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Report No:

GEF PROJECT BRIEF
ON A
PROPOSED IBRD LOAN
IN THE AMOUNT OF US\$30 MILLION
AND
PROPOSED GRANT FROM THE
GLOBAL ENVIRONMENT FACILITY TRUST FUND
IN THE AMOUNT OF US\$10 MILLION
TO THE
NATIONAL FORESTRY FINANCING FUND
GOVERNMENT OF COSTA RICA
FOR A
MAINSTREAMING MARKET-BASED INSTRUMENTS
FOR ENVIRONMENTAL MANAGEMENT PROJECT

February 9, 2006

Environmentally & Socially Sustainable Development Sector Management Unit
Central America Country Management Unit
Latin America and the Caribbean Region

CURRENCY EQUIVALENTS

Currency Unit = Colones
1US\$ = 491 C 1C = 0.002 US\$

FISCAL YEAR
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ABBREVIATIONS AND ACRONYMS

BCF	BioCarbon Fund
CAs	Conservation Areas
CBD	Convention on Biological Diversity (CBD)
CCAD	Central American Commission on Environment and Development (<i>Comisión Centroamericano de Ambiente y Desarrollo</i>)
CDM	Clean Development Mechanism
CEM	Country Economic Memorandum
COOPEAGRI	<i>El General</i> Agricultural Cooperative (<i>Cooperativa Agrícola El General</i>)
COP	Conference of Parties
CPS	Country Partnership Strategy
CQS	Selection Based on Consultants' Qualifications
CTO	Certified Tradable Offset
ECOSOC	United Nations Economic and Social Council
ESP	Environmental Service Payments
FAO	Food and Agriculture Organization
FBS	Fixed Budget Selection
FCB	Biodiversity Conservation Trust Fund (<i>Fondo para la Conservación de la Biodiversidad</i>)
FONAFIFO	National Forestry Financing Fund (<i>Fondo Nacional de Financiamiento Forestal</i>)
GEF	Global Environment Facility
GIS	Geographic Information System
GoCR	Government of Costa Rica
GPS	Global Positioning System
IBRD	International Bank for Reconstruction and Development
ICB	International Competitive Bidding
INBio	National Biodiversity Institute (<i>Instituto Nacional de Biodiversidad</i>)
ISDS	Integrated Safeguards Data Sheet
JUNAFORCA	National Farmers' Forestry Board (<i>Junta Nacional Forestal Campesina</i>)
KfW	German Credit Bank (<i>Kreditanstalt für Wiederaufbau</i>)

LCS	Least-Cost Selection
M&E	Monitoring and Evaluation
MBC	Mesoamerican Biological Corridor
MINAE	Ministry of Environment and Energy (<i>Ministerio de Ambiente y Energía</i>)
NCB	National Competitive Bidding
NGO	Nongovernmental organization
ONF	National Forestry Office (<i>Oficina Nacional Forestal</i>)
PCN	Project Concept Note
PCU	Project Coordinating Unit
PIC	Project Information Center
PID	Project Information Document
PSA	Payment for Environmental Services (<i>Pago por Servicios Ambientales</i>)
QBS	Quality-Based Selection
QCBS	Quality- and Cost-Based Selection
SBD	Standard Bidding Documents
SIAP	Project Administration Integrated System (<i>Sistema Integrado de Administración de Proyectos</i>)
SINAC	National System of Conservation Areas (<i>Sistema Nacional de Áreas de Conservación</i>)
STAP	Scientific and Technical Advisory Panel
UNDP	United Nations Development Programme
UNFF	United Nations Forum on Forests
VER	Verified Emission Reductions

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COSTA RICA
Mainstreaming Market-Based Instruments for Environmental Management

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	4
B. PROJECT DESCRIPTION	6
1. Lending Instrument.....	6
2. Project Development Objective and Key Indicators.....	6
3. Project Global Environmental Objective and Key Indicators.....	6
4. Project Components	7
5. Lessons Learned and Reflected in the Project Design.....	11
6. Alternatives Considered and Reasons for Rejection.....	12
C. IMPLEMENTATION	12
1. Partnership Arrangements (if applicable)	12
2. Institutional and Implementation Arrangements	13
3. Monitoring and Evaluation of Outcomes/Results.....	14
4. Sustainability and Replicability	15
5. Critical Risks and Possible Controversial Aspects	17
6. Loan/Credit Conditions and Covenants	18
D. APPRAISAL SUMMARY	18
1. Economic and Financial Analyses	18
2. Technical.....	20
3. Fiduciary	21
4. Social.....	21
5. Environment.....	22
6. Safeguard Policies.....	22
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	27
Annex 3: Results Framework and Monitoring	29
Annex 4: Detailed Project Description.....	36
Annex 5: Project Costs	46
Annex 6: Implementation Arrangements	47
Annex 7: Financial Management and Disbursement Arrangements.....	54
Annex 8: Procurement Arrangements.....	58
Annex 9: Economic and Financial Analysis	61
Annex 10: Safeguard Policy Issues.....	74
Annex 11: Project Preparation and Supervision	81
Annex 12: Documents in the Project File	82
Annex 13: Statement of Loans and Credits.....	83
Annex 14: Country at a Glance	84
Annex 15: Incremental Cost Analysis.....	86
Annex 16: STAP Roster Review	95
Annex 17: Biodiversity Significance of Project Sites	101
Annex 18: Biodiversity Conservation Trust Fund.....	105
Annex 19: Report of the Independent Evaluation Panel.....	108
Annex 20: Maps.....	111

A. STRATEGIC CONTEXT AND RATIONALE

1. Country and Sector Issues

1. Costa Rica is at the forefront of biodiversity conservation and natural resources management. Despite being small – 51,100 square kilometers – the Central American country is one of the most biodiversity-rich countries in the world. Because of its location between the Atlantic and Pacific oceans and its various geographic and climatic systems, it has more than 500,000 plant and animal species, a number of which are endemic (i.e., found only in Costa Rica) or near-endemic (i.e., found only in Costa Rica and a neighboring country, particularly Panama). In addition, Costa Rica is one of the world's leaders in the development and application of market-based instruments for environmental management. Once known as having one of the world's highest deforestation rates¹, Costa Rica achieved negative net deforestation in the early 2000s. This is due in large part to Costa Rica's innovative payments for environmental services (*Pago por Servicios Ambientales*, PSA) program, which over the past decade has supported forest conservation on privately-owned lands in priority watersheds and key areas within Costa Rica's portion of the Mesoamerican Biological Corridor.

2. The proposed project seeks to further this effort by putting into practice the lessons of this decade of experimentation. First, this involves consolidating and mainstreaming the PSA program: ensuring its long-term sustainability in particular by developing new financing sources from the users of environmental services; improving its efficiency; and expanding its coverage. Second, it continues the push to experiment with new market-based approaches to sustainable financing of environmental management.

3. **Market-based instruments for Environmental Management.** Natural ecosystems provide a wide range of environmental services (e.g., hydrological services, soil stabilization, carbon sequestration). However, these valuable services are too often lost as a result of mismanagement and lack of incentives to preserve them. Landholders typically receive no compensation for the positive environmental externalities generated by their lands, and therefore have no economic reason to take these services into account in land use decisions. Costa Rica has led the way in using market-based instruments to address these market failures, thereby aligning incentives facing landholders with broader societal interests. The centerpiece of this effort has been the country's program of payment for environmental services (PES)². The central principles of the PES approach are that those who provide environmental services should be compensated for doing so, and that those who receive the services should pay for their provision. The PES approach works by establishing a mechanism to connect service users (e.g., water users) to service providers (e.g., landholders), thus internalizing what had been externalities. By charging service users, PES generates additional financing for natural resources management. Properly implemented, PES mechanisms can be highly sustainable, as they do not depend on the whim of donors or government decisionmakers but rather on the self-interest of those who wish

¹ Costa Rica experienced one of the highest rates of deforestation worldwide during the 1970s and 1980s. In 1950, forests covered more than one-half of Costa Rica; by 1995, forest cover had declined to twenty-five percent of the national territory.

² 'PES' is used here-in to refer to the concept of payments for environmental services, while Costa Rica's application of this concept is referred to by its Spanish acronym, 'PSA'.

to secure or improve their access to services and of landholders who are contracted to provide those services.

4. **Achievements of Costa Rica's PSA.** Costa Rica's PSA Program is widely considered the most successful application of the environmental services approach worldwide. For more than a decade, it has been administered by the National Forestry Financing Fund (*Fondo Nacional de Financiamiento Forestal*, FONAFIFO). The PSA Program currently compensates landholders for three conservation activities ('modalities'): natural forest conservation, reforestation (mainly through sustainable plantations), and agroforestry. By October 2005, the PSA Program had approximately 250,000 ha under contract, of which 95 percent are natural forests under conservation, 4 percent are forest plantations, and 1 percent is sustainable forest management (a modality discontinued in 2003). The agroforestry modality was introduced in 2003 and does not yet represent a significant area (346,100 trees or about 865 ha). The bulk of this conservation effort is being financed through revenue from a fuel tax. The PSA Program has also attracted substantial international funding, including a US\$8 million grant from the Global Environment Facility (GEF) in 2000 through the World Bank-financed Ecomarkets Project, a US\$11.2 million grant from the German development bank KfW in 2002 for the protection of forests and recovery of deforested lands in the northern region of the country, and US\$2 million from Norway in 1997 for carbon sequestration. FONAFIFO has also signed numerous agreements with private and public water users within Costa Rica to finance the conservation of the watersheds from which they draw their water, which generate about US\$0.5 million annually. (See Table 9.1 in Annex 9).

5. A strong institutional basis has been built to implement the nationwide program, with a strong legal framework and wide political support through three successive presidential administrations, combined with broad support from civil society, particularly small- and medium-scale landholders who participate in the program. Likewise, the program has attracted widespread attention around the world, and has spurred replication efforts in Latin America and outside the region.

6. **The Ecomarkets Project (2000–2006).** Since 2000, the program has been supported by the World Bank / GEF-financed Costa Rica Ecomarkets Project (Report No. 20434-CR). The project has reached or exceeded all key project performance indicators. For instance, 130,900 ha in priority areas of Costa Rican portion of the Mesoamerican Biological Corridor (MBC)³ have been incorporated into the program, exceeding the original target of 100,000 ha by the end of the project. In addition, 70,000 ha have been contracted on privately owned lands within other Conservation Areas identified as priority areas by the GRUAS Report,⁴ thus further contributing to the achievement of conservation and sustainable management goals agreed at the regional level within the framework of the Central American Commission on Environment and Development (CCAD). In 2000, only 22 female landholders participated in the program. Currently, there are 474, significantly higher than the original target of a 30 percent increase in participation. In 2000, there were 2,850 ha of indigenous-community-owned lands in the program. Currently, there are 25,125 ha, representing an 822 percent increase, sharply exceeding the original target of a 100 percent increase.

³ Costa Rica's national territory is divided into 11 Conservation Areas (*Áreas de Conservación*, AC).

⁴ The GRUAS Report (GEF/UNDP/MINAE, 1996), establishes priority conservation areas according to their biodiversity importance. It has since been updated in light of new information.

7. **The Independent “Blue Ribbon Panel” Review.** An independent evaluation panel assessed the Ecomarkets Project in the summer of 2005.⁵ The Review confirmed that the project reached its key targets and objectives; likewise, the panel systematically evaluated the project with respect to GEF project review criteria and found it to be satisfactory or highly satisfactory in all of them. The panel wrote that “[t]he GEF Ecomarkets Project has enabled Costa Rica to more effectively conserve its globally significant biodiversity by creating linkages between geographically isolated protected areas and other high concentrations of biodiversity, that is, linkages consisting of privately owned lands where biodiversity is legally protected through PSA contracts.” Annex 19 summarizes the main conclusions and recommendations of the independent panel.

8. **Priority Issues for the Future of PSA.** Despite the program’s considerable achievements, significant weaknesses and limitations remain, on both the demand and the supply side of the environmental service markets it has established.

- **Demand side.** There is a need to develop additional funding mechanisms to complement current funding sources and allow an expansion of the area under conservation, as the current 250,000 ha represent only a small part of conservation needs. There is also a need to draw a greater proportion of funding directly from service users, as the current program highly depends on funding from the fuel tax and short-term donor financing, thus making its sustainability uncertain. Developing sustainable financing sources for biodiversity conservation is particularly challenging.
- **Supply side.** The use of available funds to contract landholders also needs revision. Increased targeting and differentiation of payments could result in substantial efficiency gains for the program. The review panel noted that current criteria for PSA allocation cover as much as 70 percent of the country. Moreover, the use of undifferentiated payments means that the program is likely over-paying in some areas (e.g., paying for conservation in cases where conservation may well have happened anyway), while offering insufficient payments to induce conservation in other priority areas. There is a need to sharpen and better prioritize the selection of conservation areas with unique biodiversity features, and to adapt payment levels to local circumstances.
- **Links to poverty.** Small and medium-sized landholders, many of whom are poor, have found it difficult to enter the program. There is a need for targeted efforts to ensure that poor landholders are able to participate in the program.
- **Monitoring.** To ensure that these aims are achieved, there is a need to improve program monitoring. With support from the Ecomarkets Project, FONAFIFO instituted a state-of-the-art system to monitor land-user compliance with environmental service contracts. The program remains weak, however, in monitoring the impact of its activities on service generation and socioeconomic impacts.

9. The **Project Development Objective** of the proposed project is to enhance the provision of environmental services of national and global significance and to assist in securing their long-term sustainability. The **Project Global Environmental Objective** of the proposed project is to

⁵ “Evaluation of the World Bank/GEF Ecomarkets Project in Costa Rica,” October 2005. Members of the Panel: Gary Hartshorn (World Forest Center); Paul Ferraro (Georgia State University); Barry Spergel, (Independent Consultant); and Erin Sills (North Carolina State University).

enhance the conservation of globally significant biodiversity and ensure its long-term sustainability by mainstreaming market-based instruments in productive landscapes in the buffer zones of protected areas and the corridors connecting them. This will be accomplished by consolidating the PSA Program, improving its efficiency, and expanding its coverage. The project will also support the development of new, market-based approaches to sustainable finance environmental management. The bulk of the project's work will be devoted to demand-side efforts to develop and implement new mechanisms to generate sustainable financing and to address the particular needs faced in generating long-term financing for biodiversity conservation. This will be complemented by supply-side efforts to improve the program's efficiency together with efforts to increase its contribution to poverty reduction and sustainable rural development.

2. Rationale for Bank Involvement

10. Costa Rica has requested World Bank assistance to strengthen the PSA Program because of the Bank's knowledge and experience in the design, implementation, and support of market-based instruments in developing countries, and in particular on environmental service programs. In addition to the Ecomarkets Project, three other Bank-financed projects that use PES are currently under implementation (the *Regional Integrated Silvopastoral Ecosystem Management Program* being implemented in Colombia, Costa Rica, and Nicaragua; the *Environmental Services Project* in El Salvador; and the *Cape Action Plan for the Environment* in the Republic of South Africa), and several others are under preparation (in Mexico, Panama, Venezuela, and Kenya; see Annex 2). In parallel, the Bank has been undertaking research on market-based instruments for environmental management and providing the results to practitioners through capacity-building efforts. No other institution has the same breadth of experience in supporting PES approaches.

11. GEF support is warranted because the project would help (a) conserve globally significant biodiversity, including critically threatened endemic species, (b) protect and enhance biodiversity conservation within the Mesoamerican Biological Corridor, (c) create a long-term financing instrument for biodiversity conservation that could be replicated and serve as a model for other countries, (d) research links between land use change and environmental services, and (e) increase carbon sequestration and knowledge about carbon sinks. Even without the GEF increment, the Costa Rican program would generate global benefits. However, GEF assistance would substantially increase the global benefits generated by the PSA Program by (a) assisting and accelerating the development of other funding sources; (b) helping direct program activities to priority areas for biodiversity conservation and increase the efficiency of the program; and (c) ensuring the long-term sustainability of environmental services payments in buffer zones of protected areas and biological corridors that connect protected areas in cases where other funding sources are not available or insufficient.

3. Higher-level Objectives to which the Project Contributes

12. Costa Rica is at the forefront of biodiversity conservation and environmental management. Recognizing that its biological resources are an important national asset, Costa Rica has actively promoted a variety of conservation mechanisms and encouraged innovation in financing and administration. The Government has articulated a strategy with three main objectives: (a) the establishment of large areas for conservation, (b) the assessment of

biodiversity that lies within conservation areas, and (c) the integration of the sustainable use of biodiversity into the intellectual and economic fabric of society.

13. The proposed project is central to the World Bank's Country Partnership Strategy (CPS)⁶, which identified four major areas for support: (a) selective priority investment projects in education, water and sanitation, environment, infrastructure, agriculture, and information and communications technologies; (b) knowledge and advisory services to support reforms in critical areas of public sector debt management, domestic debt market development, financial sector reform, Central Bank management of international reserves, and the support for greater private participation in infrastructure; and (c) economic and sector work, including core diagnostic studies, an investment climate assessment, and regional studies on key issues for Central America.

14. The proposed project has been identified by the CPS as one of the projects contributing to natural resources management and strengthening the country's leadership in environmental management. It would further develop and contribute to the sustainability of an innovative national program to foster biodiversity conservation on private lands, and build on a partnership between the Bank and the Ministry of Environment and Energy (MINAE) dating back two decades, when a World Bank Forestry Sector Review helped initiate many of the unique forward-looking policies that are now under implementation by the Government of Costa Rica.

15. **The GEF operational program goal supported by the project.** The proposed project supports the GEF Biodiversity Focal Area by protecting natural habitats and biological diversity through forest conservation, reversion of marginal agricultural areas to natural forest, and promotion of sustainable agricultural practices. The proposed project is consistent with GEF Operational Programs 3 (Forest Ecosystems) and 4 (Mountain Ecosystems) by addressing conservation of globally important biodiversity and sustainable use of forests. The project also fits the objectives of the GEF Strategic Priorities SP-1 (Catalyzing Sustainability of Protected Areas), SP-2 (Mainstreaming Biodiversity in Production Landscapes and Sectors), and SP-4 (Generation and Dissemination of Best Practices for Addressing Current and Emerging Biodiversity Issues) of the Biodiversity Focal Area.

- Under SP-1, the proposed project will provide for sustainable long-term financing of biodiversity conservation in the buffer zones of protected areas and biological corridors that connect them, including the Costa Rican portion of the Mesoamerican Biological Corridor (MBC), thus helping to ensure the sustainability of the national protected areas system. Activities under Component 1 ensure that long-term financing for globally significant biodiversity conservation is secured, as well as provide long-term financing for forest conservation.
- Under SP-2, it will contribute to enhancing innovative market incentive structures where both the users and providers of environmental services participate in market transactions to conserve biodiversity of global importance. The proposed project will contribute to the long-term financial sustainability of conservation of some of the most globally important biologically diverse ecosystems. Component 1 ensures that long-term financing mechanisms for generating local and global environmental benefits are in place. Component 2 ensures that institutional capacity is strengthened to carry out an expanded

⁶ Report No. 28570, approved by the World Bank Group's Board of Directors on May 19, 2004,

and more efficient national program. Activities include strengthening the technical monitoring capacity to ensure that biodiversity conservation goals are met.

- Under SP-4, the experiences and lessons deriving from the activities to be supported by the project will build on the emerging lessons learned relating to economic instruments and market-based mechanisms to promote the conservation and sustainable use of biodiversity. A replication plan will be developed as part of Component 2 and will be widely circulated to share knowledge and lessons from the project. Components 1 and 2 envisage activities that will derive lessons that will be widely disseminated within the country, region, and around the world. Costa Rica has already shared lessons learned with many other countries in the region, promoting “best practice” in terms of South–South cooperation relating to biodiversity conservation.

B. PROJECT DESCRIPTION

1. Lending Instrument

16. The proposed project is a fully-blended operation, with a total cost estimated at US\$90.3 million, including: the Government of Costa Rica (US\$47.6 million); the World Bank (US\$30 million); the GEF (US\$10 million); together with financing from the sale of verified emission reductions under the Clean Development Mechanism and other sources (US\$2.7 million).

2. Project Development Objective and Key Indicators

17. The Project Development Objective is to enhance the provision of environmental services of national and global significance and assist in securing their long-term sustainability by mainstreaming market-based instruments for environmental management. Key indicators include:

- By the end of the project, at least 288,000 hectares of land with environmental service contracts generating environmental services of local, national and/or global importance.
- By the end of the project, at least half of the newly-contracted area is financed by funding from service users.
- Improved efficiency of the environmental services program, as measured by indices of services generated per dollar spent.
- By the end of the project, 100% increase in small and medium-sized landholders participating in the PSA Program.

3. Project Global Environmental Objective and Key Indicators

18. The Project Global Environmental Objective is to enhance the conservation of globally significant biodiversity and ensure its long-term sustainability by supporting the development and implementation of market-based instruments to promote forest conservation in buffer zones of protected areas and biological corridors connecting them. GEO outcome indicators include:

- By the end of the project, at least 190,000 hectares of land with environmental service contracts in buffer zones of protected areas and biological corridors connecting them.

- Effective biodiversity conservation in globally significant areas measured by vegetation cover and indicator species of biological interest.

4. Project Components

Component 1. Developing and implementing sustainable financing mechanisms (Budget: US\$16.5 million, of which US\$8.1 million from GoCR, US\$8.0 million from GEF, and US\$0.4 million from sales of verified emission reductions).

19. This component focuses on developing and implementing sustainable financing mechanisms according to the characteristics of each group of environmental service users. Likewise, rules will be developed for the use of these funds to generate environmental services that users desire. Key outputs of this component are: (a) a conservation program to promote provision of hydrological services that use financing provided by the recently-approved water tariff, (b) capitalization of the Biodiversity Conservation Trust Fund with at least US\$15 million, (c) a robust strategy to increase the capital of the Biodiversity Conservation Trust Fund, (d) development of capacity to access the emerging carbon market, and preparation of several carbon sequestration projects, and (e) development of voluntary markets for biodiversity conservation. Key inputs to achieve the component objectives are: (a) providing the necessary resources to FONAFIFO to implement project activities; and (b) providing adequate resources to design and implement the operational rules of water tariff.

20. This component would include the following subcomponents:

- **1A: Promoting watershed conservation via application of the new water tariff.** After a long process of consultations, Costa Rica has begun to mainstream sustainable natural resource management by instituting water tariffs to finance *inter alia* upstream watershed conservation, with 25 percent of the income generated channeled to the PSA Program to protect priority watersheds. This approach greatly expands coverage of the program while avoiding the free-rider problems that plagued the previous voluntary approach. The proposed project will support FONAFIFO's efforts to develop appropriate conservation modalities and identify priority areas for land use practices needed to generate hydrological services, to ensure that funds generated by the water tariff are used to effectively generate hydrological services.
- **1B: Implementing and capitalizing the Biodiversity Conservation Trust Fund.** This subcomponent will help strengthen and capitalize the Biodiversity Conservation Trust Fund, established under the Ecomarkets Project, to enable it to provide sustainable, long-term financing for areas of globally significant biodiversity where other financing is either unavailable or insufficient. This subcomponent will also work to develop additional financing sources to capitalize the Fund. This Fund will act as a "financier of last resort" for those areas of biodiversity of global significance in buffer zones of protected areas and biological corridors that connect them (thus contributing to the ecological and financial sustainability of the national protected areas system and the Mesoamerican Biological Corridor). One of the key eligibility criteria for private landowners to receive payments from the proceeds of GEF co-financing is that their lands be recognized as private protected area under the Costa Rican law.
- **1C: Accessing global carbon markets.** The proposed project will support FONAFIFO's efforts to develop carbon sequestration projects to finance forest

regeneration in degraded areas—areas that the PSA Program has been unable to address to date given their high up-front cost. Some GEF funds (about 0.0045% of total GEF co-financing) will direct some of the activities under this sub-component to contribute to biodiversity conservation in buffer zones of protected areas and biological corridors that connect them.

- **1D: Developing voluntary markets for biodiversity conservation.** The proposed project will support a more systematic approach to seeking funding from ‘voluntary’ or ‘retail’ markets. The funds generated would help capitalize the Biodiversity Conservation Trust Fund.

15. Incremental resources from GEF will be used primarily to capitalize the Biodiversity Conservation Trust Fund (US\$7.5 million, which will be matched by contributions from the Government of Costa Rica and other donors). Incremental resources from GEF will also be used to support the development of other funding mechanisms in areas that generate global biodiversity benefits.

Component 2. Scaling-up the Environmental Services Program (Budget: US\$72.8 million, of which US\$39.1 from GoCR, US\$30.0 million from the World Bank, US\$2.3 million from the sale of verified emission reductions, and US\$1.4 million from GEF).

21. Financial resources provided by the above-mentioned water tariff, in particular, and other new financing sources will allow for an expansion of the Costa Rican program beyond the roughly 250,000 hectares it covers at the current time. This component will support FONAFIFO and other institutions (e.g., MINAE’s Water Department) to implement this expanded PSA Program. Key outputs include: (a) strengthened capacity of the key institutions, including FONAFIFO and other governmental institutions, together with NGOs working to implement the PSA Program; and (b) a more efficient program.

22. This component would include the following subcomponents:

- **2A: Strengthening capacity to implement the expanded PSA Program.** This subcomponent will support the strengthening of FONAFIFO’s technical capacity to implement the expanded program, while ensuring that FONAFIFO’s recurring administrative costs remain at less than 10 percent of funds handled.
- **2B: Increasing the efficiency of environmental service contracting.** Expanding program coverage and responding to the requirements of service users financing the program will require FONAFIFO to change its current approach of making undifferentiated payments for a small number of land use modalities. The proposed project will support the development and introduction of a more targeted, differentiated approach.
- **2C: Strengthening technical monitoring capacity.** The proposed project will support the strengthening and/or establishment of appropriate systems to monitor the PSA Program’s effectiveness in generating the desired environmental services, in cooperation with other institutions (e.g., MINAE’s Water Department, National Biodiversity Institute - INBio). The Project will build on the existing Monitoring and Evaluation system of FONAFIFO (geared toward the monitoring of PSA contract compliance) to expand it into PSA impact evaluation. Baseline data for such monitoring will be ready in year 1 of

Project implementation. Data and lessons learned from these activities will be shared with other institutions and other countries to promote the replication and scaling up of PSA globally.

- **2D. Contracting landholders to provide environmental services.** This subcomponent will finance environmental service contracts with participating landholders.

23. Incremental resources from GEF will be used to strengthen FONAFIFO's capacity to issue and monitor environmental service contracts that generate global benefits, with particular emphasis on enhancing monitoring of activities that specifically support biodiversity conservation in priority areas.

Component 3. Removing Barrier for Small landholders' Participation in the PSA Program (Budget: US\$1.0 million, of which US\$0.4 from GoCR and US\$0.6 million from GEF).

24. This component aims to reduce the obstacles to participation of the poor in the PSA Program. Although the program is not primarily designed to be a poverty reduction program, the high spatial correlation between areas that supply environmental services and low-income rural areas create opportunities to contribute to this objective. Frequently, however, the poor find it difficult to participate either because of relatively high transaction costs involved in the application process (such as proof of land ownership) or because of intrinsic incentives within the program that makes it more responsive to large landholders. This component is aimed at reducing these obstacles. A key output of the component is the increased participation of poor rural communities and members of marginalized groups (e.g., women, indigenous landholders, landholders without land title). Key inputs include resources for FONAFIFO to carry out these activities, a robust promotional campaign, and capacity-building activities.

25. This component would include the following subcomponents:

- **3A: Strengthening the incorporation of low-income landholders in the PSA Program.** This subcomponent will support efforts to remove obstacles that can impede the participation by poor land-holders, including the high transaction costs of dealing with many individual small landholders and the lack of cadastral plans.
- **3B: Piloting improved watershed management in low-income areas.** This subcomponent will develop and implement watershed management plans in three pilot areas with high poverty rates.
- **3C: Monitoring social and economic impacts.** This subcomponent will strengthen monitoring systems related to measuring socioeconomic impacts of the program, with a particular emphasis on the poor as well as small- and medium-sized landholders.

26. Incremental resources from GEF will be used to enhance participation of the marginalized groups that specifically generate global biodiversity benefits.

Summary of Project Costs by Component and Subcomponent and Source of Financing									
COMPONENTS	Source of Financing (US\$ '000)					Source of Financing (%)			
	GoCR	World Bank	GEF	BioCF and other carbon finance	Total	GoCR	World Bank	GEF	BioCF and other carbon finance
Component 1: Developing and implementing sustainable financing mechanisms									
1A. Promoting watershed conservation via application of the new water tariff	390.7	0.0	25.2	0.0	415.9	93.9	0.0	6.1	0.0
1B. Implementing and capitalizing the Biodiversity Conservation Trust Fund	7,549.0	0.0	7,763.5	0.0	15,312.5	49.3	0.0	50.7	0.0
1C. Accessing global carbon markets	135.5	0.0	45.25	431.8	612.5	22.1	0.0	7.4	70.5
1D. Developing voluntary markets for biodiversity conservation	0.0	0.0	164.5	0.0	164.5	0.0	0.0	100.0	0.0
Subtotal Component 1	8,075.2	0.0	7,998.4	431.8	16,505.4	48.9	0.0	48.5	2.6
Component 2: Scaling-up the Environmental Services Program									
2A. Strengthening capacity to implement the expanded PSA Program	5,949.0	0.0	1,022.4	0.0	6,971.4	85.3	0.0	14.7	0.0
2B. Increasing the efficiency of environmental service contracting	2.0	0.0	158.0	0.0	160.0	1.3	0.0	98.8	0.0
2C. Strengthening technical monitoring capacity	186.8	0.0	183.3	191.0	561.1	33.3	0.0	32.7	34.0
2D. Contracting landholders to provide environmental services	33,000.0	30,000.0	0.0	2,125.7	65,125.7	50.7	46.1	0.0	3.3
Subtotal Component 2	39,137.8	30,000.0	1,363.6	2,316.7	72,818.2	53.7	41.2	1.9	3.2
Component 3: Removing Barrier for Small landholders' Participation in the PSA Program									
3A. Strengthening the incorporation of low-income landholders in the PSA Program	290.0	0.0	260.0	0	550.0	52.7	0.0	47.3	0.0
3B. Piloting improved watershed management in low-income areas	0.0	0.0	351.0	0	351.0	0.0	0.0	100.0	0.0
3C. Strengthening the monitoring of social and economic monitoring	52.0	0.0	27.0	0	79.0	65.8	0.0	34.2	0.0
Subtotal Component 3	342.0	0.0	638.0	0	980.0	34.9	0.0	65.1	0.0
TOTAL PROJECT	47,555.0	30,000.0	10,000.0	2,748.5	90,303.6	52.7	33.2	11.1	2.7

5. Lessons Learned and Reflected in the Project Design

27. The design of the proposed project has been enriched by lessons and recommendations from several initiatives including lessons from Costa Rica's ongoing environmental services program and similar efforts worldwide; from the implementation of the Costa Rica Ecomarkets Project and Regional Integrated Silvopastoral Ecosystem Management Program; and from preparation of similar projects in El Salvador and Mexico.

