with somewhat more fertile soils on the banks of rivers and streams. The felling of these remaining tracts of forests affects gallery forests which to a certain extent ensure water quantity and quality in the comarca's principal rivers. These practices show a desolate landscape, especially in the comarca's Pacific slope region. The implementation of this cropping patten on the Atlantic slope would be even more catastrophic due to heavy precipitation, fragile soils, and steep slopes.

Proposals to address problems

The area with the most soil degradation within the comarca is the Pacific slope. In this region, it will be necessary to train indigenous peoples in the establishment of silvo-pastoral systems to improve grazing land, in the improvement of grazing land through the planting of stoloniferous grasses (e.g., *Brachiaria decumbens*) which help to protect the soil from erosion. In addition, indigenous peoples should be trained to seek other crop options such as agroforestry, planting organic coffee, etc. (These actions may be financed with IFAD project funds and co-executed by MIDA and ANAM.) In areas with high levels of soil degradation, large-scale reforestation programs should be carried out. This activity would generate much-needed employment in the region and improve the zone's micro-climate conditions as well as income from timber sales in the medium and long terms. The IFAD project will invest US\$33 million in the development of the Ngöbe-Buglé comarca. This project's sustainable development component has around US\$10 million which will be invested in such activities as reforestation, soil and water conservation practices, and microcatchment management. Reforestation activities could be financed through a

food-for-work subsidy. An Ngöbe NGO could administer the funds and be in charge of purchasing and distributing food. This methodology would ensure planting on large areas of land with few resources; malnutrition levels in the region would decrease; and there would be a high level of participation by women.

ANAM has lengthy experience in this modality of reforestation project execution, e.g., the Yeguada, Alto Guarumo, and Los Valles de Cañaza Projects, among others.

Analysis of Environmental Problems in the Pacific Region

The Region and its importance in biodiversity conservation

Forest Structure of the Pacific Region. The predominant forest formations on the Pacific slope include lowland semi-caducifoliate tropical forests where the cuipos (*Cavanillesia Platanifolia*, *Calophyllum candidissimum*, and *Astronium graveolens*) are the species that form the canopy. These cover an area of 1,215,436 hectares, 6.8% of which is affected. Another forest formation on this coast is the perennifolio ombrófilo tropical latifoliado forest whose canopy is 30 meters high. The predominant species are the Maria (*Calophyllum longifolium*), yellowwood (*Podocarpus guatemalensis*), and stilt palm (*Socratea exorrhiza*) and are found in Cerro Jefe (Chagres National Park) and Cerro Hoya National Park. In the latter, there is an abundance of *Calophyllum longifolium* and *Demopsis oertedii* with a degree of intervention of 1.19% and spread over an area of 765,997 ha.

Cerro Hoya National Park (28,743 ha)

The Region and its importance in biodiversity conservation

It is situated in the extreme southwest of the Azuero peninsula, in the districts of Tonosí (Los Santos) and Mariato (Veraguas). It occupies 28,743 ha of land area and 3,814 ha of marine area. According to the type of forest cover¹⁹, 3 of the country's 12 zones of life are identified here (Tosi 1971): very wet rainforest, premontane rainforest, and low montane rainforest (CEPSA 1998). The Park also provides the natural environment for an important water reserve in the Azuero region; the sources of the Tonosí, Guánico, Cobachón, Punta Blanca, Sierra, and Pavón Rivers are located here.

Cerro Hoya National Park presents interesting geological and biological characteristics. It is formed by volcanic rocks from the Upper Cretaceous period, the oldest in the isthmus and notable for conserving the Azuero region's most important reserve of primary forests and for sharing vegetation and biodiversity characteristics with the Talamanca montane forest ecoregion (Dinerstein 1975), as demonstrated by the presence of trees of the genera *Quercus* (CEPSA 1998) which are typical of montane forests. It has unique features in relation to other national parks, combining forests, short rivers, beaches, islets, cliffs, coral and pelagic marine environments, comparable only with the coastal zone of Darién National Park (Castroviejo 1997).

¹⁹ Según información desplegada en la página web de la ANAM se indica la existencia de otras dos zonas de vida: bosque muy húmedo premontano and bosque muy húmedo montano bajo; no obstante, no hay documentación sobre esta información en la EER realizada en 1998.

