

conservation finance:

strategies for protected areas and protected area systems

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Anthony C. Iatwin

Throughout the world, sustainable financing to meet conservation goals in protected area systems continues to provide a fundamental challenge. In reality, only a few protected areas have become financially self-sustaining, while the majority of protected area systems face large financial deficits. Low conservation investment levels, insufficient protected area staff capacity to develop finance strategies, excessive dependence on foreign-funding sources, and lack of participation from key private- and public-sector stakeholders continue to limit conservation efforts. Although there are ongoing efforts at the national and international level to mobilize financial resources toward protected areas, these efforts encounter obstacles due to the absence of accurate financial plans based on estimated financial needs, cost reductions, and protected area income-source diversification. At the same time, many countries are in need of appropriate regulatory frameworks to support the implementation of financial plans.

One of the Parks in Peril Program tasks has been designing and implementing protected area strategies to achieve financial sustainability—at the site and system levels. These strategies have included applying financial mechanisms, such as debt-for-nature swaps, conservation trust funds, tourism fees, and alliances with international financial organization, among others.

This bulletin describes the protected area financial planning process and presents some of the financial mechanisms used to generate resources to finance conservation.

Programme of Work on Protected Areas Objectives and Goals

“To ensure financial sustainability of protected areas and national and regional systems of protected areas”

(Objective 3.4)

The 2008 goal: “Sufficient financial, technical and other resources to meet the costs to effectively implement and manage national and regional systems of protected areas are secured, including both from national and international sources, particularly to support the needs of developing countries and countries with economies in transition and small island developing States.”

Source: CBD (2005)

In addition, this bulletin emphasizes the importance of conservation finance in order to comply with the Programme of Work on Protected Areas (PoW) under the Convention on Biological Diversity (CBD). Specifically, objective 3.4 of the PoW refers to financing for national protected area systems where signatories agree to establish sustainable finance plans for protected area systems and begin to implement them by no later than 2008.

Financing deficits for sustainable protected area systems

Several cost estimates exist associated with effective conservation of a representation of the world's protected areas. The World Conservation Monitoring Center (UNEP-WCMC, 2005) estimates that the cost of maintaining all the world's existing protected areas is more than US\$9.5 billion per year. The actual amount invested, however, is between US\$2.5 billion and US\$3 billion below that

amount. If the world's protected area systems continue expanding to include other key ecosystems, as has been the case during the past 50 years (Figure 1), annual costs could reach more than US\$25 billion each year for a protected area system covering 15% of the world's terrestrial surface (with 10% under strict protection) (CBD, 2005).

The cost of protected areas in developing countries is calculated to be between US\$1.1 billion and US\$2.5 billion per year. However, this amount is much smaller than actual requirements and much less than what is invested in developed countries (James et al. 1999a; James et al. 1999b; Bruner, Gullison, Balmford 2004). According to Bruner et al. (2004), if the world's protected area system expands to cover some of the existing high priority sites in developing countries, the annual protected area management cost in these countries could reach US\$4 billion. This amount appears unobtainable for countries struggling to address immediate social needs, with very little left for natural resource conservation.

Protected areas' financial sustainability:

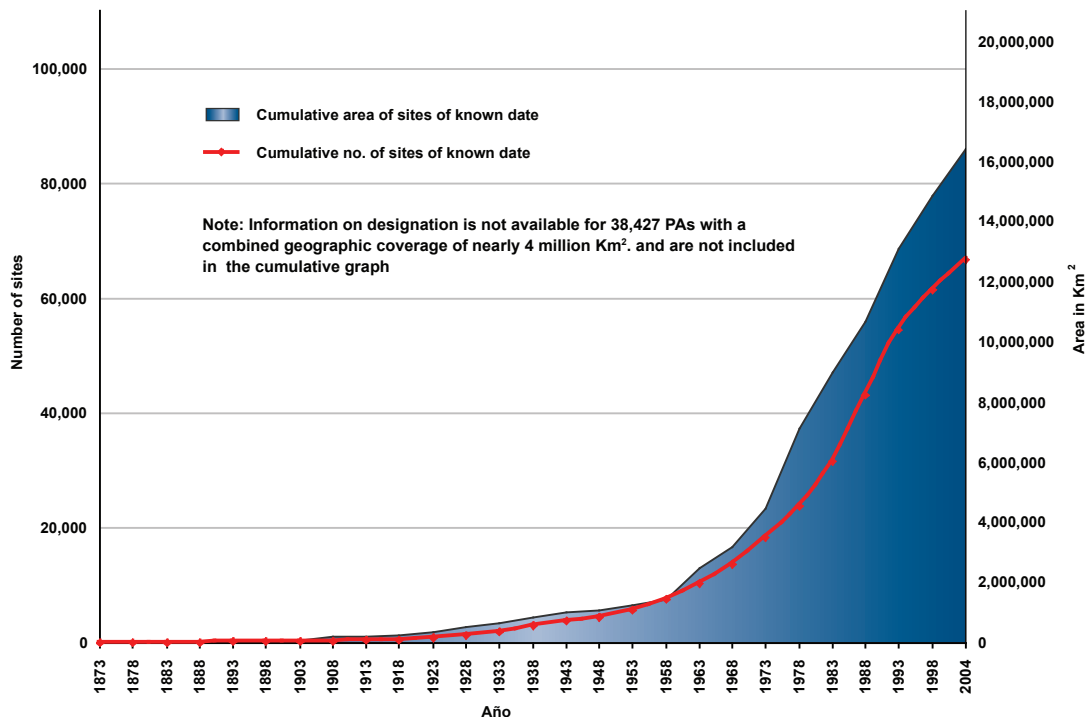
“the capacity to secure sufficient and stable long-term financial resources and assign them in a timely and appropriate manner to cover protected areas' full costs (direct and indirect) and to ensure protected areas are administered in an effective and efficient manner”