- *Need for sustainable, long-term financing mechanisms:* The environmental services being sought provide long-term benefits, year after year, as long as appropriate land uses are maintained. To ensure that landholders have adequate incentives to keep providing them, the logic of PES requires that they continue to be compensated for generating benefits to society. To this end, a sustained flow of funds is needed. Currently, only a portion of funding in the Costa Rica program comes directly from services users, and thus is likely to be sustainable as long as those users are satisfied they are receiving the services they pay for the bulk of funding comes from an earmarked fuel tax, and is subject to political decisionmaking; most of the rest is in the form of time-limited grants. To increase the sustainability of funding for the program, the proposed project will assist the GoCR to implement new financing mechanisms which directly correspond to users of the services being generated, both nationally and globally. At the national level, the proposed project will draw support from the newly-approved water tariff, which provides financing for watershed conservation. This new tariff will provide sustained funding of about US\$5 million a year to the PSA Program. At the global level, the proposed project will help FONAFIFO access emerging global carbon markets. As no method for generating sustained payment streams specifically for biodiversity conservation has been developed, the proposed project will aid in the capitalization of the Biodiversity Conservation Trust Fund, an endowment fund that will allow time-limited biodiversity conservation funding to be converted into a sustainable long-term funding stream.
- *Need for robust monitoring and evaluation:* The credibility of environmental service programs relies not only on fiduciary monitoring but also on quantification of the impacts of environmental services: financing will only be sustainable if service users are satisfied that they are receiving the services for which they pay. Therefore, monitoring and evaluation must be an integral part of project design. It must include the establishment of a baseline, and the socioeconomic and environmental impacts of the proposed project.
- *Need for differentiated payments:* Both the value of environmental services and the cost of providing them vary tremendously from case to case. The Ecomarkets Project has already helped the Costa Rican program to better target its activities, narrowing eligibility to those areas most likely to generate environmental services. There is considerable scope for further improvement in such targeting, however, and linking "buyers" and "sellers" of environmental services (as will be done with funding from the new water tariff) will help in this regard. The proposed project will also help implement a differentiated payment scheme. Payment schemes that pay the same amount in all locations are likely to be inefficient, paying more than would be necessary to induce participation in some areas, while offering insufficient amounts to induce participation in others. Increasing efficiency requires that eligibility rules and payment levels be based on both the magnitude of the benefits to be achieved through conservation and the costs of that conservation.

- *Need to remove barriers to participation by the rural poor and marginalized groups:* Environmental service programs are not specifically designed to be poverty reduction programs, and targeting them purely on the basis of poverty reduction objectives risks undermining their primary objective of generating valuable environmental services. However, they can often contribute to poverty reduction, because many potential service providers are poor and marginalized groups, including indigenous people, women, and small landholders without land title. Lack of training and capacity-building activities in PSA Programs for both the supply and demand sides have created a barrier for less-organized and marginalized families to participate in the program. Therefore, mechanisms such as the collective contracts – grouping many small plots of land and processing them in one operation, thereby generating efficiency gains – targeted capacity building and financial support, should be included to remove barriers for their participation in PSA Programs.

6. Alternatives Considered and Reasons for Rejection

28. The proposed project builds upon the highly-successful Ecomarkets Project, under implementation since 2000. An expansion of the program could have been achieved by continuing the current approach, relying on budgetary allocations and grants (e.g., GEF grant under the Ecomarkets Project, KfW grant under the *Huetar Norte* Project). But (i) increasing budgetary allocations would have been impossible given the fiscal constraints that Costa Rica is facing, and (ii) continued reliance on short-term grant financing, even assuming willing donors could have been identified, would not assure the long-term sustainability of the program. By opting instead to develop and implement new sustainable financing mechanisms the proposed project's approach will allow for program expansion while improving its sustainability.

C. IMPLEMENTATION

1. Partnership Arrangements

29. The proposed project would strengthen partnerships established under the Ecomarkets Project. Partnership arrangements will be developed and/or strengthened at four levels:

- Partnership between local NGOs (e.g., FUNDECOR, CODEFORSA and COOPEAGRI) and landholders: The proposed project will provide support to local NGOs to assist landholders, in particular marginalized groups, to participate in the PSA Program. Lessons learned from the Ecomarkets Project indicate that both NGOs and landholders experienced barriers to engaging in partnerships due to lack of information and resources.
- Partnership between different entities within the Government of Costa Rica: The proposed project will bring together different departments and ministries of the GoCR, in particular for monitoring impacts of land use changes financed under the project. For example, FONAFIFO, INBio and MINAE Water Department partnership ensures the biodiversity and hydrological impacts of activities supported under the PSA Program are tracked and are consistent with criteria agreed with different donors.
- Partnership between donors and the Government of Costa Rica: the establishment of the Biodiversity Conservation Trust Fund provides an excellent mechanism for donors at local, national, and global levels to participate in the Costa Rican program to jointly address efforts to conserve biodiversity of national and global significance. With the seed

funding from FONAFIFO, the Trust Fund will be capitalized initially with the funding from GEF and GoCR, and other donors will be invited to participate.

- Partnership between different GEF Agencies: The project task team will ensure that the project activities will generate synergies with activities funded by other GEF co-financed projects in the country. The project team has had consultations with UNDP/GEF project teams to coordinate activities and build synergies between the proposed project and projects being implemented and under preparation by UNDP.

2. Institutional and Implementation Arrangements

30. FONAFIFO will have overall leadership for the execution of the proposed project. As under the Ecomarkets Project, FONAFIFO would not create a distinct Project Coordinating Unit under the proposed project. Instead, the Executive Director of FONAFIFO would function as Project Coordinator with assistance from staff with appropriate specialties. FONAFIFO would maintain separate project accounts and retain strict financial controls and contractual authority over all components. Routine supervisory authority over contractual staff, material inventories, and daily work programs would be undertaken through existing systems within FONAFIFO.

31. FONAFIFO Responsibilities. FONAFIFO's direct responsibilities under the proposed project would include the implementation of Subcomponents 1A, 1B, 1C, 1D, 2A, 2D, and 3C (see Annex 4: Project Description Summary). FONAFIFO, in coordination with identified local NGOs, will also be responsible for the implementation of Subcomponents 2B (modifications to contracts and contracting arrangements), 2C, (environmental services monitoring), 3A (support to small- and medium-sized landholders participating in the program), and 3B (pilots for increased community participation in watershed management).

32. SINAC, as MINAE's agency in charge of the protected areas system, would be responsible for: (i) Defining and approving priority areas for PSA contracts within biological corridors identified in the GRUAS2 report, and the type of PSA contracts to implement in them (e.g., forest protection, agroforestry, reforestation, and others that may be instituted), taking into account international biodiversity conservation guidelines; and (ii) Organizing, publishing, and distributing, through the programs or processes in the individual Conservation Areas (CA) or through SINAC's central office, information and results generated by the project according to the characteristics and needs of CA users.

33. Prior to project implementation, the Government of Costa Rica will have established the Biodiversity Conservation Trust Fund (FCB) as a trust operating under a private sector legal regime, with a public-private Technical Committee composition. The objective of the FCB is to contribute to the long-term sustainability of the environmental service program. The Fund is being created to maintain environmental service contracts in areas of globally significant biodiversity, including buffer zones of protected areas and biological corridors which connect them. The FCB will be an independent, long-term financial mechanism specialized in providing payments to private landholders in areas with globally significant biodiversity. It will be capable of leveraging resources from a broad spectrum of donors and institutions. Payments to landholders funded by the FCB must contribute to expanding biodiversity conservation. The FCB would be responsible under the proposed project for: (i) Managing and increasing the value of the endowed fund under its control; (ii) Identifying priority areas in which to invest in biodiversity conservation through the environmental services program; (iii) Defining the amount

of payments for environmental services for each priority area in order to maximize biodiversity conservation efforts; (iv) Requesting and approving annual reports of FONAFIFO regarding the investments in PSA made by the Fund.

34. Local NGOs would be contracted to participate in the project to provide technical assistance to individual small- and medium-sized landholders. They would be prequalified by FONAFIFO based on legal registration, extent of local activity, and evaluation of technical capacity – that is, promotion through sponsoring farmer-to-farmer exchanges and assisting with the application process; monitoring of PSA contract compliance; and technical assistance in land titling, identification of livelihood alternatives, and implementation of forestry activities. Contracts will include technical services such as biodiversity monitoring to be carried out in coordination with INBio, the dissemination of information relating to environmental service contracts, and the definition and implementation of policies to increase the participation of small- and medium-sized landholders in the program, to be carried out in coordination with the National Forestry Office (ONF).

35. Transfer of water tariff revenues oriented for watershed conservation contracting will require close coordination between FONAFIFO and MINAE's Water Department. Furthermore, management of funds generated through the sales of verified emission reductions will entail the finalization of administrative procedures, to be agreed prior to project negotiations.

36. An Operational Manual and overall Project Implementation Plan (PIP) will be prepared by FONAFIFO and finalized at project negotiations. Annual reviews of the PIP will lead to the agreement between the GoCR and the Bank on annual implementation plans for the use of project financing.

37. **Financial Management Arrangements.** Project administration will be undertaken by FONAFIFO under its established institutional structure. Accordingly, FONAFIFO's Administrative Area Coordination unit will be in charge of financial management (FM) tasks. These will include: (i) budget formulation and monitoring; (ii) cash flow management (including processing loan withdrawal applications); (iii) maintenance of accounting records; (iv) preparation of interim and year-end financial reports; (v) administration of underlying information systems; and (vi) arranging for execution of external audits.

38. The fact that FONAFIFO has ongoing experience managing two projects financed by the World Bank, for which it maintains appropriate administrative structures and systems, puts it in an advantageous position to administer the cited FM functions. Still, certain project-specific actions to be executed by loan effectiveness have been identified in a Financial Management Action Plan. Annex 7 describes in detail the Financial Management arrangements and the Financial Management action plan.

3. Monitoring and Evaluation of Outcomes/Results

39. The PSA Program has established, with the support of the Ecomarkets Project, a state-of-the-art system to monitor land-user compliance with payment contracts. Under the proposed project, this would continue to operate, and be further strengthened as needed.

40. The Blue Ribbon Panel evaluation (see Annex 19) stressed the need to strengthen Monitoring and Evaluation. The proposed project will support the strengthening and/or establishment of monitoring systems to measure the social, economic, and environmental impacts of the program. The proposed project will support the establishment of a monitoring unit

within FONAFIFO that would be responsible for overseeing impact monitoring work. Likewise, it would support the design and implementation of appropriate systems to monitor the impact of the PSA Program on hydrological services (in cooperation with MINAE's Water Department), biodiversity (in cooperation with INBio), and carbon sequestration (following protocols acceptable under the Clean Development Mechanism).

41. Furthermore, the proposed project will support the establishment of appropriate systems for systematic monitoring of the program's socioeconomic impacts (currently undertaken through ad hoc studies). The aim is to ensure that the monitoring is both more participatory and more effective in detecting the level of inclusiveness of the program and the impact of program activities on various sets of actors, and especially on the poor as well as small- and medium-sized landholders. This will allow FONAFIFO to respond to problems identified and improve the impact of such programs in terms of contributing to rural poverty alleviation. This subcomponent will also identify parameters to better measure the contribution of the program to meet Millennium Development Goals, defined as a priority by GoCR authorities.

4. Sustainability and Replicability

42. Ensuring the long-term sustainability of the PSA Program is a major objective of the proposed project. For environmental service programs to achieve their objective, service providers need to receive payments on a long-term basis (i.e., for as long as those services are needed). This implies the need to secure long-term funding sources. To date, the major source of funding for the Costa Rica program has been an earmarked portion of a tax on fossil fuel consumption. This source is reasonably secure, being established by law, although FONAFIFO has not always received the full amount under the law. Other important funding sources, however, such as the GEF grant under the Ecomarkets Project and a KfW grant under the *Huetar Norte* Project, are time limited. As FONAFIFO seeks to increase its conservation impact, it is important to develop additional funding sources that are sustainable in the long term.

43. The proposed project draws on lessons learned from the Ecomarkets Project and environmental service experiences in other countries to improve the sustainability of the PSA Program. The project will develop new financing mechanisms with targeted approaches based on the characteristics of demand for specific services (e.g., hydrological, biodiversity, carbon).

44. *Water Payments:* FONAFIFO has entered into contracts with 17 different water users who are paying for the PSA Program to conserve watersheds from which these users draw their water. These contracts are potentially highly sustainable as long as the desired water protection services are delivered. It bears noting that both of the earliest contracts, signed with private hydropower companies, have been renewed, demonstrating the potential sustainability of such contracts. Current contracts, however, provide funding a total of about 18,000 hectares, which is less than ten percent of the total area covered in the PSA Program. The recently-approved water tariff will provide additional resources that will allow for a substantial increase in the area covered by watershed protection contracts without the need for negotiating individual agreements with each water user. Political support for the tariff could evaporate, however, if it is perceived as a tax rather than a financial mechanism to guarantee provision of hydrological services. Indeed, the decree establishing the tariff specifies that revenues must be spent to benefit water users in the specific watershed where the revenues are generated. To achieve this, the proposed project will develop operational guidelines for use of tariff revenues that seek to maximize their impact on hydrological services, including identification of priority watersheds

and critical areas within these watersheds, together with specific interventions required to generate the needed services. The strengthened monitoring system will allow FONAFIFO to demonstrate to water users the hydrological benefits they are receiving, or adjust responses in the watershed, in the event results fall short.

45. *Biodiversity Payments:* Demonstrating effectiveness is as important for biodiversity as for other services. Monitoring of the impact of the silvopastoral practices which FONAFIFO is implementing in the Esparza area (on behalf of the GEF-financed Regional Integrated Silvopastoral Ecosystem Management Program⁷) has indicated significant positive impacts on biodiversity protection and sustainable use. The proposed project will strengthen biodiversity monitoring throughout the country. That said, given the absence of global financing mechanisms to provide sustained, long-term funding flows for biodiversity conservation, the proposed project will capitalize an endowment fund—the Biodiversity Conservation Trust Fund, established under the Ecomarkets Project—to ensure funding for environmental service contracts in areas with limited hydrological services and/or eligibility for carbon finance. The Trust Fund will provide sustainable funding for the conservation of globally significant biodiversity in the buffer zones of protected areas and biological corridors that connect them, where other sources of funding are unavailable or insufficient.

46. *Carbon Payments:* Sales of verified emission reductions (VERs) to buyers such as the BioCarbon Fund are a potential source of long-term financing. The implementation of robust and credible monitoring systems is a sine qua non condition of participation in carbon markets. The proposed project will support the development and implementation of such systems. It will also help FONAFIFO develop streamlined procedures for contracting and generating VERs, strengthening Costa Rica's competitiveness in the global carbon market.

47. *Voluntary Markets:* There is a small, but growing, market for voluntary contributions to environmental conservation. Costa Rica's recognized "brand name" related to conservation, combined with FONAFIFO's track record of developing environmental service markets, place FONAFIFO in a strong position for developing new innovative market-based instruments for financing forest conservation. Financing obtained from these sources, however, is inherently unsustainable. Therefore, revenues from sales to voluntary markets would be used to capitalize the Biodiversity Conservation Trust Fund, thus turning short-term financial flows into sustainable long-term flows.

48. The proposed project will also work to improve the efficiency of the PSA Program. These efforts will also contribute to the long-term sustainability of the program by reducing financing requirements for any given area under conservation and making contributions to the program more attractive to service buyers and donors.

49. *Replicability:* Costa Rica has been a pioneer in the development of environmental service programs, and its international leadership and example have led other Latin American countries, as well as countries outside the region, to establish similar programs. The lessons learned in Costa Rica were used in the recently-approved, World Bank/GEF-financed El Salvador

⁷ The *Regional Integrated Silvopastoral Ecosystem Management Program* is a multi-country project (including Colombia, Costa Rica and Nicaragua) that aims at demonstrating and measuring the effects of the introduction of payment incentives for environmental services to farmers on their adoption of integrated silvopastoral farming systems in degraded pasture lands. The project is on-going and expected benefits include improvements in ecosystems functioning, global environmental benefits and local socio-economic gains.

Environmental Services Project, and have been applied in the preparation of the Mexico Environmental Services Project and the Kenya Agricultural Productivity and Sustainable Land Management Project. FONAFIFO has hosted official delegations from countries throughout the world, which have come to study the innovative program. As the most mature program worldwide, Costa Rica's initiative is facing the challenge of ensuring long-term sustainability, an issue which less-advanced programs will face in the near future. In brief, the continued development of lessons learned will prove invaluable to efforts in other countries. Knowledge development, systematization, and dissemination, and raising political awareness at the higher levels, is critical to enhance more appropriate approaches to solving the needs for financing mechanisms. Lessons from the proposed project will continue to be disseminated within Costa Rica, Latin America, and worldwide through workshops, seminars, study tours, publications, and the Internet. A replication strategy is supported under Component 2. The strategy will include activities for the sharing of success stories from around the world, such as France, the United States and Australia, where PSA programs have been successfully implemented for many years.

5. Critical Risks and Possible Controversial Aspects

<i>Risk to PDO/GEO</i>	<i>Rating</i>	<i>Risk mitigation measures</i>
Reduced government funding of PSA	L	This risk is highest in the case of funding from the fuel tax, as rising fuel prices are creating pressure to reduce the tax. The risk is lower in the case of the water tariff, as the decree establishing it clearly specifies the revenue must be spent to benefit water users. Reducing or eliminating the fuel tax revenue would require changing current laws, however. The water tariff is currently embodied in a decree and thus could be more easily changed, but a new water law is under preparation which incorporates the tariff. It bears noting that funding flows from the fuel tax have endured through three changes of government from different political parties.
<i>Risk to component results</i>	<i>Rating</i>	<i>Risk mitigation measures</i>
Resistance by water users to paying the new water fees.	M/L	The new water tariff is the result of a long, consultative process. All water users were represented in this process and have agreed to the tariff, but some sectors—notably agriculture—remain recalcitrant. The tariff itself dedicates some of the income it generates to improving fee collection mechanisms.
Difficulty in identifying the land uses that generate the desired environmental services (particularly for hydrological services)	M	This risk is low in the case of biodiversity and carbon services, but higher in the case of hydrological services. The project will support targeted diagnostics of the most important watersheds to be incorporated into the program. Efforts to improve knowledge in this area will be coordinated with those of other environmental service programs (e.g., Mexico, El Salvador).
Insufficient commitments from donors to capitalize the Biodiversity	L	Discussions are on-going with several potential donors. The GoCR has committed to using its own resources in

Conservation Trust Fund		the event contributions from other donors are insufficient.
Mismanagement of the Biodiversity Conservation Trust Fund undermines long-term financing for biodiversity conservation	L	The Biodiversity Conservation Trust Fund has been established using best-practice guidelines, with an independent governing board and strict and transparent procedures.
Inability to secure additional carbon financing beyond the BioCarbon Fund project	L	The project will support efforts to seek additional carbon financing, but activities on the ground would only be undertaken once deals are in place. The project budget only includes funding from the initial BioCarbon Fund deal.
Political opposition to differentiated payments in areas that would receive lower relative payments	M	Differentiated payments will be introduced gradually. A targeted dissemination campaign will explain the need for and benefits of a differentiated payment program.
Overall risk rating		L/M

6. Loan/Credit Conditions and Covenants

50. Prior to Appraisal:
 - Completion of all preparation studies by FONAFIFO.
 - Completion of the design of the Biodiversity Conservation Trust Fund.
51. Prior to Negotiations:
 - Establishment of the Biodiversity Conservation Trust Fund.
 - Publication of the “Canon de Agua” in the Official Journal.
 - Completion of all safeguards-related steps.
 - Agreement on criteria for use of GEF funds in each of the areas targeted for funding to promote biodiversity conservation.
 - Completion of GoCR’s Project documents including the Project Implementation Plan, the project’s Operations Manual, procurement plan, financial management arrangements, formal statements of commitment to invest counterpart funds—including for the endowment funds.
52. Prior to release of GEF funds:
 - Investment of counterpart funds into the endowment fund, according to the agreed program of capitalization.
 - Adoption of the agreed conditions for use of GEF funds by the PSA Program.

D. APPRAISAL SUMMARY

1. Economic and Financial Analyses

53. **National benefits.** The economic analysis of the proposed project is constrained by the lack of quantitative data on the extent of benefits being generated by PSA activities. However, qualitative results show that the program is likely to generate substantial national benefits in terms of:

- **Improved hydrological services:** in particular, (i) avoiding the degradation of water quality and the higher treatment costs that it would imply. The town of Heredia, for

example, does not filter the water it obtains from the Rio Segundo watershed; if the watershed were degraded, the town would have to build a costly filtration plant; (ii) reduced sedimentation of reservoirs and water intakes, thus avoiding the need for costly de-silting operations; and (iii) reduced flood risk. It may also improve dry season water flow, an important issue in several areas where there are small hydroelectric power plants; however, data on this point are highly site-specific and particularly uncertain. Already, 17 different private sector and public sector water users (e.g., hydroelectric producers, bottlers, irrigated agriculture, domestic water supply systems, hotels) have signed voluntary contracts with FONAFIFO, under which water users pay for the conservation of the watersheds from which they draw their water. These arrangements currently generate US\$0.5 million annually.

- **Improved biodiversity conservation and scenic beauty:** Although biodiversity is primarily a global benefit, it also brings direct benefits to Costa Rica in particular through its contribution to the tourism sector. There are also local benefits to agriculture, for example, through improved pollination. Neither of these impacts can be easily quantified. FONAFIFO also receives direct funding from external sources to provide biodiversity conservation services; for example Conservation International is contributing to the cost of biodiversity conservation in the Osa and Amistad Pacifico conservation areas and in the buffer zone of Chirripó National Park.
- **Carbon sales:** Sales of verified emission reductions (VERs) from forests have already generated US\$2 million for the country. The proposed project aims to generate US\$10 million from VERs during implementation of the proposed project. Although estimates show that VERs alone do not fully pay for reforestation, they substantially reduce costs; thus, reforestation would be justified with only small amounts of additional benefits.

54. **Costs.** The costs of undertaking conservation activities under the program include: (i) opportunity costs of foregone land uses, in cases where landholders would have undertaken other land uses; (ii) transaction costs of the PSA program, including FONAFIFO's administrative costs and costs borne by program participants; (iii) costs related to forest management or reforestation; and (iv) deadweight losses arising from the manner in which financing is generated. A macro study of the program using a CGE model recently concluded that the program's gross costs to the country were \$12 million a year in 2005, rising to \$36 million a year by 2015 as additional areas are brought under conservation. It would only take relatively small amounts of benefits per hectare for these costs to be justified. Note that the contractual payments themselves are not costs to the country, as they are transfers to other Costa Ricans.

55. **Net benefits to the country.** Although lack of quantitative data precludes numerical analysis, it can be concluded that (1) in areas eligible for sales of verified emission reductions (VERs), income generated from VERs will bear the bulk of costs, meaning that only small amounts of additional benefits would be necessary for these activities to be economically justified; (2) in areas with significant numbers of water users, benefits from watershed management are likely to be sufficient by themselves to justify the program's conservation activities; and (3) contributions by the GEF and other donors, through the Biodiversity Conservation Trust Fund, will compensate the country for the incremental costs of extending conservation efforts to areas with globally significant biodiversity, where funding from local services users and from carbon buyers is unavailable or insufficient. Thus it is likely that PSA program activities will be economically justified for the country. To ensure that this is the case,

the proposed project will support efforts to identify and prioritize areas most likely to generate valuable environmental services (thus increasing average service generation per dollar spent) and to differentiate and target payments so that they are more likely to result in land use change (thus reducing the cost per unit of service generation).

56. **Financial cost-effectiveness.** In the absence of the proposed project, the main alternative for Costa Rica to obtain the services the program generates would be to place additional areas under formal protection. This alternative would be prohibitively costly in financial terms, as it would require compensating landholders for the full value of their land rather than just for the difference between its value under an alternative land use compared to its value under a conservation use. Additionally, it would require the entire value of this compensation to be paid up front rather than being paid annually, as under an environmental service contract. Given that Costa Rica still owes substantial amounts to landholders whose land was expropriated to create the current protected areas, the idea of creating new protected areas, and thus displacing their owners, would also be socially unacceptable.

57. **Global benefits.** The proposed project will generate substantial global benefits, particularly by conserving biodiversity of high global significance. Environmental service contracts in the buffer zones of protected areas and biological corridors that connect them will help ensure the sustainability of the national protected areas system and the Costa Rican portion of the Mesoamerican Biological Corridor. Program activities will also sequester carbon and promote the production of verified emission reductions through reforestation and induced regeneration activities. Because the costs of these benefits will be shared with local service users and carbon buyers, the incremental costs are quite low. Moreover, efforts will be targeted to the above-mentioned areas of globally significance biodiversity where other funding sources are unavailable or insufficient.

58. **Poverty reduction.** Although programs like Costa Rica's PSA are not specifically oriented to be poverty reduction programs, the high spatial correlation between areas that supply environmental services and areas with high rates of rural poverty create opportunities for the program to contribute to this objective. Studies of the biological corridors targeted for GEF-financed payments under the Ecomarkets Project—some of which overlap with watersheds targeted by water service payments—found them to be among the poorest areas in Costa Rica. However, studies of the socioeconomic impacts of the program have been ad hoc and unsystematic to date, thus it is hard to determine how significant it has been. As participation in the PSA program is purely voluntary, however, there is no reason to expect substantial adverse impacts.

2. Technical

59. Although environmental service programs are highly innovative and still in a nascent stage, Costa Rica has accumulated greater experience in this area than any other country in the world. Accordingly, FONAFIFO has demonstrated its capacity to contract landholders, monitor compliance, and make payments.

60. Historically, one of the main weaknesses of the Costa Rican program has been its limited targeting, reflected in the small number of land use modalities (e.g., forest conservation, plantations, agroforestry) and limited geographic targeting based on biodiversity priority areas, but with no differentiation or prioritization within those areas. When particular financing sources

required it, however, FONAFIFO has demonstrated its ability to undertake more precise targeting. For instance, under the World Bank/GEF-financed Ecomarkets Project, GEF resources were largely oriented to priority areas identified in the UNDP/GEF/MINAE GRUAS report; similarly, contracts with individual water users have specified which watersheds where funds may be utilized. The proposed project will strengthen this capacity and extend it to the program as a whole.

3. Fiduciary

61. **Financial Management.** The Bank has assessed the suitability of using FONAFIFO's existing financial management systems and procedures for project implementation. While these systems and procedures are generally adequate, a Financial Management action plan connected specifically to the new project has been agreed. Annex 7 describes in detail the Financial Management arrangements and the action plan.

4. Social

62. A Social Assessment is currently underway and will be completed prior to project appraisal. Preliminary results show that the individuals and communities that will be affected by the project fall into two main categories: (i) Environmental services users that will help finance the program and (ii) environmental services providers who will be contracted to maintain or adopt desirable land uses and practices. Both service users and service providers are beneficiaries of the program. The financing or service user side of the relationship includes users of hydrological services (municipalities, utilities, water bottlers, farmers utilizing irrigation, individual consumers), globally-significant biodiversity (tourism industry, national and international conservation organizations), and carbon sequestration (purchasers of verified emission reductions, nascent carbon markets and the international community). Recipients of the environmental service payments—the environmental service providers—include owners of forested land in targeted conservation areas, including protected area buffer zones, biological corridors, and priority watersheds.

63. The risk of negative socioeconomic impacts on environmental service providers as well as user groups is strongly mitigated by the inherent theoretical foundation of the environmental service concept—that these systems, and particularly their long-term sustainability, rely on voluntary participation based on the perceived self-interest and well-being of program participants. That is, users will pay no more for the services than the perceived benefits they provide, while providers of services will only accept payments for activities if they exceed the opportunity cost of their available alternatives.

64. While it is accepted that the program is not specifically a poverty alleviation program, it is also recognized that with the proper interventions, the program could be directed toward a better representation of small- and medium-sized landholders than is currently the case. Preliminary results of the overall social analysis show that the program has had a positive impact on rural landholders, albeit larger landholders. Current efforts of the social assessment study aim at defining activities that will increase the participation of small- and medium-sized landholders in the monitoring of and the participation in the program. The social assessment will also include the review and updating of FONAFIFO's Monitorable Action Plan for Indigenous Participation, prepared during preparation of the Ecomarkets Project.

5. Environment

65. This project is intended to be entirely positive from an environmental standpoint. It seeks to improve existing, and develop new, modalities for contracting environmental services, thereby encouraging rural landholders to maintain or enhance the vegetative cover on their parcels. As such, the proposed project supports the generation of hydrological services, conserves globally significant biodiversity, promotes carbon sequestration and verified emission reductions, as well as preserves scenic beauty as an input to Costa Rica's tourism industry.

66. The overwhelming majority of project funds would go to landholders via contracts for environmental services, either during project implementation or (in the case of the project-supported Biodiversity Conservation Trust Fund) beyond the life of the project. The remaining project funds would support technical assistance, consulting services, training, promotional campaigns, and institutional strengthening needed to strengthen the ongoing program and its long-term funding mechanisms. As necessary, the proposed project would purchase vehicles, office equipment, satellite images, software, GPS units, and other equipment and supplies needed for the institutional strengthening of FONAFIFO and collaborating entities. No civil works would be procured under this project. The main on-the-ground environmental impacts associated with project expenditures would thus be the maintenance of desired vegetative cover on rural landholdings.

67. Adverse environmental consequences from the proposed project would be both strictly unintended and highly unlikely; the project design includes mechanisms to prevent any such negative impacts during implementation. Environmental service programs are, by their nature, expected to be strictly positive from an environmental standpoint, since they contract landholders to maintain or enhance the natural environment on their lands. During implementation of the Ecomarkets Project, no adverse environmental impacts occurred. The potential risks of unintended adverse environmental consequences from, *inter alia*, (i) tradeoffs between different environmental objectives, (ii) misallocation of program funds, and (iii) perverse incentives were assessed during project preparation and were judged as immaterial. FONAFIFO's existing operating rules seek to prevent any types of unintended negative environmental impacts. The proposed project's Operational Manual and Biodiversity Conservation Trust Fund rules will incorporate rules to include (i) clear eligibility and prioritization criteria for the types of lands and landholders that could receive environmental service contracts and (ii) review procedures and specific responsibilities within FONAFIFO to ensure that all contracts are awarded, administered, and supervised in accordance with these criteria.

6. Safeguard Policies

68. This Category B project is designed to comply fully with all applicable World Bank 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 (OD 4.20 , being revised as OP 4.10)	[X]	[]

Forests (<u>OP/BP</u> 4.36)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Safety of Dams (<u>OP/BP</u> 4.37)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Projects in Disputed Areas (<u>OP/BP/GP</u> 7.60)*	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Projects on International Waterways (<u>OP/BP/GP</u> 7.50)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

7. Policy Exceptions and Readiness

69. The project does not require any exception from Bank policies. The project does meet the regional criteria for readiness for implementation.

Annex 1: Country and Sector or Program Background

COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

1. Costa Rica is a small, middle-income country that has achieved social indicators close to those of developed countries, and has an important record in reducing poverty and maintaining one of the most equitable income distributions in Latin America. The country ranks high in achievements in trade openness, reduction of gender disparities, good institutional capacity, and strong governance and transparency. It attracts foreign direct investment at a rate of about 4 percent of GDP annually. The international credit ratings are among the best in the region due to a stable economic policy environment and a high and growing integration into the world economy. In addition, Costa Rica has one of the most stable political systems in Latin America, with a long democratic tradition. Several factors contribute to this stability, including the abolition of the army in 1948, generally effective institutions, relatively low income inequality, a burgeoning middle class, and a strong education system, all of which have also contributed to a favorable environment for growth.
2. Costa Rica has shown a solid growth record over the past decade, with an average annual GDP growth of 4.5 percent (1990–99), reasonable macro management, a favorable investment climate, an open trade regime, low external debt, and a sustained and internationally recognized commitment to environmental and sustainable development. This good performance has been anchored on a stable economic policy environment and a high and growing integration into the world economy.
3. Costa Rica has made substantial progress in reducing headcount poverty and improving social sector indicators over the 1990s, driven by economic growth and strong investment in the social sectors. As a result, the proportion of people below the poverty line declined from 27 percent in 1990 to 21 percent in 2000, and the main indicators improved significantly: life expectancy at birth is close to 76 years, the infant mortality rate dropped from 15 to 13 for every thousand live births (10.3 in 2001), access to drinking water is around 80 percent, and illiteracy has dropped to only 5 percent of the population over 12 years of age.
4. Despite the progress achieved, there is a sense that Costa Rica is not fulfilling its development potential. Per capita growth of less than 2 percent per year is insufficient to reduce poverty with the urgency required. The Government has formulated its Economic Recovery Plan,⁸ where poverty reduction and the overall improvement in the standard of living remains the ultimate goal. The main objectives of the Government strategy are to promote economic growth through the increase in productivity and investment in capital and human resources, to generate more and better-paid jobs, and to reduce the cost of living. To reach these objectives the Government has designed a number of actions that will be taken in five different areas: (a) fiscal policy, (b) monetary and exchange rate policy, (c) productivity and competitiveness, (d) key economic sectors, and (e) international trade and links with the rest of the world. In all of these areas the Government has established main and intermediate targets of policy actions and outcomes, which are monitored on a monthly or yearly basis.

