Expanding Financing for Biodiversity Conservation

EXPERIENCES FROM LATIN AMERICA AND THE CARIBBEAN

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Acknowledgments

This publication was prepared under the direction of Karin Kemper, Sector Manager for Environment and Water Resources in the Latin America and Caribbean Region of the World Bank. The document was written by Laura Tlaiye (World Bank) drawing from valuable sources provided by: Ana Beatriz Barona (Patrimonio Natural, Colombia); Manoel Serrão (Funbio, Brazil); José María Michel Fuentes, Paola Bauche Petersen (CONAFOR, Mexico); and Gabriela Arcos, Richard Damania, Graciela Reyes-Retana, Valerie Hickey, Adriana Moreira, Dinesh Aryal (World Bank). Special thanks are extended to the many other colleagues who have commented on earlier drafts. The publication was designed and produced by GRC Direct under the supervision of Rachel Pasternack and Emilia Battaglini (World Bank).

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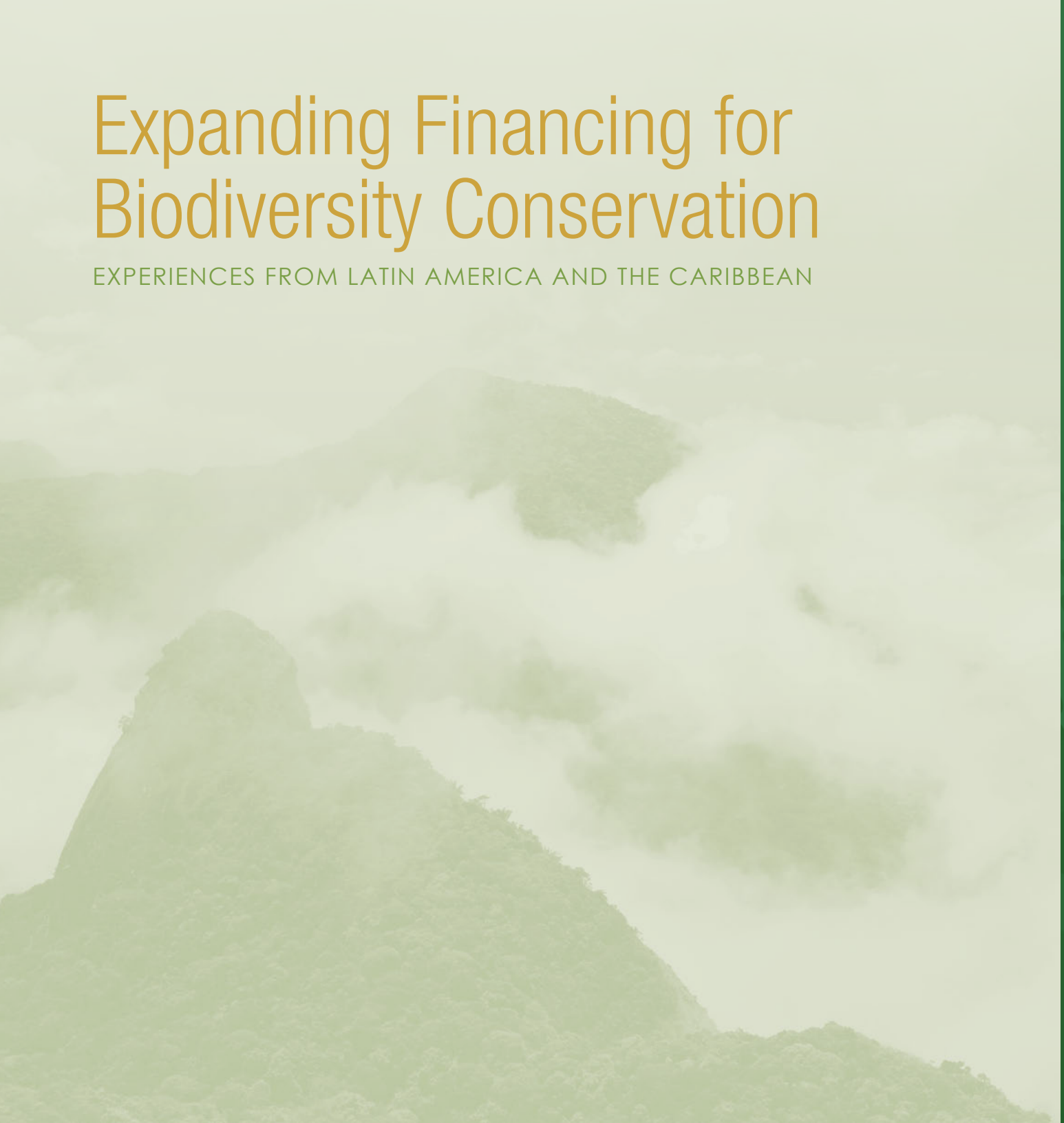

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ABBREVIATIONS AND ACRONYMS

AFR: Africa

ARPA: Amazon Region Protected Areas

CONAFOR: National Forest Commission (Comisión Nacional Forestal)

CONANP: National Commission of Protected Areas of Mexico (Comisión Nacional de Áreas Naturales Protegidas)

CTF: Conservation Trust Fund

DESCO: Center for Studies and Development Promotion (Centro de Estudios y Promoción del Desarrollo)

ECA: Europe and Central Asia

EEZ: Ecological Economic Zoning

FMA: Atlantic Forest Fund (Fundo da Mata Atlântica)

FMCN: Mexican Fund for Conservation of Nature (Fondo Mexicano para la Conservación de la Naturaleza)

Funbio: Brazilian Biodiversity Fund (Fundo Brasileiro para a Biodiversidade)

GDP: Gross Domestic Product

GEF: Global Environment Facility

JIRA: Intermunicipal Board for Integrated Management of the Ayuquila River Basin (Junta Intermunicipal para la Gestión Integral de la Cuenca del Río Ayuquila)

KfW: German Development Bank (Kreditanstalt für Wiederaufbau)

LAC: Latin America and the Caribbean

IUCN: International Union for Conservation of Nature

PES: Payment for Environmental Services

Profonanpe: Peruvian Trust Fund for National Parks and Protected Areas (Fondo de Promoción para las Areas Naturales Protegidas del Perú)

PSA: Environmental Services Program (Programa de Servicios Ambientales)

REDD: Reducing Emissions from Deforestation and Forest Degradation

REDD-plus: Enhanced vEersion of the reducing emissions from deforestation and forest degradation program

RedLAC: Network of Environmental Funds in Latin America and the Caribbean (Red de Fondos Ambientales de Latino-America y el Caribe)

SINANPE: National Natural Protected Areas System (Sistema Nacional de Áreas Naturales Protegidas por el Estado)

SINAP: National System of Protected Areas (Sistema Nacional de Áreas Naturales Protegidas)

FOREWORD

It is fair to say that the Latin America and Caribbean region leads the world in biodiversity conservation. With 20 percent of its land set aside for conservation, the region by far surpasses the 13 percent average achieved by other developing regions of the world. This is a major achievement and it is a great pleasure to honor the efforts made by so many people - decision makers, practitioners, financiers, communities, individuals - since the Convention on Biological Diversity came to life 20 years ago.

Evidence shows that biodiversity and ecosystem health are decreasing worldwide. In a world of constrained budgets and slow economic growth, the already limited public financing for biodiversity could be difficult to sustain, let alone expand. Recognizing the potential of ecosystems for economic and social growth and building on public private partnerships to invest in natural wealth can help transform biodiversity conservation into an engine of growth, a growth that is more inclusive and greener.

More and more stakeholders - including many in the private sector - are coming to appreciate the value of our ecosystems and the role they play in underpinning growth and poverty reduction. Governments invest in biodiversity conservation because it is part of the national wealth and underpins natural processes supportive of livelihoods and economic activities. The private sector invests in biodiversity conservation to create value, ensure supply chains and improve business models.

Civil society, business leaders, conservation organizations, and financial institutions all bring new ideas, innovation, partnerships and commitment to sustainable conservation that can unlock public financing and overcome inaction. The experience of the Latin America and Caribbean region in building partnerships to garner non-public finances for conservation through all kinds of financing instruments - from payment for environmental services to marketing of biodiversity-friendly products, incentive-based conservation contracts, co-management with communities and civil society - offers invaluable lessons for other countries in the region and worldwide.

This publication focuses on illustrating approaches used in four countries - Brazil, Colombia, Mexico and Peru - to address the financing challenge they face in managing well-established biodiversity conservation areas. Learning from these and other promising experiences of successful financing schemes is an indispensable part of planning future conservation efforts and a prerequisite for fulfilling the ambition to increase protected areas globally.

As one of the major funders of biodiversity and sustainable natural resources management, the World Bank is ready to provide its convening power, global knowledge and financial support to build partnerships and mobilize long-term funding for biodiversity conservation. We see this as a priority for building healthy and resilient communities who rely on clean air, water, land and oceans. We hope that by highlighting how sustainable management of natural capital is possible, the cases presented here serve as an inspiration for others to pursue a greener, more inclusive growth.

Ede Ijjasz-Vásquez
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EXECUTIVE SUMMARY

Biodiversity Financing in Latin America and the Caribbean: What We've Learned in 20 Years

The Latin America and Caribbean Region has been at the forefront of global biodiversity conservation, dedicating 20 percent of its land to protected areas compared to 13 percent in the rest of the developing world. This progress has stretched available budgets for conservation with estimates indicating that a twofold increase would be necessary to achieve optimal management of existing protected areas based on 2008 data. Recognizing the importance of this financing challenge, this document presents examples of how the region is successfully exploring news ways and sources of finance for biodiversity conservation. It is intended as an input to the global discussions on biodiversity financing drawing from a selective review of concrete experiences where governments are tapping nonpublic finance sources in effective partnerships. The cases reviewed point to common features contributing to their success:

- **Variety in arrangements.** In reaching conservation targets, governments in the region are raising resources from different members of society trying and adapting a variety of arrangements and innovative tools to local circumstances.
- **Enabling legal and institutional support.** In all cases, legislation passed over time provided government with the necessary regulatory power and human resources to allow use of new tools (for example, payment for environmental services, administration contracts, conservation trust funds) and the establishment of enforceable agreements with communities, nongovernmental organizations, and the private sector.
- **Capacity based on record of experience.** Institutional capacity in Latin America and the Caribbean involving innovative instruments has been developed over the past 10–15 years by implementing and improving upon programs. The creation of a formal civil service for protected area agencies (including national parks) and for conservation aspects in associated forestry and planning agencies has been a key milestone in this progress. Similarly, conservation trust funds have evolved into mature institutions capable of fund raising, innovation, and sharing lessons.
- **Building social capital.** Conservation needs to be owned by the communities who know best about nature. Successful conservation programs have transformed them into the strongest allies.
- **Clarity about conservation objectives.** People can mobilize when targets and results are clear and can be tracked transparently and in the near term.
- **Strong government leadership in guiding biodiversity conservation policies and programs.** Direct government support is needed for the foreseeable future because the true value that biodiversity provides to humankind is yet to be fully quantified, and ecological services are not (normally) traded in markets. Thus, government will retain a leading role in planning, executing, and financing in order to engage the rest of society in effective partnerships for conservation.