Its species of flora^{20/} (CEPSA, 1998) include 40% that are important for timber uses (construction, fiber extraction, firewood, etc.); 21.5% for medicinal uses (traditional medicine and chemical compounds); and 13.3% for forestry uses. The diversity of birds is estimated to be similar to that found in the Azuero Peninsula and Coiba National Park^{21/} (MacArthur 1972). However, few studies have been made of the Park's fauna (CEPSA 1998), and thus the populations of species registered 10 or more years ago may have decreased or been lost. This is the case of the scarlet macaw (*Ara macao*)^{22/}, protected by CITES, and which residents say exists in the Park but could not be registered in the ERR. Of the other 151 bird species registered in land and aquatic communities, on the open sea, and on the coast, 13 are protected by CITES.

Mastofauna are more limited due to ecosystem alternations, but the ERR detected 40 species, 8 of them included in CITES: 3 included in Appendix I (*manigordo*, *león americano*, and *mono aullador*), 2 in Appendix II (*mono cariblanco* and *mono nocturno*); and 3 in Appendix III (*oso hormiguero*, *casumbi*, and *gato solo*).

Most Important Environmental Problems

Illegal hunting by persons who live outside the Park (especially of endangered species such as macaws and parrots). Non-compliance with soil use regulations for property titles that were issued to the nearly 100 residents who had farms within the Park before it was established, since the major activity is large-scale cattle ranching. Logging of several species of endangered hardwoods.

Threats to the environment and natural resources

Affected wildlife. Of the fauna registered in the Park, large felines are seen by cattle ranchers as threats to livestock and as trophies for sport hunters.

Large-scale cattle ranching without proper management regulations. This is practiced on the Park's boundaries, precisely where the Pacific montane forests begin, and is contributing to soil degradation.

Logging represents a threat to Pacific montane forests. The most affected species are the oak (*Quercus spp.*), *bambito* (*Ocotea spp.*), cedar (*Cedrela spp.*), and siguas (*Ocotea spp.*)

Proposals to address problems

Cerro Hoya National Park is considered an example of social interaction between the community and protected area management. The serious conflicts that arose in the 1990s over the Park's physical delimitation, between users of Park lands and ANAM, have been overcome thanks to a process of awareness, training and information, environmental education, and development of participatory activities, led by the Cerro Hoya/ANAM-GTZ Project and supported by PPRRN.

²⁰ La ERR realizada en 1998 registró 135 especies de angiospermas en tres sitios de muestreo, Río Ventana, Restingue and La Barra, representativos de bosque muy húmedo tropical, bosque muy húmedo tropical en transición fresca, bosque pluvial premontano and bosque pluvial montano bajo.

²¹ Coiba National Park consists of an island and a maritime area. This Park, together with the Galápagos (Ecuador), Malpelo and Gorgona (Colombia), and Cocos (Costa Rica) Marine Parks, is one of the hubs of the Marine Biological Corridor established in 2002.

²² The ERR acknowledges that it was not possible to observe this species during sampling, but there are references to its existence by people living near the Park and of its use as pets and its feathers to create carnival costumes. Pressure on this species may have reduced its population.

The Friends of Cerro Hoya Park Foundation was created, consisting of 130 representatives of organized groups, local authorities, professionals, and community representatives. It is the second park in the country to develop a titling program with farm management regulations and at least five communities that live within the Park or its buffer zone are carrying out projects and operating environmental education centers. This occurred as the result of a 12% recovery of the Park's forest cover between 1992 and 2002.

The actions that the Project should support are mainly to continue with GTZ Project assistance, providing residents with greater opportunities to participate in protected area management:

- Continue the formal and informal environmental education program by disseminating environmental education teaching guides and integrating the Cerro Hoya Foundation in the administration of the environmental education center;
- Promote and support a shared management scheme with Park residents and facilitate the management of the Cerro Hoya Foundation;
- Equip and provide documents for the operation of both Environmental Education Centers that were financed by PPRRN in the Park (Cobachón and Flores);
- Continue facilitating the participation of residents in productive and natural resources management subprojects;
- Support the development of ecotourism projects that take advantage of the area's assets;
- Facilitate the establishment of new CDS or strengthen existing organizations.