Source: CBD (2005)

Financial management based on business management principles

A protected area system financial plan “is a macro-level tool that establishes activities for the set of protected areas. In this sense, operations are financially evaluated, information given on actual and future needs, and options defined

Figure 1: Increase in the quantity and geographic coverage of protected areas throughout the world.



Sources: Chap et al. (2005) and IUCN

to leverage resources from the public as well as private sectors” (Flores *et al.* 2007). While this definition refers to protected area systems, similar definitions can be applied to financial plans at the site level or for an individual protected area.

The marked reduction in external resources along with unstable government resources to finance conservation have required protected areas—at the system as well as site level—to use a more business-focused approach to seek funds. Many financial plans are now developed using business-savvy, based on the idea that protected areas provide real economic benefits for individuals and society as a whole (CFA 2006). In this sense, financial plans seek to link biodiversity goods and services with society’s demands and priorities; the end goal being generation of a permanent flow of financial resources that make it possible to achieve conservation objectives.

The ideal financial plan should be developed as part of the protected area’s general Management Plan. Site or system site conditions are evaluated and registered in the Management Plan; then, needs and threats are evaluated and projected. This leads to developing information strategies, and both the planning and design of specific activities to address identified threats (CFA 2006). The financial plan tries to complement the Management Plan by supporting strategic actions on a financial level.

The Conservation Finance Alliance (see column to the right) promotes business-focused financial planning to support those tasked with managing the goal that protected areas adopt a business-like approach toward sites and systems management. However, the goal is not to maximize returns but to efficiently conserve protected areas by securing sustainable financial sources.

Conservation Finance Alliance (CFA)

“CFA was established in February of 2002 to encourage and strengthen collaboration between institutions and organizations involved in sustainable finance for biodiversity conservation” (CFA 2006). The Alliance is comprised of 18 signatory members, including The Nature Conservancy (TNC). Its website includes a Conservation Finance Guide in English, Spanish, French, and some portions in Russian, that:

- ⊙ Describes the systematic emphasis for understanding, selecting, and implementing finance mechanisms;
- ⊙ Covers 12 finance mechanisms;
- ⊙ Offers clear and simple methodologies to follow;
- ⊙ Provides practical tools (for example, worksheets);
- ⊙ Includes technical resources (for example, case studies, reports, list of experts, etc.).

Source: CFA (2006)

Reasons for using the business plan format

- ⊙ Select the most efficient course of action, in relation to costs;
- ⊙ Identify the benefits for protected areas;
- ⊙ Establish an adequate institutional framework and address training issues;
- ⊙ Serve as a management tool to measure and monitor progress toward achieving stated goals;
- ⊙ Accelerate achieving goals;
- ⊙ Serve as a communication tool to promote transparency and accountability;
- ⊙ Increase potential fundraising

Contents of a financial plan

A financial plan generally begins with a summary of the area or system’s financial situation, including income, needs, and the resulting financial gap. Second, it describes the strategies that will be implemented to close the financial gap. The financial plan should also include supporting documents such as a feasibility study and business plan. Financial plan content may vary based on the conditions in each country, but it is recommended that the plan contemplate the basic elements described below (Flores *et al.* 2007).

General framework: The framework summarizes the protected area’s (or protected area system’s) characteristics, including geographic extension, natural resources, cultural resources, and infrastructure, as well as pending legislation, long-term modifications the area or system has experienced, institutional characteristics of those charged with administering the area or system, and other information that allows a better understanding of the area’s challenges and opportunities.