- **Financial resources as a necessary but not sufficient ingredient to deliver real biodiversity protection impacts.** The effective management of protected areas and associated landscapes goes well beyond ensuring financial resources. Much effort is needed by the various stakeholders to deploy resources effectively in order to deliver the expected biodiversity protection results.

What does this mean for the future? We hope this publication signals that we can build on the success of experienced institutions and programs to seek the public-private partnerships necessary to mobilize more funding and citizen action for biodiversity conservation. The experiences reviewed recognize the promising role of civil society and the private sector. More and more leaders see the benefits of investing in our natural wealth not just for community or social acceptance, but because healthy ecosystems provide valuable services and stability needed in business, such as supply of fresh water, genetic resources, climate regulation, and natural hazard protection.

The case studies show that the solutions need to be tailored to the specific local circumstances, seeking to build long-term sustainability through processes and regulations that are locally accepted (for example biodiversity offsets, more locally sourced financing in payment for environmental services). While government will remain the steward of biodiversity conservation, the full potential of participation by nonpublic stakeholders (private companies, foundations, communities, nongovernmental organizations, and citizens) is yet to be tapped. The Latin America and the Caribbean Region has proven that clever programs can involve these stakeholders effectively, earning them valuable rewards in the form of more resilient biodiversity and better-functioning ecosystems.

1 Expanding Financing for Biodiversity Conservation: Experiences from Latin America and the Caribbean

1.1 Setting the Stage

How can we use what we have learned in the last 20 years to increase financing for biodiversity conservation? World leaders and stakeholders from different corners of society regularly gather to discuss the progress achieved and the great challenges we still face in reaching the agreed goals to safeguard global biodiversity. The past 20 years have shown the complexity of these challenges, as they involve political, institutional, and economic dimensions. It has proven difficult to deploy adequate financial resources to meet the Convention's goals, nationally and globally. This document provides examples of promising financing arrangements that are helping countries in the Latin America and the Caribbean Region meet their conservation goals.

Global conservation goals embraced by most nations still demand huge efforts to be realized considering the scale of biodiversity loss, particularly in a world with unmet human needs. The Convention on Biological Diversity set a global goal of reversing the loss of biodiversity resources through in situ conservation of valuable habitats and biodiversity. This goal was broadly embraced by almost all nations of the world, who have responded with programs, policies, and partnerships to protect, on land and sea, those areas representative of their national biological diversity. These efforts have made great progress, however habitat loss continue their course, metrics of improvements in biodiversity's various elements are still incomplete, and resources available are insufficient. This is why from the tenth meeting of the Conference of the Parties to the Convention in Nagoya, Japan, October 2010, to the eleventh meeting in Hyderabad, the emphasis is on updating and reinvigorating national biodiversity strategies and action plans to achieve tangible goals. Among the agreed goals of the Convention on Biological Diversity for the period 2011 to 2020 are the 20 ambitious Aichi Biodiversity Targets, including aspired protection goals and the financial means to achieve them (box 1.1).

Of the conservation tools applied over the last two decades, a system of protected areas has been the most commonly adopted, yet many protected areas are not fully functional and may not guarantee

BOX 1.1
2011-2020 Aichi Biodiversity Targets under the CBD: Examples

By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought to zero, and degradation and fragmentation is significantly reduced (target 5).

By 2020, at least 17 percent of terrestrial and inland waters and 10 percent of marine and coastal areas of particular biodiversity importance are conserved (target 11).

On financing matters (target 20), decision X/3 requests Parties to:

- Report on funding needs, gaps, and priorities related to national implementation of the resource mobilization strategy;
- Assess the values of biodiversity;
- Prepare national financial plans for biodiversity.

Source: http://www.cbd.int/sp/targets/

biodiversity functions. A system of well-functioning protected areas[1] of various categories has been one of the main conservation tools applied around the world. In developing countries, the challenge of establishing and managing these areas for effective biodiversity protection has seen tremendous progress over the last 20 years. However, from legally demarcating a protected area to effectively managing it, including its buffer zone, requires a range of financial and institutional investments. These include resouces for hard investments (Infrastructure access roads, trails visitors faciltiies) and enforcement, and the regulations and human capacity to manage the area working with communities and the affected economic interests (for example farmers, loggers, and miners). The needed financial and human resources go beyond the capacity of many developing countries, notwithstanding the significant support received from external sources and civil society.

The Latin America and the Caribbean Region is at the forefront of developing systems of protected areas, though many challenges still remain. This publication presents evidence of how the region has many reasons to be proud of its conservation efforts, not just for the extent of conservation areas and programs, but also for applying innovative instruments that complement protected area systems. As in other developing regions in the world, the pace of economic development and the high global demand for natural resources place heavy pressures on sustaining and expanding viable ecosystems, hence the need to learn from what has worked and deepen efforts for more effective and efficient conservation.

This publication draws from existing reviews, literature, and expert opinion to highlight promising instruments and arrangements applied in the region to increase financing for the system of protected areas and beyond. These sources also point to growing threats to biodiversity and a financing gap for existing and new areas. From World Bank-financed projects, the Global Environment Facility (GEF), bilateral donors, and other sources, the document presents four cases where protected areas are combined with other instruments of biodiversity conservation that help leverage government budgets: (a) trust funds and mainstreaming in development programs (Brazil); (b) tapping contributions from communities in conservation mosaics (Colombia); (c) local cofinancing and schemes involving payments for environmental services (Mexico); and (d) administration contracts (Peru).

1.2 Financing Biodiversity Conservation Efforts in Latin America and the Caribbean

1.2.1 Protected Areas

Latin America and the Caribbean leads other developing regions of the world in safeguarding biodiversity resources, with 20 percent of its land area in protected areas compared to 13 percent of other developing regions of the world.

Over the past 20 years, Latin America and the Caribbean has expanded the coverage of protected areas, while setting financial mechanisms to support them. In that period the region has doubled the terrestrial area under protected areas, and the marine area has increased from 3 percent to 14 percent of territorial waters up to 12 nautical miles from shore.[2] In addition to establishing the regulatory and institutional infrastructure for protected areas with defined and stable rules, governments have worked on establishing sustainable financing sources. This has included securing formal approval of central government budget items and the establishment of conservation trust funds (CTFs) as private institutions entrusted with long-term endowments for

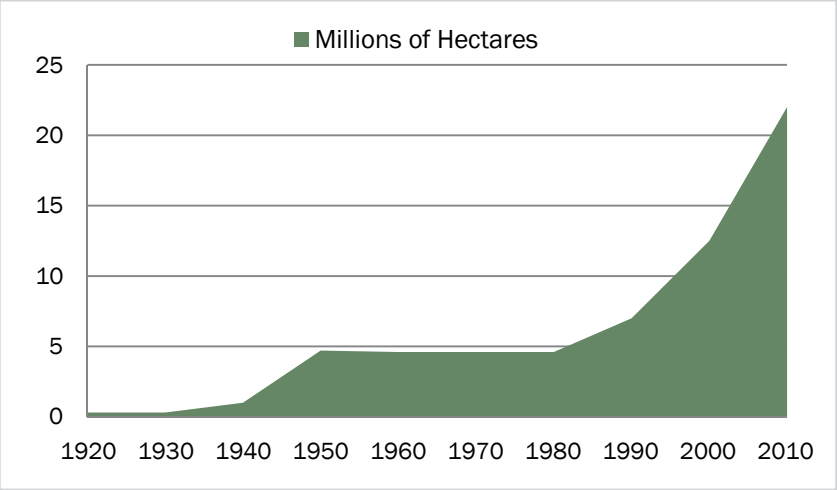
1 According to the International Union for Conservation of Nature (IUCN), a protected area is "a clearly defined geographical space, recognized, dedicated and managed through legal or other effective means to achieve the long-term conservation of nature with associated ecosystem services and cultural values."

2 IUCN World Commission on Protected Areas and UNEP World Conservation Monitoring Centre. *World Database on Protected Areas*. http://www.unep-wcmc.org/world-database-on-protected-areas-wdpa_76.html.

conservation programs. These entities have delivered on protecting the capital entrusted in them and have grown to become incubators of a variety of conservation programs beyond the boundaries of protected areas (box 1.2).

CTFs in Latin America and the Caribbean have helped supplement government funding for protected areas. The type of expenditures supported by CTFs has varied among countries and has included covering part of recurrent costs and cost sharing of the necessary capital investments that are often needed to meet individual or systemwide protected area objectives. Many CTFs have evolved to support special projects that are more difficult for the government to fund. For example, the Mexican Fund for Conservation of Nature (Fondo Mexicano para la Conservación de la Naturaleza, FMCN), created in 1998, applied 75 percent of the interest obtained from the protected areas fund it managed to new staff salaries for the federal protected area system. But in 2008, the government absorbed this expenditure into its budget, allowing the FMCN to apply these resources to innovative and strategic projects implemented by local groups and civil society organizations. As the region has increased the coverage of its protected area system, so have the associated expenditures risen. Using Mexico again as an example, the fivefold increase in the area under federal protected areas shown in figure 1.1 (to reach about 21 million hectares by 2010) also meant a sevenfold increase in associated expenditures from 2000 to 2010 (CONANP 2010).