El Montuoso Forest Reserve (12,043 ha)

The Region and its importance in biodiversity conservation

It is located in the province of Herrera, in the district of Las Minas, in the *corregimientos* of Chepo, El Toro, and Leones and has an area of 12,043²³/ hectares. Three classes of vegetation have been identified: lowland semi-caducifoliate tropical forest, submontane perennifoliate ombrophyle latifoliate tropical forest, and perennifoliate ombrophyle latifoliate cloud forest. These are the last stands of mature native forests in the province of Herrera and the second largest in the Azuero peninsula (the first is Cerro Hoya National Park). According to research by ICAB, 47.4% are covered with forests (Baúles 2003). The La Villa, Tebario, and Mariato river basins are located in the cordillera of El Montuoso, with La Villa river basin being the best conserved within the Reserve (García 2003) and the principal supplier of water for human, industrial, and agricultural consumption in Herrera and Los Santos. The other rivers supply communities in southern Veraguas.

The diversity of species in a relatively small, fragmented, and altered territory makes this region biologically interesting as well as economically important for conserving water sources. There is a broad representation of ligneous species (189 species; Garibaldi et.al 2003), of which 17 figure in national lists and those of international organizations, and about 20 have commercial value as

²³ According to a recent evaluation, made between 2002-2003 by the Institute of Environmental Sciences and Biodiversity (ICAB) of the University of Panama, the actual land area of the Reserve has been estimated at 10,517 ha (Baúles 2003). However, as this new measurement has not been officially accepted, the one officially accepted by ANAM will continue to be used. See "*Evaluación económica de la diversidad biológica and beneficios Ambientales de los remantes de bosque en la Reserva Forestal El Montuoso, Provincia de Herrera.*" ICAP 2003.

timber- and non-timber-yielding species. According to Cornejo (2003), about 4 insect species of medical interest have been collected, as well as 7 genera of agricultural interest (fruit flies). Of the birds registered, 102 are resident and 16 are migratory; 3 are considered endangered; 21 are included in CITES Appendix 2; 16 are included in CITES Appendix 2; and 16 are included in IUNC lists.

Although no significant population growth is expected in the medium term²⁴, the forest may continue to be pressured by agricultural and livestock activities, the population's main means of earning a living, practiced on soils ill-suited for agriculture (non-arable soil classes VI, VII, and VIII, suitable for grasses, forests, and reserve lands), which signifies a loss of crop productivity and requires new lands in order to maintain production.

Most Important Environmental Problems

Fragmentation of habitat which reduces the area's biological importance, although it still retains biological wealth of national, regional, and world interest.

Effects on soil quality due to agricultural practices on hillsides without proper soil use techniques. Due to the degree of poverty and extreme poverty among residents and the lack of resources and technologies to use resources more efficiently, if efforts to improve people's well-being are not intensified, and if new uses of existing resources are not sought, these practices may not be controlled because the soils are not suitable for agricultural and livestock development.

Threats to the environment and natural resources

Deforestation. The principal threat is the deforestation and fragmentation of native forests: 30% is occupied by grazing land or agricultural crops and 25% remains as stubble or fallow vegetation (ICAB 2003). According to year 2003 satellite images, and based on year 2000 forest cover data, land occupied by mature forests decreased from 2,558 ha in 2000 to 864 ha in 2003, and secondary forest from 2,309 ha to 2,116 ha in the same period. In parallel, lands under agricultural and livestock use increased from 7,638 ha to 10,526 ha in that period, with the greatest increase occurring in lands used for subsistence farming (175%), which demonstrated the marginal use of forested lands.

Human intervention inside the Reserve. Represented by: (i) disorderly colonization of production areas without consideration of soil use capacity; (ii) establishment of crops in hilly areas without the implementation of soil conservation works; (iii) establishment of grazing areas on forest lands which are not compatible with the Reserve's soil classifications (soil classes VI and VII suited for permanent crops and forest use); (iv) utilization of varieties of species for crops that are not adjusted to the Reserve's ecological conditions²⁵.