⁸ The *Plan de Reactivación Económica 2002–2006* was prepared by the Economic Counsel and launched by the Government in July 2002.

5. Although all of the sectors of the economy need attention, there are several that, due to their relevance within the productive structure, or in relation to the levels of poverty, or due to their importance as job creators, need special attention. This is the case of agriculture, which remains a major employer; of the tourism industry, which is important for job creation; of small and medium enterprises as a contributor to the economic and social development of the country; and of the science and technology sector as a source of productivity and competitiveness.

6. Tourism has been one of the most dynamic areas of the economy in recent years, and the most important source of foreign currency. Tourism accounts for 8.7 percent of GDP and the Government expects that it will have an average growth rate of 6.6 percent during 2003–06. Tourism, including business travel, earned the country US\$1.2 billion in foreign exchange in 2001, equivalent to 25 percent of the value of merchandise exports. Meanwhile, more than 140,000 workers are directly linked to this activity, while 500,000 people are indirectly dependent. Costa Rica has traditionally positioned itself as one of the foremost destinations in the world for ecotourism.

7. Costa Rica's tourism industry is related in large part to the country's array of vibrant destinations, a product of diverse ecosystems, plant and animal species. Despite being small – 51,100 square kilometers – the Central American country is one of the most biodiversity-rich countries in the world. Because of its location between the Atlantic and Pacific oceans and its various geographic and climatic systems, it has more than 500,000 plant and animal species, a number of which are endemic (i.e., found only in Costa Rica) or near-endemic (i.e., found only in Costa Rica and a neighboring country, particularly Panama). In addition, Costa Rica is one of the world's leaders in the development and application of market-based instruments for environmental management. Once known as having one of the world's highest deforestation rates⁹, Costa Rica achieved negative net deforestation in the early 2000s. This is due in large part to Costa Rica's innovative payments for environmental services (*Pago por Servicios Ambientales*, PSA) program, which over the past decade has supported forest conservation on privately-owned lands in priority watersheds and key areas within Costa Rica's portion of the Mesoamerican Biological Corridor.

8. The PSA program is an integral part of Forestry Law No. 7575, approved in 1996. The law provides the regulatory basis to contract landholders for the services provided by their lands, and establishes financing mechanisms for this purpose, all under the primary responsibility of the National Forestry Financing Fund (FONAFIFO). An amount representing 3.5 percent of revenues from a tax on fossil fuels is currently allocated to FONAFIFO for funding forestry programs, principally through the PSA Program. More recently, funding for the program has also been provided via the World Bank/GEF-financed Ecomarkets Project, a KfW grant under the *Huetar Norte* Project, and domestic water users through voluntary contracts with FONAFIFO.

9. Regarding environmental management, Costa Rica continues to face important challenges. While governmental policies have mainly addressed natural resource management and investments have been made to consolidate the national protected areas system, weaknesses are mainly concentrated in areas related to environmental quality, urban development, and water and marine resources. Remaining threats to the country's biodiversity include degradation of

⁹ Costa Rica experienced one of the highest rates of deforestation worldwide during the 1970s and 1980s. In 1950, forests covered more than one-half of Costa Rica; by 1995, forest cover had declined to twenty-five percent of the national territory.

ecosystems due to deforestation, overexploitation of agricultural activities and other natural resources, the advance of the agricultural frontier, water pollution and introduction of exotic species, illegal hunting, and extraction. The current institutional capacity is insufficient for the follow-up and control of impacts of productive activities in the conservation areas, or for the enforcement of legislation. On the other hand, even if recent studies show the recovery of the forest cover, its biological quality is lower than primary forests.

Annex 2: Major Related Projects Financed by the Bank and/or other Agencies
COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

Sector Issues	Project	Latest Supervision Ratings	
		IP	DO
Biodiversity			
The project seeks to demonstrate that increased and systematically catalogued information about species would increase the value of biological diversity and the marketability of biodiversity services.	Biodiversity Resources Development (P039876)	HS	HS
The project seeks to increase the production of environmental services in Costa Rica by supporting the development of markets and private sector providers for services supplied by privately owned forests, including protection of biological diversity, greenhouse gas mitigation, and provision of hydrological services	Ecomarkets Project (P061314/P052009)	S	S
The project seeks to improve eco-systems functioning of degraded pasture lands in Colombia, Costa Rica and Nicaragua, through the development of more intensive silvopastoral systems that provide global environmental services and local socio economic benefits.	Regional Integrated Silvopastoral Ecosystem Management Program (P072979)	S	S
Other Development Agency Projects			
Conservation of Biodiversity in the Talamanca-Caribbean Biological Corridor (UNDP)	The project will focus on the conservation and sustainable use of biodiversity in the Talamanca-Caribbean Biological Corridor, an area encompassing 5 of the 12 life zones of Costa Rica.		Under Implementation
Improved Management and Conservation Practices for the Cocos Island Marine Conservation Area (UNDP)	Reduction of threats to the Island’s marine and terrestrial biodiversity through strengthening protected areas management and regulating local economic activities in a sustainable manner.		Under Implementation
Huetar Norte Forestry project (KfW)	The project will focus on reforestation of marginal lands for the conservation and sustainable use of forests in Northern Costa Rica.		Under Implementation
Overcoming Barriers to Sustainability of Costa Rica’s Protected Areas System (UNDP)	Develop the systemic and institutional capacity to overcome barriers to sustainability of the Costa Rica Protected Area System.		Under Preparation
Conservation of Biodiversity and Sustainable Development in La Amistad and Osa	Assistance to National System of Conservation Areas to develop means of sustainable revenue generation from ecotourism and other biodiversity-based initiatives.		Under Preparation

		Latest Supervision Ratings
Conservation Areas (UNDP)	Project emphasizes creation of local benefits from conservation, and involvement of community groups and indigenous peoples.	
National Biodiversity Strategic Action, Plan Report to the COP of CBD (UNDP)	To help Costa Rica formulate the strategies and actions necessary for the protection and sustainable use of the country's biodiversity in accordance with Articles 6 and 8 of the CBD, and prepare a plan for their implementation.	Under Preparation

Annex 3: Results Framework and Monitoring

COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

Table A.3.1: Results Framework

PDO	Project Outcome Indicators	Use of Project Outcome Information
<p>Enhance the provision of environmental services of a national and global significance and secure their long-term sustainability through a scaled-up PSA system in Costa Rica.</p> <p>GLOBAL OBJECTIVE: Enhance the conservation of globally significant biodiversity and ensure its long-term sustainability through a scaled-up PSA Program in productive landscapes in the buffer zones of protected areas and biological corridors connecting them.</p>	<ul style="list-style-type: none"> • By EOP, at least 288,000 hectares of land are maintained annually under PSA contracts providing environmental services of both local and global importance. • By EOP, at least half the newly contracted area is financed by funding from service users. • Improved efficiency of the PSA program, as measured by indices of services generated per dollar spent. • By EOP, a doubling of the number of small- and medium-sized landholders participating in the PSA Program. • By EOP, at least 190,000 ha (2,000 contracts) of land located in productive landscapes in the buffer zones of protected areas and biological corridors connecting them in the MBC are maintained annually under PSA contracts for at least 20 years. • Effective biodiversity conservation in globally significant areas measured by vegetation cover and indicator species of conservation interest. 	<p>FY01– 02: Gauge overall compliance of FONAFIFO with project implementation.</p> <p>FY03: Determine if strategy for compliance needs to be changed.</p> <p>FY05: Feed into strategy for mainstreaming program and evaluation.</p> <p>FY01– 02: Measure overall compliance of FONAFIFO with project implementation.</p> <p>FY03: Determine if strategy for compliance needs to be changed.</p> <p>FY05: Feed into strategy for mainstreaming program and evaluation.</p>
Intermediate Outcomes	Intermediate Outcome Indicators	Use of Intermediate Outcome Monitoring
<p>Outcome 1: Ensuring the long-term sustainability of the PSA Program by developing sustainable funding sources.</p>	<ul style="list-style-type: none"> • 3.5% from fuel-tax revenues to finance PSA. • 25% water-resource-usage tariffs to finance PSA for water-resource protection. • Biodiversity Conservation Trust Fund with capital participation of at least US\$15 million, of which US\$7.5 million contributed by GEF. • By EOP, at least 15,000 hectares located in productive landscapes in the buffer zones of protected areas and biological corridors connecting them with environmental service contracts financed from the Biodiversity Conservation Trust Fund. • 2.7 million tons of CO₂ from afforestation/reforestation activities are sold 	<p>YR1–YR3: Low levels may flag either poor performance or failure in the assumption.</p> <p>YR4–YR5: Feed into strategy for mainstreaming PSA.</p>

	via verified emission reductions, generating at least US\$10 Million. • US\$600,000 contributed by voluntary national and international markets.	
Outcome 2: PSA Program implementation increases its efficiency and effectiveness.	• By EOP, at least 90% of PSA Program resources are placed in PSA contracts. • Management system in place for water-tax collection and distribution developed. • Contract system for payments of environmental services with differentiated payments applied. • PSA activities are integrated through participatory planning on land use in at least 3 (micro-watershed) communities. • Replication plan developed and increased dissemination—within and outside Costa Rica—of Costa Rica’s PSA experience and achievements in conservation.	FY1–FY2: Flags possible payoffs or other problems in compliance, and need to adjust project implementation. FY 3–4: Evaluation of changes introduced before. FY05: Feed into strategy for mainstreaming PSA.
Outcome 3: PSA Program increases its contribution to biodiversity conservation and poverty reduction and sustainable development in rural areas.	• By EOP, at least 50% increase in contracted area of small- and medium-sized landholder (less than 100-hectare farms). • Interinstitutional mechanism created to facilitate land registration for small- and medium-sized landholders. • PSA participants’ socioeconomic data incorporated into PSA management information system.	FY01–FY03: Determine strategy effectiveness and the need of additional activities. FY0 4: Evaluation of changes introduced before. FY05: Feeds into broader programs and replication in similar projects.

Arrangements for Results Monitoring

- Monitoring and evaluation has been mainstreamed into all project components and will be conducted at three levels: (i) contract compliance; (ii) impact monitoring; and (iii) project implementation.
- Institutional issues:** FONAFIFO will input information through the Monitoring and Evaluation system and direct it to the project-implementation units.
- Data collection:** The project itself will strengthen the Monitoring and Evaluation system to collect data that will measure impact and indicator verification (see Outcome 2).
- Capacity:** Different studies have been, or are being, outsourced to collect baseline information. Further studies and research will be outsourced with assigned funds.
- GEF Biodiversity Tracking Tool:** The project will develop the GEF SP1/SP2 tracking tool to complement the monitoring and evaluation of the project progress. A baseline will be created at the time of project approval and updated at least during MTR and final evaluation.
- Semiannual and Midterm evaluation.** The Bank will conduct semiannual supervision missions to assess progress made in the implementation of the project activities. Supervision missions will draw lessons learned to date to provide guidance to the project team. In addition, the Bank, together with external reviewers and key stakeholders, will conduct a midterm evaluation of project execution. The midterm review will be conducted no later than three years

after the first project disbursement. The midterm review will focus on (i) progress in achieving project outcomes, (ii) institutional arrangements for project implementation, (iii) operational manual for payments for environmental services mechanisms, (iv) effectiveness and suitability of the monitoring system, and (v) review of both the project implementation plan and general project operation manual.

7. **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 attainment of the expected project results, and (ii) draw lessons learned to be included in the replication plan.

Table A.3.2: Arrangements for Results Monitoring

Outcome Indicators	Baseline	Target Values					Data Collection and Reporting		
		YR1	YR2	YR3	YR4	YR5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
At EOP, at least 288,000 hectares of land are maintained annually under PSA contracts providing environmental services of both local and global importance.	250,000	257,500	265,000	272,500	280,000	288,000	Annual	M&E system	FONAFIFO
By EOP, at least half the contracted area is financed by sustainable funding sources	None			20%	30%	50%	Annual	M&E system	FONAFIFO
PSA system contributes to the welfare of small- and medium-landholder participants in PSA Program.	Baseline			MTR		EOP	Twice during PYs	Specialized survey	FONAFIFO
By EOP, at least 190,000 hectares of land located in productive landscapes in the buffer zones of protected areas and biological corridors connecting them in the MBC are maintained annually under contracts for at least 20 years.	100,000	100,000	150,000	175,000	190,000	190,000	Annual	M&E system	FONAFIFO
Effective biodiversity conservation in globally significant areas measured by vegetation cover and indicator species of conservation interest.	Baseline			MTR		EOP	Site specific evaluation	Specialized survey	FONAFIFO

Results Indicators for Each Component	Baseline	YR1	YR2	YR3	YR4	YR5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
Component 1: 3.5% of fuel tax allocated to PSA funding.	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	Annual	National Budget Law and RECOPE reports	FONAFIFO
25% of adjusted tax revenues for water resources allocated to PSA financing for water-resource protection.	0	0%	25.0 %	25.0%	25.0%	25.0%	Annual	National Budget and MINAE Water Department	FONAFIFO
Biodiversity Conservation Trust Fund with capital participation of at least US\$15 million (US\$7.5 contributed by GEF).	0	\$2.0 M (cumulative) FONAFIFO 1.0 GEF 1.0	\$6.0 M (cumulative) FONAFIFO 3.0 M GEF 3.0 M	\$10.0 M (cumulative) FONAFIFO 5.0 M GEF 5.0 M	\$14.0M (cumulative) FONAFIFO 7.0 M GEF 7.0M	\$15.0 M (cumulative) FONAFIFO 7.5 M GEF 7.5 M	Annual	Reports from Trustee	FONAFIFO
At least 15,000 hectares located in productive landscapes in the buffer zones of protected areas and biological corridors connecting them, without other funding sources, conserved by the Biodiversity Conservation Trust Fund.	0	3,000	6,000	9,000	12,000	15,000	Annual	Reports from Trustee	FONAFIFO
2.7 million tons of CO ₂ from afforestation/ reforestation activities are certified and placed in the carbon markets generating at least US\$10 million.	0	US\$1.7 M	US\$3.7 M	US\$6.0 M	US\$8.5 M	US\$10 M	Annual	Carbon Purchase Agreements	FONAFIFO
US\$600,000 contributed by national and international voluntary markets.	0	0.05 M	0.1 M	0.2 M	0.4 M	0.6 M	Annual	Carbon, biodiversity, water, and scenic beauty protection agreements	FONAFIFO

Component 2: At least 90% of PSA Program resources placed in PSA contracts.	To be determined at project year 0	Baseline	Baseline plus 1	Baseline plus 2	Baseline plus 3	Baseline plus 3	Annual	FONAFIFO Audit reports	FONAFIFO
Management system in place for water-tax collection and distribution developed (illegal-collection capacity).	Not available	System designed	System operating	System operating	System operating	System operating	Twice a year during first 3 years; annually, subsequently	Reports and annual audits	MINAE Water Department, FONAFIFO
PSA Program monitoring, evaluation, and information dissemination, determines administrative costs, and economic, social, and environmental impacts.	Existing system focused on process and products	Design of an M&E system focused on impacts including baseline definition	M&E system in operation	M&E system in operation	M&E system in operation	M&E system in operation	Twice a year during first 3 years; annually, thereafter	M&E reports	FONAFIFO
Contract system for payments of environmental services with differentiated payments applied.	NA	New contract format designed	New contract design applied to new PSA contracts	New contract design applied to new PSA contracts	New contract design applied to new PSA contracts	New contract design applied to new PSA contracts	Twice a year during first 3 years; annually thereafter	New contract system Evaluation Reports, Official PSA Operational Manual	FONAFIFO
PSA integration in participatory planning on land use in at least 3 micro-watersheds).	0	0	1	2	3	4	Annual Reports	Progress reports of participating NGOs and organizations	FONAFIFO
Increased dissemination—within and outside Costa Rica—of Costa Rica’s PSA experience and achievements in conservation.									
Component 3: At least 50% increase in contracted area of small- and medium-sized landholders (less than 100-hectare farms).	0%	0%	0%	20%	40%	50%	Annual	M&E annual reports	FONAFIFO

Interinstitutional mechanism created to facilitate land registration for small- and medium-sized landholders.	Does not exist	Inter-institutional agreement signed	Institutional agreement in operation	Institutional agreement in operation	Institutional agreement in operation	Institutional agreement in operation	Annual	M&E reports	FONAFIFO
PSA participants' socioeconomic data incorporated into PSA management-information system.	Does not exist	Design and identification of system needs	Socio-economic variables incorporated to management information system	Socio-economic variables incorporated to management information system	Socio-economic variables incorporated to management information system	Socio-economic variables incorporated to management information system	Annual	Management information system reports	FONAFIFO

Annex 4: Detailed Project Description

COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

1. Costa Rica is at the forefront of biodiversity conservation and natural resources management. In addition, the Central American country is one of the world's leaders in the development and application of market-based instruments for environmental management. Once known as having one of the world's highest deforestation rates, Costa Rica achieved negative net deforestation in the early 2000s. This is due in large part to Costa Rica's innovative payments for environmental services (*Pago por Servicios Ambientales*, PSA) program, which over the past decade has supported forest conservation on privately-owned lands in priority watersheds and key areas within Costa Rica's portion of the Mesoamerican Biological Corridor. Funded through the government's own budget, a World Bank loan combined with a grant from the Global Environment Facility under the Ecomarkets Project, financial assistance from bilateral donors, and domestic water users, the PSA Program has been one of the most successful efforts worldwide to develop market-based instruments for the management, conservation, and sustainable use of biodiversity and forest resources.

2. The proposed project builds on this successful program and addresses gaps and lessons learned over the past decade of program implementation. Despite the program's significant achievements, the experience during the Ecomarkets Project has shown several areas in need of improvements.

- **Demand side.** There is a need to develop additional funding mechanisms to complement current funding sources and allow an expansion of the area under conservation, as the current 250,000 ha represent only a small part of conservation needs. There is also a need to draw a greater proportion of funding directly from service users, as the current program highly depends on funding from the fuel tax and short-term donor financing, thus making its sustainability uncertain. Developing sustainable financing sources for biodiversity conservation is particularly challenging.
- **Supply side.** The use of available funds to contract landholders also needs revision. Increased targeting and differentiation of payments could result in substantial efficiency gains for the program. The review panel noted that current criteria for PSA allocation cover as much as 70 percent of the country. Moreover, the use of undifferentiated payments means that the program is likely over-paying in some areas (e.g., paying for conservation in cases where conservation may well have happened anyway), while offering insufficient payments to induce conservation in other priority areas. There is a need to sharpen and better prioritize the selection of conservation areas with unique biodiversity features, and to adapt payment levels to local circumstances.
- **Links to poverty.** Small and medium-sized landholders, many of whom are poor, have found it difficult to enter the program. There is a need for targeted efforts to ensure that poor landholders are able to participate in the program.
- **Monitoring.** To ensure that these aims are achieved, there is a need to improve program monitoring. With support from the Ecomarkets Project, FONAFIFO instituted a state-of-the-art system to monitor land-user compliance with environmental service contracts. The program remains weak, however, in monitoring the impact of its activities on service generation and socioeconomic impacts.

3. The development objective of the proposed project is to enhance the provision of environmental services of national and global significance and to assist in securing their long-term sustainability. This will be accomplished by consolidating the PSA Program, improving its efficiency, and expanding its coverage. The project will also support the development of new, market-based approaches to sustainable finance environmental management. The bulk of the project's work will be devoted to demand-side efforts to develop and implement new mechanisms to generate sustainable financing and to address the particular needs faced in generating long-term financing for biodiversity conservation. This will be complemented by supply-side efforts to improve the program's efficiency together with efforts to increase its contribution to poverty reduction and sustainable rural development.

Component 1. Developing and implementing sustainable financing mechanisms (Budget: US\$16.5 million, of which US\$8.1 million from GoCR, US\$8.0 million from GEF, and US\$0.4 million from sales of verified emission reductions).

4. This component focuses on developing and implementing sustainable financing mechanisms according to the characteristics of each group of environmental service users. Likewise, rules will be developed for the use of these funds to generate environmental services that users desire. Key outputs of this component are: (a) a conservation program to promote provision of hydrological services that use financing provided by the recently-approved water tariff, (b) capitalization of the Biodiversity Conservation Trust Fund with at least US\$15 million, (c) a robust strategy to increase the capital of the Biodiversity Conservation Trust Fund, (d) development of capacity to access the emerging carbon market, and preparation of several carbon sequestration projects, and (e) development of voluntary markets for biodiversity conservation.

5. Key inputs to achieve the component objectives are: (a) providing the necessary resources to FONAFIFO to implement project activities; and (b) providing adequate resources to design and implement the operational rules of water tariff. Incremental resources from GEF will be used primarily to capitalize the Biodiversity Conservation Trust Fund (US\$7.5 million, which will be matched by contributions from the Government of Costa Rica and other donors). Incremental resources from GEF will also be used to support the development of other funding mechanisms in areas that generate global benefits.

1A. Promoting watershed conservation via application of the new water tariff (Budget: US\$0.4 million, composed of US\$0.4 million from GoCR).

6. After a long process of consultations, Costa Rica has begun to mainstream sustainable natural resource management by instituting water tariffs to finance *inter alia* upstream watershed conservation, with 25 percent of the income generated channeled to the PSA Program to protect priority watersheds. Under the new tariff, phased in over seven years, water users will pay fees based on the nature of their use. Once implemented, this fee should generate approximately US\$5 million annually in additional resources for the PSA Program. This will significantly expand coverage of the program while avoiding free-rider problems that plague purely voluntary approaches. It is important to note that the decree establishing the tariff¹⁰ specifies that funds generated must be spent in the specific watershed where they originate.

¹⁰ Decreto Ejecutivo numero {XXX}, *El Canon por Concepto de Aprovechamiento de Agua*. Government of Costa Rica, 2005.

7. The proposed project will support FONAFIFO's efforts to develop appropriate watershed management modalities and identify priority areas for land use practices needed to generate hydrological services. Activities to be financed under this subcomponent include:

- Conduct in-depth technical studies of priority watersheds for hydrological services, to (i) understand the specific nature of water uses in the watershed and diagnose specific water problems faced by water users; (ii) identify critical areas that would need to be conserved to generate improved hydrological services for water users; (iii) identify specific land use changes that should be encouraged or discouraged so as to generate the desired hydrological services; and (iv) assess the costs that landholders would face to undertake the desired land uses, including opportunity costs of foregone alternatives and potential out-of-pocket costs.
- Support MINAE's Water Department (as well as select groups of water users) to ensure that fees due under the new water tariff are collected and the appropriate share of revenues transferred to FONAFIFO.

8. Related activities in Component 2 will support the development of a monitoring system to assess the hydrological impact of program activities.

9. Conservation payments financed from water tariff resources, although targeted on the basis of hydrological services, are also expected to generate substantial other environmental services (e.g., biodiversity, carbon) benefits by allowing a substantial increase in area enrolled in the PSA Program, including many high biodiversity areas (an estimated 320,000 hectares of high biodiversity areas are located in areas of hydrological importance). Incremental resources from GEF will assist the Government's efforts to implement the water tariff in a timely, effective manner, thus helping to conserve globally-significant biodiversity.

1B. Implementing and capitalizing the Biodiversity Conservation Trust Fund (Budget: US\$15.3 million, composed of US\$7.6 million from GoCR and US\$7.7 million from GEF).

10. Financing environmental service contracts in areas of globally significant biodiversity is an important objective of the Costa Rican program. It is particularly important that funding for environmental services related to biodiversity be sustainable, as interruptions in financing could lead to irreversible losses of biodiversity. Generating sustainable funding streams for biodiversity is particularly difficult, as 'users' cannot be readily identified unlike the users of hydrological services or the buyers of verified emission reductions (VERs). In many cases, payments from water users or carbon buyers will also help protect valuable biodiversity. However, some areas of globally significant biodiversity do not overlap with areas with economically valuable hydrological services nor have the potential for sales of VERs. To meet the challenge of financing conservation payments in these areas, the Ecomarkets Project supported the development of a Biodiversity Conservation Trust Fund, based on best practice guidelines for the development of GEF-financed Trust Funds. This Fund will act as a "financier of last resort" for those areas of biodiversity of global significance in buffer zones of protected areas and biological corridors that connect them (thus contributing to the ecological and financial sustainability of the national protected areas system and the Mesoamerican Biological Corridor). A new 'biodiversity conservation' modality will be developed to use these funds, with eligible areas targeted to the areas of highest biodiversity need and prescribed land use practices that help conserve biodiversity. One of the key eligibility criteria for private landowners to receive payments from the proceeds of GEF co-financing is that their lands be recognized as private protected area

under the Costa Rican law. At present, however, this Fund only has a very small amount of initial seed funding.

11. This subcomponent will help strengthen and capitalize the Biodiversity Conservation Trust Fund, enabling it to provide sustainable, long-term financing for areas of globally significant biodiversity where other financing is either unavailable or insufficient. Most of the GEF financing within the proposed project (US\$7.5 million) will be applied to the capitalization of this Fund. The GEF contribution will be matched by an equivalent contribution from the Government of Costa Rica. This subcomponent will also work to develop additional financing sources to capitalize the Fund.

12. It is expected that contracts financed from the Fund would be signed towards the end of the project, thus allowing the interest to capitalize, further increasing the size of the Fund and, hence, of the area it will be able to support. Delaying initial payments until later in the project also gives more time to clearly identify priority areas that lack alternative funding sources. The main activities to be conducted under this subcomponent include:

- Capitalize of the Biodiversity Conservation Trust Fund, with contributions from the GEF, the Government of Costa Rica, international environmental NGOs, and other donors.
- Strengthen operation of the Biodiversity Conservation Trust Fund.
- Identify and develop additional donor funding for the Biodiversity Conservation Trust Fund.
- Promote and disseminate Fund-financed activities.

13. Related activities in Component 2 will support the development of a monitoring system to assess the biodiversity impact of PSA activities.

1C. Accessing global carbon markets (Budget: US\$0.6 million composed of US\$0.1 million from GoCR and US\$0.5 million from sales of verified emission reductions).

14. In the late 1990s, Costa Rica developed the Certified Tradable Offset (CTO) to sell carbon sequestration services generated by conserving the nation's forests; US\$2 million worth of CTOs were sold to international buyers in subsequent years. Evolving rules that limited emission reduction sales generated by reforestation or afforestation curtailed this effort. With the Kyoto Protocol now ratified and guidelines in place regarding which land use activities are eligible, there is potential to use the Clean Development Mechanism of the Kyoto Protocol to finance forest regeneration in degraded areas—areas that the PSA Program has been unable to address to date because of their high cost. Costa Rica has an estimated 1,087,000 hectares of land where forest regeneration could occur. The proposed project is working with the World Bank-managed BioCarbon Fund (BCF) to develop a pilot project involving a sale of US\$1.8 million worth of verified emission reductions (VERs). Contracting, monitoring, and other procedures leading to strengthened institutional capacity will be put in place under Component 2 (see below) to pursue additional VERs sales, building on the initial BCF effort and diversifying financing sources beyond BCF. Initial documentation for an additional eight carbon sequestration projects have been developed. These additional projects would increase total carbon sequestration to [xxx million tons], the area reforested to [xxx ha], and revenue from sales of verified emission reductions to [US\$xxx million]. [NOTE: NUMBERS TO BE CONFIRMED DURING PROJECT APPRAISAL.]

15. The main activities to be conducted under this subcomponent include:

- Complete preparation of one BCF project and begin implementation.
- Develop project documents for at least five other carbon sequestration projects.
- Prepare at least one bioenergy project.
- Promote efforts tied to sales of VERs.

Reforestation activities supported by the sale of VERs would help restore vegetation in degraded areas that the PSA Program has hitherto been unable to reach. By doing so, the proposed project will likewise contribute to establishing or improving other environmental services (e.g., biodiversity, hydrological services). GEF funds under this sub-component will ensure that Carbon sequestration activities also lead to biodiversity conservation benefits.

1D. Developing voluntary markets for biodiversity conservation (Budget: US\$0.2 million, composed of US\$0.2 million from GEF).

16. There is a small but growing market for voluntary contributions to conservation. Costa Rica's recognized "brand name" related to environmental conservation, combined with FONAFIFO's track record of developing environmental service markets, place FONAFIFO in a strong position for developing new, innovative market-based instruments for environmental management. Already, a number of transactions have been negotiated on an *ad hoc* basis (e.g., an Italian NGO is paying to regenerate degraded forests in Costa Rica's Talamanca region). The proposed project will support a more systematic approach to these voluntary or 'retail' markets, including the development of a range of products (e.g., certificates to finance conservation in areas of globally significant biodiversity). Funds generated through these sales would help capitalize the Biodiversity Conservation Trust Fund. This would ensure that conservation financed by these voluntary markets (which would otherwise be very unsustainable) be sustainable in the long term, thereby increasing the attractiveness of voluntary transactions.

17. The main activities to be conducted under this subcomponent include:

- Development of a sales platform to sell conservation certificates, including an Internet website and supporting accounting mechanisms to process transactions, allowing sales to be made with very low transaction costs per sale.
- Market research and product development to develop a range of retail conservation 'products' (e.g., biodiversity conservation in particular areas, or of particular ecosystems; biodiversity conservation combined with carbon sequestration; conservation in areas with high social impact); the main focus of these products would be to attract funding to activities within the existing program, thus freeing resources for other uses.
- Targeted promotional activities to attract voluntary financing.

Component 2. Scaling-up the Environmental Services Program (Budget: US\$72.8 million, of which US\$39.1 from GoCR, US\$30.0 million from the World Bank, US\$2.3 million from the sale of verified emission reductions, and US\$1.4 million from GEF).

18. This component, which includes the bulk of financing in the proposed project, will support FONAFIFO and other institutions (e.g., MINAE's Water Department) to implement the environmental service program. In addition, financial resources provided by the above-mentioned water tariff, in particular, and other new financing sources will allow for an expansion of the program beyond the roughly 250,000 hectares it covers at the current time. In addition to

financing environmental service contracts – nearly 90% of the resources of this component – key outputs include: (a) strengthened capacity of the key institutions, including FONAFIFO and other governmental institutions, together with NGOs working to implement the PSA Program; and (b) a more efficient program.

19. Incremental resources from GEF will be used to strengthen FONAFIFO's capacity to issue and monitor environmental service contracts that generate global benefits, with particular emphasis on enhancing monitoring of activities that specifically support biodiversity conservation in priority areas.

2A. Strengthening capacity to implement the expanded PSA program (Budget: US\$7.0 million, composed of US\$6.0 million from GoCR and US\$1.0 million from GEF).

20. The additional resources provided by the water tariff and carbon financing will allow for a substantial increase in the area covered by the PSA Program. This subcomponent will strengthen FONAFIFO's capacity to undertake this expansion, while ensuring that FONAFIFO's recurring administrative costs remain at less than 10 percent of funds handled.

21. The main activities under this subcomponent include:

- Investments in additional equipment (including vehicles and equipment) necessary for FONAFIFO to manage the expanded program.
- Capacity-building for staff of FONAFIFO and other institutions to carry out the expanded, modified program.
- Operational costs of staff and administrative expenses.