Figure 1.1 Mexico: Area under Federal Protected Areas



Sources: CONABIO et al. 2007 and CONANP 2010.

Despite this progress, current budgets are not keeping pace with the needs and international cooperation is unlikely to fill the gap. On average, Latin America and the Caribbean governments allocate to protected areas just 1 percent of national environmental budgets, which amounts to $1.18 per hectare of protected area (based on 2008 expenditures). According to a self-assessment of 18 countries for the year 2008, about $382 million were allocated to existing protected areas, with Brazil and Mexico accounting for about $214 million of the total, in proportion to the size of their protected area systems (table 1.1). When compared to management costs, this figure covers only 54 percent of the basic needs, defined as the funding required to operate key conservation programs while meeting basic program requirements to sustain the functions of ecosystems in the protected areas. For an optimal management scenario, defined as the funding required for all programs to reach and sustain optimal functions of ecosystems in the protected areas, the resources required would be $1,083 million. This means that the optimal level of management would require about $700 million more, or about a twofold increase from what was reported to be the level of funding in 2008 (Flores 2010; Bovarnick et al. 2010). Brazil and Mexico account for more than half of this funding shortfall in absolute terms. To appreciate the level of effort that would be needed to close these financing gaps (to meet basic and optimal funding levels with respect to current funding), figure 1.2 shows the percentage increases necessary for all countries in the region.

The international sources – notably GEF and bilateral donors – have been instrumental in reaching the current level of support. Estimates of the share of funding sources are depicted in figure 1.3. Government is the principal source with 60 percent of the total, followed by 15 percent from international cooperation as donor funds. These include support for

BOX 1.2
Conservation Trust Funds

The Latin America and the Caribbean Region is home to 22 conservation trust funds (CTFs) in 15 countries and one transboundary area (Mesoamerican Barrier Reef System).

What do CTFs support? Revenues from CTFs support 660 protected areas, of which 455 are public, 150 are private, 45 correspond to traditional population areas, and 10 are of other classification. Most of these CTFs (17) support protected area consolidation projects, including investment in equipment and infrastructure; establishment of councils and training and community participation programs; and scientific research and biodiversity monitoring. Most trust funds include fund management plan formulation and institutional strengthening activities for organizations responsible for protected area system management. The costs of signalization, vigilance and control, and park guard training are often covered by these funds.

How are CTFs funded? The resources managed by environmental trust funds are mobilized through different types of financial mechanisms. For example, RedLAC[3] funds administer a total of $328.7 million dedicated to protected areas. This total is divided into endowment funds (55.4 percent), intended to preserve capital in perpetuity and only utilize interest or return earned; sinking funds (14.9 percent), which allow the utilization of capital over a long period of time; revolving funds (0.5 percent), designed to recover utilized resources; and other mechanisms (29.3 percent). In 2008, all of the RedLAC funds together disbursed $31.5 million for protected areas. Regarding the origin of these trust fund resources, multiple sources are possible although international donations still represent the most important source (11 funds receive international donor resources for protected areas). Private national donations or government budget resources are also important, as reported by seven and six funds, respectively. Among other sources cited by half of the funds, United States and Germany debt-for-nature swaps stand out. Only one fund reported market mechanisms as an important source.

How do CTFs perform financially? CTFs were able to preserve value and generate returns comparable to peers through the 2009–2010 financial crisis. In an analysis of responses from 28 funds worldwide (Preston and Victurine 2010), which included 15 CTFs in Latin America and the Caribbean (on average these CTFs had been in existence for 12 years), three-year returns for all funds averaged 5.43 percent and five-year returns were at 7.82 percent for the period ending December 31, 2010 (the five-year return of the S&P 500 index was 2.29 percent). The annual dollar-adjusted return in 2010 was 9.47 percent. Their assets invested more than 40 percent in bonds and around 30 percent in equities, with the remainder divided between cash and alternative investments.

How are CTFs set up and what other roles can they play? CTFs are generally set up as private legal entities independent from government, although government officials sit on and often chair their governing boards. Often, members of civil society and the private sector also serve on the governing boards and help shape the investment policy. This independent status has provided CTFs with flexibility and agility in performing core functions and enables them to play a role in other national conservation programs. For example, CTFs have been active agents for capacity building within and outside their countries (including the peer-to-peer learning facilitated by RedLAC), working on clean energy and projects concerned with reducing emissions from deforestation and forest degradation (REDD), among other initiatives.

Source: Based on Bovarnick et al. 2010 and KfW 2010

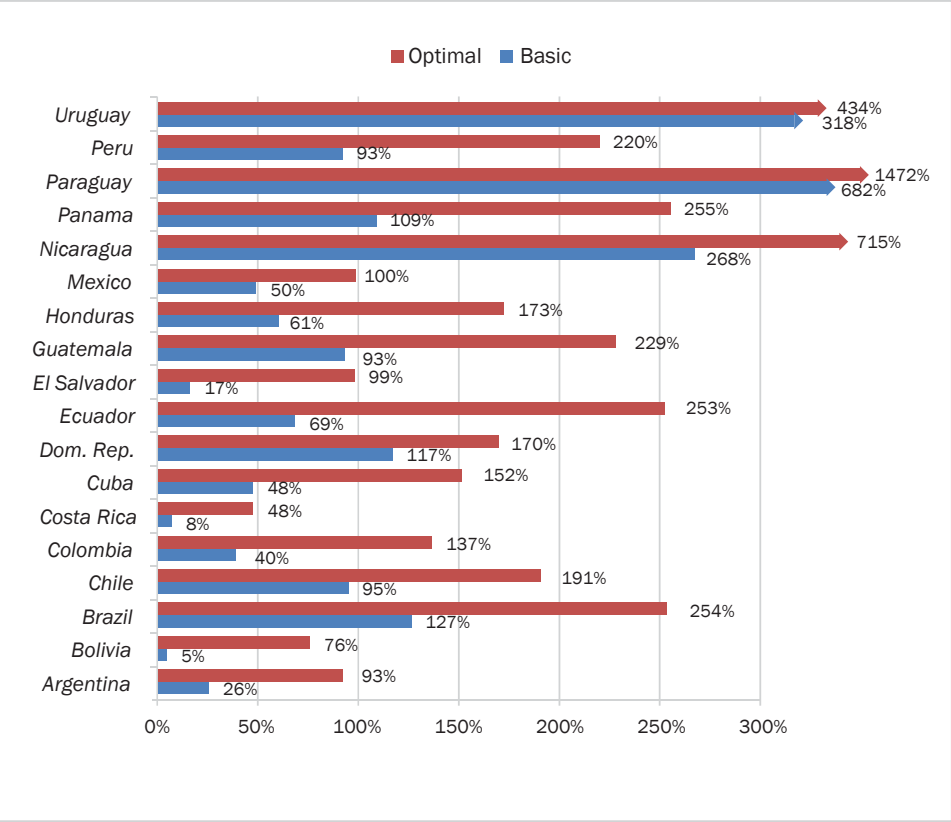
3 The Network of Environmental Funds in Latin America and the Caribbean (Red de Fondos Ambientales de Latinoamérica y el Caribe, RedLAC) is a network of environmental funds formally established in 1999. Its mission is to create a system for learning, institutional strengthening, capacity building, and cooperation across its 26 members in 16 countries (http://www.redlac.org).

Table 1.1 Protected Area Management Costs and Financial Gaps in Selected Countries (millions of US$, 2010)

Country	Financial needs (costs)			Financial gaps (costs – current funding)	
	Current funding	Basic needs	Optimal	Basic needs	Optimal
Argentina	31.3	39.5	60.4	8.2	29.1
Bolivia	5.1	5.4	9.0	0.3	3.9
Brazil	133.4	302.6	471.7	169.2	338.3
Chile	9.2	18.0	26.8	8.8	17.6
Colombia	18.0	25.2	42.8	7.1	24.7
Costa Rica	29.6	31.9	44.0	2.3	14.4
Cuba	14.6	21.6	36.8	7.1	22.2
Dominican Rep.	10.4	22.6	28.0	12.2	17.6
Ecuador	4.0	6.7	14.0	2.8	10.1
El Salvador	3.8	4.4	7.6	0.6	3.8
Guatemala	8.3	16.1	27.4	7.8	19.1
Honduras	4.1	6.6	11.3	2.5	7.1
Mexico	80.2	120.3	160.4	40.1	80.2
Nicaragua	5.3	19.6	43.3	14.2	38.0
Panama	9.5	19.9	33.8	10.4	24.3
Paraguay	1.2	9.7	19.5	8.5	18.3
Peru	13.1	25.1	41.8	12.1	28.8
Uruguay	0.8	3.4	4.4	2.6	3.5
Total	381.9	698.6	1,083.0	316.8	701.0

Source: Flores 2010. Figures rounded to the nearest million.

Figure 1.2 Percentage Increases Needed to Meet Basic and Optimal Funding

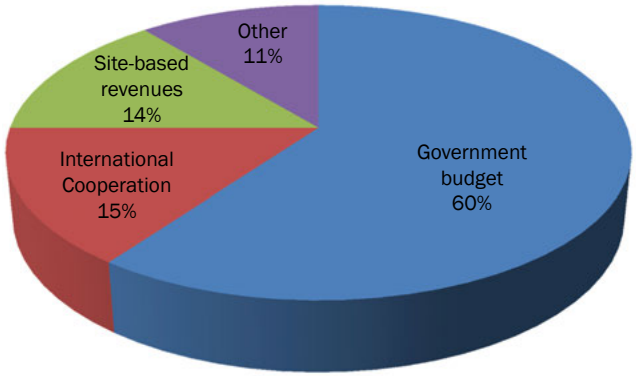


Source: Based on Flores 2010.

programs and projects or through capitalization of CTFs (for example, grants from the GEF – the largest biodiversity donor in Latin America and the Caribbean – and debt-for-nature swaps). Site-based revenues include entrance fees, fees for tourism and recreational activities, payment for environmental services (PES) programs that directly benefit protected areas (as opposed to areas beyond the demarcated protected areas), licenses, and fines. "Other" includes a variety of sources, such as dedicated taxes and compensations for protected areas and special funds that benefit protected areas.