²⁴ The rate of population growth in the province of Herrera is 0.90%, one of the lowest in the country. In addition, the provinces of Herrera and Los Santos are characterized by expelling rather than receiving population. The population within the Reservation was estimated at 5,000 people according to the 2000 Population Census.

²⁵ Management Plan of El Montuoso Forest Reserve prepared by CODESA for PPRRN and ANAM. Panama, May 2004. This study identified 32 communities within the protected area with a population of 1,777, most of them working in agricultural and livestock activities, the former being the predominant economic activity.

Risk to the sustainability of natural resources. The principal problem for the sustainability of natural resources is related to hillside farming and cattle-raising in mountainous areas. Despite the abundant vegetation favored by a long rainy period, the forest is scarce and numerous points of erosion have been observed (such as those shown in a photograph of a small farm with large-scale hillside cattle ranching) and small gullies that indicate trends of degradation. The districts of Las Minas and Los Pozos, together with the upper parts of Ocú and Macaracas, are priority areas for the start-up of proper land management. The lower zone is underutilized with large-scale cattle ranching, although no processes of deterioration caused by deforestation in the higher area have been identified.

Proposals to address problems

Although no significant population growth is expected in the medium term^{26/}, the forest may continue to be pressured by agricultural and livestock activities, the population's principal means of earning a living, practiced on soils ill-suited for agriculture (non-arable soil classes VI, VII, and VIII, suited for grasses, forests, and reserve lands), which signifies a loss in crop productivity and the need for new lands in order to maintain production.

The recommended actions for this protected area are to:

- Develop a pilot project of payment for environmental services, focused on forest recovery and to introduce a new modality for generating income for residents over the long term. This proposal is supported by the fact that the source of La Villa River lies within the Reserve. This river is the principal water source for the entire Azuero region and is used for human, industrial, agricultural, livestock, irrigation, etc. This resource is essential for the region's survival and at urban level economic conditions exist to enable users to pay for the service of maintaining the watershed and water production. This issue should be explored in greater detail in studies for the SPSA. JICA and the University of Panama carried out a study to assess a possible PSA project.
- Strengthen local organizations so that they can access PPRRN-CBMAP II resources and other sources of local financing.
- Support the use of adequate technologies and natural resources management through the FIL subproject portfolio.
- Prepare an environmental and land planning program and establish a Municipal Environmental Unit (UAM) jointly managed by the municipalities of Las Minas and Chepo.

Isla Cañas Wildlife Refuge (25,433 ha)

The Region and its importance in biodiversity conservation

It is located on the Pacific coast, facing the district of Pedasí and the mouth of the Tonosí and Cañas Rivers, within the Búcaro Inlet in the province of Los Santos.

The Refuge's climate is tropicalde sabanas with annual precipitation of less than 2,500 mm, relative humidity between 75% and 79% and an average annual temperature of 27.3°C.

²⁶ The rate of population growth in the province of Herrera is 0.90%, one of the lowest in the country. In addition, the provinces of Herrera and Los Santos are characterized by expelling, rather than attracting, population. The population within the Reserve was estimated at 5,000 according to the 2000 Population Census.

Mangrove vegetation predominates, with 6 varieties of mangroves (1,200 ha). Isla Iguana is one of the areas of the Pacific Coast in the province of Los Santos characterized as belonging to the dry tropical forest. It is one of the least represented ecosystems in the SINAP and one of the smallest. It is located only in the Azuero region (provinces of Herrera and Los Santos) and in the Canal basin.^{27/} Natural vegetation on the island has been cut down, with palm and fruit species predominant among the small patches of natural vegetation.

The Isla Caña Wildlife Refuge is the most important sea turtle nesting site on Panama's Pacific coast.^{28/} The species with the most nesting sites on the island are the olive Ridley sea turtle (*Lepidochelys olivacea*), followed by the black sea turtle (*Chelonia agassizii*). Also nesting to the lesser degree are the leatherback turtle (*Dermochelys coriacea*) and the hawksbill turtle (*Eretmochelys imbricata*). There is also evidence of nesting by the loggerhead sea turtle (*Caretta caretta*), although scientists say this species does not nest in the Pacific.