2B. Increasing the efficiency of environmental service contracting (Budget: US\$0.2 million, composed of US\$0.2 million from GEF).

22. Expanding program coverage and responding to the requirements of service users financing the program will require FONAFIFO to change its current approach of making undifferentiated payments for a small number of land use modalities. The current approach of offering equal payments across the program fails to acknowledge that opportunity costs for land are not equivalent throughout the country. Indeed, there are significant variations in such opportunity costs across the country, resulting in the failure to generate valuable environmental services in certain areas, while overpaying for environmental services in areas with low opportunity costs. This serves limit the size of the program, given that the program budget is exhausted faster than it might be in an optimized program. A more targeted, differentiated approach will tend to increase the cost-effectiveness of the program. This will involve a more precise definition of eligible areas (based on technical studies such as those conducted under Component 1) and payment levels set based on local or regional conditions. This differentiated approach will be introduced in stages, beginning with any new modalities and then being extended to existing modalities. Where payments below current levels are to be offered, payment levels will be lowered progressively. Implementing such an approach without substantially increasing transaction costs will be a challenge, however. The project will support the development of appropriate approaches, such as offering different payment levels in different areas.

23. The main activities to be conducted under this subcomponent are:

- Assessment of the impacts on transaction costs of different approaches and levels of differentiation, including a detailed review of procedures to identify ways to reduce transaction costs.
- Revision of the program's Operational Manual and administrative procedures to manage more differentiated payments.
- Dissemination campaign to explain the need for differentiated payments, in cooperation with National Forestry Office (ONF).

2C. Strengthening technical monitoring capacity (Budget: US\$0.6 million, composed of US\$0.2 million from GoCR, US\$0.2 million from GEF, and US\$0.2 from the sale of verified emission reductions.)

24. The Costa Rican program has established, with the support of the Ecomarkets Project, a state-of-the-art system to monitor landholder compliance with environmental service contracts. The program remains weak, however, in monitoring its effectiveness in generating the desired environmental services themselves. The project will support the strengthening and/or establishment of such monitoring systems, so as to measure the social, economic and biological impacts of the program through FONAFIFO and other institutions (e.g., MINAE's Water Department, local and international universities). The Project will build on the existing Monitoring and Evaluation system of FONAFIFO (geared toward the monitoring of PSA contract compliance) to expand it into PSA impact evaluation. Baseline data for such monitoring will be ready in year 1 of Project implementation. Data collected and lessons learned under the project will be shared with other institutions within Costa Rica and with other countries. Funds will be supplied for the production of communication material and the participation of the Project in national and international meetings on PSA.

25. The main activities to be conducted under this subcomponent are:

- Establishment of a monitoring unit within FONAFIFO to coordinate social, economic, and biological monitoring activities to assess program impacts.
- Design and implementation of appropriate monitoring systems related to biodiversity, in coordination with INBio.
- Design and implementation of appropriate monitoring systems related to hydrological services, in coordination with MINAE's Water Department.
- Design and implementation of appropriate monitoring systems related to carbon sequestration.
- Design and implementation of a communication and dissemination strategy on lessons learned during project implementation.

2D. Contracting landholders to provide environmental services (Budget: US\$65.1 million, composed of US\$33 million from GoCR, US\$30 million from the World Bank, and US\$2.1 million from the sales of verified emission reductions).

26. This subcomponent will finance environmental service contracts related to forest conservation, reforestation, and agroforestry, as well as new modalities as developed during the life of the project. The main activities to be financed under this subcomponent include:

- Remaining payments to be made for environmental service contracts signed under the Ecomarkets Project.
- Payments made for contracts signed after project effectiveness for the proposed project.

Component 3. Removing Barrier for Small landholders' Participation in the PSA Program (Budget: US\$1.0 million, of which US\$0.4 million from GoCR and US\$0.6 million from GEF).

27. This component aims to reduce the obstacles to participation of the poor in the PSA Program. Although the program is not primarily designed to be a poverty reduction program, the high spatial correlation between areas that supply environmental services and low-income rural areas create opportunities to contribute to this objective. Frequently, however, the poor find it difficult to participate either because of relatively high transaction costs involved in the application process (such as proof of land ownership) or because of intrinsic incentives within the program that makes it more responsive to large landholders. This component is aimed at reducing these obstacles. A key output of the component is the increased participation of poor rural communities and members of marginalized groups (e.g., women, indigenous landholders, landholders without land title).

28. Key inputs for this component include the necessary resources to increase outreach to small landholders, a robust promotional campaign, and capacity building activities. Incremental resources from GEF will be used to enhance participation of the marginalized groups that specifically generate global biodiversity benefits.

3A. Strengthening the incorporation of low-income landholders in the PSA Program (Budget US\$0.6 million, composed of US\$0.3 million from GoCR and US\$0.3 million from GEF).

29. The experience of past years has shown two important constraints to participation of poorer landholders in the PSA Program:

- **High transaction costs of working with small landholders.** Due to the high transaction costs in dealing with many individual small landholders, environmental service programs tend to focus on larger, better-off landholders as a means to keep administrative costs to a minimum. To address this issue, FONAFIFO developed a collective contracting approach ("*contratos globales*"), in which NGOs or local community organizations assist groups of farmers to develop the necessary management plans and apply to FONAFIFO as a group. Based on lessons learned during the Ecomarkets Project—and particularly to avoid the cancellation of contracts to an entire community if one member is delinquent on contractual obligations—the *contratos globales* process now culminates in individual agreements for each member of the community. A gaps analysis carried out during project preparation indicated that there is latent demand for small- and medium-sized landholders to join in environmental service programs, and that a communications strategy and capacity building efforts at the local level are needed to promote such inclusion.
- **Lack of cadastral plans.** Initially, only landholders with titles could participate in the Costa Rican program, thus barring many poor landholders who lack formal titles. The law has been amended to allow all landholders to participate, even where formal titles are lacking. This has greatly expanded eligibility and increased inclusion of small landholders in the program. That said, it would be impossible to remove all land tenure

requirements and applicants must have a cadastral plan which indicates the boundaries and size of their landholdings. Still, many poor farmers lack such plans and the resources and incentive to obtain them. The proposed project will provide support to draw up cadastral plans in poor areas in priority areas. During project preparation, it was recognized that the proposed project will have relatively limited involvement in such a potentially complex area; as such, the project will coordinate and capitalize on work in progress including programs financed by the Government's own resources as well as through external assistance such as the IDB-assisted project on land titling.

30. Activities under this subcomponent are aimed at addressing the above-mentioned barriers to entry, including:

- Identification of factors limiting the entry of small- and medium-sized landholders into the environmental services program.
- Communication campaigns in the geographic areas that have a combination of (i) important local or globally significant environmental services and (ii) high incidence of incomplete records of land ownership and/or a preponderance of small land-owners.
- Assistance—on a contractual basis—to local non-governmental organizations that provide technical assistance to small- and medium-sized landholders and/or assist individual landholders in completing the entry requirements for obtaining a cadastral plan (*plano catastrado*) for their land.

31. Incremental resources from GEF would help support these efforts within priority areas with globally significant biodiversity.

3B. Piloting improved watershed management in low-income areas (Budget: US\$0.4 million, composed of US\$0.4 million from GEF).

32. Local community organizations and NGOs are attempting to develop watershed management plans in many areas. These plans would combine rural development, poverty alleviation, and environmental service objectives. This subcomponent will seek to assist these efforts, exploring means through which the PSA Program could support the development and implementation of watershed management plans. The approach will be tested in three watersheds with relatively low participation of small- and medium-sized farmers in the program. Watershed management plans will be prepared through participatory processes, and communities will be supported in their implementation of those plans. If required, new PSA modalities will be designed and piloted.

33. The main activities to be conducted under this subcomponent include:

- Institutional support at the local and community level to promote the participation of local communities in the development and implementation of the above-mentioned watershed management plans.
- Piloting watershed management plans in three watersheds (Jesús Maria, Morote, and Guacimal y Lagarto).

3C. Monitoring social and economic impacts (Budget US\$0.08 million, composed of US\$0.05 million from GoCR and US\$0.03 million from GEF).

34. This subcomponent will strengthen monitoring systems related to measuring socioeconomic impacts of the program, with a particular emphasis on the poor as well as small- and medium-sized landholders. The aim is to ensure that monitoring is more participatory and more effective in detecting the level of inclusiveness of the program as well as the impact of program-supported activities on various sets of actors, with a particular emphasis on the poor as well as small- and medium-sized landholders. This will allow FONAFIFO to respond to problems on a timely basis and improve the program's impact on the poor. Likewise, this subcomponent will identify parameters to better measure the contribution of the program in the fulfillment of the Millennium Development Goals, defined as a political priority by GoCR authorities. A more inclusive monitoring and evaluation system would include a transparent set of procedures designed to facilitate the effective, informed and continuous participation of all actors (small and large) in project benefits and program administration. This is not intended to substitute for project monitoring and evaluation in connection with financial auditing, procurement, and other such aspects normally addressed in project supervision. Instead, it is intended to assure that participants in the Costa Rican project have a voice in defining specific priorities and objectives; evaluating social and economic impacts; identifying bottlenecks in project implementation; improving program operations, including beneficiary selection criteria; and access to information which project beneficiaries consider important. Based upon this information, FONAFIFO will reorient strategies and actions as necessary.

35. The main activities to be conducted under this subcomponent are:

- Design of a module to capture socioeconomic information on participants through a participatory monitoring and evaluation system.
- Technical assistance and capacity building to FONAFIFO and local communities in the implementation of the participatory monitoring and evaluation system.
- Inclusion of available socioeconomic data into the program's database (SIAP).
- Bi-annual socioeconomic surveys of the population in three pilot watersheds to track impacts on participating landholders, non-participating landholders, and others.
- Stakeholder meetings to share information about lessons learned regarding participation in the environmental services program, thus facilitating co-learning as well as improving the delivery of the overall program.

Annex 5: Project Costs

COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

Project Cost By Component and/or Activity	Local US \$million	Foreign US \$million	Total US \$million
Component 1. Developing and implementing sustainable financing mechanisms			<i>16.5</i>
Component 2. Scaling-up the Environmental Services Program			<i>72.8</i>
Component 3. Removing Barrier for Small landholders' Participation in the PSA Program			<i>1.0</i>
Total Baseline Cost			
Physical Contingencies			
Price Contingencies			
Total Project Costs*			<i>90.3</i>
Interest during construction			
Front-end Fee			
Total Financing Required			

*Identifiable taxes and duties are US\$m ____, and the total project cost, net of taxes, is US\$m ____.
Therefore, the share of project cost net of taxes is ____ percent.

Annex 6: Implementation Arrangements

COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

1. The main institutions involved in the implementation of the proposed project include the National Forestry Financing Fund (*Fondo Nacional de Financiamiento Forestal*, FONAFIFO), the National System of Conservation Areas (*Sistema Nacional de Áreas de Conservación*, SINAC), the Biodiversity Conservation Trust Fund, the National Forestry Office (*Oficina Nacional Forestal*, ONF), the National Biodiversity Institute (*Instituto Nacional de Biodiversidad*, INBio) and other research centers, and local nongovernmental organizations (NGOs). FONAFIFO, as implementing agent for the Government of Costa Rica, would have full responsibility for overall project management and supervision of the loan/grant, including monitoring and evaluation for the project. This responsibility would be carried out in close collaboration with NGOs for which proper agreements or contracts would be signed.

2. The institutional framework for the Project would be legally defined by (a) legal agreements between World Bank and FONAFIFO; (b) a subsidiary agreement between FONAFIFO and SINAC, which will specify details regarding the priority areas for PSA contracts within the GRUAS2 biological corridors, and the type of PSA contracts (forest protection, agroforestry, reforestation, and so forth) to be promoted in these biological corridors. The Project would be implemented within the existing organizational framework of FONAFIFO with specified division of responsibilities between coordination units within FONAFIFO. Overall coordination would be performed by the office of the Executive Director within FONAFIFO, described below.

Institutional Analysis

3. **National Forestry Financing Fund (FONAFIFO).** FONAFIFO was created by Forestry Law No. 7575 (February 13, 1996) as a relatively autonomous or deconcentrated body within the structure of the State Forestry Administration (a general superstructure within MINAE that includes SINAC as a component) to finance a variety of forestry activities and environmental services provided by forests and forest plantations through credit and other mechanisms directed to small- and medium-size producers. FONAFIFO has the legal power and independence to enter into legal contracts, including constitution of trust funds as required for administration of the resources entrusted to it (currently it administers five trust funds totaling US\$3 million). The institution is headed by an Executive Director under a Board of Directors, which has majority representation of the public sector. The executive entity is currently divided into six divisions: Administration, Environmental Services, Credit, Fund Raising, Legal Office, and Information Systems (totaling 42 staff in October 2005). Since 2003, FONAFIFO assumed the responsibility of the implementation of the PSA Program, and created eight regional offices that collect, review, and pre-approved landholder PSA contracts.

4. The activities of the four main divisions are:

- **Administration:** Responsible for strategic planning and budgeting, development of manuals of procedures, personnel management, training, computer services, and other routine administrative and financial management of FONAFIFO.
- **Environmental Services:** Responsible for coordination and management of individual projects delivering environmental services (with payments totaling US\$11.5 million in

2005), including evaluation of contracts solicited and the value of services offered, conclusion of agreements with companies or institutions to pay for hydrologic services, and cooperation with SINAC/MINAE, among other institutions.

- **Credit:** Responsible for analysis and approval of applications for credit by forest-sector entities (totaling about US\$33 million approved in 1999), for disbursements of credit, and for technical and financial monitoring of activities financed by the credit.
- **Fundraising:** Responsible for proposal preparation and negotiation with private environmental services users (both local and global) that need to protect specific country areas for the environmental services derived from them.
- **Legal Office:** Responsible for legal review of the PSA contracts, compliance with legal requirements and entry of land titles in the national land register.
- **Information systems:** Responsible for the operation and maintenance of the Project Administration Integrated System (SIAP), and of the Geographic Information System (GIS) used to keep track of the PSA contracts and their geographic location.

ESTRUCTURA ORGANIZACIONAL DE FONAFIFO

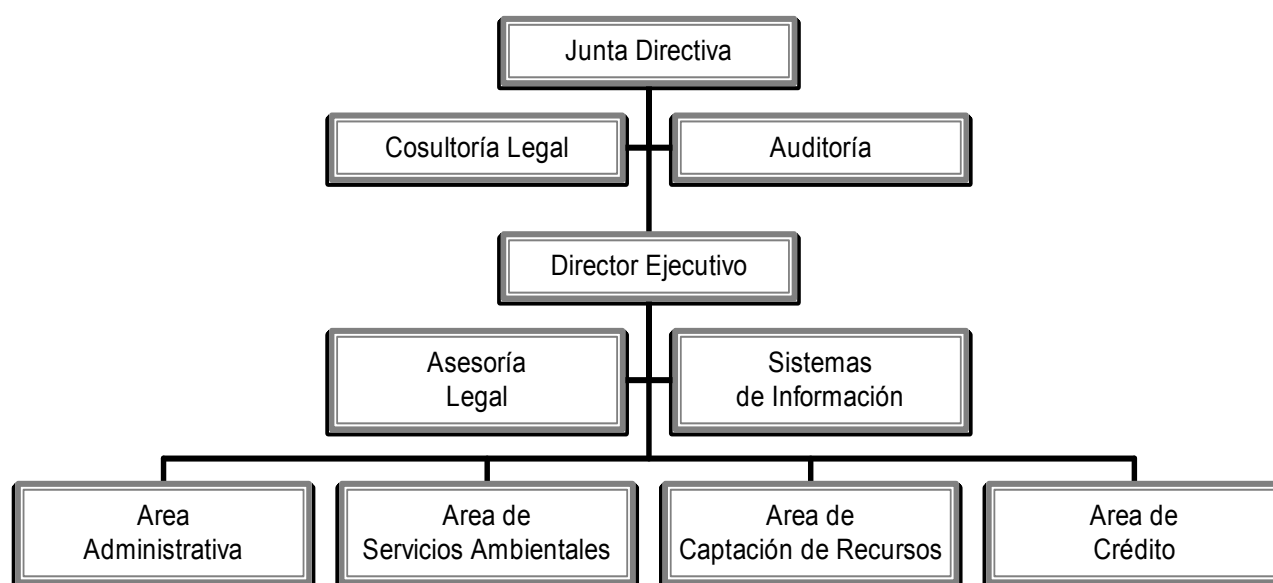


Figure A.6.1: Administrative Structure of FONAFIFO

5. **System of National Conservation Areas (SINAC).** SINAC is a decentralized and participatory institutional management system that unifies MINAE's competencies regarding forestry, wildlife, and protected area issues, in order to plan and execute processes aimed at the sustainable management of the country's natural resources. Administratively, SINAC is a system made up of 10 subsystems called Conservation Areas (CAs), and a General Bureau. A CA is a territorial unit ruled by the same development and management strategy, where private and government sectors participate together in the management and conservation of natural resources and seek to find sustainable development solutions together with civil society.

6. SINAC's Directorate consists of a General Director, Director (i.e., Deputy), support staff, an advisory team, and a Technical Unit, totaling about 30 staff. The Technical Unit consists of a professional group whose main responsibilities are to support the CAs through implementation of marketing processes, plans, and projects; international treaties and conventions on biodiversity; financing; quality of management; and information systems. At the SINAC Central Office, the General Director is responsible for liaison with FONAFIFO and its projects.

7. Each CA is comprised of a Regional Bureau and Subregional Offices. The Regional Bureau, which includes a Director and Coordinators for strategic areas of Control, Promotion, and Protected Wildlands, and an administrative support group and legal advisers, has strategic decisionmaking responsibilities. The control function relates mainly to enforcement of law and regulations, protected wild-lands with processes to ensure biodiversity conservation, and promotion to encouraging management and conservation on privately owned lands within CAs. Promotion for sustainable management and conservation on privately owned lands is focused to biological corridors linking protected areas and their respective buffer zones. A map of priority biological corridors is currently prepared by the GRUAS2 project, which is technically and financially supported by INBio, SINAC, and FONAFIFO. A Technical Committee, composed of the Director, Subdirectors, various program coordinators, and a Local Council (not yet fully functioning at some of the CAs), operates as a collegial body in making decisions and defining policies for technical management and operations, and serves as a channel for consultation and diffusion of information to local society. The Local Council is composed of representatives of local communities, and governmental and nongovernmental institutions or groups in the region of influence, and is usually selected by comparable councils at the level of the individual National Park or equivalent reserve.

8. ***Biodiversity Conservation Trust Fund (FCB).*** The Biodiversity Conservation Trust Fund is being designed as a trust operating under a private-sector legal regime, with a public-private Technical Committee composition to contribute to the long-term sustainability in contracting environmental services. The fund is being created to maintain contracts in areas of globally significant biodiversity, including buffer zones of protected areas and the biological corridors which connect them.

9. The FCB will be an independent, long-term financial mechanism specialized in providing payments to private landholders in areas of global significance biodiversity. It will be capable of leveraging resources from a broad spectrum of donors and institutions. Payments to landholders funded by the FCB must contribute to expanding the conservation of biodiversity.

10. The FCB will operate under a private legal regime, and will have clear, transparent, and democratic mechanisms for participation and decisionmaking. It will be established by a group of private organizations specialized in biodiversity conservation and sustainable land use management. FCB's Technical Commission will include high-caliber public and private sector representation. A majority of members, to come from the private sector, will be specialized in environmental services management, sustainable use of biodiversity, and finance. The Technical Commission will be chaired by FONAFIFO.

11. ***National Forestry Office (ONF).*** ONF works to promote the development of the forestry sector in Costa Rica, through: (a) developing a favorable political and social environment for the forestry activities in the country; (b) generating, compiling, and disseminating data and information on forestry activities in the country; (c) promoting projects, activities, and mechanisms for developing financing sources for the forestry sector; and (d) participating in the

design and implementation of strategic development plans of the sector. ONF was created by Forestry Law No. 7575 as a semiautonomous legal entity with public functions, and subject to the regulations of the *Contraloría General de La República*. ONF has a Board of Directors conformed by:

- A member representing the small forestry farmers
- Two members representing the forestry industry subsector
- A member representing the wood products commerce sector
- A member representing the wood products and handicrafts sector
- A member representing the ecological groups in the country.

10. ***The National Biodiversity Institute (INBio)***. INBio is a private research and biodiversity management center established in 1989 to support efforts to gather knowledge on the country's biological diversity and promote its sustainable use. INBio works under the premise that the best means to conserve biodiversity is to use the opportunities biodiversity offers to improve the quality of life of human beings. INBio is a nongovernmental, nonprofit, public interest organization of civil society that works in close collaboration with different government institutions, universities, the private sector, and other public and private organizations, both within and outside Costa Rica.

12. INBio's work focuses on the following areas of action:

- **Inventory and Monitoring:** This area generates information on the diversity of species and ecosystems found in the country. At present, INBio has a collection of more than 3 million specimens of arthropods, plants, fungi, and mollusks, each one duly identified and catalogued. It also generates information on the country's different ecosystems.
- **Conservation:** This area of work uses the information generated and administered by INBio in decisionmaking processes related to the protection and sustainable use of biodiversity, both by the public and the private sectors. INBio works closely with the National System of Conservation Areas (SINAC), considering it a strategic partner in the conservation of the country's protected areas.
- **Communications and education:** INBio shares information about and knowledge of biodiversity with different segments of the public, with the aim of creating greater awareness of the value of biodiversity. Much of this effort is carried out through INBioparque, a theme park inaugurated in 2000, with the aim of bringing families and visitors into closer contact with Costa Rica's natural resources. In addition, using other modalities, INBio seeks to strengthen the environmental aspects of the actions and decisions of the Costa Rican people.
- **Biodiversity informatics:** This area of work develops and applies computer tools to support the processes of generation, administration, analysis, and dissemination of information on biodiversity. The information on each specimen in the biodiversity inventory is entered into a database called Atta, which the public may access through INBio's website.
- **Bioprospecting:** This initiative seeks sustainable uses and the commercial application of biodiversity resources. INBio has been a pioneer institution in establishing research agreements to study chemical substances and genes present in plants, insects, and marine

organisms and microorganisms, which might be used by the pharmaceutical, medical, biotechnology, cosmetics, food, and agricultural industries.

13. Although INBio is a national initiative in terms of its sphere of action, it has also become part of an international effort aimed at integrating biodiversity conservation and economic development. The application of scientific knowledge on biodiversity to economic activities such as ecotourism, medicine, and agriculture, as well as the development of mechanisms for contracting environmental services, exemplify this effort to integrate the two objectives.

Implementation Arrangements

14. **Project Coordination.** Because the activities financed by the project are central to FONAFIFO's responsibilities, FONAFIFO would not create a distinct Project Coordinating Unit. Rather, utilizing implementing arrangements successfully executed during the Ecomarkets Project, FONAFIFO's Executive Director would function as Project Coordinator, with assistance from staff with the appropriate specialties. FONAFIFO would maintain separate project accounts and retain strict financial controls and contractual authority over all components, while routine supervisory authority over contractual staff, material inventories, and daily work programs would be undertaken through existing systems within FONAFIFO.

15. **FONAFIFO Responsibilities.** FONAFIFO's direct responsibilities under the Project would include the implementation of project Subcomponents 1A, 1B, 1C, 1D, 2A, 2D, and 3C (see Annex 4: Project Description Summary). FONAFIFO, in coordination with identified local NGOs, will also be responsible for the implementation of project Subcomponents 2B (modifications to contracts and contracting arrangements), 2C, (environmental services monitoring), 3A (support to small and medium-sized landholders in participating in the PSA Program), and 3B (pilots for increased community participation in watershed management through PSA). In terms of functions, FONAFIFO would be responsible for:

- Administering project funds based on guidelines established by the Bank, including: the periodicity of reports, auditing, control, and information systems;
- Approving, executing, and evaluating the project's programs and plans;
- Managing personnel assigned to the project by FONAFIFO;
- Administering assets and services assigned to the project for activities based at FONAFIFO;
- Supervising work done at FONAFIFO or work that is part of FONAFIFO's program;
- Organizing, publishing, and distributing information and results generated by the project according to the characteristics and needs of its users;
- Coordinating, in conjunction with SINAC and within the limits of FONAFIFO's competencies, the operations of NGOs in support of the project; and
- Developing permanent monitoring and evaluation mechanisms for the program, together with other organizations.

16. **SINAC Responsibilities.** SINAC would be responsible under the Project for:

- Defining and approving the priority areas for PSA contracts within the GRUAS2 biological corridors, and the type of PSA contracts to implement in them (e.g., forest

protection, agroforestry, reforestation), taking into account internationally-recognized guidelines for biodiversity conservation.

- Organizing, publishing, and distributing, through the programs or processes in the individual CAs or through SINAC's central office, information and results generated by the project according to the characteristics and needs of CA users.

17. **FCB Responsibilities.** The Biodiversity Conservation Trust Fund (FCB) would be responsible under the Project for:

- Defining the priority areas in which to invest in biodiversity conservation through the PSA Program;
- Defining the amount of the payments for environmental services for each priority area in order to maximize its biodiversity conservation efforts;
- Requesting and approving annual reports of FONAFIFO regarding the investments in PSA made by the fund.

18. **Nongovernmental Organizations.** FONAFIFO lacks field presence for purposes of PSA promotion, environmental services monitoring, and provision of technical assistance to individual small and medium-sized landholders. For these purposes, local NGOs would be contracted to participate in the project. NGOs willing to provide technical assistance to individual small and medium-sized landholders would be prequalified by FONAFIFO based on legal registration, extent of local activity, and evaluation of capacity in the above program elements (i.e., promotion through sponsoring farmer-to-farmer exchanges and assisting with the application process; monitoring of PSA contract compliance; and technical assistance in land titling, identification of livelihood alternatives, and implementation of forestry activities). There would be two levels of NGOs—those responsible for direct outreach to landholders but lacking in technical capacity, and those with the technical strengths to assist landholders. Assistance to the first group of NGOs would include expertise required to strengthen their capacity. The second group of NGOs would receive support through contracts for specific services to small and medium-sized landholders. Biodiversity monitoring would be carried out in coordination with INBio, and the design and dissemination of PSA contract changes, and the definition and implementation of policies to increase the participation of small and medium-sized landholders in the program would be carried out in coordination with ONF.

Project Organizational Structure

19. **Direction.** The principal direction for the proposed project would reside in the FONAFIFO Board of Directors, which would delegate executive responsibility to the Executive Director, supported by the executive divisions (primarily, Administration, Environmental Services, and Fund Raising). The Board of Directors would approve annual work plans and global proposals presented by the Executive Director and ensure that the organizational structure of the institution continues to comply with program requirements.

20. A FONAFIFO–ONF Committee would serve as the main link between the principal activities of the two institutions. The Committee, meeting twice a year, would review and approve policies and actions oriented towards increasing the participation of small and medium-sized landholders in the PSA Program. Furthermore, it would serve as a forum for discussion, analysis, and policies for increasing the participation of small and medium-sized landholders in the program, and implementing necessary changes in PSA contracts to achieve said goals.

Regular membership would include the Executive Director of FONAFIFO, the Executive Director of ONF, the Coordinator of the PSA Program in FONAFIFO, and a representative of a third-level environmental NGO. The Director of FONAFIFO, as Project Coordinator, would serve as Executive Secretary.

Annex 7: Financial Management and Disbursement Arrangements
COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

Organizational arrangements

1. The Loan Borrower will be the Republic of Costa Rica, represented by the Ministry of Finance (*Ministerio de Hacienda*). The GEF Grant Recipient will be the National Forestry Finance Fund (*Fondo Nacional de Financiamiento Forestal*, FONAFIFO). Overall project coordination and administration will fall under FONAFIFO, whose Administrative Area Coordination unit (CAA) will be directly in charge of financial management (FM) matters, a role that it currently plays with respect to the Ecomarkets Project (Loan 4557-CR and GEF Grant 23681-CR).
2. The fact that FONAFIFO has ongoing experience managing projects financed by the World Bank, for which it makes use of suitable administrative structures and systems, puts it in an advantageous position to take over, with relative ease, the FM tasks of the proposed project. These will basically include: (i) budget formulation and monitoring; (ii) cash flow management (including processing loan withdrawal applications); (iii) maintenance of accounting records, (iv) preparation of interim and year-end financial reports, (v) administration of underlying information systems, and (vi) arranging for execution of external audits.
3. For the purposes of fund management, FONAFIFO entered into a trust fund agreement (Fideicomiso 544, in effect since 199) with the Banco Nacional de Costa Rica (BNCR). The Ecomarkets Project funds are deposited and paid out of bank accounts managed by the Fideicomiso 544 -always on the basis of instructions received from FONAFIFO-. By the time of the preparation mission it was not clear, however, whether this arrangement would continue for the new Loan [pending item for appraisal].
4. Staffing. In FONAFIFO, staff capacity and structure are adequate for project FM purposes. However, the prospective increase in transactions may call for additional staff assistance, which would be financed by the project.

Budget Planning

5. The project's annual budget formulation and monitoring processes will fall under FONAFIFO's overall "Plan-Budget", which in turn should conform to applicable local rules, i.e. the technical norms for de-concentrated entities and trust funds subject to fiscal control of the Controller General (CGR).

Accounting and Financial Reporting

6. **Accounting policies and procedures.** The main FM regulatory framework for the project will consist of the country's Financial Management and Public Budgets Law and Internal Control Law, their regulations, and FONAFIFO's internal FM norms. Project-specific FM arrangements that are not contemplated in the cited documents will be documented in a concise FM section of the project's operational manual. Among others, specific reference will be made to: (i) the contractual and payment terms of the PSA Program; (ii) the internal controls related to the capitalization of the Biodiversity Conservation Trust Fund; (iii) the formats of project financial reports; and (iv) the audit terms of reference.

7. **Information systems.** FONAFIFO will operate financial transactions using its Integrated Project Administration System (SIAP), which contains modules for budgeting, PSA contracts, asset inventory, treasury and accounting, among others.
8. **Financial Reports.** On a semestral basis, FONAFIFO will prepare and submit to the World Bank an unaudited interim financial monitoring report (FMR) 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 special account activity statement. The FMRs will be submitted not later than 45 days after the end of each semester.
9. On an annual basis, FONAFIFO 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 FONAFIFO's assertion that loan and grant funds were used in accordance with the intended purposes as specified in the financing agreements. These financial statements, once audited, will be submitted to the World Bank not later than six months after the end of the Government's fiscal year (which commences on January 1 and ends on December 31).
10. The supporting documentation of the interim and annual financial statements will be maintained in FONAFIFO's and BNCR's premises, as applicable, and made easily accessible to World Bank supervision missions and to external auditors.

Flow of Funds

11. **World Bank Disbursement Method.** Loan and grant proceeds will be withdrawn by FONAFIFO using the advance method with supporting documentation based on statements of expenditures (SOEs). During implementation, FONAFIFO will sustain satisfactory FM arrangements and submit acceptable audited financial statements by their due date. If FONAFIFO does not continue to meet these criteria, the supporting documentation requirements will be changed to records only (provided the World Bank does not suspend disbursements because of non-compliance with the obligation to maintain an adequate FM system).
12. **Other Procedures.** The use of reimbursement and direct payments may be needed during peak PSA periods or for capitalization of the Biodiversity Conservation Trust Fund, should balances in the designated accounts not suffice.
13. **World Bank Designated Accounts.** By the time of the preparation mission, a decision had not been made on the location of the designated accounts. There are two options [pending item for appraisal]:
- As with the Ecomarkets Project, the *Fideicomiso 544* would open and maintain (following FONAFIFO's instructions) segregated accounts in US Dollars in the BNCR exclusively for loan and grant proceeds.
 - *Hacienda* would open and maintain (following FONAFIFO's instructions), subaccounts of the national treasury single account exclusively for loan and grant proceeds. These would function as pooled designated accounts with subaccount-specific records and statements. *Hacienda* already has a functioning information system that allows the operation of this model.