The fifth replenishment of the GEF (GEF-5) for the period 2011 to 2014 will continue to benefit the Latin America and the Caribbean Region's biodiversity programs, although significant cofinancing sources will be needed. As shown in figure 1.4, GEF-5 funding for the entire biodiversity program area for Latin America and the Caribbean is $369 million for the 2011–2014 period, or on average $92.3 million per year. This amount is intended to support five strategic objectives under GEF-5, of which one is to improve the sustainability of protected area systems.[4] Assuming the historic proportion

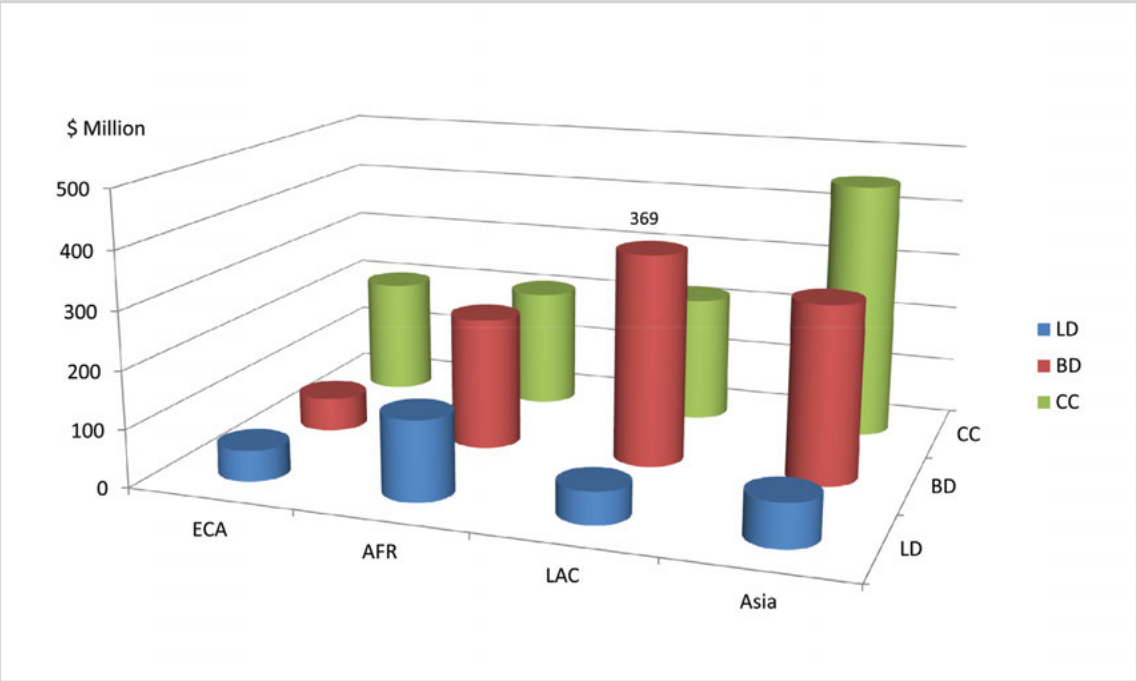
Figure 1.3 Protected Areas by Funding Source, 2008



Source: Based on Flores 2010.

4 The total allocation for the biodiversity focal area under GEF is $1.2 billion. The other four strategic objectives are: mainstream biodiversity conservation and sustainable use into production landscapes, seascapes and sectors; build capacity to implement the Cartagena Protocol on Biosafety; build capacity on access to genetic resources and benefit-sharing; and integrate CBD obligations into national planning processes through enabling activities.

Figure 1.4 Distribution of GEF-5 by Focal Area



LD = land degradation; BD = biodiversity; CC = climate change.

Source: Funding Available under GEF-5. http://www.cbd.int/doc/meetings/pa/wscbpa-la-01/other/wscbpa-la-01-presentation-gef-en.pdf.

of funding allocated to protected areas of about 60 percent of the total GEF biodiversity funding since its creation (GEF 2012), about $56 million per year would be available for Latin America and the Caribbean. If the basic management needs of $700 million per year were to be attained, GEF resources were to be attained by other sources on a 12.5:1 ratio. So far, GEF has been able to leverage its support for protected area programs on a 2.5:1 ratio globally (GEF 2012).

These findings point to the urgent need for other instruments and financing sources if existing protected area systems are to be operated adequately, let alone increase their coverage. The Latin America and the Caribbean Region has rich experience in innovating ways to expand support to protected areas and adjacent areas. The following subsection briefly summarizes some other types of instruments used. Chapters 2, 3, 4, and 5 provide examples of their application in Brazil, Colombia, Mexico, and Peru.

1.2.2 Other Financing Instruments and Approaches in the Latin American Conservation Landscape

In addition to protected areas, other tools for resource mobilization and management are in use to complement government funding. The main features of these tools are as follows:

- Payment for environmental services (PES) schemes, also known as payment for ecological services, are cash transfers to providers of environmental services conditional on continued provisions. PES programs target a variety of ecosystem services, including carbon sequestration, watershed protection, landscape beauty, and protection of biodiversity habitat. The scaling-up of REDD is an example of a PES scheme based on payments for conservation of forest carbon.

- Creation of marketable products, differentiated products, or services compatible with biodiversity protection (for example certified timber and nonforest products, ecotourism, licenses for photographing, hunting, and other recreational activities).

- Incentive-based conservation arrangements, such as administration contracts (also known as management concessions), services concessions, comanagement with community and civil society organizations, and private reserves. This includes a variety of models and participation schemes where the government shares the responsibility of operating a protected area under defined conditions.

- Mainstreaming biodiversity conservation in policies and sector programs by incorporating special measures and programs. The policies include biodiversity-sensitive land use regulations and territorial planning; infrastructure planning; project siting, impact assessment and mitigation; compensation for large infrastructure and extractive industries; and forestry and agricultural policies, notably subsidies.

2 Brazil: Atlantic Forest Fund and Mainstreaming Biodiversity Conservation in the State of Acre's Development Programs

2.1 Atlantic Forest Fund, Brazil: A Flexible Financing Tool for Biodiversity Conservation in the State of Rio de Janeiro

Brazil's Rio de Janeiro state hosts 20 percent of the remaining Atlantic Rainforest (*Mata Atlântica*) – a unique biome historically degraded due to its location along a densely populated belt comprising five states of Brazil's South and Southeast Regions. Rio de Janeiro state has established 46 protected areas known as conservation units (*unidades de conservacão*), which cover 365,475 hectares, or about 8 percent of its territory (data as of June 2008) (Freitas and Camphora 2009).

The Atlantic Forest Fund (Fundo da Mata Atlântica, FMA) is a financial and operational mechanism developed by the Brazilian Biodiversity Fund (Fundo Brasileiro para a Biodiversidade, Funbio) at the request of the State Secretary of Environment. It is modeled after the Amazon Region Protected Areas (ARPA) program, the successful federal program for protected areas in the Amazon region. The FMA was designed to provide greater agility, efficiency, and transparency to a portfolio aimed at strengthening state and municipal protected areas, including projects focused on conservation and restoration of the state's biodiversity.[5]

The FMA is a flexible tool because it enables the state to capture funding from different sources, such as contributions from environmental compensations, voluntary donations, domestic and international grants, and carbon credits. Through Funbio, the terms and conditions can be agreed with each source to meet the needs of the projects. The largest funding source so far is compensations for environmental impacts paid by industrial and

5 http://www.funbio.org.br/o-que-fazemos/projetos/fma-fundo-mata-atlantica-do-rio-de-janeiro.

infrastructure projects, as regulated by law.[6] In addition, the FMA hosts an endowment fund intended to support recurrent costs of protected areas on a long-term basis.

The FMA was initiated with 3.1 million *reais* (R$) (1 Brazilian Real = 0.4931 US Dollars) from compensation funds from a steel manufacturing company and a grant from Germany's Ministry of Environment through the German Development Bank (Kreditanstalt für Wiederaufbau, KfW) of R$508,000. These resources were used to purchase equipment and vehicles and to contract works and consultancies for state protected areas. Currently, the compensation portfolio for the FMA is close to R$50 million already deposited, and this sum is expected to grow to R$200 million with signed participation agreements from 46 projects benefitting 20 protected areas (Funbio 2012).[7]

This level of funding is quite considerable when compared to recent state budgets for protected areas. For example, in 2008 the state of Rio de Janeiro allocated a R$21.5 million budget to its protected areas system (this includes government and other sources). The minimum annual needs were estimated at R$55.5 million (comprising R$33.4 million for investments, that is, for infrastructure, equipment, and contracts for management plans, signs, and legal demarcation; and R$22.1 million for recurrent costs, that is, for salaries, administration, maintenance, and management programs) (Freitas and Camphora 2009). This means that in 2008 the financing gap was R$34 million (R$55.5 million in minimum annual needs minus the available budget of R$21.5 million).

By 2010, the FMA had already invested R$14.5 million in the state's protected areas (Funbio 2012), indicating that the fund had been able to fill about 43 percent of the financial gap, assuming needs and budget remained about the same as in 2008. The state is therefore on track to improve the financial sustainability of its existing protected areas system. Furthermore, if projections prove correct, financing might no longer be a main constraint to fulfilling the ambitious goal of doubling the size of the system agreed by the five Mata Atlântica states under the Environmental Pact for the Southeast signed by the ministers of environment in October 2007.

2.2 Acre State: Mainstreaming Biodiversity into Development Programs in the Amazon[8]

Located in the extreme southwest corner of the Brazilian Amazon region, bordering Bolivia, Peru, and the Brazilian states of Amazonas and Rondônia, the state of Acre has a number of development challenges. It has the third smallest economy of all 26 Brazilian states, representing 0.2 percent of national gross domestic product (GDP).

Acre's history is marked by a highly income-concentrating economy dependent on rubber tapping, unsuitable colonization projects, difficulty of access both within the state and to the state from outside (particularly in the rainy season), lack of adequate infrastructure for basic social services and productive activities, and long distances and challenging terrain between rural and urban centers. This combination of challenges has contributed to making Acre one of the poorest states in Brazil. With a population of about 687,000 people, 66 percent living in cities that concentrate over 65 percent of the economic activity, Acre's per capita income is the eighth lowest in the country. Despite significant improvements in recent years, the state's social and economic indicators are, in many areas, worse than the average in the Amazon region, which in turn are already far below the Brazilian average. Thus, Acre's main development challenges are to bring public services to the dispersed rural population and to continue moving away from growth based on extraction of forests products and expansive agriculture toward a more value-added economy.