Financial history: In this section, information is presented on the historical evolution of the protected area’s income, outflows, and investments. For income, specifics are provided for national, international, private, or public sources, as well as whether this has been earned through transfers, own-income generation, donations, or other sources. Expenses are detailed by cost categories (personnel, infrastructure, etc.) and differentiated for each Management Plan programmatic area. Finally, investments are disaggregated into capital costs and studies. This section also briefly describes the impact a lack of financial resources will have on the integrity of the protected area’s natural resources.

Objectives: The financial plan’s general objectives are detailed here, geared toward achieving the protected area or system’s Master Plan priorities. The objectives should refer to concrete changes, such as attracting or generating financial resources.

“The Sustainable Finance Plan filled a major gap in the national landscape plan in Grenada, particularly with respect to environmental planning. In fact it is quite timely as Grenada sought to institute a holistic and integrated approach to development following the devastation caused by Hurricane Ivan. The time is right. The Grenada Declaration must remain the primary focus as we seek to rebuild the national economy. The Sustainable Finance Plan is a central pillar.”

— Dr. Spencer Thomas, Former
Permanent Secretary, Ministry of
Finance, Grenada.

Financial gap summary: This section provides an analysis of the total income and expenditure required to conduct conservation (basic and best case scenario) and the difference – or gap – between income and expenses. This is the protected area or system’s actual financial situation. This analysis should be done for the protected area or system’s current financial situation, as well as for both historical data and future projected progress. This allows for establishing the scope of required financial resources, which influences selection of the financial mechanism to cover the protected area or system’s needs. The financial gap summary at the protected area level allows for a better understanding of the detailed operations-costs components and types of resources, whether financial, materials, equipment, or personnel.

Investment priorities: This topic indicates which programmatic areas require the most attention and is based on the financial gap analysis for each programmatic area and the protected area or system’s established Management Plan priorities. This allows for the identification and strategic assignment of resources raised through the financial plan for specific programmatic areas.

Financial strategy summary: Based on the financial needs and priorities identified in previous sections, this section summarizes the available financial mechanisms and helps in the selection of viable options, given the area or system’s situation. It includes a summary of the selection process for chosen options, including which mechanisms will be used to generate funds for each programmatic area. It also specifies to what degree each mechanism will reduce the financial gap, as well as the links with other financial mechanisms, and finally, if legal reforms or new capacity are required to implement the mechanism. In this case, feasibility studies should be attached that substantiate the financial viability of each selected mechanism (see Box).

Implementation plan: This section includes all actions needed to implement the financial plan. The implementation plan should include: 1) a program of activities with required actions for implementing the financial mechanisms with corresponding required institutional, legal, and business actions (see box on business plan definition); 2) the required budget to place the financial plan in action; 3) the number and type of personnel required to implement the plan, including identification of roles and responsibilities; and 4) a communications plan with actions for disseminating financial information to all the protected area or system’s external and internal actors.

It is important that all financial plans contain procedures to evaluate the financial plan’s implementation progress and impact on the area or system. This measurement mechanism should allow for opportune feedback and revision in order to establish a continuous cycle to improve the plan’s implementation. In this respect, the United Nations Development Program (UNDP), in coordination with the Conservation Finance Alliance (CFA), has developed a Scorecard to measure an area or system’s advances toward sustainable financing. This tool allows for follow-up on a protected area’s financial gaps, as well as fundamental structural changes that

may improve a protected area’s capacity to attract and/or generate financial resources. For more information on the Scorecard, see: www.conserveonline.org/workspaces/patools.

Feasibility study definition:

“Analysis tool that serves to determine whether or not a financial mechanism is viable. A feasibility study defines different alternatives or methods to operationalize the mechanisms and to select the best operations model to implement it. If a financial mechanism is not especially viable it is possible to analyze corrective measures to eliminate deficiencies, or in an extreme case to simply abandon it. It is important to indicate that a feasibility study is not a business plan.”

Source: Flores et al. (2007)

Business plan definition:

“An instrument that should be developed only when it or the selected financial mechanisms within the financial plan have been deemed viable through a feasibility study. A business plan is a management tool delineating necessary actions to implement a financial mechanism and to maximize economic returns. It begins from the best operating model defined in the feasibility study and details the necessary steps, actions, and activities for the most efficient implementation of the selected financial mechanism. In summary, a business plan provides a “roadmap” for the strategy that will be utilized to implement the financial mechanism.”

Source: Flores et al. (2007).

Enabling conditions

One of the principal problems for protected areas and systems throughout the world is reduced capacity to generate, administer, and efficiently distribute financial resources (Flores *et al.* 2007). The agencies charged with managing protected areas often face legal and institutional frameworks that are too complex and rigid, which impedes application of business management principles and establishment of innovative financial mechanisms. The responsible agencies generally do not have dedicated or trained staff to implement financial sustainability plans (Flores *et al.* 2007).