14. Under either option, after the conditions of effectiveness have been met and the designated accounts have been opened, FONAFIFO will submit its first disbursement requests to the World Bank for the advances. For subsequent withdrawals, FONAFIFO will submit each disbursement request along with the SOE documenting eligible expenditures made. At any time, the undocumented advances to the designated accounts cannot exceed the authorized allocations to be established in the World Bank's Disbursement Letters.

15. **Flow of Funds – In General.** On a regular basis, preferably once per week, FONAFIFO will instruct the transfer of funds from the Designated Accounts to the Project Operational Account in Colones, in the amount of documents pending payment; i.e., transfers to the Operational Account will only be to cover accrued eligible expenditures. The ensuing payments to the providers of goods and services would be made less than 30 days from the day the amount was drawn from the Designated Accounts.

World Bank Disbursement Schedules

World Bank LOAN		
Expenditure Category	Amount (US\$)	% of Expenditures to be Financed
1. PSA Contract Payments	29,925,000	100%
2. Front-end fee	75,000	
Total	30,000,000	

GEF GRANT		
Expenditure Category	Amount (US\$)	% of Expenditures to be Financed
1A. Goods, consultant services, non-consulting services, training, and operating costs under Component 1	700,000	100%
1B. Capitalization of the Biodiversity Conservation Trust Fund	7,500,000	100%
2. Goods, consultant services (including audits), non-consulting services, training, and operating costs under Component 2	1,300,000	100%
3. Goods, consultant services, non-consulting services, and training under Component 3	500,000	100%
Total	10,000,000	

Audit Arrangements

16. **Internal Audit.** In the course of its regular internal audit activities vis-à-vis the institutional budget, MINAE's Internal Auditor may include project activities in its annual work plan. MINAE will provide the Bank with copies of internal audit reports covering project activities and financial transactions.

17. **External Audit.** The annual project financial statements prepared by FONAFIFO will be audited following International Standards on Auditing (ISA), by an independent firm (or the CGR, subject to prior agreement with the Bank) and in accordance with terms of reference, both acceptable to the World Bank. The audit opinion covering project financial statements will contain a reference to the eligibility of expenditures.

18. In addition, memoranda on internal controls (“management letters”) will be produced on a semestral basis.

19. The audit work described above can be financed with Grant proceeds. FONAFIFO will arrange for the first external audit within three months after loan effectiveness. Each audit engagement is expected to cover at least two years.

20. With respect to the Ecomarkets Project, the audit report as of December 31, 2004 was received by the Bank on time, was deemed acceptable, and contained unqualified (“clean”) opinions. Some internal control issues were reported.

Financial Management Action Plan

Action	Responsible Entity	Completion Date
Establish location of the special account and the use (or not) of Fideicomiso 544 arrangements for the new project	FONAFIFO/ Hacienda	By appraisal
Prepare and reach agreement on the format of project financial statements.	FONAFIFO/World Bank	Before negotiations
Prepare draft FM section of the project operational manual.	FONAFIFO	Before negotiations
Identify and, if possible, incorporate required incremental FM staff assistance.	FONAFIFO	Before effectiveness
Finalize audit TORs and short list of external auditors.	FONAFIFO	Before effectiveness
Contract external auditors.	FONAFIFO	3 months after effectiveness

FM Supervision Plan

21. A Bank FM Specialist should perform a supervision mission prior to effectiveness. After effectiveness, the FM Specialist must review the annual audit reports, should review the financial sections of the quarterly FMRs, and should perform at least one supervision mission per year.

Guidelines

22. The financial management and disbursement provisions of the Loan Agreement, the Operational Manual, and the arrangements described above are to be complemented by the following Bank documents:

- Financial Monitoring Reports: Guidelines to Borrowers
- Guidelines: Annual Financial Reporting and Auditing for World Bank-Financed Activities
- Disbursements Guidelines

Annex 8: Procurement Arrangements

COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

1. General

1. Procurement for the proposed project will 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 Legal Agreement. The general description of various items under different expenditure categories are described below. For each contract to be financed by the loan, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and time frame are agreed between the Borrower 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.

2. **Procurement of Goods:** Goods procured under this project will include: vehicles, office equipment, satellite images, software, software licenses, and GPS. Procurement will be done using the Bank's SBD for all ICB and SBD agreed with the Bank for NCB and shopping.

3. **Procurement of nonconsulting services:** Nonconsulting services under the project amount to approximately **US\$ X,XXX**, and these include the cost of the services of the asset manager and the communication services.

4. **Selection of Consultants:** Consulting services from firms and individuals required for the project include: Firms: Impact evaluation studies, and audits; individual consultants: supervision, legal assistance, elaboration of specific projects, design of communication campaign, elaboration of bioenergy projects, technical assistance to the PSA in general, and so forth. Short lists of consultants for services estimated to cost less than \$200,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

5. **Operational Costs:** Operational costs have been identified in the procurement plan. These costs have been reviewed and found acceptable to the Bank. They will be procured using the Bank's procurement procedures.

Table A.8.1: Thresholds for Procurement Methods and Prior Review

Expenditure Category	Contract Value Threshold ^a (US\$ thousands)	Procurement Method	Contracts Subject to prior Review
Goods	> 250	ICB	All
	50 to 250	NCB	First two each calendar year
	< 50	Shopping	First two each calendar year
	Regardless of value	Direct Contracting	All
Non-consulting services	> 500	ICB	All
	50 to 500	NCB	First two each calendar year
	< 50	Shopping	First two each calendar year

	Regardless of value	Direct Contracting	All
Consulting (firms) ^a	> 200	QCBS/QBS/FBS/LCS	All
	< 200	QCBS/QBS/FBS/LCS /CQS	All contracts above \$100,000
	Regardless of value	Single Source	All
Consulting (individual) ^a	Regardless of value	Section V in the Guidelines	None
	Regardless of value	Direct Contracting	Must be approved in the procurement plan otherwise subject to prior review

ICB = International competitive bidding

NCB = National competitive bidding

QCBS = Quality- and Cost-Based Selection

QBS = Quality-Based Selection

FBS = Fixed Budget Selection

LCS = Least-Cost Selection

CQS = Selection Based on Consultants' Qualifications

2. Assessment of the Agency's Capacity to Implement Procurement

6. Procurement activities will be carried out by FONAFIFO through a Project Coordinating Unit (PCU), located within FONAFIFO. FONAFIFO was created on XXXX, by an executive decree, as a decentralized institution, with administrative and financial autonomy. Although the PCU will be responsible for coordinating the activities of the project, to promote institutional strengthening the project procurement function will be integrated within the organizational structure of FONAFIFO. The project procurement team that was part of the Ecomarkets Project will continue performing the same function under the proposed project. The Project Operations Manual will include, in addition to the procurement procedures, the Standard Bidding Documents to be used for each procurement method, and model contracts for works and goods procured.

7. An assessment of the capacity of FONAFIFO to implement procurement actions for the project was carried out by the Bank's Procurement Specialist in October 2005. The assessment reviewed the organizational structure for implementing the project, previous performance of FONAFIFO under the Ecomarkets Project, and the volume and complexity of procurement actions for the new project. FONAFIFO, having demonstrated it had achieved an acceptable level of capacity to implement procurement, will carry out all procurement actions.

8. The overall project risk for procurement is **Low**.

3. Procurement Plan

9. The Borrower developed a Procurement Plan for project implementation which provides the basis for the procurement methods. This plan was agreed between the Borrower and the Bank on XXXX, 2005, and is available at FONAFIFO. It will also be available in the Project's database and on the Bank's external website. The Procurement Plan will be updated in agreement with the Project Team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

4. Frequency of Procurement Supervision

10. In addition to the prior review supervision to be carried out from Bank offices, the capacity assessment of the Implementing Agency has recommended yearly supervision missions to visit the field to carry out post-review of procurement actions.

Attachment 1:

Details of the Procurement Arrangement involving international competition

Goods and Works and Nonconsulting Services

(a) List of contract Packages which will be procured following ICB and Direct contracting:

Table A.8.2:					
2	3	4	6	7	8
Contract (description)	Estimated Cost (US\$)	Procurement Method	Domestic Preference (yes/no)	Review by Bank (prior / post)	Expected Bid-Opening Date

(b) ICB contracts estimated to cost above US\$250,000 for goods, ICB contracts estimated to cost above US\$1 million per contract for technical services, and all direct contracting will be subject to prior review by the Bank.

Consulting Services

a) List of Consulting Assignments with short list of international firms. None, since all consulting assignments are estimated to cost below US\$200,000.

(b) Consultancy services estimated to cost above US\$200,000 for firms and US\$100,000 for individual consultants per contract, and single-source selection of consultants will be subject to prior review by the Bank.

(c) Short lists composed entirely of national consultants: Short lists of consultants for services estimated to cost less than US\$200,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

Annex 9: Economic and Financial Analysis

COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

Introduction

11. The economic analysis of the project is constrained by the lack of quantitative data on the extent of benefits being generated by PSA activities. However, qualitative results show that the PSA program is likely to generate substantial national benefits in terms of improved hydrological services, biodiversity conservation, and carbon sequestration.

12. **Improved hydrological services.** Expectations that the PSA program would improve hydrological services are based on the view that forests are always beneficial to hydrological services. In fact, the evidence on the links between land use and forest is far from clear. Nevertheless, it is likely that activities funded by the PSA program (forest conservation and reforestation), are indeed generating valuable hydrological services.

- **Total water volume.** Although the belief that forests increase total water flow is well entrenched, most hydrologists agree that the opposite is true: the total annual volume of water usually decreases with an increase in forest cover in the upper catchments area. Total annual water volume is seldom a constraint in Costa Rica, however, as it receives an estimated 170 km³ of water annually, but consumes only about 6 km³.
- **Water quality.** Unlike total water volume, water quality is an important concern for many water users in Costa Rica—particularly for domestic water supply systems and for industrial users such as bottlers. It is well established that forested catchments usually produce much higher-quality water than non-forested catchments. Conserving watersheds thus allows downstream water users to make substantial savings in water treatment costs.¹¹
- **Sedimentation.** A well managed watershed will also usually have low levels of sedimentation, thus reducing damages to reservoirs and water intakes and avoiding the need for costly de-silting operations.
- **Reduced flood risk.** An important regulatory function of forests is that of reducing floods. While this impact is very limited in large-scale basins, it has been well-established in small basins (about 500 km²). Given the size of Costa Rica, most watersheds in the country are in this latter category.
- **Dry season water flow.** Although hydrologists agree that forest cover generally reduce total annual water flow in a watershed, there is no such consensus on its effect on dry season water flow, as increased infiltration and increased evapotranspiration act in

¹¹ In a well-documented case, New York City was able to save an estimated US\$8.5 billion to build and operate a water treatment plant by instead investing US\$1.5 billion on watershed conservation. In Costa Rica, the town of Heredia faced a similar situation. Like New York City, it does not filter its water as it emerges from the well-conserved upper watershed with very high quality. To ensure that this continues to be the case and avoid the need to build a costly filtration plant, Heredia is paying FONAFIFO to conserve its watershed through the PSA program, in conjunction with Florida Ice & Farm, a large bottler located in the same watershed.

opposite directions. Even though total water supply is generally ample, dry season water flow is an important issue in several areas of Costa Rica.

13. On balance, it seems likely that PSA-financed forest conservation and reforestation are indeed generating valuable hydrological services, notably by improving water quality and by reducing sedimentation and flood risk. The only significant uncertainty is over whether forest cover helps improve dry season water supply or not. Unfortunately, however, available data seldom allows these benefits to be quantified. By helping improve the monitoring of water flows, the project will help Costa Rica improve its understanding of how land use affects hydrological services, thus allowing it to better target its activities in the future.

14. **Targeting.** Appropriate land uses will only help if they are in the right place. Hydrological services, by their nature, are highly site-specific. Water users in a watershed only benefit from appropriate land uses in that same watershed—and only for those uses that are upstream of their water source. To examine the degree to which existing PSA contracts are likely to contribute to the provision of hydrological services, the number of contracts found in hydrologically important areas was examined. About 75,800ha located inside these areas received PSA payments under either the forest conservation or forest plantation contracts over the period 1999-2004 (other modalities added small amounts). This represents about 27% of the total area contracted by the program in the period. Thus a substantial part of the program's resources were spent in areas where few hydrological services were likely to be generated. Moreover, only a small part of the hydrologically important areas was being reached. It should be noted, however, that with the exception of payments based on contracts with individual water users (see below), hydrological importance has not been a targeting criterion for the PSA program to date. This will change with the implementation of the new water tariff, as the decree establishing it specifies that the resources it generates be spent to generate benefits for water users in their watersheds.

15. **Contracts with water users.** FONAFIFO has signed contracts with 17 different private sector and public sector water users (hydroelectric producers, bottlers, irrigated agriculture, domestic water supply systems, hotel), under which the water users pay for the conservation of the watersheds from which they draw their water (Table 9.1). These arrangements currently cover about 18,500 ha and generate US\$0.5 million annually. These agreements are significant in that they demonstrate that the willingness to pay for hydrological services is not just theoretical but real.¹² They also provide *prima facie* evidence that these water users perceive the benefits of conservation to exceed the costs. It is particularly significant that both the water service contracts that have come up for renewal have been renewed (see Table 9.1).

16. **Improved biodiversity conservation and scenic beauty.** Although biodiversity is primarily a global benefit, it also brings direct benefits to Costa Rica, in particular through its contribution to the booming tourism sector. Biodiversity in this sense includes scenic beauty (which is named as a separate service in Forest Law No.7575). The contribution that improved forest conservation makes to the tourism is not easily quantified, however. Efforts to generate financing from the local tourism industry have not yet borne fruit. In addition to tourism benefits,

¹² Several contingent valuation surveys have been carried out of consumer willingness to pay for improved hydrological services and/or for watershed conservation. For example, Barrantes (2001) found willingness to pay for watershed conservation in Heredia to be about C15.5/m³ (about C25.7 in 2004, or US\$0.05), or about C4,826/year, given mean monthly household consumption of about 23m³ (C7,100 in 2004, or about US\$14.5).

biodiversity can also provide some local benefits to agriculture, for example through improved pollination. A study of pollination patterns in the coffee-growing region of San Isidro del General, in the Province of San José, found that forest fragments in the San provide nearby coffee with a diversity of bees that increased both the amount and stability of pollination services. This suggests that coffee production near forest fragments might have higher yields, although this was not measured.

17. More concretely, FONAFIFO also receives direct funding from external sources to provide biodiversity conservation services. GEF grants to FONAFIFO can be considered a payment from the global community for the biodiversity services provided by Costa Rica's forests, for example. GEF has provided a US\$8 million grant through the Ecomarkets Project, of which US\$5 million were used to make payments in biodiversity priority areas. Conservation International (CI) is also paying for biodiversity conservation through the PSA Program. Under the new project, substantial additional funding for biodiversity conservation would be channeled through the Biodiversity Conservation Trust Fund (see Annex18).

18. **Carbon sales.** Costa Rica's PSA Program has increased carbon sequestration through reforestation and, to the extent that it has prevented deforestation, it has avoided carbon losses. However large these impacts, they only provide benefits to Costa Rica to the extent that the country is compensated for them. Over the years, Costa Rica has made substantial efforts to secure such compensation. In 1997, a consortium of Norwegian power producers paid US\$2 million for carbon sequestration. Under the agreement reached in Bonn in July 2001, however, only reforestation and afforestation are considered eligible under the CDM. As most of Costa Rica's emission reductions are generated by avoided deforestation rather than reforestation, no additional sales were made. With the Kyoto Protocol now ratified, Costa Rica is returning to the carbon market. It is working with NGO COOPEAGRI and the World Bank's BioCarbon Fund to develop a carbon sequestration project in the Brunca region (FONAFIFO, 2005). This project would sequester an estimated 589,000tCO₂e over 12 years through a mix of planting trees in agroforestry systems, natural regeneration, and commercial plantations on about 4,100ha. The proposal anticipates generating about US\$3.3 million from carbon sales, including US\$2.2 million from the BioCarbon Fund. Other such projects are also being considered, and it is hoped to generate a total of about US\$10 million in carbon sales during the next five years. Preliminary estimates show that carbon sales alone would not fully pay for the reforestation and afforestation activities required to generate CDM-compliant emission reductions. A new induced-natural regeneration modality is being introduced to provide a lower-cost alternative to timber plantations, but it too cannot be justified on the basis of carbon sales alone. , they substantially reduce the cost to the country of undertaking reforestation; thus, reforestation would be justified with only small amounts of additional benefits.

19. There is a small but growing market for voluntary contributions to conservation. Costa Rica's recognized "brand name" related to environmental conservation, combined with FONAFIFO's track record of developing environmental service markets, place FONAFIFO in a strong position for development new innovative market-based instruments for financing forest conservation. Already, some transactions have been negotiated on an ad hoc basis (e.g., an Italian NGO is paying to regenerate degraded forests in Costa Rica's Talamanca region). The proposed project will support a more systematic approach to these voluntary markets, including the development of a range of products (e.g., certificates to finance conservation in areas of globally significant biodiversity). Funds generated through these sales would help capitalize the

Biodiversity Conservation Trust Fund. This would ensure that conservation financed by these voluntary markets (which would otherwise be very unsustainable) be sustainable in the long term. That the Biodiversity Conservation Trust Fund would help ensure that conservation is in perpetuity is also expected to be an important ‘selling point’ for these voluntary markets. Although these voluntary markets are unlikely to generate very large amounts, they will help to finance conservation.

Costs of the PSA program

20. The costs to the country of undertaking the PSA-financed conservation activities include (i) the opportunity costs of foregone land uses, in cases where landholders would indeed have undertaken other land uses; (ii) any management or reforestation costs involved to comply with PSA contracts; (iii) the transaction costs of the PSA program, including FONAFIFO’s administrative costs and costs borne by program participants; (iv) any deadweight losses arising from the way in which financing is generated, and (v) any induced costs resulting from general equilibrium effects (for example, because of reduced agricultural production). Note that the payments themselves are not costs to the country, as they are transfers to other Costa Ricans.

- **Opportunity costs.** The opportunity costs of land placed under conservation are potentially the largest cost of the PSA program. This cost will only be borne, however, if land use change is indeed additional; if land would have been under forest even without the program, there is no opportunity cost. For areas that do participate, it is safe to assume that the opportunity cost of land, plus any necessary management costs and transaction costs borne by participants, are less than the payment offered (US\$40 to US\$45, depending on the year of enrollment). As some land would have been under forest even without the program, there is reason to believe that the opportunity costs are zero in at least part of the area enrolled.
- **Planting and management costs.** Planting and management costs are likely to be most significant in the plantation contract and the agroforestry contract. Estimates prepared for the COOPEAGRI carbon sequestration project in the Brunca Region show gross costs of about US\$1,200/ha for plantations and US\$290/ha for agroforestry (in present value terms, over a 20-year period with a 10 percent discount rate). In both cases, however, these costs would be offset by income from timber sales and, in the case of agroforestry, and induced on-site benefits from higher land productivity. Indeed, estimates prepared for the COOPEAGRI project show that both timber plantations and agroforestry would be profitable in those areas, even without PSA payments. Landholders with forest protection contracts also have to bear some additional costs, for fencing, sign-posting, and fire protection. These are generally low, and as noted above are already included in the overall estimate of costs not exceeding the payment.
- **Transaction costs.** By law, FONAFIFO’s administrative costs are limited to seven percent of payments, or about US\$3.15/ha/year. Likewise, program participants must bear transaction costs, particularly related to the cost of preparing and monitoring implementation of required management plans. The estimate transaction costs for forest conservation contracts is in the range of US\$5 – US\$ 12 per hectare per year., whereas transaction costs related to reforestation contracts is in the range of US\$12 – US\$28 per hectare per year during the five years that payments are received.

- **Other costs.** Estimating the broader costs that might be induced by the PSA program is difficult, as it would require a general equilibrium framework. One has attempted to do this using computable general equilibrium (CGE) model (Depro and others, 2005). It concludes that the program's gross costs to the country were \$12 million a year in 2005, rising to \$36 million a year by 2015 as additional areas are brought under conservation. The bulk of these costs represent opportunity costs.

Net benefits of the PSA program to Costa Rica

21. Determining whether implementation of the PSA program is beneficial for Costa Rica requires assessing whether total benefits exceed total costs. Table 9.2 summarizes the available information.

22. Although lack of quantitative data precludes a numerical analysis, it can be concluded that (1) in areas eligible for sales of verified emission reductions (VERs), income generated from VERs will cover the bulk of reforestation costs, meaning that only small amounts of additional benefits would be necessary for these activities to be economically justified; (2) in areas with significant numbers of water users, water benefits are likely to be sufficient by themselves to justify the PSA program's conservation activities; and (3) contributions by the GEF and other donors, through the Biodiversity Conservation Trust Fund, will compensate the country for the incremental costs of extending conservation efforts to areas of high biodiversity significance where funding from local services users and from carbon buyers is unavailable or insufficient. Thus it is likely that PSA program activities will be economically justified for the country. To help ensure that this is the case, the project is also supporting efforts to identify and prioritize areas most likely to generate valuable biodiversity benefits (thus increasing average service generation per dollar spent) and to differentiate and target payments so that they are more likely to result in land use change (thus reducing the cost per unit of service generation).

23. **Alternative approaches.** In the absence of the PSA program, the main alternative for Costa Rica to obtain the services the program generates would be to place additional areas under formal protection. In both cases, the opportunity costs of preserving a given plot of land would be the same.¹³ Differences must then be sought in other cost categories. The environmental services that would be generated would also be the same if the same plot is conserved, although the on-site benefits might differ.

- For land under the forest protection contract (the bulk of enrolled area), the management costs are generally low. In addition, there are about US\$3.15/ha in transaction costs to FONAFIFO and US\$5-12 in transaction costs borne by participants. Data provided by SINAC indicates that the recurring annual costs of protected area management vary US\$0.50/ha to as much as US\$20/ha. Note that this does not include the initial transaction costs involved in establishing protected areas. These figures suggest that the protected area approach would likely be relatively cheaper in many, but not all, cases than a PES approach when conserving existing forests.¹⁴

¹³ Just as payments to participants in a PES program are not considered an economic cost, payments made to purchase land from landholders are not either.

¹⁴ This was the conclusion of a more in-depth analysis of the comparison between PES and protected area approaches conducted during preparation of the Ecomarkets Project (World Bank, 2000). The protected area approach has a distinct cost advantage to the extent that it is able to secure land that is compact.

- For land under the timber plantation contract, the appropriate comparison is to land in protected areas that requires reforestation or natural regeneration. The costs of planting would likely be similar in both cases if reforestation is required, but where seed sources are adequate natural regeneration might be sufficient and would obviously be much cheaper. In the case of a PES approach, however, the timber benefits can be harvested; presumably this would not be possible if the same plot was placed in a protected area. As noted above, timber sales alone are likely to be sufficient to justify planting costs. In this case, the PES approach would be much more attractive than the protected area approach.
- Agroforestry land uses would presumably not be undertaken in a protected area. This would preclude the use of a practice that could allow some environmental services to be regenerated at a much lower cost than with full reforestation or natural regeneration.

Overall, it seems likely that PES is slightly more expensive than a protected area approach when it is applied to conserving existing forest, but that it is much cheaper when it is applied to restoring (fully, through reforestation or regeneration, or partially, through agroforestry) areas where forests have been lost.

24. **Financial cost-effectiveness.** Whatever its economic merits, the protected areas approach would be prohibitively costly in financial terms, as it would require compensating landholders for the full value of their land (rather than just for the difference between its value under an alternative land use compared to its value under a conservation use) and it would require the entire value of this compensation to be paid up front (rather than being paid annually, as under a PES contract). Indeed, Costa Rica still owes substantial amounts to landholders whose land was expropriated to create the current protected areas. Creating additional protected areas, and thus displacing their owners, would also be socially unacceptable.

25. **Poverty reduction.** Although PES programs like Costa Rica's PSA are not designed to be poverty reduction programs, the frequently high spatial correlation between areas that supply environmental services and poor areas create opportunities for PES to contribute to this objective. Studies of the biological corridors targeted for GEF-financed payments under the Ecomarkets Project—some of which overlap with watersheds targeted by water service payments—found them to be among the poorest areas in Costa Rica. Studies of the impact of the PSA program on participants have been ad hoc and unsystematic to date, however, so that it is hard to determine how significant it has been. As participation is entirely voluntary, however, there is no reason to expect any substantial adverse impacts.

Conclusions

26. Costa Rica's PSA program has relatively low costs, and likely generates a wide variety of benefits. In areas where water users are already paying for hydrological services, there are prima facie reasons to believe that water benefits alone exceed the costs. In other areas, costs are harder to compare with benefits as most benefits are unquantified. Improved targeting of enrolled areas can increase the proportion of land likely to generate valuable benefits included in the program. The introduction of differentiated payments will also allow a much larger area to be included with a given budget, thus increasing benefits without increasing costs.

Table 9.1: Contracts for provision of hydrological services in Costa Rica's PSA program

<i>Company</i>	<i>Type of user</i>	<i>Watershed / Area</i>	<i>Area covered by contract (ha)</i>	<i>Actual area enrolled as of end 2004 (ha)</i>	<i>Contribution to payment to participating landholders^{a,b} (US\$/ha/yr)</i>	<i>Contribution to FONAFIFO administrative costs</i>	<i>Comments</i>
Energía Global	Hydropower producer	Río Volcán and Río San Fernando	2,000	1,493	12	0	Signed 1997, renewed 2002
Platanar S.A.	Hydropower producer	Río Platanar	750	396 354	15 30 ^c	5% of payment	Signed 1999, renewed 2004; addendum on non-titled landholders signed 2000 for 10 yrs
CNFL	Hydropower producer	Río Aranjuez Río Balsa Río Laguna Cote	4,000 6,000 900	2,424 4,567 501	40 40 40	\$13/ha yr 1 \$7/ha yrs 2-5	Umbrella agreement signed 2000, with addendums covering specific watersheds
Florida Ice & Farm	Bottler	Río Segundo	1,000	440	45 ^d	\$29/ha yr 1	Signed 2001, later modified to use CSA
Heredia ESPH	Municipal water supply	Río Segundo			22 ^d	\$4/ha yr 1	Signed 2002 using CSA
Azucarera El Viejo	Agribusiness (irrigated)	Acuífero El Tempisque	550	0	45	7%	Signed 2004 using CSA
La Costeña SA	Agribusiness (irrigated)	Acuífero de Guanacaste	100	0	45	7%	Signed 2004 using CSA
Olefinas	Agricultural supplies	Acuífero de Guanacaste	40	40	45	7%	Signed 2004 using CSA
Exporpac	Agribusiness (irrigated)	Acuífero de Guanacaste	100	0	45	7%	Signed 2005 using CSA
Hidroeléctrica Aguas Zarcas	Hydropower producer	Río Aguas Zarcas	1,666	0	30	7%	Signed 2005 using CSA
Desarrollos Hoteleros Guanacaste	Tourism	Acuífero de Guanacaste	925	0	45	7%	Signed 2005 using CSA

Notes: a. In cases where contracts have been renewed, information shown on area covered and payment is that under the latest contract.
b. Participating landholders receive the standard PSA contract payments (currently US\$42/ha/yr) except in Río Segundo (see below)
c. Platanar pays US\$15/ha/yr for contracts with landholders with land titles (285ha at end 2004), with FONAFIFO paying the rest; It pays US\$30/ha/yr for contracts with landholders without land titles (385ha at end 2004), who are not otherwise eligible for PSA contracts
d. To overcome high local opportunity costs, payments by Florida Ice & Farm and Heredia ESPH are cumulated, so that landholders are paid US\$67/ha/yr

Source: Pagiola (2005), based on FONAFIFO data

Table 9.2: Costs and benefits of the PSA program

<i>Modality</i>	<i>Additional?</i>	<i>Costs</i>	<i>Total (US\$/ha/yr)</i>	<i>Benefits</i>	<i>Comments</i>
Forest protection	Yes	▪ Opportunity cost		▪ Improved water quality, reduced sedimentation	In some cases, sufficient by itself to justify total costs Potential GEF or other donor financing in priority areas Not eligible under CDM Unquantified contribution to tourism
		▪ Management cost	< 45	▪ Biodiversity conservation	
		▪ Transaction cost for participants			
		▪ Transaction cost for FONAFIFO	3	▪ Avoided C emissions ▪ Preservation of scenic beauty	
	No	▪ Transaction cost for participants	5-12	None, except in 'insurance' sense	In some cases, willingness to pay by water users for insurance function
		▪ Transaction cost for FONAFIFO	3		
Timber plantation	Yes	▪ Opportunity cost	< 900	▪ Timber sales ca 2,100	Potential GEF or other donor financing in priority areas Potentially eligible under CDM
		▪ Planting and management cost	1,200	▪ Improved water quality, reduced sedimentation	
		▪ Transaction cost for participants	*	▪ Biodiversity conservation	
		▪ Transaction cost for FONAFIFO	12-28	▪ Increased C sequestration	

Notes: * Included with opportunity cost

27. In general, although the exact nature of the links between land use and hydrological services are not well understood, it is likely that activities funded by the PSA program (forest conservation and reforestation), are indeed generating valuable hydrological services:

- **Total water volume.** Although the belief that forests increase total water flow is well entrenched, most hydrologists agree that the opposite is true: the total annual volume of water usually decreases with an increase in forest cover in the upper catchments area. Total annual water volume is seldom a constraint in Costa Rica, however.
- **Dry season water flow.** Although hydrologists agree that forest cover generally reduce total annual water flow in a watershed, there is no such consensus on its effect on dry season water flow, as increased infiltration and increased evapotranspiration act in opposite directions.¹⁵
- **Water quality.** Unlike total water volume, water quality is an important concern for many water users in Costa Rica—particularly for domestic water supply systems and for industrial users such as bottlers. It is well established that forested catchments usually produce much higher-quality water than non-forested catchments. Conserving watersheds thus allows downstream water users to make substantial savings in water treatment costs. In a well-documented case, New York City was able to save the estimated US\$8.5 billion cost of building and operating a water treatment plant by spending US\$1.5 billion on watershed conservation (Appleton, 2002; National Research Council, 2000; Pires, 2004). In Costa Rica, the town of Heredia faced a very similar situation. Like New York City, it does not filter its water as it emerges from the well-conserved upper watershed with very high quality. To ensure that this continues to be the case, Heredia is paying FONAFIFO to conserve its watershed through the PSA program, in conjunction with Florida Ice & Farm, a large bottler located in the same watershed (see Table 9.2).
- **Sedimentation.** A well managed watershed will also reduce sedimentation, thus reducing damages to reservoirs and water intakes.
- **Reduced flood risk.** An important regulatory function of forests is that of reducing floods. While this impact (contrary to popular perception) is very limited in large-scale basins, it has been well-established in small basins. Given the scale of Costa Rica, most watersheds in the country are in this latter category.

28. Despite the limitations of our understanding of links between land use and hydrological services, it is thus likely that PSA-financed forest conservation and reforestation are indeed generating valuable hydrological services, notably by improving water quality and by reducing sedimentation and flood risk. That forests reduce total annual flow is unlikely to be a problem in Costa Rica. The only significant uncertainty is over whether forest cover helps improve dry season water supply or not. Unfortunately, however, available data seldom allows these benefits

¹⁵ For example, Bruijnzeel (2004) argues that “that the compaction of topsoil by machinery or overgrazing, the gradual disappearance of soil faunal activity, and the increases in area occupied by impervious surfaces such as roads and settlements, all contribute to gradually reduced rainfall infiltration opportunities in cleared areas. As a result, catchment response to rainfall becomes more pronounced and the increases in storm runoff during the rainy season may become so large as to seriously impair the recharging of the soil and groundwater reserves feeding springs and maintaining baseflow. In other words: the ‘sponge effect’ is lost. When this critical stage is reached, diminished dry season (or ‘minimum’) flows inevitably follow despite the fact that the reduced evaporation associated with the removal of forest should have produced higher baseflows.”

to be quantified.¹⁶ By helping improve the monitoring of water flows, the project will help Costa Rica improve its understanding of how land use affects hydrological services, thus allowing it to better target its activities in the future.