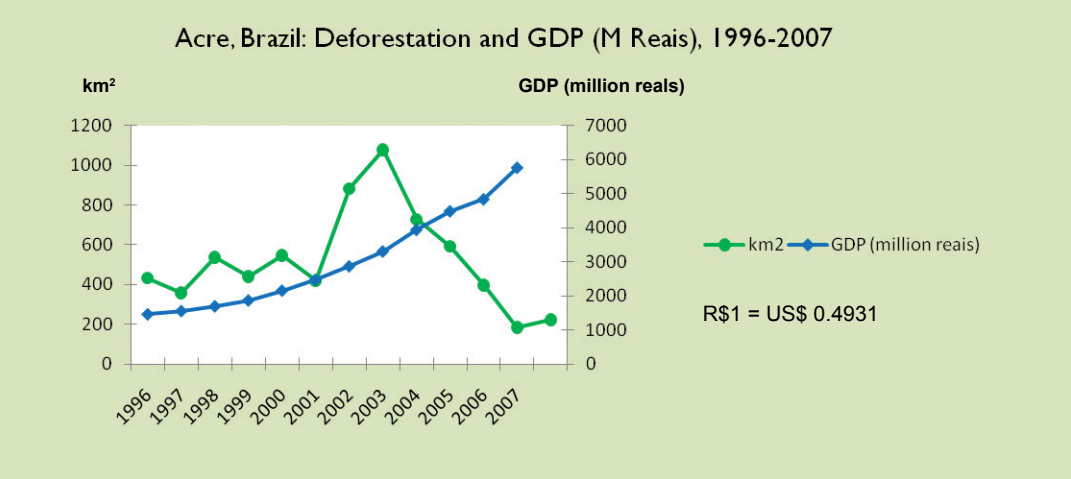
As shown in figure 2.1, Acre has been able to decouple deforestation from economic growth. Up to the early 2000s, about 90 percent of the timber exploitation in Acre was illegal, mostly

6 Financial compensation for environmental impacts of investment projects in Brazil was enabled by article 33 of Federal Law No. 9.985 of 2000, establishing the National System of Conservation Units. Subsequent regulations at federal and state levels have defined the operational modalities of environmental compensations. For example, in the state of Rio de Janeiro a public-private Chamber of Environmental Compensation assesses the level of compensation within a range of 0.5 percent to 1.1 percent of total project value as established by state regulation.

7 Article 33 above also establishes how environmental compensations can be spent, describing type and order of priority for expenditures in public and private protected areas.

8 Except where noted the prime source of this section is World Bank 2008.

Figure 2.1 Acre Deforestation and Real GDP Growth



Source: Environmental Defense Fund www.edf.org/content/ready-redd.

because of the failure of the state to monitor timber licenses. Currently, after state and federal efforts to regulate the timber sector, including stronger legislation, monitoring and law enforcement systems, and other economic incentives, some 85 percent of timber commercialization in Acre comes from approved forest management plans. At the same time, Acre's real GDP increased over 44 percent (over one and a half times more than the robust national average), while deforestation declined about 70 percent. The net result is that since 1998, only about 3.7 percent of the state has been deforested, while over the same period 11.8 percent of neighboring Rondônia state has been deforested, and 4.75 percent of the Amazon region overall.

Past deforestation was fortunately moderate, as much of Acre's land remains protected. Acre has an area of approximately 164,221 square kilometers, representing 4.26 percent of the Brazilian Amazon region and 1.92 percent of Brazil's territory. Primary tropical forest still covers 88 percent of the state territory. About 46 percent of Acre state is designated as protected, 31 percent as protected areas (9.5 percent of strict protection and 21.6 percent of sustainable use), and 14.6 percent as indigenous lands. Additionally, the forest code (since 1996) establishes that between 50 percent to 80 percent of the area of all rural properties with forests in the Amazon region should be kept as a legal reserve.

The state's leadership, good governance, and innovative policies are enabling Acre to improve well-being through sustainable use of its forest resources. Acre's economy has always been directly based on the forest and on the social factors related to its exploration and exploitation. Acre places the forest at the center of social and economic development, considering humans as an integral part of the natural system but not necessarily its dominant participant. From 1999 to 2006 the government of Acre was known as the "government of the forest" due to its strong commitment to preserving the forest, and a clear recognition that the state had an eminently forest-linked economy. The harmonization between economic development and sustainable use of the forests is known as "*florestania*," which is a combination of the words forest *(floresta*) and citizenship *(cidadania*). This new term, created to describe the various lifestyles in the Amazon region, represents a shift in cultural, social, and economic paradigms, and epitomizes the government's decision to focus on human development through the use of the state's natural resources but with strong environmental consciousness.

The means to translate "florestania" into development programs include use of planning and participatory tools to target social and productive programs to communities in most need while preserving and enhancing areas under protection. The planning tools used by Acre include ecological economic zoning (EEZ) and socioeconomic indicators through a broad-based consultation and participation process resulting in maps that help regulate land use and classify regions for targeted support programs. For example, in the 12 percent of the state

BOX 2.1
EXAMPLES OF COMMUNITY DEVELOPMENT PROGRAMS OF THE GOVERNMENT OF ACRE STATE

Community forest management. This program consists in the dissemination of community forest management, social organization, management of the potential for the multiple use of the forest, social services, market prospection, environmental management, and food consumption. Presently, there are 220 families involved with forest management and another 102 registered for participation.

Modernization of latex extraction. This project is integrated into the Xapuri preservatives factory, offering opportunities for the rubber tappers living at the Chico Mendes Extractive Reserve and surrounding areas. It aims at modernizing and industrializing production, and consequently incrementing incomes. By 2006, 1,000 rubber tappers had been trained in standardizing techniques to supply latex to the factory.

Brazil nut extraction. The project aims at linking brazil nut extractors to nut-processing industries through cooperatives. There are approximately 4,000 families involved in brazil nut management and its industrialization. In 2004–2005, 10 community warehouses were built, benefiting 700 families, and 100 families have been trained in brazil nut management good practices. The cooperatives are offering the best prices in the market, driving other buyers to follow suit, or risk running out of raw materials.

that is already deforested along major roads, and where farming, cattle ranching, and smallholder logging take place, the state is aiming to bring these economic activities into compliance with environmental regulations (requiring 50 percent of the land to be kept as forests) and promote intensification of production and transition from unsustainable to sustainable practices, while increasing incomes and agriculture and forestry production.

Forty-nine percent of the state's territory covers managed and intact forest areas, including indigenous territories, sustainable use reserves and settlement projects, state and national production forests, and strictly protected natural areas. Most regions in this zone are sparsely populated by indigenous peoples, rubber tappers, and riverine communities. Landholders must maintain forest cover on 80 percent of their lands. Development programs here aim to ensure long-term conservation of protected areas, guarantee the sustainability of inhabited reserves, and improve incomes and social services in the isolated indigenous and rubber tapper communities.

For other areas of the state identified by EEZ to include unclear land tenure and titling or involving overlapping or conflicting claims, the first goal is to define and regularize land tenure as a precondition to incentivizing sustainable land use practices. Identifying clearly the exact location of areas with land tenure issues is in itself a great achievement in the Amazon context.

The programs that are proving successful to safeguard Acre's natural wealth are helping communities extract forest and nonforest products more productively and with better commercial terms. To prevent degradation of the remaining forests in Acre, state programs help farmers, cattle ranchers, and logging operators with technology, know-how, and access to higher-value markets. These programs include facilitating certification of community forest management, training in intensification of cattle ranching, improving production technologies in extractive reserves through community forest management, and improved extraction and processing of forest products other than timber (better-quality brazil nuts, new products from rubber, and nontraditional products such as açai fruit, murumuru seeds, and andiroba seeds). Box 2.1 presents a sample of these programs.

Acre is therefore demonstrating how to address human development needs while carefully managing its natural wealth. The commitment to addressing poverty reduction is being fulfilled with good policies and well-targeted programs that identify and protect Acre's unique Amazonian ecosystems. Biodiversity conservation is an integral part of these efforts.

3 Colombia's Conservation Mosaics: Communities at Work

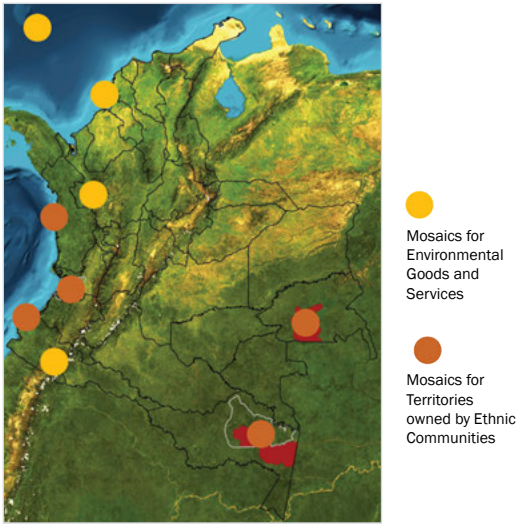
Colombia is among the 17 "megadiverse" countries in the world (six of them, including Colombia, in Latin America), defined as countries hosting the largest numbers of endemic species (UNEP 2010). With only 0.1 percent of the earth's surface, the country hosts 15 percent of all known terrestrial species. Colombia contains 12 percent of the humid and dry hotspots in the continent and three of the world's most biodiversity-rich areas: the Chocó biogeographic region, the Amazon basin, and the tropical Andes.

Protected areas of various categories (including 51 national protected areas, known as national natural parks) account for 21 percent of Colombia's territory and 16 percent of its territorial waters below 12 nautical miles.[9] However, Colombia's conservation efforts are being challenged by land use change pressures from expanding agriculture, mineral and fossil fuel exploitation, and forest degradation for local consumption. The government is applying different approaches to respond to these challenges, including expanding areas with improved natural resource management through conservation mosaics.