Other species found on the island are land iguanas, armadillos, howler monkeys, crocodiles, parrots, parakeets, *guichichies*, and migratory sea birds.

Most Important Environmental Problems

Near-total loss of natural cover and potential disappearance of the few samples of dry tropical forest represented in the SINAP. Damage to sea turtle habitat if agreements on the management of hatcheries and eggs are not upheld.

Threats to the environment and natural resources

Loss of remaining dry tropical forest. There are no exact data on the amount of natural forest still remaining. However, a strong alteration of vegetation with non-native species (palm and fruit trees) has been observed, and it is presumed that the loss of vegetation occurred many years ago.

Loss of habitat for sea turtle nesting. Although most of the island's residents respect the agreement on the management of turtle eggs and hatcheries, which has increased the number of births, if this initiative is lost the risks to turtles is high, due to depredation by pets (dogs that dig up eggs) and people.

Proposals to address problems

The island's population was settled there since before the creation of the protected area (1994) which created major conflicts between residents (225 people in 2000) and ANAM.

In 1994 an Agreement was signed by INRENARE^{29/} and the Cooperativa Isleños Unidos of the Isla de Cañas Wildlife Reserve to resolve the conflict of interests between residents and INRENARE over the use of turtle eggs, an activity prohibited when the protected area was created. The Agreement stated that a portion of the turtle eggs could be sold, provided that residents agreed to protect the other portion. Thus, a permit authorized by ANAM^{30/} was established to market the portion that the cooperative could sell, and technical assistance and

²⁷ In the area of Cocolí a small stand of this type of forest has been detected but it is not part of any protected area.

²⁸ According to residents of the protected area, the arrivals of up to 30,000 animals of four species of turtles, including *báulas* and *carey*, have been registered.

²⁹ INRENARE J.D. Resolution No. 010-94.

³⁰ In cases of the sale of turtle eggs without permits, the eggs are confiscated by ANAM staff.

resources were provided for the construction and maintenance of turtle hatcheries, as well as vigilance during the months of ??arribadas and logistical support for turtle egg conservation and protection efforts.

The actions analyzed jointly with the community during Phase II were focused on the following:

- Continuing to support the agreement on turtle hatchery and egg management, facilitating technical advice and the means to maintain the hatcheries;
- Supporting the development of other activities associated with turtle nesting such as ecotourism (taking advantage of the area's environmental wealth and the ??arribadas of turtles);
- Intensifying formal and informal environmental education efforts through interactive methods that show residents the advantages of conserving their resources (sharing experiences in sites with tourism projects associated with turtle management, such as Costa Rica);
- Continuing to support the development of environmental management subprojects that generate benefits to residents, such as sustainable fishing;
- Building a pier with FIL funds;
- Preparing the Refuge's management plan.

Isla Iguana Wildlife Refuge (58 ha)

The Region and its importance in biodiversity conservation.

It is located 5 kms from El Arenal Beach, district of Pedaquí, province of Los Santos. The island's average annual precipitation is 1,388 mm and its average temperature is 26°C, with 82% relative humidity. It consists of dry tropical forest which in the southern part is the island's original vegetation, with thorny stubble species and white palms. In the northern part there are species that were specially introduced in the 1950s and 1960s such as fruit and palm trees, legumes, plantains, and grains. The species existing on the island include frigate birds and pelicans, reptiles such as the boa constrictor, black and green iguanas, and sally lightfoot crabs [*cangrejos moros*]. This is an important site for whale sightings and in its surrounding waters are representative colonies of Pacific coral.

Most Important Environmental Problems

The forest's integrity is affected by the presence of trash from unregulated tourism. The quality of shallow-water coral is altered by waste.

Threats to the environment and natural resources

Unregulated tourism. The Isla Iguana Wildlife Refuge is uninhabited. However, its proximity to the coast, and its scenic beauty, make it attractive to national and foreign tourists despite a lack of proper management of the site.

Proposals to address problems

The Isla Iguana Wildlife Refuge has a number of facilities for tourist visits, such as visitors' ranch, trails, services, ANAM's administrative headquarters, and visitors' center. The park wardens' house has been remodeled. (1). Most of this infrastructure was financed by PPRRN

(Component B) and is valuable for generating resources that can be managed by the area itself and to ensure its protection.