Carbon

29. Costa Rica's PSA Program avoided considerable carbon loss and in fact has contributed significantly to an increase in carbon sequestration as the country's forest cover has recovered over the last 20 years. The reforestation modality of the PSA program has been an important factor in this sequestration, although the amounts captured are small relative to the potential.

30. When the PSA program was initiated, Costa Rica attempted to move beyond the project-by-project approach of the JI program to commoditize carbon emissions (Castro and others, 1997; LeBlanc, 1997; OCIC, 1999). It developed a standardized instrument, the Certifiable Tradable Offset (CTO), which represented an externally certified 1-tonne net reduction in carbon emissions. These emission reductions came from the estimated effects of the plantation and forest conservation activities financed by the PSA program. Contracts with PSA program participants specify that the rights to any resulting emission reductions belong to FONAFIFO. Measures taken to increase the instrument's credibility included auditing by SGS and the inclusion of a substantial margin in emissions. The principle of the approach was that investors seeking to acquire emission reduction credits need not develop a specific project to do so, but could simply purchase the desired amount of CTOs, an approach later extended to hydrological services through the CSA. Considerable effort was devoted to creating the CTO and ensuring it would be a credible instrument. The program got an early boost when a consortium of Norwegian power producers paid US\$2 million (including a contribution from the Norwegian Government) for 200,000 CTOs (Castro and others, 1997). This sale financed reforestation and forest conservation activities on about 52,000 ha, generating an estimated lifetime reduction in emissions of about 231,000 tons of carbon.

31. Under the agreement reached in Bonn in July 2001, however, only reforestation and afforestation are considered eligible under the Kyoto Protocol's Clean Development Mechanism (CDM). As most of Costa Rica's emission reductions are generated by avoided deforestation rather than reforestation, no additional sales of CTOs were made. With rules for Land Use and Land Use Change and Forestry (LULUCF) based carbon sequestration activities to be eligible under the CDM now agreed, Costa Rica is returning to this market. Through the proposed carbon activities of the project, FONAFIFO proposes to expand the scope of the PSA program in a specific area of the country. FONAFIFO will pay to the farmers the environmental services of biodiversity protection, protection of water resources and scenic beauty generated by the reforestation activities, and these payments will be complemented with the additional incomes coming from the carbon sales. The additional incomes from carbon sales will allow FONAFIFO: (i) to create a new PSA modality: reforestation of degraded lands through human induced promotion of natural seed sources (natural regeneration), and (ii) to improve the cash flow pattern typical of reforestation activities, to make it appropriate for small and medium-sized landholders needs. Ultimately the project will promote the development of a diverse landscape of

¹⁶ Fallas (2002) applies a flow model to the Rio Quebrada watershed in the Brunca region of Costa Rica and found that the net benefit of maintaining forest cover in terms of flow regulation and improvement in water quality was US\$108/ha.

land uses within the project area of influence in order to maximize social and environmental benefits, including the generation of carbon offsets.

Costs

32. The costs of the PSA program include (1) the opportunity cost of the land benefiting from the payment; (2) the transaction costs of the implementing agency (FONAFIFO) and of participants; (3) any management costs; and (4) reforestation costs, if applicable. These can be summarized in the following categories and represented in Table 9.2: (1) payments on conservation and management contracts; (2) FONAFIFO management costs; and (3) monitoring costs (which are subsumed under the 7% administrative cost of FONAFIFO). Conservation PSA contracts pay C21,000 each year. Reforestation contracts pay C269,500 over 5 years with a higher up front payment in the first years as described in Table 9.3. Agroforestry contracts, which were recently introduced, pay C387 per tree planted. This corresponds to about C154,800 colones/ha and is distributed over three years. Sustainable forest management contracts stopped in 2002 and now have a residual amount of payments that will soon finish and thus were not included in the analysis. FONAFIFO administrative costs (including monitoring) are at seven percent of the PSA payments. Average PSA costs were calculated by averaging conservation reforestation and agroforestry contract costs (see Table 9.3).

Years	PSA Reforestation Payments (C/ha)	PSA Conservation Payments (C/ha)	PSA Agroforestry Payments (C/ha)	Average PSA Payments (C/ha)	FONAFIFO Admin Cost (7%)	Average PSA Total Costs (7% Admin Cost)
1	134,750	21,000	100,620	85,457	5,981.97	91,439
2	53,900	21,000	30,960	35,287	2,470.07	37,757
3	40,425	21,000	23,220	28,215	1,975.05	30,190
4	26,950	21,000	-	23,975	1,678.25	25,653
5	13,475	21,000	-	17,238	1,206.63	18,444
Total	269,500	105,000	154,800	-	13,311.96	-

33. Reforestation and agroforestry, however do not provide the same benefits and are not comparable to those generated by national parks. Considering that approximately 86%, of the PSA program, in land area and dollar value, goes towards conservation payments the analysis uses this modality to undertake the cost-effectiveness analysis.

Cost-effectiveness indicator: national park establishment

34. As was the case with the analysis done for the Ecomarkets Project, the establishment of protected areas is used as the cost-effectiveness indicator in the analysis. This continues to be the appropriate means by which to compare alternatives policies to the PSA since the primary objective of both policies is forest conservation.

35. **Costs.** Costs were collected for five national parks in Costa Rica. The five parks were selected to span a range of characteristics including: large parks (La Amistad); new parks

(Barbilla); old parks (Volcán Poas); parks with management problems (Corcovado); and parks with conflicts with neighboring communities (Braulio Carrillo). Average protected area costs were calculated by averaging the costs of these five parks.

36. At each park, investment and operating costs were collected. Investment costs included: land; buildings; vehicles; and boundary demarcation. Vehicles were assumed to be replaced every five years and boundary demarcation to occur every three years. Operating expenses included: salaries; per diems; training; uniforms and basic equipment; fire breaks; trails and roads; educational materials; radios and other equipment; and maintenance of buildings, roads, and vehicles. In addition, 25 percent was added for administrative and other operating costs. Total costs were then divided by the number of hectares in the park for comparison with the ESP program.

Methodology

37. The discounted cost will be used to compare PSA and protected area costs. A long time horizon is used to ensure that terminal values do not significantly affect the results. It is expected that land values will have a large impact on the analysis. The financial cost-effectiveness analysis will include land costs while in the economic cost-effectiveness analysis it will not. This is due to the assumption that the opportunity cost of the land is equal for both the national parks and the PSA program.

Assumptions

- PSA program and national parks generate equal quantities of environmental services on a per hectare basis
- PSA program and national parks are equally effective at actually conserving forest.
- If the opportunity cost of land is equal in both national parks and the PSA program, then converting the financial cost-effectiveness analysis to the economic cost-effective analysis simply requires dropping land costs from national parks.

Conclusion

38. What is being sought by the project is to maximize land use change with the highest conservation benefits.

39. The project will focus on ensuring a continued flow of funds for sustainable natural resource management and rural development through a water tariff, the sales of verified emission reduction and a dedicated tax on the consumption of fossil fuels. In addition, it will focus on ensuring a continued flow of funds to achieve its global environmental objective by creating an endowment fund – Biodiversity Conservation Trust Fund – to conserve biodiversity of global significance through the PSA Program.

40. The many benefits that the project generates will undoubtedly continue to make a positive contribution to Costa Rican society. The Ecomarkets Project is widely acknowledged as having catalyzed and promoted favorable land use change across Costa Rica. In part this success is due to the flexibility the country and its institutions (e.g., FONAFIFO) has shown in adapting to new situations or issues raised during implementation. The project will support the country in addressing two of these areas: (1) an improved geographic targeting; and (2) a better choice of

practices. These respond to recommendation 1 and 2 of the independent Blue Ribbon Panel evaluation of the Ecomarkets Project respectively. Recommendation 1 suggests that “GoCR-MINAE-FONAFIFO should continue to improve targeting of contracts to maximize the environmental benefits per dollar expended”. While recommendation 2 suggests that “GoCR-MINAE-FONAFIFO should increase its efforts to encourage greater contiguity or concentration of contracts in biological corridors”.

Annex 10: Safeguard Policy Issues

COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

Summary Environmental Analysis:

1. **Overview.** This project is intended to be entirely positive from an environmental standpoint. It seeks to improve existing, and develop new, systems of payments for environmental services, thereby encouraging rural landholders to maintain or enhance the vegetative cover on their parcels, in terms of hydrological functions, biodiversity, carbon storage, and/or scenic beauty. The only possible adverse environmental impacts would be strictly unintended; the project design includes mechanisms to prevent any such negative impacts during implementation.

2. **Project Summary.** The project would expand and improve PSA systems in Costa Rica through (i) renewal of existing PSA contracts (and their associated land use agreements); (ii) establishing new PSA contracts in areas of high priority for biodiversity, watershed conservation, or reforestation for carbon storage (depending on the funding source); (iii) expanding and diversifying the funding base for Costa Rica's PSA Program; (iv) strengthening PSA administration and field monitoring; and (v) mobilizing NGOs to assist eligible smaller landholders with their voluntary participation in the PSA Program. See Annex 4 for a more detailed description of each project component.

3. **Project Expenditures.** The overwhelming majority (about 90 percent) of project funds (including IBRD loan, GEF grant, and Costa Rican counterpart funds) would go to landholders as PSA, either during project implementation or (in the case of the project-supported Biodiversity Conservation Trust Fund) later in the future. The remaining project funds would go mostly to technical assistance, consulting services, training, promotional campaigns, and institutional strengthening needed to establish and strengthen PSA Programs and their long-term funding mechanisms. The project would purchase vehicles, office equipment, satellite images, software, GPS units, and other equipment and supplies needed for the institutional strengthening of FONAFIFO and collaborating entities. No civil works are expected to be procured under this project. The main on-the-ground environmental impacts associated with project expenditures would thus be the maintenance of desired vegetative cover on the rural landholdings of PSA recipients.

4. **Positive Environmental Impacts.** The project is expected to be overwhelmingly positive from an environmental standpoint, by using PSA to induce rural landholders to maintain the forests or other natural vegetation on their lands, thereby (i) conserving globally significant biodiversity, (ii) maintaining or improving hydrological functions, (iii) reducing greenhouse gases by storing carbon, and (iv) preserving scenic beauty (vital for Costa Rica's economically important tourism sector). The planned project sites all contain substantial areas of forests and other vegetation that are important for these environmental services (biodiversity, water, carbon, and scenery). See Annex 15 for a description of how these sites will be chosen (particularly from a biodiversity conservation standpoint) during project implementation.

5. **Potential Adverse Environmental Impacts.** Any environmentally adverse consequences from this project would be both strictly unintended and highly unlikely.

Nonetheless, it is important to assess what these adverse impacts might possibly be, in order to ensure that mechanisms will be in place to prevent or minimize them. PSA Programs are, by their nature, expected to be strictly positive from an environmental standpoint, since they pay landholders to protect or enhance the natural environment on their lands. However, the following types of unintended potential adverse impacts were considered during the implementation of the Ecomarkets Project and the preparation of the proposed project, and found not to be significant risks:

- **Tradeoffs between Different Environmental Objectives.** The conservation of biodiversity is highly compatible with the maintenance of the project's other targeted environmental services, involving water supply, carbon storage, and scenic beauty. Throughout implementation of the Ecomarkets Project, no conflicts whatsoever were found between the provision of all four of these environmental services under the PSA forest protection modality. In the case of forestry plantations under the reforestation PSA modality, these plantations (typically patchy monocultures, of native or exotic species) harbor relatively little biodiversity of conservation interest, but are nonetheless environmentally positive overall because they (i) provide significant water supply, carbon storage, and often scenic benefits; (ii) normally replace degraded pastures or marginal cropland of even lower biodiversity value; (iii) provide landholders with strong incentives to control agricultural burning (which often gets out of control and severely damages areas of biodiversity-rich natural forest, especially in Pacific slope and highland areas); and (iv) reduce the pressures for illegal logging of natural forests by supplying Costa Rica's wood products industries with raw material. In the case of the agroforestry PSA modality, adding trees to existing cropland or pastures in Costa Rica is inherently positive from an environmental standpoint, since virtually all of Costa Rica (except wetlands and areas of recent volcanic activity) used to be forested. The proposed project will use technical criteria to improve the biodiversity value of agroforestry lands under PSA contracts, particularly within biological corridors that need to maintain some degree of wooded connectivity between protected areas or other large, forested patches (see Annex 15).
- **Misallocation of PSA Funds.** Since environmental service payments are popular with PSA recipients as well as politicians, there might exist pressures to provide these payments even for land uses that are not optimal (nor even desirable) from an environmental standpoint. One such risk could be the continuation of PSA payments to landholders who have not complied with their contracts (and cleared or degraded the natural vegetation). This risk was successfully avoided during implementation of the Ecomarkets Project through rigorous compliance monitoring, which will be continued and (as needed) improved under the proposed project.
- **Perverse Incentives.** The potential for receiving PSA money might induce strategic behavior among rural people that could be environmentally damaging. Historically, Costa Rica's reforestation program involved a serious perverse incentive for landholders to clear the original natural forest in order to re-plant (typically with monocultures of non-native species) and claim a generous reforestation subsidy. However, this program was reformed in 19__ and there is now no legal way to obtain PSA (or other governmental) payments through deforestation. Under the current PSA reforestation modality, the only lands eligible for PSA payments are lands which were deforested prior to the cut-off date

of FILL IN and are typically covered by low-quality pasture or marginal farmland. Another conceivable perverse incentive could be for people to intentionally settle within a watershed, biological corridor, or protected area buffer zone targeted for PSA, thereby clearing forested land to establish their claim. However, this risk has been successfully avoided during the Ecomarkets Project through FONAFIFO's requirement that participating landholders must have either a title, or proof of having occupied the land for at least 10 years. In the case of private inholdings within protected areas, to receive PSA the landholder must have occupied the land before its legal designation as a protected area.

6. **PSA Operating Rules.** FONAFIFO's existing operating rules for PSA Programs seek to prevent any types of unintended negative environmental impacts, including those mentioned above. The Operational Manual for the proposed project and Biodiversity Conservation Trust Fund rules will incorporate and improve (as needed) these rules, to include (i) clear eligibility and prioritization criteria for the types of lands and landholders that could receive PSA contracts and (ii) review procedures and specific responsibilities within FONAFIFO to ensure that all contracts are awarded, administered, and supervised in accordance with these criteria.

Compliance with Safeguard Policies

7. This project is designed to comply fully with the letter and spirit of all applicable World Bank Safeguard Policies, as indicated below.

8. **Environmental Assessment.** This project is classified as Category B, the appropriate classification for projects which involve natural habitats, but would not lead to their loss or degradation (as is explained in BP 4.04, Paragraph 2). This category is consistent with most other conservation and natural resource management projects in Latin America and the Caribbean (including the PSA projects in Mexico and El Salvador). In accordance with this classification, the required free-standing Environmental Assessment (EA) report will consist of three volumes, which cover (i) the environmental and social impacts of PSA for watershed conservation; (ii) the environmental and social impacts of reforestation with carbon storage objectives; and (iii) the draft GRUAS 2 biodiversity study (see Annex 15). The three volumes will be publicly disclosed by the Bank's InfoShop and by FONAFIFO (upon request to interested Costa Ricans) prior to appraisal. The first two volumes will assess the above-mentioned (and any other) risks of adverse environmental impacts, which are all expected to be rather minor. As part of EA preparation, public consultation meetings are being held about the project design (including its environmental aspects) with a broad range of stakeholders, including representatives of individual landholders, indigenous and other communities, conservation and other NGOs, water user and tourism interests, and relevant national and local government entities. The EA report volumes will provide further details on public consultations held, stakeholder organizations participating, and the main issues raised.

9. **Natural Habitats and Forests.** This project is fully compatible with both the Natural Habitats OP/BP 4.04 and the Forests OP/BP 4.36. It would not support any clearing or degradation of forests or other natural habitats. On the contrary, it is intended to promote the conservation and restoration of forests and other natural vegetation, through the mechanism of providing PSA to participating landholders. In the case of the reforestation and agro-forestry PSA modalities, compliance with the Bank's Forests Policy will be ensured through FONAFIFO's operating rules, as described in the Operational Manual. Biodiversity-related

operating rules will also be provided for the new Biodiversity Conservation Trust Fund; they will be discussed during grant negotiations and finalized prior to GEF grant disbursement.

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

11. **Cultural Property.** This project would not trigger the mitigation requirements of the Bank's Cultural Property Policy (OPN 11.03). The project would not finance civil works, so there will not be the earth movement that is sometimes associated with archaeological or paleontological chance finds. Moreover, the maintenance of natural vegetation on lands covered by PSA contracts is not likely to affect archaeological or other sites of cultural importance. The conditions of PSA contracts would not preclude low-impact archaeological or paleontological research or salvage activities.

12. **Involuntary Resettlement.** This project does not trigger the Involuntary Resettlement OP/BP 4.12, because (i) no taking of land or other assets would take place; (ii) no physical relocation of anyone would be required; and (iii) all PSA contracts (and the land use restrictions specifically associated with them) are strictly voluntary with each landholder. In the great majority of cases, the landholders receiving PSA will be individuals. In the remaining cases, the landholders will be indigenous communities with collective land titles. In these cases of collective decisionmaking (where the indigenous community decides to restrict the consumptive use of its own natural resources to obtain a greater overall benefit), the Involuntary Resettlement Policy does not apply (as is explained in OP 4.12, Footnote 6). The Action Plan for Indigenous Participation (see below) will indicate the criteria and procedures used by FONAFIFO to help ensure that the decisionmaking process undertaken by any community prior to agreeing to a PSA contract (and its associated land use restrictions) is legitimate, transparent, and fair to its members (including the poorest).

13. **Indigenous Peoples.** Because the PCN Review Meeting took place prior to July 1, 2005, the proposed project is covered under OD 4.20, rather than the recently approved (and substantively similar) OP/BP 4.10. Although the majority of PSA contracts (96 percent) and land area (88 percent) are with individual landholders, the Ecomarkets Project provided substantial PSA opportunities to indigenous communities. To date, at least 25,125 ha of indigenous community lands are enrolled in PSA contracts (a 788 percent increase over the 2,850 ha target under the Ecomarkets Project). The Ecomarkets Project prepared a Monitorable Action Plan for Indigenous Participation (in satisfaction of the requirements of OD 4.20 for an IPDP). The proposed project will include an updated version of this Action Plan, taking into account (i) the positive experiences under the Ecomarkets Project; (ii) the Government's increased focus on addressing rural poverty where feasible within the scope of PSA contracts, including with participating indigenous communities; and (iii) the results of consultations being held with indigenous communities, both as part of the Social Assessment Study and under the above-mentioned two environmental studies of PSA for watershed conservation and reforestation for carbon storage.

Summary Social Assessment

14. A Social Assessment is currently underway and will be completed prior to project appraisal.

15. **Participants and Beneficiaries.** The populations and communities that will be affected by the project fall into two main categories: (i) Environmental services users that will help finance the PSA Programs and (ii) environmental services providers who will be compensated for maintaining or adopting desirable land uses and practices. Both service users and service providers are beneficiaries of PSA Programs.

16. The financing or service user side of the relationship includes users of hydrological services (municipalities, utilities, irrigators, individual consumers), biodiversity (tourism companies, national and international conservation organizations), and carbon sequestration (the Kyoto Clean Development Mechanism and the international community overall). Recipients of the PSA payments—the environmental service providers—include owners of forested land in the targeted conservation areas, including protected area buffer zones, biodiversity corridors, and priority watersheds.

17. **Socioeconomic Risk Mitigation.** The risk of negative socioeconomic impacts on environmental service provider as well as user groups is strongly mitigated by the inherent theoretical foundation of the PSA concept—that these systems, and particularly their long-term sustainability, rely on voluntary participation based on the perceived self-interest and well-being of the participants. That is, users will pay no more for the services than the perceived benefits they provide, while providers of services will only accept payments for activities if they exceed the opportunity cost of their available alternatives. See also, the Attachment to this Annex summarizing results to date of the overall social analysis.

Attachment to Annex 10 Preliminary Results of Social Analysis

18. **A more Inclusive PSA:** While it is accepted that PSA is not a poverty alleviation program, it is also recognized that with the proper interventions from FONAFIFO, the payments system could be directed toward a better representation of small and medium-sized landholders than is currently the case. Preliminary results of the overall social analysis¹⁷ shows that the program has had a positive impact on rural landholders, but it impacts predominantly the larger landholders, while smaller landholders with less than 10ha are the largest group not receiving PSA.

19. **Current Impacts:** The above study, based on one representative region, grouped beneficiaries of PSA payments along 3 groups: small landholders (1-30 ha), medium (30-70 ha) and large (more than 70 ha). The first group represents 38% of program participants, the second 20% and the large landholders represent 42%. With 87%, most landholders are men and highly educated (in 70% of cases at least one member of the household holds a degree). Only 8.5% have

¹⁷ Miranda, M. et al. 2003 El Impacto Social del Esquema de Pago de Servicios Ambientales en Costa Rica. IIED and Centro Internacional de Política Económica, San Jose, Costa Rica.

completed only primary education. Although the group of small landholders represents a large group of the program's participants, they only receive a small portion of the payments (about 6%). The majority of the payments (80%) go to large land-holders. While most medium and large landholders focus on the service of forest conservation, smallholders diversify their services over reforestation, forest management and protection.

20. For the participants of the PSA Program other sources of income are coffee production, forestry, dairy production, and stock farming and pasture. For 2% of landholders PSA represents the primary source of income, for 60% the second largest and for 11% the third largest source of income. For the smallholders (group 1) the PSA Program therefore has no significant impact on their income situation. Most beneficiaries don't live of subsistence and 50% rely on their professional non-farm work as their primary source of income. The land and forest serves them as financial protection. This situation is in contrast to the farmers that don't receive PSA. Of these, 64% rely on their farming activities as their primary source and only 14% rely on professional non-farm work as their primary source of income.

21. **Financial impacts:** The principal incentive for households to join the PSA Program is financial. Households participating in PSA Program achieve an increase of about 15% in income per household (equivalent of 880\$ to 11,200\$ depending on the property, 4,200\$ on average). This income allows landholders to make investments in forestation and other farm activities. They also experience an indirect financial impact through the increase of productivity in other than the afforested areas. There are high transaction costs (between 12 and 18%) for participating farmers that access the PSA Program via intermediaries. Lack of knowledge of the mechanisms of the PSA Program is the main constraint for farmers to access the program directly. The intermediary also significantly reduces the time required to access the program.

22. **Non participating landholders:** There are several reasons why landholders don't participate in the PSA Program, the most important being restrictions on the required size of the land or the forested area. Land is not forested either because other activities are more profitable or because the land is too degraded to be eligible for PSA. Another reason not to participate is the landholders' mistrust of national institutions and the legal system.

23. **Social organization:** The PSA Program contributes to employment creation for activities such as farm labor, GIS specialists, ecologists and forest engineers, although the opportunities remain mostly occasional ones. The PSA Program possibly has migratory effects, but this remained unconfirmed.

24. **Environmental impact and capacity building:** The beneficiaries mentioned the positive environmental impact of the PSA Program such as improvement of water quality, forest protection and soil protection as the most important outcome. The economic impact was rated second and the creation of new economic activities such as ecotourism third. The PSA Program has an important impact on environmental knowledge, particularly for children. There has been an impact of capacity building on landholders concerning agro-conservation and integrated farming systems.

25. **Major issues and recommendations:** The assessment identified a number of recommendations to improve the PSA Program.

- The project should specifically address constraints for smallholders in order to facilitate their access to the PSA Program and increase their voice in the management of schemes.

Transaction costs for small holders need to be decreased by providing more information and direct help on accessing the process and mechanisms of the program;

- A stakeholder dialogue would increase participation and transparency of the process for all actors, small and large landholders;
- More capacity building is needed for participating farmers in technical aspects of program implementation;
- Stakeholder dialogue should be facilitated through a series of regular consultative workshops for the following purposes: (i) Identify priorities related to institutional strengthening at the local level to take full advantage of PSA; (ii) Establish open and transparent channels of communication with the program and among communities and across groups within the communities; (iii) Generate and share information about environmental issues, social change, economic conditions, opportunities and institutional and other constraints to participating in PSA; (iv) Facilitate a process of change in incentives for sustainable management of the resource base; (v) Enable stakeholders to share information about successes and problems in PSA participation and thus facilitate the process of co-learning.

26. **A Proposed PMES:** To address the core constraints to a wider inclusion of the small a medium-sized landholders in the PSA Program, the project will develop a Participatory Monitoring and Evaluation System (PMES). The PMES will serve as an operational framework to address these challenges and engage stakeholders in a process of identification of priority interventions in capacity-building, strengthening of governance, and enabling participation of the different actors in the benefits of the PSA scheme. Also, by engaging communities in sharing and using information, the PMES will: (i) strengthen demand for outputs from such monitoring systems, (ii) critically evaluate and ground-truth their major findings, and (iii) provide feedback to quantitative monitoring systems about community information needs. The PMES can establish a platform for external monitoring of each actor's compliance with PSA legal norms and regulations. In this way, the project would support improved governance and guarantee transparency in project implementation.

27. Preparatory activities for the establishment of the PMES include (i) identification of respective actors, their current and prospective roles, (ii) support capacity building interventions to enable smallholders to become eligible for the program, (iii) finding agreements on the operational arrangements among actors and for program management, what to include in the process of participatory monitoring and evaluation, what information needs to be generated and routinely shared and how to make binding decisions on issues of common concern. These activities are being undertaken as part of the final phase in the on-going social assessment study.

Annex 11: Project Preparation and Supervision
COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

Table A.11.1:

	Planned	Actual
PCN review		
Initial PID to PIC		
Initial ISDS to PIC		
Appraisal		
Negotiations		
Board/RVP approval		
Planned date of effectiveness		
Planned date of mid-term review		
Planned closing date		

Key institutions responsible for preparation of the project:

Bank staff and consultants who worked on the project included:

Table A.11.2:

Name	Title	Unit
-------------	--------------	-------------

Bank funds expended to date on project preparation:

Bank resources:

Trust funds:

Total:

Estimated Approval and Supervision costs:

Remaining costs to approval:

Estimated annual supervision cost:

Annex 12: Documents in the Project File
COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

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- Sills, E., G. Hartshorn, P. Ferraro, and B. Spergel. 2005. "Evaluation of the World Bank – GEF Ecomarkets Project in Costa Rica." Report of the Independent Evaluation Panel (processed).
- World Bank. 2000. "Costa Rica Ecomarkets Project: Project Appraisal Document." Report No. 20434-CR, Washington: World Bank.

Annex 13: Statement of Loans and Credits
COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

Table A.13.1:

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
P057857	2005	CR EQUITY AND EFFICIENCY OF EDUCATION	30.00	0.00	0.00	0.00	0.00	30.00	0.50	0.00
P073892	2002	CR-Health Sector Strengthening & Modernization	17.00	0.00	0.00	0.00	3.00	12.51	12.33	7.99
P052009	2000	CR ECOMARKETS	32.63	0.00	0.00	0.00	0.00	7.13	7.13	0.00
P061314	2000	GEF CR-ECOMARKETS	0.00	0.00	0.00	8.00	0.00	3.13	8.00	0.00
P039876	1998	GEF CR BIODIVERSITY	0.00	0.00	0.00	7.00	0.00	0.00	7.10	0.00
Total:			79.63	.00	.00	5.00	3.00	52.77	5.06	7.99

Table A.13.2:
Costa Rica Statement of IFC's Held and Disbursed Portfolio,
in Millions of US Dollars

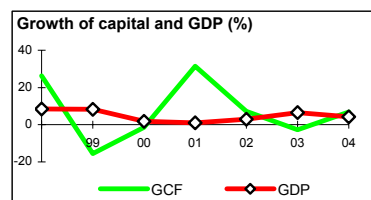
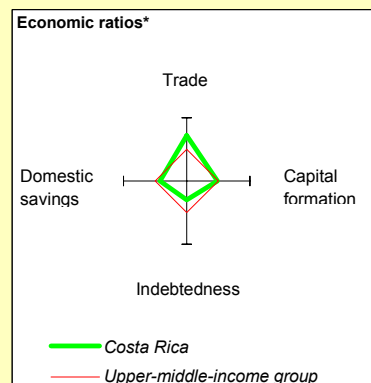
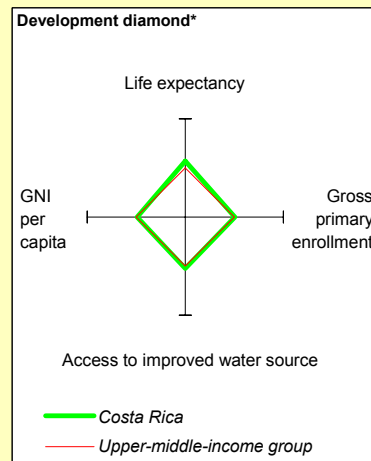
FY Approval	Company	Committed IFC				Disbursed IFC			
		Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
2001	Aeropuerto IJS	33.29	0.00	0.00	78.64	24.62	0.00	0.00	57.57
2005	Banco Banex	40.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00
2003	Cuscatlan Costa	0.00	0.00	5.00	0.00	0.00	0.00	5.00	0.00
2002	Gutis	7.00	0.00	0.00	0.00	6.00	0.00	0.00	0.00
1994	Hidrozaracas	0.00	0.00	0.65	0.00	0.00	0.00	0.65	0.00
2001	INTERFIN	8.75	0.00	0.00	0.00	8.75	0.00	0.00	0.00
2004	INTERFIN	15.00	0.00	5.00	0.00	15.00	0.00	5.00	0.00
1999	Superunidos	20.44	0.00	0.00	0.00	7.44	0.00	0.00	0.00
Total portfolio:		24.48	0.00	10.65	78.64	81.81	0.00	10.65	57.57