Conservation mosaics, as applied in Colombia, is a territorial management approach that relies on social participation and community decision making to build land use planning and management that complements the system of national natural parks and surrounding areas. The approach recognizes that protected areas are vital for conserving the world's biodiversity, but that dealing with land use pressures outside the protected areas is critical for the long-term existence of endangered species and the connectivity that enhances genetic diversity and ecosystem functions. Under a program supported by the GEF and the World Bank, Colombia is working with rural communities to effectively transform them into stewards of their land and forests, thus contributing to biodiversity conservation.

9 IUCN World Commission on Protected Areas and UNEP World Conservation Monitoring Centre. *World Database on Protected Areas*. http://www.unep-wcmc.org/world-database-on-protected-areas-wdpa_76.html.

Figure 3.1 Locations of Conservation Mosaic Program



The program is working in nine areas of the country, five of them coinciding with territories owned by ethnic communities (indigenous and Afro-descendant) and four dealing with environmental goods and services (figure 3.1). A main focus of the conservation mosaic approach is to allow for collective learning about the relationship between nature and communities.

The program works in the following manner. The mosaic is constructed through agreements between local communities and the national park administration within and around the protected areas to meet specific conservation objectives while generating local development benefits. Facilitated by Patrimonio Natural – Colombia's biodiversity and protected areas fund – these agreements are built though extensive dialogue and learning. For example, communities learn why restoring corridors is beneficial to farming and water quality, and how to introduce more sustainable and productive ways to produce crops and raise cattle. In return, they agree to preserve forested areas in the farms and participate in reforestation and restoration projects (Patrimonio Natural 2012).

For example, the Orquídeas-Encarnación basin mosaic has introduced sustainable farming practices, forest conservation, and active restoration of degraded lands in the buffer zone of the National Orchids Park (Parque Nacional Natural Las Orquídeas), located in Antioquia department. In addition, the program is targeting restoration of the Encarnación River's upper basin, which is also part of the park's restoration zone. Primarily due to extensive cattle ranching, the park's buffer zone exhibited highly fragmented vegetation, compacted and eroded soil, and large presence of invasive species. Through an agreement with approximately 500 farming families,[10] the program is aiming to recover the structure, composition, and functions of the Andean and sub-Andean forest. Assisted by a respected technical institution (Fundación Cipav), farmers are prepared to help each other in improving waste management, fodder production, intensive cattle management, and greenhouse orchard production. The program also works to build community cohesion, organizational capacity, and decision-making, with female teachers and women playing a prominent role.

Another example is the Consacá-Yancuanquer mosaic linked to the Galeras National Park, located in Nariño department. In addition to a variety of flora and fauna, the Galeras National Park is notable for its *páramo* biome – an extensive hydrological "sponge" estimated to source 120 rivers and gorges serving approximately 300,000 people and numerous farms and cattle ranches (Patrimonio Natural 2011). The system is experiencing similar pressures to the Orquídeas system described above, and the program has helped local communities reintroduce native species, establish biodiversity corridors, and develop water supply and distribution schemes. The Galeras National Park and the program also support groups of property owners in preservation and restoration activities, leading to the establishment of 114 private natural reserves each with a management plan coherent with the conservation objectives of the Galeras National Park. These reserves cover 504 hectares, of which 40 percent are designated for conservation.

10 An average farm is 64.4 hectares, 50 percent of which is cultivated or grassland and 50 percent remains as forest. Preserving the forested land was also a key objective of the program.

Figure 3.2 Farmers Sharing Experiences, Orquídeas-Encarnación Basin Mosaic

In both cases, the mosaic approach is helping to mobilize resources of local communities to preserve and restore territories adjacent to protected areas, thus helping to increase the viability of valuable ecosystems. Another tangible result is the creation of social capital among local communities and of a more legitimate and productive relationship with the national park authority. In addition to these and other local benefits (for example water and soil preservation), the nine mosaics have contributed to the voluntary establishment of about 35,000 hectares in private and collective reserves and 191,000 hectares within the buffer zones of the Galeras, Orquídeas, Farallones, and Old Providence National Parks, to be included in management plans with community participation.

As recognized by the GEF in choosing Colombia's conservation mosaics among the 17 most innovative and important conservation initiatives for the 2010 Year of Biodiversity celebration, this experience holds great potential for the rest of the world.

4 Mexico: Payments for Environmental Services and Other Forest Programs Working for Biodiversity

Mexico is one of the world's 17 megadiverse countries owing to its location and the wide variety of climates and geographies present in its territory.[11] The country has several programs in place to protect biodiversity, including a National System of Protected Areas (Sistema Nacional de Áreas Naturales Protegidas, SINAP) comprising 174 federal areas that, together with state and municipal areas, accounts for 25.3 million hectares or 13 percent of the national territory. Yet conservation in protected areas is insufficient to slow the pace of biodiversity loss, because the economic drivers of habitat degradation are strong and because there are still important biomes not fully covered by SINAP.

Deforestation and degradation of forests and coastal areas in Mexico are being driven by weak enforcement of land use planning, urban sprawl, infrastructure construction, and extractive activities, and, to lesser extent, by conversion to pasture and agriculture. In addition, land abandonment has facilitated illegal logging and uncontrolled fires and pests. The consequences include not just loss of biodiversity but also a host of other problems, including deterioration of water resources, higher impacts from natural disasters, soil erosion, and climatic disruptions. Loss of forest resources also affects the livelihoods of the 12 million people who depend on or complement their income from timber or nontimber forest products.

The government of Mexico has therefore designed conservation policies and programs to complement SINAP, including territorial planning at regional and local level, voluntary conservation areas, certified forest areas, wildlife management reserves (*unidades de*

11 Except where referenced otherwise, the prime source of information for this section is CONAFOR 2012.

manejo de la vida silvestre), and mainstreaming conservation goals in public policies and programs. Of particular interest are forest management policies and programs, as they have incorporated conservation and ecological functions performed by forests and tropical landscapes into the broader agenda of increasing production and productivity of the forest sector. Mexico's National Forest Commission (Comisión Nacional Forestal, CONAFOR) has developed payment for environmental services (PES) programs that are among the most mature in the developing world (box 4.1). These programs have evolved to leverage central government funding by bringing together providers and users of environmental services.

The national Environmental Services Program (Programa de Servicios Ambientales, PSA) currently covers 2.3 million hectares or a little under 5 percent of Mexico's forest area.[12] An

12 Seventy percent of forest land in Mexico is owned by communities and *ejidos* (rural lands titled to a collective of individuals, a land tenure model unique to Mexico); 3,000 of these communities are engaged in some form of forest use, with 600 of them organized as community forest enterprises.

BOX 4.1
CONAFOR Programs Working for Protection of Forest Ecosystems

The national Environmental Services Program (PSA) operates in two modalities: hydrological ecosystem services and biodiversity conservation. Both modalities are based on financial compensation to forest landowners aiming to maintain ecosystem conditions that favor the provision of ecosystem services. A contract is signed between landowners and CONAFOR in which the landowners agree to maintain forest cover or implement practices to conserve ecosystems and CONAFOR agrees to pay a fixed compensation per hectare over a period of five years. The level of payment per hectare of enrolled forest varies depending on the type of forest ecosystem and the risk of deforestation, with higher payments for forests under greater threat. Landowners agree to avoid or prevent others from changing land use in exchange for payments. They are encouraged to conduct surveillance activities to prevent illegal logging, unregulated hunting, and other harmful activities. CONAFOR finances performance monitoring, which enables the continuation of payments. The average size of PSA contracts in 2010 was about 1,000 hectares.

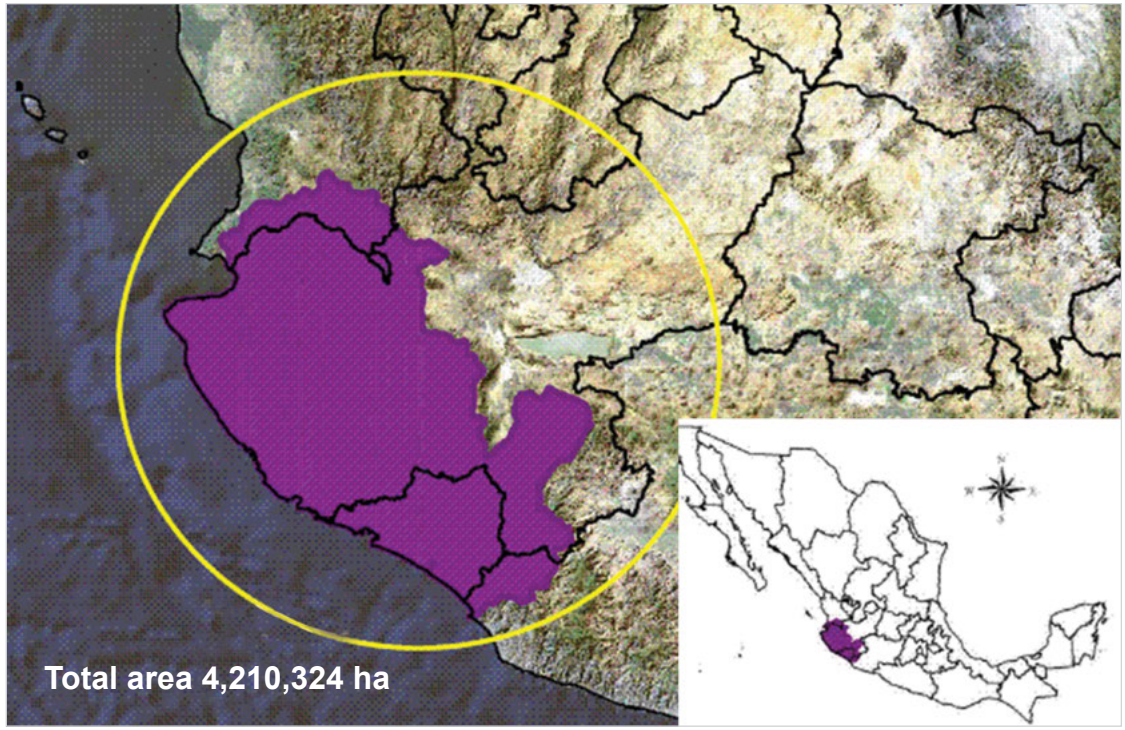
Local PES mechanisms through matching funds *(fondos concurrentes)* were developed to transfer resources from users of ecosystem services to the owners of forest land where services are generated aiming to promote sustainable management practices and the conservation of land that will maintain or improve the provision of these services. This strategy takes into account water basins, biological corridors, and priority areas for the conservation of forest ecosystems. CONAFOR encourages ecosystem service users (including cities, water utilities, and businesses) to become involved in these local programs by making financial contributions matched by CONAFOR. The contracts are adapted to local conditions and can last for periods between five and 15 years. Established in 2008, matching funds have enabled collaboration with civil society organizations, water utilities, the National Water Commission, state governments, municipalities, and an intermunicipal decentralized public entity.