The actions that should be supported are:

- Assisting ANAM in the design of a regulation for the use of the Refuge's installations;
- Establishing a system to charge fees for visits and a calendar of visits;
- Carrying out a study of the carrying capacity to determine how many people it can support (this may be through an evaluation of permissible limits);
- Combining visits with an environmental education program.

APPENDIX C

SUMMARY OF SELECTED PROTECTED AREAS AND DISTRICTS THEY ARE WITHIN

1. In the Pacific region 4 protected areas were selected that correspond to six districts of the central provinces (Herrera, Los Santos, and Veraguas), with protected areas the focal point (see map 2):

2. Districts of Tonosí and Pedasí in the province of Los Santos. These districts occupy an area of 1,678.8 km² and are home to a population of 13,350, according to the 2000 Population Census. According to the Index of Human Development, the districts of Pedasí and Tonosí show a slightly higher level of well-being than the rural average and the median monthly income of families is estimated at around US\$200 which indicates an uneven distribution of wealth at local level, since 54% of the population in Pedasí and 70% in Tonosí are likely to be poor. Two ecoregions form their natural heritage: the ecoregion of Isthmus Rainforests of the Panamanian Pacific, considered endangered, regionally outstanding for their biological diversity, and with high priority for conservation at regional level³¹/, located in the Cerro Hoya National Park and La Tronosa Forest Reserve; and the ecoregion of Dry Forests of the Panamanian Pacific, considered to be in a critical state, locally important, with moderate priority for conservation at regional level, and located in the Isla de Cañas and Isla Laguna Wildlife Refuges. The forest cover of both districts represents 15% of the total land area; the rest of the land is used for agricultural and livestock activities, especially for beef and dairy cattle.

3. Districts of Las Minas, Los Pozos, and Parita in the province of Herrera. These districts occupy an area of 1,103.1 km², of which less than 10% maintain forest cover. They include a population of 22,764. In terms of the population's well-being, the poverty and extreme poverty conditions in the districts of Las Minas and Los Pozos are very high, since the average monthly income of families is no more than US\$100; consequently, the probability of being poor is estimated at 88% for Las Minas and 80% for Los Pozos. Families in Santa María are in better conditions; their average monthly income is estimated at US\$244.80, but they too are below the national average. The most important forest cover is represented by El Montuoso Forest Reserve (districts of Las Minas and Los Pozos), which forms part of the Isthmus Rainforests of the Panamanian Pacific. Sarigual National Park, the only recognized desert in Panama, and the Ciénaga de las Macanas Multiple Use Area and the Cenegón del Mangle Wildlife Refuge are located in Santa María; these constitute conservation areas in an almost totally deforested territory³²/.

4. District of Montijo in the province of Veraguas. This district occupies an area of 2,202 kms with a population of 12,211, of whom 78% are likely to be poor. The median monthly income of families is US\$118.30 which is less than half the national monthly average income and less than the average rural family income. Nearly 80% of the area of Cerro Hoya National Park is located

³¹ Forest cover in the province of Los Santos is only 7.38%, which indicated the high priority for conserving this province's protected areas.

³² Forest cover in the province is only 4%.

in this district and is shared with the district de Tonosí. It is also home to the Golfo de Montijo Wetlands and forms part of the Coiba National Park's buffer zone.

5. In the Atlantic region priorities for execution continue to be in the Panamanian part of the MBC, incorporating two new areas: the district of Santa Fe in the north of the province of Veraguas and the district of Donoso on the coast below the province of Colón:

6. Districts of Changuinola, Bocas del Toro, and Chiriquí Grande in the province of Bocas del Toro. The Component's actions in this province will be complementary to those that are expected to be executed by the Bocas del Toro Sustainable Development Program, including assistance in the organization and start-up of the execution of environmental decentralization mechanisms. These districts occupy a total area of 4,662.55 km², with 82,126 residents in the year 2000. Their population consists of Afro-Caribbean, Latino, and indigenous peoples. Their population's level of well-being ranges from medium to poor, with levels of extreme poverty in parts of the districts of Chiriquí Grande and Changuinola, inhabited mainly by indigenous and mestizo populations. In them, the probability of being poor is 95% and 87%, respectively. The forests of the province of Bocas del Toro form part of the Talamanca Mountainous Forests ecoregion which extends along the Atlantic region from Costa Rica to the province of Coclé. This ecoregion is considered relatively stable, regionally outstanding, and with high priority for conservation at regional level. It is represented by one of the country's most important protected area complexes³³: part of La Amistad International Park, the San San Pond Sak Wetlands, the Isla Bastimiento Marine Park, and the Palo Sector Protective Forest.

7. Districts of Bugaba, Boquete, and Gualaca. The protected areas of these districts form part of the Talamanca ecoregion, represented by the country's central mountain chain where the Pacific part of La Amistad International Park, the Barú Volcano National Park, and the Fortuna Forest Reserve are located. These districts occupy an area of 1,990 km² with a population of 28,335 according to the 2000 census. Unlike other areas of the PAMBC, in these districts the population has better living conditions, thanks to the development of high-yield commercial agriculture, including vegetables, favored by the presence of highly productive volcanic soils and semi-intensive livestock development.

8. District of Santa Fe in the province of Veraguas. This district is located in the northern part of the province, where the Santa Fe National Park is located. It is formed by forests belonging to the Talamanca ecoregion. Declared in 2001 at the request of residents and local authorities, the Santa Fe National Park reinforces the interconnection with other PAMBC conservation areas. It occupies an area of 7,263.6 km², with an estimated population of 2,342, all of them living in conditions of poverty and extreme poverty. It is worthwhile to highlight the fact that this is one of the country's poorest areas, with an average monthly family income of US\$80.40.

9. District of La Pintada in the province of Coclé. This is the eastern boundary of the Talamanca ecoregion, represented mainly by Omar Torrijos Herrera National Park. Its population is estimated at 17,917, inhabiting an area of 1,044.88 km² of which 30.27% remains

³³ The national parks of the Panama Canal Basin (Chagres, Soberanía, Camino de Cruces, Altos de Campana, Sherman-San Lorenzo) and the protected areas and Darién National Park in the province of Darién may also be considered protected area complexes.

with forest cover. According to the IDHP its population is classified as having a high index of poverty, with average monthly incomes lower than US\$100.00.

10. Districts of Ñuriñ, Kankintú, and Kusapín in the Ngöbe-Buglé Comarca. These form part of the Ngöbe-Buglé *Comarca*, inhabited almost totally by indigenous people. As shown in Table 1, the Ngöbe-Buglé indigenous people have the country's greatest levels of socioeconomic disadvantages: the lowest family income (nearly half the rural average), very low level of well-being (IHDP lower than 0.400). In addition, the *comarca* is an important part of the MBC and 87.8% of its territory is covered with forests. However, between 1992 and 2000, an increase in the area of subsistence crops was observed in the districts selected, which indicates that the integrity of ecosystems is at risk and that the advancing agricultural frontier is not resolving the problem of poverty among its residents. Thus, new strategies are required in order to address both problems. The Sustainable Development Program of the Ngöbe-Buglé Comarca/FIS-FIDA is an alternative to improve the Ngöbes' quality of life and utilize natural resources in a sustainable manner. PAMBC's actions will be focused on providing assistance for the design and implementation of instruments to plan and monitor environmental projects that complement the activities that this program will carry out.

11. Kuna Yala Comarca. It is formed by the continental and island territory inhabited by 32,446 residents, all of them indigenous. It constitutes one of the areas of greatest forest cover (87.84% of the total areas), since its residents essentially live in the island area. This has provoked sieges of villages and critical problems of waste management and ocean pollution. The *comarca* has one of the country's most critical poverty levels (average monthly income is only US\$76.4) since nearly all of its population is extremely poor (the IDHP is 0.448, placing this population at a low level of well-being and 98% of the population is likely to be poor). The *comarca* contains the Narganá protected area, administered by the Kuna General Congress.

Annex 18: Maps
Rural Productivity and Consolidation of the Atlantic Mesoamerican Biological Corridor
Project