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

Annex 14: Country at a Glance

COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

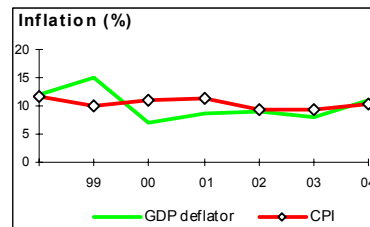
POVERTY and SOCIAL	Costa Rica	Latin America & Carib.	Upper-middle-income	
2004				
Population, mid-year (millions)	4.1	541	576	
GNI per capita (Atlas method, US\$)	4,670	3,600	4,770	
GNI (Atlas method, US\$ billions)	19.0	1,948	2,748	
Average annual growth, 1998-04				
Population (%)	1.8	1.4	0.8	
Labor force (%)	2.3	0.9	-0.9	
Most recent estimate (latest year available, 1998-04)				
Poverty (% of population below national poverty line)	..	..	..
Urban population (% of total population)	61	77	72	
Life expectancy at birth (years)	79	71	69	
Infant mortality (per 1,000 live births)	8	28	24	
Child malnutrition (% of children under 5)	..	..	..
Access to an improved water source (% of population)	97	89	93	
Literacy (% of population age 15+)	96	89	91	
Gross primary enrollment (% of school-age population)	108	123	106	
Male	108	126	108	
Female	107	122	106	
KEY ECONOMIC RATIOS and LONG-TERM TRENDS				
	1984	1994	2003	2004
GDP (US\$ billions)	3.7	10.6	17.5	18.4
Gross capital formation/GDP	22.7	20.0	20.1	20.8
Exports of goods and services/GDP	34.4	35.6	46.5	44.7
Gross domestic savings/GDP	23.1	14.5	18.2	18.8
Gross national savings/GDP	15.7	14.6	14.5	17.2
Current account balance/GDP	-7.7	-4.9	-5.5	-5.2
Interest payments/GDP	6.7	1.8	1.5	..
Total debt/GDP	109.3	37.0	31.0	..
Total debt service/exports	32.9	12.8	9.9	..
Present value of debt/GDP	..	..	33.4	..
Present value of debt/exports	..	..	68.4	..
	1984-94	1994-04	2003	2004
(average annual growth)				
GDP	4.8	4.4	6.5	4.2
GDP per capita	2.0	2.4	4.9	2.7
STRUCTURE of the ECONOMY				
	1984	1994	2003	2004
(% of GDP)				
Agriculture	24.9	13.4	8.8	8.7
Industry	34.5	29.6	28.7	28.5
Manufacturing	26.4	21.7	21.2	21.0
Services	40.6	57.1	62.5	62.8
Household final consumption expenditure	61.3	71.7	67.3	71.4
General gov't final consumption expenditure	15.6	13.8	14.5	9.7
Imports of goods and services	34.0	41.1	48.5	46.7
	1984-94	1994-04	2003	2004
(average annual growth)				
Agriculture	4.1	3.0	7.4	2.8
Industry	4.4	5.0	8.0	3.3
Manufacturing	4.5	5.1	8.7	3.3
Services	5.1	4.5	5.8	3.7
Household final consumption expenditure	4.8	2.9	2.9	3.4
General gov't final consumption expenditure	2.3	2.2	-0.2	8.1
Gross capital formation	8.9	6.2	-2.6	6.8
Imports of goods and services	10.5	5.3	1.7	-3.3



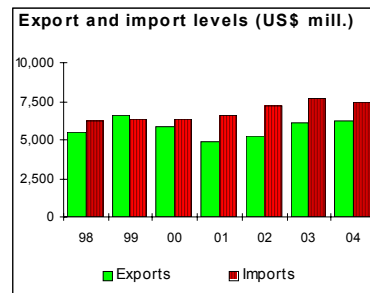
* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

PRICES and GOVERNMENT FINANCE

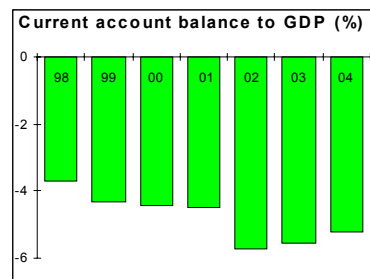
	1984	1994	2003	2004
Domestic prices				
(% change)				
Consumer prices	12.0	13.5	9.4	10.2
Implicit GDP deflator	16.7	15.5	8.0	10.9
Government finance				
(% of GDP, includes current grants)				
Current revenue	..	..	219	219
Current budget balance	..	..	-0.9	-0.8
Overall surplus/deficit	..	..	-5.1	-5.5

**TRADE**

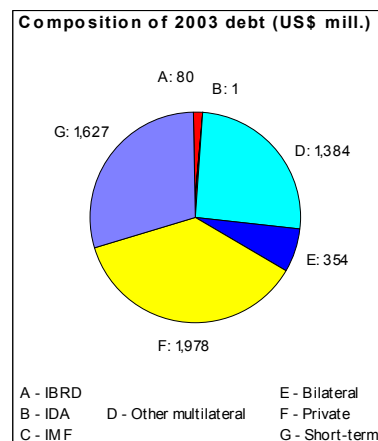
	1984	1994	2003	2004
(US\$ millions)				
Total exports (fob)	969	2,882	6,125	6,177
Coffee	267	308	194	..
Bananas	251	561	553	..
Manufactures	256	1,551	4,715	4,710
Total imports (cif)	1,070	3,816	7,723	7,445
Food	157	614	926	..
Fuel and energy	162	236	446	..
Capital goods	209	679	1,421	1,461
Export price index (2000=100)	11	49	129	140
Import price index (2000=100)	10	45	138	146
Terms of trade (2000=100)	108	108	94	96

**BALANCE of PAYMENTS**

	1984	1994	2003	2004
(US\$ millions)				
Exports of goods and services	1,252	3,815	8,177	8,318
Imports of goods and services	1,263	4,348	8,508	8,684
Resource balance	-11	-533	-331	-366
Net income	-302	-143	-849	-805
Net current transfers	32	155	213	211
Current account balance	-281	-520	-967	-960
Financing items (net)	277	526	1,307	810
Changes in net reserves	4	-6	-340	150
Memo:				
Reserves including gold (US\$ millions)	-12	594	1,601	1,451
Conversion rate (DEC, local/US\$)	44.5	157.1	398.7	437.9

**EXTERNAL DEBT and RESOURCE FLOWS**

	1984	1994	2003	2004
(US\$ millions)				
Total debt outstanding and disbursed	3,999	3,909	5,424	..
IBRD	191	323	80	..
IDA	4	3	1	..
Total debt service	425	507	841	..
IBRD	33	83	24	..
IDA	0	0	0	..
Composition of net resource flows				
Official grants	108	35	24	..
Official creditors	126	-8	94	..
Private creditors	-23	-61	265	..
Foreign direct investment (net inflows)	56	298	577	..
Portfolio equity (net inflows)	0	0	0	..
World Bank program				
Commitments	0	0	0	..
Disbursements	36	11	7	..
Principal repayments	18	56	18	..



Annex 15: Incremental Cost Analysis

COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

Introduction

28. Costa Rica is one of the 20 countries with greatest biodiversity in the world. Because of its location between two oceans and its various geographic and climatic systems, it has more than 500,000 species of plants and animals, with significant levels of endemic species.

29. Costa Rica is at the forefront of biodiversity conservation and management. To promote the conservation and sustainable use of its biological diversity and natural resources, Costa Rica has pioneered several tools, one of which is payment for environmental services. At the “cutting edge,” Costa Rica’s program of Payments for Environmental Services (*Pago por Servicios Ambientales*, PSA) has been one of the most successful efforts worldwide to develop market-based instruments—and new fiscal policy approaches—for the management, conservation, and sustainable use of biodiversity and forest resources in recent years. Several international meetings and processes, such as the Commission on Sustainable Development of the United Nations Economic and Social Council (ECOSOC), the United Nations Forum on Forests (UNFF), and the Food and Agriculture Organization (FAO), have included dialogues on the basis of the Costa Rican experience in order to promote a better understanding of financing for sustainable development issues—one of the main challenges of the current international agenda.

30. By October 2005, the PSA Program had approximately 250,000 hectares under contract, of which 95 percent are natural forests under conservation, 4 percent are forest plantations, and 1 percent is sustainable forest management (a latter modality was discontinued in 2003). The agroforestry modality was introduced in 2003 and does not yet represent a significant area (346,100 trees or about 865 hectares). The bulk of this conservation effort is being financed through revenue from a fuel tax. The PSA Program has also attracted substantial international funding, including a US\$8 million grant from the Global Environmental Facility (GEF) in 2000 through the World Bank-financed Ecomarkets Project, a US\$11.2 million grant from the German development bank KfW in 2002 for the protection of forests and recovery of deforested lands in the northern region of the country, and a US\$2 million payment from Norway in 1997 for carbon sequestration. In addition, FONAFIFO has also signed numerous agreements with private and public water users within Costa Rica to finance the conservation of the watersheds from which they draw their water, which generate about US\$0.5 million annually. A strong institutional basis has been established to operate the national program, including a legal framework and wide political support through three successive presidential administrations. Furthermore, the program enjoys civil society support, in particular small-and medium-size landholders that have developed a broad participation network to benefit from the program. The PSA Program has attracted worldwide attention and spurred replication efforts supported by the World Bank and GEF in Latin American countries, as well as outside the region.

31. Since 2000, the program has been supported by the World Bank / GEF-financed Ecomarkets Project (Report No. 20434-CR).. The project has reached or exceeded all key project performance indicators. For instance, 130,900 ha in priority areas of the Costa Rican portion of the Mesoamerican Biological Corridor (MBC) have been incorporated into the program, exceeding the original target of 100,000 ha by the end of the project. In addition 70,000 ha have

been contracted on privately owned lands within other Conservation Areas identified as priority areas by the GRUAS Report, further contributing to the achievement of conservation and sustainable management goals agreed at the regional level within the framework of the Central American Commission on Environment and Development (CCAD). In 2000, only 22 female landholders participated in the program. Currently, there are 474, significantly higher than the original target of a 30 percent increase target in participation.. In 2000, there were 2,850 ha of indigenous-community-owned lands in the program. Currently there are 25,125 ha, representing a 822 percent increase, sharply exceeding the original target of a 100 percent increase in participation. These achievements have been confirmed by recent review efforts, including the midterm review report for the Ecomarkets Project.

32. Preliminary findings show that, thanks in part to GEF funding received under the Ecomarkets Projects and the Regional Integrated Silvopastoral Ecosystem Management Program, the PSA Program is already making a substantial contribution to the generation of global benefits, including the conservation of globally significant biodiversity. As noted, some 130,900 ha in priority biodiversity conservation areas have been enrolled in the program, thus helping to consolidate the national protected area system and the Mesoamerican Biological Corridor (MBC) by improving conservation in the buffer zones of protected areas and biological corridors that connect them, Monitoring of the impact of the silvopastoral practices which FONAFIFO is implementing in the Esparza area, with funding from the GEF-financed Regional Integrated Silvopastoral Ecosystem Management Program, is showing significant impacts on biodiversity protection and sustainable use.

33. The lessons learned from implementation of the PSA Program, the Ecomarkets Project, the Regional Integrated Silvopastoral Ecosystem Management Program, and other PSA efforts, however, also reveal some issues and weaknesses. In particular, although the PSA Program is conserving many areas of globally significant biodiversity, many gaps remain in its coverage. Improving the sustainability of the national protected areas system and of the MBC will require expanding the coverage of the PSA Program to additional areas, which will require additional financing. Second, although sustainable funding sources such as payments by water users and carbon buyers can provide long-term funding flows for conservation payments, use of these funds is often restricted geographically (water payments are restricted to watersheds with significant numbers of water users; carbon payments are restricted to areas deforested before 1990), leaving gaps in the availability of long-term funding for at least some areas that are important for the conservation of globally significant biodiversity. One of the key lessons and shortcomings of the Program is that biodiversity of global significance is unlikely to be conserved in areas where the demand for other environmental services is minimal or nonexistent. Finally, the lessons of the past years show that, although the Ecomarkets Project has helped considerably increase the efficiency of the PSA Program by improving targeting, there is scope for substantial additional improvements in efficiency, in particular by offering differentiating payments in different areas.

34. The GEF alternative in this project is to secure the long-term sustainability of the PSA Program for sustainable natural resources management and biodiversity conservation while improving the program's efficiency and increasing its contribution to poverty reduction and sustainable rural development. It will do so by addressing the specific weaknesses and remaining issues that work on the Ecomarkets Project and the Regional Integrated Silvopastoral Ecosystem Management Program has identified. By supporting the development of new financing

mechanisms based on payments from water users (through the new water tariff), carbon buyers (through the sale of verified emission reductions), and other service users, the GEF alternative will assist in expanding the area of globally significant biodiversity being conserved by the PSA Program. By capitalizing the Biodiversity Conservation Trust Fund, the GEF alternative will provide a sustainable long-term funding source for conservation payments in the buffer zones of protected areas and biological corridors that connect them in cases where other funding sources are either unavailable or insufficient, thus improving the sustainability of the national protected areas system and of the MBC.¹⁸ And by supporting efforts to increase the efficiency of the PSA Program, it will make achievement of global conservation objectives easier and make it easier to attract additional financing.

Baseline Scenario

35. Under the baseline scenario, the GoCR would implement a project with two major expected outcomes—hydrological benefits and carbon sequestration. In particular, the activities envisioned under the baseline scenario of the proposed project are limited to distinct activities aimed at maximizing the returns in terms of hydrological services and expanding the existing program for verified emission reduction to generate carbon sequestration benefits. These activities would certainly generate important biodiversity conservation benefits, but they will be specifically targeted to generate water and carbon sequestration benefits. The biodiversity conservation benefits under the baseline scenario, therefore, would be uneven and would not necessarily reflect biodiversity conservation priorities. Once current GEF funding under the Ecomarkets Project ends, at least some of the areas it had helped support in priority biological corridors would be left without a secure long-term funding source. Likewise, many other areas in the buffer zones of protected areas and biological corridors that connect them would lack secure long-term funding sources.

36. Total expenditures¹⁹ under the baseline scenario during the lifetime of the project are estimated at about US\$139.5 million.

37. The following sections give further detail on the baseline scenario for each component and what global environmental benefits they will provide.

Component 1: Developing and implementing sustainable financing mechanisms

38. The main objective of this component is to develop and implement sustainable financing mechanisms according to the characteristics of each group of environmental service users. Likewise, rules will be developed for the use of these funds to generate environmental services that the users desire. In particular, under the baseline scenario, the component supports promoting watershed management via application of the new water tariff through the development of operational rules. In addition to resources generated from the water tariff, the

¹⁸ It bears noting that legal requirements for entry into the environmental services program place private lands under the purview of the Ministry of Environment and Energy (MINAE), conveying upon those lands the same degree of protection as granted by the national park system, at a significantly lower societal cost.

¹⁹ Total expenditures do not include budgetary or donor-supported activities that are specifically targeted for protected areas management. For example, 25 percent of the revenue generated by the new water tariff is budgeted to support the management of protected areas. Although it will generate global biodiversity benefits, it is not within the context of the PSA Program. If these funds are included, the baseline costs will be artificially inflated. Therefore, it is neither a part of the baseline nor the GEF Alternative.

government will continue the existing financing through the fossil-fuel tax. The current level of funding from the fossil-fuel tax is about US\$11 million per year, or about US\$55 million in five years.

39. The new water tariff that the proposed project would support focuses on three guiding concepts: (a) support for socioeconomic development and harmony with the environment; (b) institutional and financial sustainability; and (c) modernization of the institutional framework. Twenty five percent of the income generated by the new water tariff will be invested in the protection of water resources in the watershed to generate hydrological benefits through the PSA Program. This will represent a substantial mainstreaming of conservation²⁰ in Costa Rican society, and will provide substantial additional resources. Once fully implemented, it will generate an estimated US\$5 million annually for the environmental service program, or about US\$10 million during the project implementation. The project will support the implementation of this tariff, through the development of control systems for the efficient collection of the water cannon, and the establishment of operational rules for resource use. Furthermore, the efficient application of water policy and legislation will generate additional income for the PSA.

40. Fifty percent of the water tariff will support the Water Department. One of the major activities that are financed by these new funds is to implement and enhance hydrological and meteorological monitoring. Once the water tariff is fully implemented, the Water Department will receive about US\$10 million a year. During the period of project implementation, the Department will receive about US\$20 million, but it is not yet known what proportion of these funds will be dedicated to these monitoring activities;²¹ a conservative estimate of US\$2 million is used for spending on activities that will benefit watershed conservation.

41. A number of donor-supported activities that are consistent with the PSA Program also generate hydrological benefits. The total cost of these activities is estimated to be US\$0.04 million per year, or US\$0.2 million over five years.

42. The project will also support the participation of Costa Rica in the international carbon market. The goal is to prepare project documentation to submit to the UNFCCC-CDM Board 2.7 millions tons of CO₂ equivalent, with an estimated market value of US\$10 Million. FONAFIFO has prepared eight Project Idea Notes to reforest nearly 8,400 hectares of pasturelands using a combination of natural regeneration, agroforestry systems, and commercial tree plantations. The projected government spending for getting CO₂ benefits is approximately US\$0.02 million a year for project development (that is, US\$0.1 million over five years). FONAFIFO expects to generate US\$0.5 million per year from carbon sales in the international carbon market, or US\$2.5 million over the next five years.

43. Therefore **the total baseline amount for this component is approximately US\$67.3 million.**

Component 2: Scaling-up the Environmental Services Program

44. The additional resources provided by the water tariff, in particular, and other new financing sources (carbon sales and voluntary markets) will allow for an expansion of the PSA

²⁰ Although some of these watersheds are in the globally significant biodiversity areas, global biodiversity benefits cannot be quantified and, therefore, a disaggregated figure cannot be computed.

²¹ The allocation of funding to the Water Department is also intended to cover investments in hydraulic infrastructure and other needs.

Program's activities beyond the roughly 250,000 ha it now covers. This component will support FONAFIFO and other institutions (for example, MINAE's Water Department) in implementing this expanded PSA Program. The project will support the strengthening of FONAFIFO's capacity to undertake this expansion, while ensuring that FONAFIFO's recurring administrative costs remain at less than 10 percent of funds handled. The baseline scenario also supports an increase in the efficiency of environmental service contracting, strengthening monitoring capacity, and contracting landholders to provide environmental services.

45. The annual budget that GoCR provides to operate the PSA Program is US\$1.2 million, or US\$6.0 millions over the next five years. It includes FONAFIFO's operating costs, including the monitoring system, fundraising for CO₂ sequestration, biodiversity conservation, and improving the PSA system's contracts.

46. Under the baseline scenario, this component provides contracts to landholders for environmental services and monitors contract compliance²². The total cost of these contracts for the life of the project is \$65.12 million.

47. **The total baseline amount for this component is US\$71.1 million over the next five years.**

Component 3: Removing Barrier for Small landholders' Participation in the PSA Program

48. The main objective of this component is to reduce the obstacles to participation of the poor in the PSA Program. Although the program is not primarily designed to be a poverty reduction program, the high spatial correlation between areas that supply environmental services and low-income rural areas creates opportunities for PSA to contribute to this objective. Frequently, however, the poor find it difficult to participate either because of relatively high transaction costs involved in the application process (such as proof of land ownership) or because of intrinsic incentives within the program that makes it more responsive to large landholders. This component is aimed at reducing these obstacles. This objective will be reached by (a) strengthening the incorporation of low-income landholders in the PSA Program, (b) piloting improved watershed management in low-income areas, and (c) monitoring social and economic impacts.

49. The baseline cost supported through the GoCR contribution for this component is US\$0.07 million a year, or US\$0.35 million over the next five years. It covers the activities that promote the PSA Program and are developed by local NGOs, identify potential farmers to be included in the PSA Program, support them to meet the program's technical and legal requirements, and provide technical assistance to develop the contractual activities.

50. A number of donor-supported activities are also contributing to the objectives of this component. It includes support from *Hidroeléctrica El Platanar* and Florida Ice and Farm to local NGOs to reach out to farmers participating in the PSA in the watershed of its interest, and The Nature Conservancy's Amisconde Project. The Amisconde project was developed in Brunca Region and provides technical assistance to farmers to develop agroforestry activities on their farms. The total cost of these activities is US\$0.15 per year, or US\$0.75 million over the next five years.

²² In addition to the hydrological and carbon benefits, these environmental services will also generate global biodiversity benefits. However, the cost of these services is included under the baseline scenario.

51. **The total baseline amount for this component is approximately US\$1.1 million.**

GEF Alternative

52. The alternative scenario proposed here would leverage the current baseline activities and build on them to ensure that they contribute as much as possible to conserving Costa Rica's globally significant biodiversity, increasing carbon sequestration, and providing long-term, sustained financing for the PSA program. The project would do this by (a) strengthening and capitalizing the Biodiversity Conservation Trust Fund to provide long-term financing for conserving biodiversity of global significance, (b) providing technical capacity to strengthen monitoring and revising environmental services contracts that specifically generate global biodiversity benefits, and (c) providing support to remove barriers for marginalized communities in biodiversity conservation priority areas to participate in the PSA Program.

53. Sustainability would particularly be ensured through capitalization of an endowment fund to finance payments for activities that promote conservation of globally significant biodiversity. The project would also catalyze further replication throughout the region and the world. In addition, the project would contribute to carbon sequestration activities that will contribute to the GEF's Climate Change focal area goals.

54. **Total incremental costs of this proposed project—the difference between the baseline scenario and the GEF alternative—are calculated to be US\$18.5 million, of which \$10.00 million is being requested from the GEF.**

55. Details on the activities and global benefits that would be achieved by each component of the project and the costs associated with them are presented below.

Component 1: Developing and implementing sustainable financing mechanisms

56. In addition to the baseline activities, the GEF Alternative includes activities that will strengthen and capitalize the Biodiversity Conservation Trust Fund to enable it to provide sustainable, long-term financing for areas of globally significant biodiversity in the buffer zones of protected areas and biological corridors that connect them, where other financing is either unavailable or insufficient. Most of the GEF financing (US\$7.5 million) will be applied to the capitalization of this Fund. The GEF contribution will be matched by contributions from the GoCR. In addition, small amounts of GEF financing will be used to support implementation of water and carbon financing mechanisms in areas of global biodiversity significance, helping to remove obstacles to their implementation and ensuring that activities financed by these alternative mechanisms are compatible with biodiversity conservation. Small amounts will also be used to help develop funding from voluntary markets. Already, some transactions have been negotiated on an *ad hoc* basis (e.g., an Italian NGO is paying to regenerate degraded forests in Costa Rica's Talamanca region). The GEF Alternative will support a more systematic approach to this market, including the development of a range of products (e.g., certificates to finance conservation in areas of globally significant biodiversity). Funds generated through these sales would help capitalize the Biodiversity Conservation Trust Fund. **The cost of the GEF alternative for this component is expected to be US\$83.5 million.**

Component 2: Scaling-up the Environmental Services Program

57. In addition to the baseline activities, the GEF Alternative provides resources for strengthening the technical capacity of government institutions to monitor biodiversity impacts of PSA contracts. Furthermore, the GEF alternative provides funding for revising environmental services contracts to include activities that generate biodiversity conservation benefits. **The total cost of the GEF alternative for this component is expected to be US\$72.8 million.**

Component 3: Removing Barrier for Small landholders' Participation in the PSA Program

58. In addition to the baseline activities, the GEF alternative provides resources for removing barriers for marginalized communities to participate in the PSA Program. The GEF alternative focuses specifically on the areas of biodiversity of global significance in the buffer zones of protected areas and biological corridors that connect them (thus contributing to the ecological and financial sustainability of the national protected areas system and the Mesoamerican Biological Corridor). In some high biodiversity areas, local community organizations and NGOs are attempting to develop watershed management plans in many areas. These plans would combine rural development, poverty reduction, and environmental conservation objectives. This component will assist these efforts, exploring the ways in which PSA payments could contribute to the development and implementation of watershed management plans. The approach will be tested in three watersheds with low participation of farmers in the PSA Program. **The total cost of the GEF alternative for this component is expected to be US\$1.7 million.**

59. **Total expenditures under the GEF Alternative scenario during the lifetime of the project are US\$158 million. Total incremental costs, therefore, are estimated to be US\$18.5 million.**

60. The matrix below summarizes the baseline and incremental expenditures during the project period.

Table A.15.1: Incremental Cost Analysis Matrix			
Cost Category	US\$ Million	Domestic Benefit	Global Benefit
Component 1: Developing and implementing sustainable financing mechanisms			
Baseline	67.3	Provision of hydrological benefits as a result of sustainable financing mechanisms.	Some services of carbon sequestration. Limited conservation of globally significant biodiversity benefit as a byproduct of improved watershed management.
With GEF Alternative	83.5	Provision of hydrological benefits.	The global environmental benefits of this would be to enhance and protect biological diversity and preserve globally significant forest and mountain ecosystems within Costa Rica's ecosystems of high biodiversity value. Furthermore, it will provide long-term financing for biodiversity conservation initiatives to protect Costa Rica's rich biodiversity. In addition to this, the project would assist global carbon sequestration
Incremental	16.2		
Component 2: Scaling-up the Environmental Services Program			
Baseline	71.1	Enhanced institutional and technical capacity for hydrological benefits. Provision of hydrological benefits as a result of contracts for environmental services.	Some services of carbon sequestration. Limited conservation of globally significant biodiversity benefits as a byproduct of improved watershed management.
With GEF Alternative	72.8	Enhanced institutional and technical capacity for hydrological benefits.	The global biodiversity benefits of this would be to enhance technical capacity of government institutions to monitor biodiversity impacts of PSA contracts. It would, therefore, verify the biodiversity conservation impacts of PSA Program activities. In addition, the project would assist global carbon sequestration
Incremental	1.7		
Component 3: Removing Barrier for Small landholders' Participation in the PSA Program			
Baseline	1.1	Provision of hydrological benefits.	Some services of carbon sequestration. Limited conservation of globally significant biodiversity benefit as a byproduct of improved watershed management.
With GEF Alternative	1.7	Enhanced provision of hydrological services.	The global biodiversity benefits of this would be to increased participation of marginalized groups in areas of high biodiversity value. In addition, the project would assist global carbon sequestration.
Incremental	0.6		
Total Baseline: US\$139.5 million			
Total GEF Alternative: US\$158.0 million			
Total Incremental Costs: US\$18.5 million			

Annex 16: STAP Roster Review

COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

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1. Assessment of the scientific and technical soundness of the project.

The project is well structured and the contents of its three components are consistent with its objective: To enhance the provision of environmental services of national and global significance and to assist in securing their long-term conservation by strengthening and improving the Payments for Environmental Services (Pago por Servicios Ambientales, PSA) program, which was applied in Costa Rica during the last decade.

From a conceptual point of view the project follows current trends in the development and application of market-based instruments for environmental management. The proposed approach of developing and implementing sustainable financing mechanisms as well as scaling-up the Environmental Services Program seems adequate to achieve the stated objective. This is to be achieved by implementing and capitalizing the Biodiversity Conservation Trust Fund and through other financial sources such as the application of a water tariff, the sale of verified emission reductions, and developing voluntary markets for biodiversity conservation.

Environmentally, the project aims at achieving the conservation of areas of unique biodiversity features and important watersheds. On the social side, the project widely considers the participation of land owners and the importance of expanding the benefits of the program to poor rural communities and members of marginalized groups, including women, indigenous landholders and landholders without land title that have been unable to participate in the program until now.

2. Identification of the global benefits of the project.

The conservation of the rich biological diversity content in Costa Rica is a task of great priority, recognized by many interested organizations and groups.

The project addresses the need to develop additional funding mechanisms to complement current funding sources and allow an expansion of the area under conservation, which currently reaches 250,000 ha and covers only a small part of conservation needs.

The proposed project aims at conserving biodiversity of high global significance. It considers environmental service contracts in the buffer zones of protected areas and biological corridors that connect them to help ensure the sustainability of the national protected areas system and the Costa Rican portion of the Mesoamerican Biological Corridor. Program activities will also sequester carbon and promote the production of verified emission reductions through reforestation and induced regeneration activities.

In this context, the global benefits of the project are clear and well presented.

World Bank response:

We agree with the STAP reviewer's assessment.

3. Evaluation of the project compliance with GEF objectives, operational strategy and guidance in biodiversity focal areas.

The proposed project coincides with the GEF Operational Strategy objectives relating to the conservation and sustainable use of biological diversity, resources under threat and endemic species for the following important reasons:

- It strengthens the participation of local communities in the conservation of biological diversity and its components.
- It offers a means to ensure the long-term conservation of biological diversity and can serve as example for other cases worldwide.
- It is aimed at achieving the conservation of biological diversity with the integration of social and cultural groups, many of them affected by poverty.

In addition to this, the project is consistent with the operational programs N° 3 (Forest Ecosystems) and N° 4 (Mountain Ecosystems).

The project supports the objective of Strategic Priority (SP) 1 Catalyzing Sustainability of Protected Areas because:

- It will implement and capitalize a long-term financing mechanism for biodiversity conservation in the buffer zones of protected areas and biological corridors that connect them, including the Costa Rican portion of the Mesoamerican Biological Corridor (MBC).
- It will test and develop new conservation management and financing strategies for areas of biodiversity of global significance.

The project also supports the objective of Strategic Priority (SP) 2 Mainstreaming Biodiversity in Production Landscapes and Sectors because:

- It will contribute to enhance innovative market incentive structures where both the users and providers of environmental services participate in market transactions to conserve biodiversity of global importance.
- It will strengthen the institutional capacity to carry out an expanded and more efficient national program and to perform technical monitoring activities.

The project also supports the objective of Strategic Priority (SP) 4 Generation and Dissemination of Best Practices for Addressing Current and Emerging Biodiversity Issues because:

- Each component considers dissemination activities to inform both related organizations and the general public about the development of the project and its results.

World Bank response:

We agree with the STAP reviewer's assessment concerning overall consistency with SP1, SP2 and SP4 objectives. In particular, concerning SP1, the project activities will strengthen the conservation of Costa Rica's Protected Area System by providing incentives to landholders to dedicate their private lands for conservation goals. The lands that will receive support from the GEF co-financing will be primarily in the buffer zones of protected areas and biological corridors that connect them, including the Costa Rican portion of the Mesoamerican Biological Corridor (MBC). It bears noting that legal requirements for entry into the environmental services program place private lands under the purview of the Ministry of Environment and Energy (MINA E), conveying upon those lands the same degree of protection as granted by the national park system, at a significantly lower societal cost.

4. Assessment of the project's significance and potential benefits.

The project proposes to expand the conservation of biological diversity by reaching at least 288,000 hectares of land with environmental service contracts generating environmental services of local, national and/or global importance. Also, it is expected that by the end of the project there will be at least 190,000 hectares of land with environmental service contracts in buffer zones of protected areas and biological corridors connecting them. This is significant, since this approach could be an effective way to expand the conservation of biological diversity in Costa Rica.

The project also addresses the need to protect priority watersheds and considers in-depth studies to, among other things, identify critical areas that would need to be conserved to generate improved hydrological services for water users and to assess the costs that landholders would face to undertake the desired land uses.

The potential benefits of the project, therefore, are based on the addition of territories to the area currently covered by protected areas, thus enlarging the biological diversity conservation area in Costa Rica, and on the development of new market-based approaches to sustainable financing of environmental management.

Although the project is not specifically oriented to be poverty reduction program, it does have a clear focus on contributing to reducing poverty and achieving greater local support for conservation, through the inclusion of targeted efforts to ensure the participation of small and medium-sized landholders, many of whom are poor and have found it difficult to enter the program.

World Bank response:

We agree with the STAP reviewer's assessment concerning the expansion of the areas under conservation. However, it is important to emphasize that the proposed project will not only expand the areas under the PSA program, but also make the existing program more efficient including through the introduction of differentiated payment scheme.

5. Potential replicability of the project to other sites.

The original Innovative Payments for Environmental Services Program developed in Costa Rica over the last decade has already proven quite efficient at supporting forest conservation on privately owned lands in priority watersheds and key areas within Costa Rica's portion of the Mesoamerican Biological Corridor.

Its large success encouraged other countries that suffered similar problems to replicate and adapt this Program to their reality, achieving great goals in environmental conservation. Some examples of this are the recently approved El Salvador Environmental Services Project, the Kenya Agricultural Productivity and Sustainable Land Management Project among others. These projects have only just begun and are based on the lessons learned so far in the Costa Rica PSA Program.

Today the PSA program is facing the need of ensuring its long-term sustainability, something that will also occur in time to those replicas of this program that have just started to run. This project seeks to achieve the goal of the PSA's long life through the consolidation and mainstreaming of the program and experimentation with new market-based approaches to sustainable financing of environmental management.

It is highly important that this project be developed because it will serve as guideline for the existing replicas of the Program worldwide to ensure the life of their own projects in the long run once they have reached the level of efficiency that the PSA holds today.

Under Component 2 this project outlines key objectives that will serve as basis for the achievement of this goal:

- Strengthening capacity to implement the expanded PSA Program.
- Increasing the efficiency of environmental service contracting.
- Strengthening technical monitoring capacity.
- Contracting landholders to provide environmental services.

The replicability of this Program has already been proven plausible and nothing indicates that those programs are inefficient. Therefore, just as in Costa Rica's PSA, it is possible to assume that the time will come when they will face the same need to ensure their long-term sustainability and they will be able to use the lessons learned in this project to consolidate their own programs.