The **Biodiversity Endowment Fund (Fondo Patrimonial de Biodiversidad)**, established with seed funding from GEF and the government ($10 million each), aims to provide payments in perpetuity, under a regional and biological corridor approach, for areas of high conservation priority that are not suitable for PES or other programs because service users are not readily identifiable. The selection of the target regions is conducted by an expert technical committee comprising government and civil society organizations based on several criteria, including high endemism, opportunity to expand corridors, and relative degree of threat. The program uses interest earned on $10 million investment packages to compensate communities for conserving these areas through renewable five-year contracts subject to annual performance evaluation. The fund seeks to leverage private, state, or local cofinancing for each investment package.

additional 212,000 hectares have been financed with new sources using local PES mechanisms through the Matching Funds Program (2008–2011), and 6,440 hectares through the Biodiversity Endowment Fund launched in 2011. Of the 2.3 million hectares under environmental service contracts, 353,340 hectares are located in the buffer zones of protected areas and the corridors that connect them, including the Mexican portion of the Mesoamerican Biological Corridor (World Bank 2011a, 2011b).

The application of CONAFOR programs in Mexico's coastal Pacific river basins illustrates how the government is leveraging resources from several partners. As shown in figure 4.1, this region hosts a priority conservation region spanning 4.2 million hectares identified in the biodiversity gap and omissions analysis conducted by the institution in charge of advising the government on its biodiversity policy and programs (CONABIO et al. 2007). Although there is still a large area of intact forest, deforestation has caused a 30 percent loss in forest cover in the past two decades. The remaining forest is composed of tropical deciduous and semideciduous forests at the low- and mid-level elevations, as well as pine and oak forests at the higher elevations. These are biomes of high global conservation value and are considered to be the most threatened in the country.

Figure 4.1 Coastal and Pacific River Basin Region



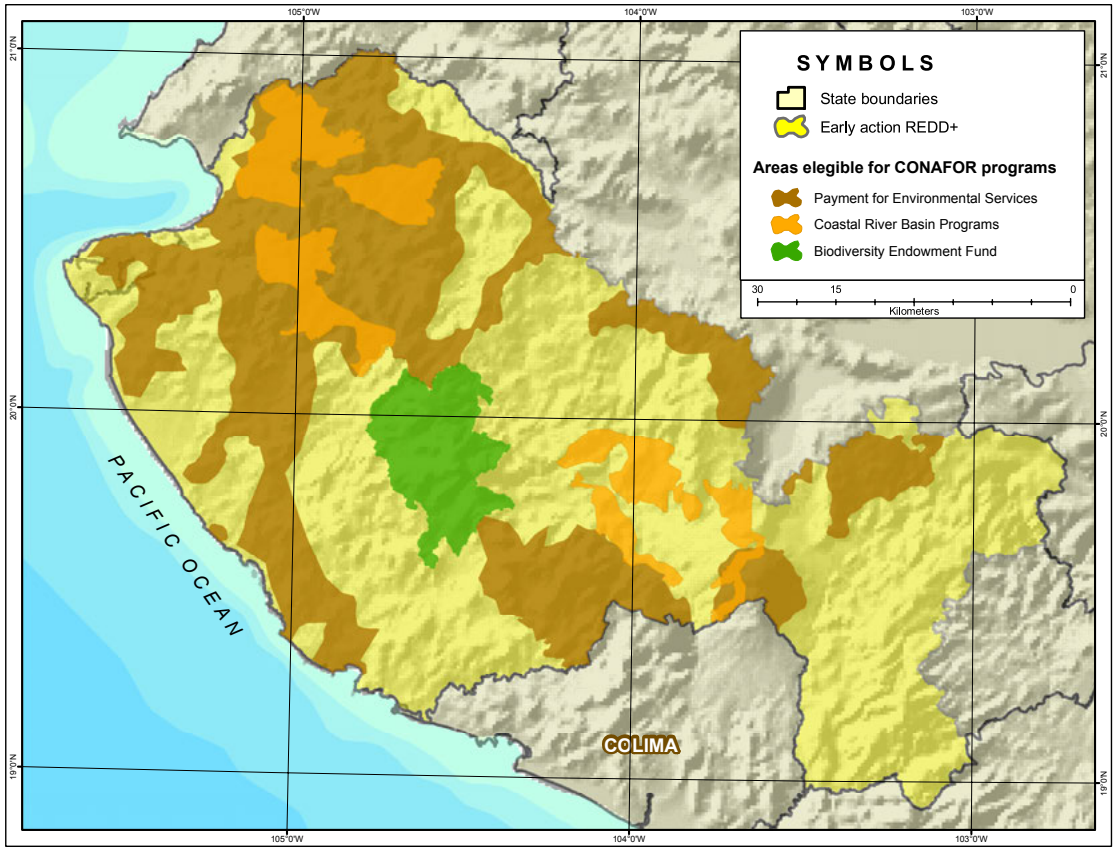
The region includes three states: Colima, Jalisco, and Nayarit, with Jalisco being the largest. Eleven of the 18 protected areas in Jalisco state, covering 550,000 hectares, overlap with the coastal and Pacific river basins, which host a wide variety of ecosystems with a sizable proportion of Mexico's endangered species.[13]

As shown in figure 4.2, four CONAFOR programs in the region target protection of river basins serving several towns and the tourist corridor of Puerto Vallarta, and also increase connectivity between the protected areas. The national PSA helps protect areas with important regional watersheds and high-priority biodiversity[14]. In order to target specific problems, local PES

13 Jalisco state hosts 192 mammal species (35 percent of all reported in Mexico), including the six felines found in Mexico. Reported bird species total 565, accounting for 53 percent of all birds found in Mexico, of which 37 percent are migratory.

14 Five state natural protected areas are in the Río Ayuquila region: the Sierra de Manantlán Biosphere Reserve, Nevado de Colima National Park, the flora and fauna protection areas of El Jabalí and Sierra de Quila, and the state park Bosques Mesófilos del Nevado.

Figure 4.2 CONAFOR Programs in the Jalisco Coastal Area



mechanisms have been developed for:

- **Puerto Vallarta mountain region.** In the westernmost part of Jalisco state lies the municipality of Puerto Vallarta, a major coastal tourist destination with one of the largest bays in the world (Bahía de Banderas). The terrain is highly uneven, with elevations from 100 to 1,900 meters above sea level. Sierra El Cuale is the mountainous part of the municipality and has been targeted as a priority conservation site because of the extraordinary abundance of wildlife and because it provides residents and tourists with scenic beauty, climate regulation, and water provision, among other environmental services. The local PES scheme was recently launched, bringing together resources from the state of Jalisco and CONAFOR. The scheme will transfer resources from tourists and residents of Puerto Vallarta to residents of the mountain region for the adoption of sustainable forest management practices. The program also involves the municipality of Puerto Vallarta, academic institutions, and civil society.

- **City of Colima.** CONAFOR is seeking to catalyze local markets for environmental services by bringing together providers and users of environmental services in the Cerro Grande area located in the southeastern corner of Jalisco and the state of Colima. This area is part of the Manantlán Biosphere Reserve, a highly biodiverse area that is home to seven poor communities of about 3,000 people. The watershed supplies water to the metropolitan area of Colima-Villa de Alvarez. The PSA started here in 2003 and supports sustainable forest management practices by these communities, for example through construction of 109 kilometers of fire roads and maintenance of reforested areas, among other activities. Much of the work also goes to improve communication and learning among the communities (*ejidos* and indigenous communities), private landowners, nongovernmental organizations, and academic and government institutions. The program established the Cerro Grande Trust Fund in 2011 and is currently working to establish a long-term payment scheme whereby the cities of Colima-Villa de Alvarez pay into the trust fund for the protection of the watershed.

In the lower Ayuquila basin, CONAFOR has joined forest conservation efforts being undertaken by the Intermunicipal Board for Integrated

BOX 4.2
JIRA: A Unique Partner in Conservation

JIRA is an intermunicipal decentralized public agency created in 2007 comprising 4,210 hectares and 10 municipalities along the Ayuquila River. JIRA's goal is to promote integrative territorial planning and natural resource conservation while fostering socioeconomic development for the 135,000 inhabitants in the municipalities' jurisdiction. JIRA supports technical and managerial assistance on environmental policies and programs, including environmental education, social participation, and waste management. It serves as a local governance model, with the interaction of federal, state, and municipal governments, as well as research institutions and civil society organizations. JIRA is unique because it allows for a legally independent body to act on behalf of local governments. For its various attributes, it is being considered as one of the pilot areas for early action under the enhanced version of the reducing emissions from deforestation and forest degradation program (REDD-plus).

Management of the Ayuquila River Basin (Junta Intermunicipal para la Gestión Integral de la Cuenca del Río Ayuquila, JIRA), an intermunicipal entity considered a model of local government cooperation (box 4.2). A local PES matching funds scheme involved both institutions pledging a total of about $500,000 to be used over a period of five years to improve management of 2,670 hectares. The funds support fuel management, development of firebreaks, forest fire fighting, seed collection, demarcation of managed areas, signage, monitoring, and other activities.

Finally, for areas shown in green in figure 4.2 containing biodiversity of very high priority, CONAFOR is applying its Biodiversity Endowment Fund. Launched at the end of 2011 with a contribution from GEF, the program has targeted Jalisco because ecosystems in its protected areas could significantly benefit from greater connectivity.

In sum, the coastal Pacific watershed programs show it is possible to catalyze cooperation and financing from local service users and stakeholders. CONAFOR's PES and associated programs have seen over a threefold increase in recent years (from $30 million to $100 million by 2010), reaching almost one fifth of CONAFOR's overall budget. Considering that Mexico has 64 million hectares of forests providing important environmental services, this level of commitment is encouraging as it signals the potential to scale up CONAFOR efforts to address degradation of forest ecosystems with local participation.

5 Peru: Enabling Private Cofinancing through Protected Area Administration Contracts

Peru is considered a megadiverse country, with nearly 10 percent of the world's species of flora, 2,000 species of fish, 1,736 species of birds (ranking second in the world in diversity), 332 species of amphibians (ranked third in the world), 460 species of mammals (ranked third), and 365 species of reptiles (ranked fifth). It is also one of the most important countries in terms of the number of endemic species (at least 6,288, of which 5,528 are flora and 760 are fauna species).

Peru's institutions and laws for biodiversity conservation have matured in the recent past. The country's National Natural Protected Areas System (Sistema Nacional de Áreas Naturales Protegidas por el Estado, SINANPE), created in 1990, covers over 18 million hectares (14 percent of the national territory) in 63 protected areas at the national level. In addition, the Protected Areas Law and the Biodiversity Law, both approved in 1997, enabled regional protected areas to be established by departmental governments. Three such areas already exist. These laws also allowed for private protected areas and stipulated the requirements for them, for example with regard to management plans and monitoring. They also provide the government with other administrative mechanisms to involve civil society and the private sector in protected area management, including administration contracts and service concessions (the latter for ecotourism and private conservation areas).

So far 10 administration contracts have been signed[15] between the National Service for Protected Areas (Servicio Nacional de Areas Protegidas) and nongovernmental

15 The protected areas with administration contracts are: (i) Coto de Caza El Angolo Sector Sauce Grande; (ii) Santuario Nacional los Manglares de Tumbes; (iii) Parque Nacional Cordillera Azul; (iv) Reserva Nacional Tambopata – Parque Nacional Bahuaja Sonene; (v) Parque Nacional Yanachaga Chemillén; (vi) Bosque de Protección San Matías-San Carlos; (vii) Parque Nacional Cerros de Amotape; (viii) Bosque de Protección Pui-Pui; (ix) Santuario Nacional Pampa Hermosa; and (x) Reserva Nacional Salinas y Aguada Blanca.

organizations, or an association of a nongovernmental organization with a local academic institution. Administration contracts can cover partial or full implementation of the management plan of a particular protected area and are agreed in periods of 10 to 20 years, renewable to meet the management plan duration. Contractors are selected on a competitive basis and performance is assessed annually upon quarterly reports presented by the contractor.

Administration contracts enable private cofinancing. Contractors commit to securing and contributing at least the same level of resources allocated by the government toward managing a particular protected area or implementing determined aspects of the management plan, as specified in the contract. While a 1:1 ratio is the basic requirement, some contractors have brought in as much as 4:1 cofinancing. It is expected that for the current year, administration contracts will bring in as much as an additional $20 million for management of the 10 protected areas for which they have been signed, and will continue to do so annually, compared to the government's annual contribution of about $5 million.

Three administration contracts have been facilitated by the Peruvian Trust Fund for National Parks and Protected Areas (Fondo de Promoción para las Areas Naturales Protegidas del Perú, Profonanpe), established by the government in 1992 with support from GEF, debt-for-nature swaps, government of Germany grants, and other donors. Profonanpe is a private organization with a governance structure that allows the government to guide its activities while benefiting from the administrative agility and flexibility of a private entity. To date, Profonanpe has built a portfolio of $116 million, composed of an endowment fund and sinking funds. The endowment fund has increased from $5.2 million (from the initial GEF grant in 1995) to $29 million, thus ensuring a steady and predictable flow of funds and financial sustainability. GEF financing (endowment and sinking funds) currently represents about 28 percent of the total funds channeled through Profonanpe and has become a catalyst for generating additional resources and for devising alternative management models for protected areas.

The Salinas y Aguada Blanca National Reserve is a good example of how administration contracts have helped achieve conservation goals. This reserve has a surface area of 366,936 hectares and is located in southern Peru between the departments of Arequipa and Moquegua. The landscape is characterized by lakes, volcanoes, high mountains, and forests of native *queñua* and other species. The reserve hosts habitats for vicuñas, wolves, flamingos, and many other species. The forests and soils of the reserve were being degraded and the vicuña population was suffering severe reductions due to illegal hunting and weak control and surveillance.

The administration contract was signed in 2006 with the nongovernmental organization Center for Studies and Development Promotion (Centro de Estudios y Promoción del Desarrollo, DESCO), with a commitment to implement the Natural Resources Management Program stipulated in the reserve's management plan. Officials from the National Service for Protected Areas retain the regular functions of surveillance and other aspects of the reserve's management plan. DESCO's tasks include recovery of pastures for camelids (domesticated and wild), forest restoration, and helping recovery of the vicuña population, as shown in table 5.1. These activities are implemented working with the population and civil society, as stipulated in the management plan.

As can be seen in table 5.1, the results have been highly satisfactory. For example, targets for recovery of the wild and semicaptive vicuñas have been substantially surpassed and illegal hunting has been eradicated.

Administration contracts with nongovernmental organizations in Peru involving active community participation and a strong partnership with the National Service for Protected Areas are demonstrating to be an effective tool to leverage government resources and meet the country's conservation objectives.

Table 5.1 Threats, Indicators, and Activities under DESCO's Administration Contract

IDENTIFIED THREATS	INDICATORS	PROGRESS MADE ON INDICATORS
Soil and vegetation degradation due to overgrazing and introduction of exotic grasses	1,000 hectares of pastures for domestic camelids improved from very poor to good condition	Intervention in 1,056 hectares (106 percent of target). This has included coordination with organizations and authorities, studies, management plan, installation of fences on 171 hectares, fertilization of 675 hectares, construction of 23 pools of water, 11 micro-dams, 92 km of rustic irrigation canals, and 21 km of water filtration ditches. Additional achievements have included the formation and assistance of conservation committees, the support and formalization of irrigation committees, training in pasture management with communities, a program for genetic improvement, and progress in control and surveillance.
Deforestation, soil and vegetation degradation	Improve the condition of Chachani's *queñua* patches, reflected in an increase in the biological diversity and wealth of species	Fifteen hectares reforested, supported by completion of studies, development of propagation technologies, construction of six fences to exclude herbivores, the proposal for the management plan, direct seeding and densification of 30 hectares, and progress in control and surveillance.
Heavy loss of vicuña populations due to illegal hunting and weak control and surveillance	Increase the population density of wild vicuñas by 17 percent and of the population in semicaptivity by 40 percent, and the volume of fiber production by 60 percent	Increase in population of wild vicuñas by 22.7 percent (2,874 to 3,387) and of those in semicaptivity by 34 percent (from 1,550 to 2,077); increase in fiber production of 35.1 percent (from 176.51 kg to 238.5 kg). This has included coordination with organizations and authorities, studies, management plan, population censuses, implementation of genetic improvement models, strengthening of vicuña management committees, and progress in control and surveillance. Illegal hunting of vicuñas has been eradicated.

Source: World Bank 2011c.

Figure 5.1 Signing of a Salinas y Aguada Blanca National Reserve Administration Contract

6 Conclusion

The Latin America and the Caribbean Region is at the forefront of conservation efforts, leading other developing regions in the size of areas under protection and in deploying various instruments and policies to mainstream biodiversity into overall economic development strategies. Sustaining and increasing these efforts represents a significant financing challenge. The experiences described in this document illustrate how countries in Latin America are finding ways to increase financing for biodiversity conservation. The examples point to common characteristics that help explain the underlying conditions that facilitated their success, which can be categorized as follows:

- **Legal and institutional backing.** In all cases, the legal framework empowered the government to use new tools or mechanisms (for example PES, administration contracts, trust funds) to engage other actors in mobilizing new resources for conservation. In addition, agencies had trained human resources and provided the necessary support to engage communities, nongovernmental organizations, and the private sector, enabling them to reach enforceable agreements.

- **Capacity based on record of experience.** Institutional capacity in almost all cases in Latin America and the Caribbean involving innovative instruments, as in the four cases reviewed above, has been developed over the past 10–15 years by implementing and improving upon programs. Key in this institutional evolution has been the creation of a formal civil service structure (with career opportunities) for the agencies in charge of protected areas (including national parks) and for conservation aspects in associated forestry and planning agencies. Similarly, conservation trust funds have evolved into capable institutions with capacity to innovate, share lessons, and provide oversight over global public goods.

- **Key role of building social capital.** Conservation needs to be owned by the communities who know best about nature. Successful programs have transformed them into the strongest allies of conservation programs. The Acre (Brazil) and Colombia stories show that meaningful engagements with communities can lead to a common understanding of how livelihoods can be improved while preserving valuable services provided by ecosystems.

- **Clarity about conservation objectives.** People can mobilize when targets and results are clear and can be tracked transparently and in the near term. The Peru example shows that with clear targets for administration contracts regarding restoration of vegetative cover and traceable species, good performance can be checked and celebrated. At a broader level, efforts to expand areas under protection should establish such metrics and the means to monitor results.

- **The role of strong government leadership in guiding biodiversity conservation policies and programs.** Biodiversity conservation requires direct government support for the foreseeable future because the true value that biodiversity provides to humankind is yet to be fully quantified, and ecological services are not (normally) traded in markets. Governments should therefore pursue proper valuation and inclusion of natural wealth in national economic accounts. In addition, governments need to develop and enhance planning and execution capacity in order to engage the rest of society in effective partnerships for conservation. This means that governments need to continue expanding their financial support to these core functions.

- **Financial resources as a necessary but not sufficient ingredient to deliver real biodiversity protection impacts.** The effective management of protected areas and associated landscapes goes well beyond ensuring financial sources. The challenges begin from the complex process of legal demarcation in view of the poor socioeconomic conditions prevailing in these areas and often unclear land tenure. Once established, management plans need to define uses of the area compatible with conservation objectives and be mindful of the need to improve the livelihoods of communities living within or outside these areas. Furthermore, conservation objectives need to be clear and indicators monitorable. In sum, in addition to mobilizing additional resources, governments have an equally important duty to use them effectively to deliver the expected biodiversity protection results.

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