World Bank response:

We agree with the STAP reviewer's assessment. Lessons from the proposed project will continue to be disseminated within Costa Rica, Latin America, and worldwide through workshops, seminars, study tours, publications, and the Internet. A replication strategy is supported under Component 2. The strategy will include activities for the sharing of success stories from around the world, such as France, the United States and Australia, where PSA programs have been successfully implemented for many years.

6. Estimation of the project's sustainability in institutional, financial and technical terms.

The description of the project allows to assume that it will be financially and technically sustainable for the following reasons:

- The project plans to extend over a reasonable period, allowing for meaningful monitoring and evaluation and adaptive management.
- The project draws on lessons learned from the World Bank/GEF-financed Ecomarkets Project, carried out since 2000, and the PSA Program, which has been administered by FONAFIFO for more than a decade.
- Institutionally, FONAFIFO will have overall leadership for the execution and administration of the project, which will strengthen partnerships already established under the Ecomarkets Project at four levels: between local NGOs; between different entities within the Government of Costa Rica; between donors and the Government of Costa Rica; and between different GEF agencies.
- The active involvement of the Government of Costa Rica through the Ministry of Environment and Energy (MINAE) and National System of Conservation Areas (SINAC), the Ministry's agency in

charge of the protected areas system, provides a strong institutional basis that will strengthen FONAFIFO's important experience in this type of initiatives.

- Financially, the project emphasizes the need to ensure a long-term financing of conservation. To that end, it will depend on the already operating PSA Program at the same time that it considers the implementation of four well-articulated sources of income: water payments, biodiversity payments (through the Biodiversity Conservation Trust Fund), carbon payments, and voluntary markets (by developing the growing market for voluntary contributions to environmental conservation).
- Technically, the project is also sustainable due to the vast experience already gained by the implementing institutions during the Ecomarkets Project. The proposed project, nevertheless, considers actions to strengthen the institutional capacity to carry out specific activities included in this initiative, such as monitoring and evaluation.

World Bank response:

We agree with the STAP reviewer's assessment.

7. Extent to which the project will contribute to the improved definition and implementation of the GEF strategies and policies.

The project is an interesting experience in the search of non-traditional alternatives to achieve the conservation of biological diversity in Central America. The conservation of biological diversity beyond formal protected areas is an innovative strategy in the implementation of the GEF policies.

The lessons learned from this project will certainly have important implications for other GEF-supported projects. The analysis, synthesis and sharing of the lessons learned will be an important outcome from this project.

World Bank response:

We agree with the STAP reviewer's assessment. Sharing lessons learned from this project is one of the important outcomes. The project includes replication and dissemination activities to widely share lessons within Costa Rica, Latin America, and worldwide through workshops, seminars, study tours, publications, and the Internet.

8. Linkages to other focal areas.

The proposed project is also linked with the operational program N° 2 Coastal, Marine, and Freshwater Ecosystems, which seeks the conservation and sustainable use of the biological resources in coastal, marine and freshwater ecosystems (including lakes, rivers and wetlands, and island ecosystems).

It is also in accordance with the operational program N° 12 Integrated Management Ecosystems, aimed at catalyzing widespread adoption of comprehensive ecosystem management interventions that integrate ecological, economic, and social goals to achieve multiple and cross-cutting local, national, and global benefits.

It also coincides with the policies, strategies and programmatic priorities established by the Convention on Biological Diversity (Art. 8.)

World Bank response:

We agree with the STAP reviewer's assessment.

9. Degree of involvement of relevant stakeholders in the project.

The proposed project considers the active participation of local landholders through the environmental service contracting system developed as part of the PSA Program.

Component 3 (Deepening the PSA Program's contribution to poverty reduction in rural areas) specifically seeks to reduce the obstacles to participation of the poor in the program.

The proposal recognizes that the risk of negative socioeconomic impacts on environmental service providers as well as user groups strongly depends on voluntary participation based on the perceived self-interest and well-being of program participants. Therefore, the integration of local communities to the program is one of the project's main objectives.

Arrangements and mechanisms are proposed for collaborative work in conservation as well as for coordination among different types of management regime and responsible agencies, based on the program's previous experience.

World Bank response:

We agree with the STAP reviewer's assessment. Although it is not a poverty focused project, by removing barriers for marginalized groups to participate in the PSA program and by providing technical assistance to stakeholder groups, the project will increase the representation of these small and marginalized landholders in the pool of beneficiaries for the PSA program.

10. Role, potential and importance of capacity building elements and innovativeness of the project.

The project presents an innovative strategy to avoid the prohibitive financial cost of establishing new protected areas by compensating landholders for the difference between the value of their land under an alternative use compared to its value under a conservation use. This is an interesting element of the project, since in most of Latin America conservation has taken place only in the formal national systems of protected areas.

The innovativeness of the project can be summarized as follows:

- It incorporates local communities not as co-managers but as actual managers of resources.
- It expands the society of people and groups taking responsibility and accepting to exercise authority over biodiversity conservation at the entire landscape scale, establishing then a management capacity consistent with the concept of the ecosystem approach.
- It employs the concepts and tools from conservation biology and landscape ecology.
- It shifts the balance of funding away from exclusively depending on budgetary allocations and grants to a mix of sources that will ensure sustainable financing mechanisms.
- It considers the establishment of a participatory monitoring and evaluation system, including technical assistance and capacity building to FOFAFIFO and local communities for its implementation.

World Bank response:

We agree with the STAP reviewer's assessment.

11. Final comments:

This is an excellent project, and I strongly recommend its support.

Annex 17: Biodiversity Significance of Project Sites

COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

1. **Biodiversity in Costa Rica.** Despite its small size, Costa Rica ranks among the world's 20 top countries in terms of its number of recorded animal and plant species (over 500,000). Its biological richness is due to its diversity of altitudes and climates, along with its geographic location spanning two oceans and within the Mesoamerican Biological Corridor. A significant proportion of Costa Rica's native animal and plant species are either endemic (found only in Costa Rica) or near-endemic (found only in Costa Rica and nearby neighboring countries, particularly Panama).

2. **Biodiversity conservation successes and challenges.** Costa Rica has achieved notable biodiversity conservation successes, having overcome serious constraints and challenges (some of which remain). Its public protected areas system is among the best in Latin America, both in terms of coverage (about 12.5 percent of total land area, encompassing most ecosystem types) and degree of real on-the-ground protection. In the 1970s and 80s, Costa Rica was notorious for having among the highest deforestation rates (in percentage terms) in all of Latin America, as most of the forests outside of protected areas were cleared for agriculture and (especially) cattle pasture. This trend has slowed and even reversed, so that the net deforestation rate is now negative, with more land per year being reforested (mostly through natural regeneration) than is being newly deforested. While there are various explanations for this remarkable turnaround (to date, unique in tropical Latin America, except Puerto Rico), the payments for environmental services (PSA) program can take a portion of the credit, both directly (roughly 5 percent of Costa Rica's forested lands are enrolled) and indirectly (by showing other landholders that conserving forests has a value for which society in general—and specific environmental service user groups in particular—are willing to pay). Despite these successes, Costa Rica's diverse forested ecosystems remain vulnerable to clearing (even if technically illegal) for alternative uses, including profitable forms of agriculture and suburban expansion. Many of Costa Rica's animal and plant species remain vulnerable to the loss and fragmentation of their forest habitats. The proposed project intends to improve the conservation status of many of Costa Rica's globally threatened and near-threatened species, through PSA contracts to maintain mostly forested habitats in areas of high priority for biodiversity conservation.

3. **Costa Rica's PSA Modalities.** In accordance with Costa Rica's Forests Law, there are presently three different modalities of environmental service payments to private landholders in Costa Rica: Forest protection, reforestation, and agroforestry. The forest protection modality involves PSA to landholders for maintaining natural (primary and secondary) forests, while avoiding most timber harvest, hunting, burning, or other major disturbances (as specified in their contracts). The reforestation modality involves PSA for reforesting pastures or other lands either with tree plantations (of native or non-native species) or through facilitating natural regeneration. The agroforestry modality involves PSA to landholders who add (a specified minimum) of trees to their existing cropland (such as coffee) or pastures. A fourth modality, sustainable forest management, was discontinued in 2003.

4. Essentially all of the Costa Rican land now eligible for PSA either is now forested, or used to be forested in historical times. With the exception of non-wooded wetlands (discussed

below), areas of recent volcanic activity, and limited other sites (such as beaches), all Costa Rican used to be covered with some type of forest. Thus, restoring trees to lands that used to be forested is considered to be positive from an environmental standpoint in general, and specifically with respect to the environmental services of water supply, carbon storage, and scenic beauty. From a biodiversity standpoint, restoring trees tends to be most useful (particularly for the forest-based animal and plant species of conservation concern) when the trees added through reforestation or agroforestry systems are a relatively diverse mix of native species. Plantations or agroforestry systems using only one, or a very few tree species (especially non-native ones) are of very low direct benefit for biodiversity conservation. However, the treeless pastures or croplands (to be replaced by tree plantations or agroforestry systems) tend to be of even lower value for biodiversity conservation, especially since the treeless systems are more likely to be intentionally burned (which often harms adjacent natural forest). Thus, all the PSA modalities used in Costa Rica are (at least slightly) positive from a biodiversity conservation standpoint. The most useful agroforestry systems for biodiversity conservation are those with a diverse mix of tree species (as well as differing heights, so as to mimic the structure of a native forest). The ideal reforestation system in Costa Rica is natural regeneration, since plantations tend to be (for silvicultural and economic reasons) monoculture patches (of native or non-native species). However, by far the most valuable PSA modality for biodiversity conservation is forest protection, which, aside from harboring the most biodiversity (particularly the species of conservation concern), also covers the most area (88 percent of all PSA lands to date) and has the lowest costs per hectare.

5. **Lands eligible for PSA.** Only privately owned lands are eligible for PSA contracts. In Costa Rica, the great majority of private lands are individually held; the balance are indigenous community lands under collective title. Costa Rica's entire land area is now divided within 11 Conservation Areas, which are planning units for coordinating a variety of biodiversity and other conservation activities. Within each Conservation Area is a mixture of National Parks and other categories of protected areas (typically on public lands), along with private lands under all kinds of different uses. Under Costa Rican Forestry Law 7575, the clearing of natural forest of any kind is now prohibited throughout the country, including on private lands. Nonetheless, PSA to willing private landholders (as well as the complementary strategy of maintaining protected areas on mostly public lands) are needed to effectively implement Costa Rica's strict anti-deforestation policy on the ground, so that it is more than just a law on paper.

6. Presently, the Costa Rican lands which receive PSA funds targeted for biodiversity conservation (mostly under the forest protection modality) tend to be of the following four types:

- **Corridors between protected areas.** Under the Ecomarkets Project, specific corridors were defined between existing protected areas to help ensure the connectivity of forested habitats that is so important to the survival of many forest-based species. These corridors assist the survival of these species by facilitating (i) gene flow between populations (thus helping to prevent inbreeding problems); (ii) more viable population sizes for species (including larger mammals) that naturally occur at low densities; and (iii) "vertical migrations" up and down mountain slopes to reach seasonal food supplies, a survival strategy employed by many forest-based animals, including globally threatened and near-threatened birds such as the Resplendent Quetzal, Three-wattled Bellbird, and Bare-necked Umbrellabird.

- **Buffer zones.** In Costa Rica (unlike some other countries), buffer zones are not specific, legally defined areas at the edge of protected areas (or their core zones). Rather, they are private lands in the general vicinity of existing protected areas, which are considered important for (i) expanding the available area of natural habitat around the protected area (or some section thereof) and (ii) reducing the pressures of intensive land uses by keeping them some distance away from the protected area boundaries.
- **Protected area inholdings.** Although Costa Rica's existing National Parks and other protected areas are typically on public lands, many of these areas still contain pockets of privately owned lands which the Government has not yet acquired due to lack of funds. Under the Ecomarkets Project, payments for environmental services to owners of these inholdings have been found to effectively keep these lands under natural vegetation and to reduce resentment by landholders who are not allowed to develop them more intensively. It is important to note that, although PSA are likely to increase the market value of enrolled lands (which reflects the present value of the future PSA income stream), they are not expected to undermine possible future efforts by Government to acquire these inholdings. This is because, in such situations, the landholders would be legally expropriated and paid compensation according to an official assessed value that is not affected by the presence of PSA.
- **Indigenous Community Lands.** Owing to their location, some indigenous community lands in Costa Rica harbor globally significant biodiversity (notwithstanding the ongoing subsistence hunting pressures).

7. **Biodiversity conservation priorities for PSA Lands.** Some of the lands chosen for PSA contracts are on the basis of their location (i) within important watersheds (in accordance with the legal requirements of the water tariff for PSA funding) or (ii) areas suitable for reforestation to obtain carbon credits (such as through the new Bio-Carbon Fund). Where natural forest protection or regeneration is being promoted for watershed conservation or carbon storage, the PSA contracts will also maintain or enhance the value of these lands for biodiversity conservation. However, in the proposed project, all funds channeled through the Biodiversity Conservation Trust Fund will be directed towards establishing or renewing PSA contracts in sites of high global priority for biodiversity conservation. These contracts will mostly be of the forest protection modality, except where the existing low tree cover needs to be enhanced through reforestation (facilitated natural regeneration) or biodiversity-friendly agroforestry systems (with a diverse species mix and tree height). During implementation of the proposed project, environmental service contract sites will be selected based on (i) renewal of existing contracts (where compliance has been good) in high-priority areas for biodiversity conservation chosen under the Ecomarkets Project and (ii) the biodiversity conservation priorities to be indicated in the GRUAS 2 report now under preparation (see below).

8. **Sites for PSA contract renewals.** Under the Ecomarkets Project, the sites chosen for PSA contracts in areas of high priority for biodiversity conservation were guided technically by the 1996 GRUAS Report, *Propuesta Técnica de Ordenamiento Territorial con Fines de Conservación de Biodiversidad en Costa Rica: Proyecto GRUAS*. The area now covered under PSA contracts is roughly 250,000 ha, of which 95 percent are natural forests under conservation contracts and 130,900 ha are in areas chosen particularly for their high biodiversity importance. Specific zones prioritized for PSA under the Ecomarkets Project, based on the GRUAS Report's recommendations, include the following Biological Corridors: (i) Tortuguero, which connects

the Indio-Maiz Reserve in Nicaragua with the Tortuguero National Park and Barra del Colorado Wildlife Refuge in northeastern Costa Rica; (ii) Barbilla, which connects the Barbilla National Park with the Cordillera Volcanica Central Biosphere Reserve and the La Amistad International Park (shared with Panama); (iii) Corcovado-Piedras Blancas, which connects the Corcovado and Piedras Blancas National Parks on the Osa Peninsula; and (iv) Fila Costeña, which encompasses a biologically distinctive mountain range in southwest Costa Rica. Under the proposed project, environmental service contracts in these priority areas will generally be renewed, to maintain the long-term continuity of conservation efforts.

9. **Sites for new PSA contracts.** In addition to renewing most existing PSA contracts in areas of high biodiversity importance, the proposed project will make available some US\$ 6.5 million in additional funds annually for new PSA contracts. The priority locations for new PSA contracts will be guided by the findings of the follow-up biodiversity study (GRUAS 2) now underway. Under the technical guidance of INBio, the GRUAS 2 study is intended to update the information and revise accordingly the priorities indicated in the 1996 GRUAS report. In the past decade, there has been a rapid increase in knowledge about Costa Rica's biodiversity, including the distribution and survival requirements of its globally threatened and near-threatened species. The on-the-ground conservation picture has also changed, with new protected areas established, some areas reforested, and other areas under new threats of intensive development. The GRUAS 2 study will thus revise and update the list and 1:50,000 scale map of priority areas for biodiversity conservation (from a global perspective), including the targeting of PSA under the proposed new project. Its results are expected to be available by January 31, 2006 and incorporated within the Biodiversity Conservation Trust Fund rules prior to the release of GEF funds. During implementation of the proposed project, GEF and other Biodiversity Conservation Trust Fund resources will flow to the areas of highest priority identified in the GRUAS 2 report and suitable for environmental service contracts (e.g., individual in-holdings, buffer zones, corridors, or other clusters of high-priority lands, possibly including additional indigenous community lands).

10. **Freshwater wetlands as possible PSA sites.** The existing PSA Programs all involve natural or planted forests, or agroforestry areas. Some Costa Rican freshwater wetlands of high biodiversity value are on private lands and vulnerable to loss, particularly through drainage for intensive agriculture (such as pineapple plantations). (Salt-water wetlands in Costa Rica, such as mangroves and inter-tidal mudflats, are all on public lands.) Some of these freshwater wetlands are swamps with palms or other trees and are thus eligible for PSA under the existing forest protection modality. However, other wetlands of high biodiversity importance lack woody vegetation and are ineligible for PSA under the scope of the existing Forests Law. These marshes and associated wetland types are largely located in Guanacaste Province, as well as in the north of Costa Rica (where it comes close to Lake Nicaragua on the other side of the border). If the GRUAS 2 study finds these treeless, freshwater wetlands to be of sufficiently high priority for global biodiversity conservation (such as perhaps for amphibians or migratory birds), then the operating rules of the Biodiversity Conservation Trust Fund would allow the use of GEF and other biodiversity-oriented money for PSA within these areas.

Annex 18: Biodiversity Conservation Trust Fund
COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

Endowment Fund Capitalization and Management

11. The Biodiversity Conservation Trust Fund will be an independent, long-term financial mechanism specialized in providing payments to private landholders as long as their lands are recognized by the government as protected areas. It will be capable of leveraging resources from a broad spectrum of donors and institutions. Payments to landholders funded by the Biodiversity Conservation Trust Fund will contribute to expand the conservation of biodiversity.

12. The Biodiversity Conservation Trust Fund's Technical Commission will be solid, with both public and private sector representation. A majority of members, to come from the private sector, will be specialized in environmental services management, sustainable use of biodiversity, and finance. The Technical Commission will be chaired by a FONAFIFO representative. Biodiversity Conservation Trust Fund will have a solid administrative and technical structure, defined according to the needs of different donors. Its administrative processes will be efficient and transparent and its structure will be small and professional.

13. The Biodiversity Conservation Trust Fund would contain an endowment account to respond to the interests of various donors. Biodiversity Conservation Trust Fund will be designed with enough flexibility to accommodate new donors and will create specific sub-accounts, if so requested, to provide payments for environmental services in specific areas. At the donor's request, Biodiversity Conservation Trust Fund's sub-accounts may contain independent Steering Committees and will maintain independent financial statements and monitoring mechanisms so that the various donors can keep track of their contributions and evaluate their impact.

14. The Biodiversity Conservation Trust Fund will enter into a contract with an internationally selected asset manager to be responsible for the investment management of the fund's financial capital. The selection of the asset manager and the definition of investment management guidelines will be carried out in accordance with Bank guidelines and supervision requirements. At the operational level, Biodiversity Conservation Trust Fund maintains an Executive Director and a group of well-qualified staff to manage operational, administrative, and financial assignments, including financial reporting and auditing tasks required for project management.

15. For the purpose of initial capitalization of the Biodiversity Conservation Trust Fund, GEF resources will be disbursed on a 1:1 basis (US\$1 from the GEF for each US\$1 from other donors), following verification of deposits by other donors. Once the donor's deposits are confirmed, the GEF will disburse its funds. The disbursement procedures and requirements will be included in the operational manual.

16. Detailed financial projections, from the basis for estimated annual costs to be covered by the Biodiversity Conservation Trust Fund's investment income, as well as the required capitalization and capital asset allocation are presented below.

Financial Projections for Endowment Capital

17. The following financial projection pertains both to the GEF endowment contribution and to the matching contributions from other donors. The current proposal assumes that the GEF capital, matching contributions and interests will occur from 2007 to 2011 and will capitalize up to \$15,333,777 at the end of the fourth year, which will generate income to cover the endowment's investment and administrative costs and will be able to support the payments for environmental services of at least 16,000 ha (assuming current payment levels of US\$45 per hectare) to as much as 35,000 ha (if payments are reduced to about US\$20 per hectare). By design, these numbers do not reflect the schedule of payments that was decreed on November 11, 2005. Payments from the fund will be made according to a schedule to be agreed, separately, during project implementation.

18. To meet these objectives, a specific asset allocation strategy, consistent with investment guidelines agreed with the Bank, will be defined by the Technical Commission and reflected in Biodiversity Conservation Trust Fund's operational manual.

19. Given current market conditions, a 6% return per year²³ can be derived from an assumed 75% of the endowment invested in fixed income securities. This strategy avoids market fluctuations that can affect the availability of the required annual cash flow. The remaining 25% of the endowment is forecast to be invested in equities.²⁴

Table 18.1: Financial Projection of Endowment (US\$)					
Source	Year 1	Year 2	Year 3	Year 4	Year 5
GEF contributions	1,000,000	2,000,000	2,000,000	2,000,000	500,000
Matching contributions	1,000,000	2,000,000	2,000,000	2,000,000	500,000
Total	2,000,000	4,000,000	4,000,000	4,000,000	1,000,000
Balance	2,000,000	6,000,000	10,000,000	14,000,000	15,000,000
Inv. in Fixed Income (75%)	1,500,000	4,500,000	7,500,000	10,500,000	11,250,000
Inv. in Equities (25%)	500,000	1,500,000	2,500,000	3,500,000	3,750,000
Total Growth (6.0%)	121,716	366,180	608,582	852,015	912,873
Fund Costs	157,770	179,494	204,834	230,388	229,163
Requirement for next year	-	-	-	-	683,710
Capitalization	-	186,686	403,748	621,627	-
Total annual withdrawal	-	179,494	204,834	230,388	912,873
Excess / Shortfall	-	-	-	-	-
End of year balance	2,121,716	6,308,402	10,712,150	15,333,777	16,333,777

20. The total operating costs of the endowment will be financed by the interests generated from the capital invested. The endowment will be able to cover 100% of its operating costs from the year 2008 on (2nd year of operation). Support from a Government of Costa Rica grant will cover \$157,770 from the operating costs of the first year of operation.

²³ Assumption provided by Interfin (Costa Rican private bank) and Citigroup.

²⁴ The asset composition and portfolio will be decided by Biodiversity Conservation Trust Fund's Technical Commission, from advice received from a financial advisor and asset manager.

Table 18.2: Endowment Costs (US\$)					
	Year 1	Year 2	Year 3	Year 4	Year 5
Investment Costs	11,410	-	-	-	-
Administrative Costs	146,360	179,494	204,834	230,388	229,163
Total Project Costs	157,770	179,494	204,834	230,388	229,163

21. Total annual requirements of the project will consider an income derived from \$7.5 million GEF grant and an estimated \$7.5 million contribution from the Government of Costa Rica. An additional \$3 million contribution is expected from NGOs. This amount has not been taken into consideration for the present analysis. Contacts will be intensified at implementation of the project to secure this additional funding.

Table 18.3: Total Income Available to Endowment (US\$)					
Source	Year 1	Year 2	Year 3	Year 4	Year 5
GEF	60,858	183,090	304,291	426,007	456,436
Government of Costa Rica	60,858	183,090	304,291	426,008	456,437
TOTAL	121,716	366,180	608,582	852,015	912,873
Fund Costs	157,770	179,494	204,834	230,388	229,163
Tot. available to support PSA	121,716	186,686	403,748	621,627	683,710

Fund Capabilities vs. Overall Needs

Financing incremental payments for all estimated 900,000 hectares whose conservation can not be funded through payments for providing carbon-related or water-related ecological services requires a fund capitalization in the order of \$720 million assuming a \$45 per hectare payment. Conservation activities in many of these areas are currently being financed by World Bank/GEF funds through the Ecomarkets Project as well as KfW funds through the Huertar Norte project. Both these sources, however, are limited in time. The Biodiversity Conservation Trust Fund provides the instrument for doing so, but will need substantial additional support to fulfill this important role. Since this represents considerably more than the capital currently available for Biodiversity Conservation Trust Fund, a fundraising strategy will be developed and implemented by the fund's Executive Director during the project's duration, taking into account guidelines and recommendations set up by the fund's Technical Commission.

Annex 19: Report of the Independent Evaluation Panel
COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

1. In the summer of 2005, FONAFIFO contracted an independent review panel to evaluate the results of the Ecomarkets Project. This ‘blue ribbon’ panel was composed of led by Erin Sills (North Carolina State University), and included Gary Hartshorn (World Forestry Center), Paul Ferraro (Georgia State University), and Barry Spergel (independent consultant, formerly with WWF), all whom have considerable experience working on market-based instruments for conservation. This annex summarizes the main results of their evaluation and their principal recommendations.

Evaluation

2. Costa Rica’s program of payments for environmental services (PSA) is an innovative and highly successful effort to voluntarily enlist private landholders to maintain and protect their forests. Since its inception in 1997, the PSA Program has been applied to a total of nearly 500,000 ha of privately owned forests. Of this amount, the Ecomarkets Project (2001-2005) represents a cumulative total of about 212,000 ha, involving payments to nearly 2,400 landholders. The PSA Program has been funded primarily by allocating 3.5 percent of the national fuel tax to FONAFIFO. The PSA Program has also attracted significant co-financing from bilateral donors, including KfW, NORAD, and the Government of Japan. The World Bank/GEF-financed Ecomarkets Project’s main achievement has been not merely to provide additional financial resources to expand the PSA Program, but to re-focus the entire PSA Program on global and regional biodiversity conservation priorities, as well as on national social goals. The Ecomarkets Project’s other main achievement has been to greatly strengthen FONAFIFO’s institutional and technical capacity, thereby increasing the effectiveness and efficiency of the entire PSA Program, making it a model for other countries to emulate.

3. In-country benefits of the Ecomarkets Project are: Maintenance of privately-owned forests in several important biological corridors; local conservation of biological diversity; major increases in the involvement of women landholders and indigenous communities with the PSA Program; direct payments to a relatively greater number of small rural landholders; and, most importantly, broad-scale public recognition that intact forests and their environmental services have value.

4. The success of the Ecomarkets Project is based on FONAFIFO’s strength as an institution that is capable of effectively and efficiently managing a complex system of payments for environmental services; the strong legal framework, and wide political support for the PSA Program through three successive administrations; and the nationwide support from civil society, particularly small- and medium-size landholders, as well as local and regional organizations (e.g., NGOs, cooperatives). The PSA Program and the Ecomarkets Project have attracted widespread international interest, spurring several replication efforts. FONAFIFO has hosted official delegations from many countries wanting to study the PSA Program.

5. Over the last 35 years, Costa Rica has become an experimental laboratory for biodiversity conservation, providing important lessons learned that are of global importance. FONAFIFO should experimentally test new ideas by measuring their effectiveness and efficiency in

comparison to existing programs. Evaluations should not simply be a post-hoc analysis of available data at the end of the project, but should become one of the main activities being implemented by (and during) the project.

Recommendations

6. There are two different (but not mutually exclusive) paths for increasing the composite environmental benefits provided by the PSA Program: (i) raising more money to expand existing activities; and/or (ii) increasing the efficiency of existing activities by improving the program's administration and targeting. The former path focuses on expanding the budget, while the latter path focuses on maximizing the benefits provided by a given budget. The Ecomarkets Project has encouraged substantial movements along both paths.

7. To increase the PSA budget, the project has encouraged the development of new sources of revenue: private purchase agreements for ecosystem services; donor funding to complement existing budgets; a water tax to fund PSA contracts; and Certificates of Environmental Services (CSA). To increase efficiency, the Ecomarkets Project has led FONAFIFO to target the PSA Program on biological corridors, and develop the institutional capacity to reduce the administrative costs of managing an increasingly complex initiative.

8. Although raising more money and expanding the scope of the existing program is laudable, we believe that greater gains will come from improving the efficiency of the existing PSA Program rather than expanding the scope of the program.

Recommendation 1: FONAFIFO should continue to improve targeting of contracts to maximize the environmental benefits per dollar expended.

9. Targeting can be based either on seeking those lands that provide the highest ecosystem benefits or seeking those lands where ecosystem services can be purchased for the lowest contract costs: High-benefit lands with low contract costs are the most desired. The benefit-targeting of PSA contracts has improved since the beginning of the Ecomarkets initiative, with more emphasis focused on placing contracts in "priority areas." However, no efforts have been made to improve cost-targeting in the form of differentiated payments.

10. Determining the appropriate prices for a system of differentiated contracts can be accomplished in various ways: (i) Gathering more information on landholders in the form of costly-to-fake signals (often biophysical characteristics); (ii) relying on screening contracts; or (iii) harnessing competitive forces through procurement auctions. FONAFIFO could experiment with differentiated payments within the forest protection modality. The evaluation team suspects the most practical approach might be to use coarse biophysical data that are currently used to map priority areas and then do cost targeting within those areas, through one of these approaches. At the very least, we believe that FONAFIFO should not raise payment levels if benefits continue to be evaluated homogenously and there is excess demand for contracts. Only in areas where benefits are believed to be unusually high and there is little demand for PSA contracts raising payment levels should be considered.

Recommendation 2: FONAFIFO should increase its efforts to encourage greater contiguity or concentration of contracts in biological corridors.

11. For biodiversity, effective corridors require some degree of contiguity or concentration of habitat. Likewise, for watershed protection, area thresholds have also been identified as

important in supplying hydrological services (see references in Ferraro [2003b]). Scenic beauty benefits may also be subject to thresholds.

Recommendation 3: A follow-up project should explore and develop mechanisms to generate additional sources of sustainable financing for the PSA Program.

12. FONAFIFO and its partners have made great gains in identifying and securing new sources of funding. As noted above, we believe that equal efforts should be made on improving the efficiency of the existing program, but we wish to explicitly state our support for the ongoing efforts to diversify and grow the sources of payments for ecosystem services.

Recommendation 4: FONAFIFO should experimentally test new initiatives with the intention of evaluating their effectiveness and efficiency as compared to existing initiatives.

13. Costa Rica is a laboratory for conservation initiatives, but its initiatives are often introduced in ways that make evaluation difficult. We recommend that FONAFIFO treat their new ideas as hypotheses that require testing. As the government of Costa Rica continues to diversify the menu of PSA modalities or areas in which it operates, opportunities may arise to test innovations such as procurement auctions to distribute contracts, agglomeration bonuses to increase contract concentration, and quantification of ecosystem services to induce greater private sector participation.

Recommendation 5: FONAFIFO should explore opportunities for improving and expanding public education and recognition targeted toward PSA participants.

14. Currently, FONAFIFO provides neither environmental education nor recognition to PSA participants about the important public services participants provide. We believe that such education and recognition would expand public support for the PSA Program, increase local participation, and provide a means to lower contract costs over time as well as provide a means to prevent forest conversion in times of budget crises and declines in available payments. Of course, this belief is a testable hypothesis that FONAFIFO can experimentally evaluate (e.g., providing conservation education and public recognition to randomly assigned localities and observing differences in sign-up and renewal rates over time).

Recommendation 6: FONAFIFO should consider re-instituting the Sustainable Forest Management modality by creating a contract that allows more disturbance than the Forest Protection modality allows, while paying the landholder less money.

15. The Sustainable Forest Management modality was discontinued in 2003 for good reason: it paid landholders more money than the forest protection contract while delivering fewer environmental services (contracts allowed for disturbance, tree girdling, use of pesticides, etc.). However, FONAFIFO may find that a contract that allows for some disturbance, while paying the landholder less money than one receives for forest protection, is viable. If few land-owners sign up for this contract, FONAFIFO would have strong evidence that supporting native forest harvesting with conservation contracts is simply not a cost-effective way of delivering ecosystem services.

Annex 20: Maps

COSTA RICA: Mainstreaming Market-Based Instruments for Environmental Management

Preliminary identification of gaps in long-term financing of priority areas for biodiversity conservation