In order for adequate conditions to exist to achieve financial sustainability for protected areas, it is necessary to have

a legal and institutional framework that facilitates implementation of financial resource-generation strategies, as well as efficient resource-management, once funds are obtained. For example, from a legal point of view, it is important that legislation includes tax mechanisms (taxes, fees, fines, etc.) through which funds can be generated for the protected area. These tax mechanisms can also promote private sector participation in financing protected areas through tax incentives. At the same time, the legal framework should establish mechanisms that regulate transparency and efficiency of financial resources, and provide protected areas administrators a degree of autonomy in generating and managing financial resources.

From the institutional point of view, a management and administrative framework should exist to facilitate implementation of financial strategies by those tasked with protected areas management. Some key elements of this management-administrative framework include coordinating the financial planning at the site and system levels; making available adequate information for decision making; establishing the existence of national consolidated conservation directives between all ministries, and ensuring the availability of dedicated, trained, and adequately-paid human resources.

The legal and institutional framework should also ensure that different government agencies participate in both financial plan design and implementation; for example, the Ministries of Finance and Industry, and the legislative branch, etc. The framework should also promote participation by civil society organizations in protected areas co-management and mobilize financial resources for conservation. At the same time, the framework should stimulate private sector participation to provide financial resources and technical know-how.

In summary, the legal and institutional framework is a determining factor in achieving financial sustainability for protected areas. Depending on the type of existing regulations, it may or may not be feasible to implement a payment-for-environmental-services mechanism, grant concessions for services, or institute a differentiated fee-structured income system. As such, it is important to conduct an evaluation of the legal and institutional framework as part of the financial sustainability process to identify those topics that may limit financial management. Detailed examples of a legal and institutional framework evaluation tool can be found in the document “*Financial Plan and Business Principles for National Protected Area Systems: Methodology Guide and Lessons Learned*” (Flores *et al.* 2007), which was developed by the Costa Rican National System of Conservation Areas (SINAC).





Financial mechanisms

Financial mechanisms are defined as “tools designed to capture, generate, mobilize and/or transfer resources to finance diverse biodiversity conservation programs. In addition, they are instruments that allow technology transfer and generating capacity for financial management” (Flores *et al.* 2007). The following presents a list and brief definitions of some financial mechanisms that are often classified in accordance to how the funds are raised and used (Emerton *et al.* 2006).

Mechanisms based on attracting and administering external funding sources

- ⊙ International donations: include bilateral, multilateral, and NGO funds. In many countries these funds are matched by government funds, and constitute the majority of protected areas financing. Within the multilateral funds category is the Global Environment Fund (GEF)
- ⊙ National government funds: include resource allocations from national budgets for protected areas management
- ⊙ Voluntary private donations: include individual or philanthropic organization donations. Voluntary private donations also include corporate donations and sponsorships to support protected areas management
- ⊙ Environmental funds: consist of a management structure to invest funds raised from a variety of public, private, international, and domestic sources. The funds can be managed as fiduciary funds, sinking funds, or revolving funds.
- ⊙ Debt-for-nature swaps: constitute a mechanism through which public debt is bought by an external agency (typically an NGO) and forgiven in exchange for the government debtor promising to finance conservation activities.

Mechanisms to generate funds to stimulate conservation

- ⊙ Fiscal instruments: consist of mechanisms to raise and transfer funds between economic sectors. These mechanisms include taxes and subsidies.
- ⊙ Sharing benefits and income: can arise when protected areas assign part of raised resources for neighboring communities. For example, this can include transferring a portion of resources raised through tourism-related income to benefit the communities. In some cases, this can also consist of transferring protected area user rights or management to local communities.
- ⊙ Sharing protected area management costs: can arise when protected area management costs are shared with other groups, companies, or individuals that can generate additional funds or cost savings. These include protected area co-management schemes, as well as concessions, rent, and franchises.
- ⊙ Investments, credit, and business funds: include these include biodiversity business funds, which are financing mechanisms that provide business projects with long term capital and technical assistance based on conservation or sustainable biodiversity use.

Market-focused mechanisms

- ⊙ Tourism income: is earned by charging a fee for tourism services and recreation. In some protected areas, the fee is charged in the form of an entrance fee or for recreational activities, and can generate an important portion of protected area income.
- ⊙ Resource extraction fees: can be applied when natural resources are consistently extracted for a conservation objective, protected area authorities can charge users for the right to access these resources. Examples include licenses for hunting, fishing, or plant harvesting.
- ⊙ Bio-prospecting charges: can be generated when a protected area or protected area system charges for the right to collect genetic or biochemical material found within the area. Much of the bio-prospecting is done by pharmaceutical companies searching for new active ingredients.
- ⊙ Payment for environmental services: is based on a protected area providing environmental services to benefit the public. The idea is to generate a mechanism through which the protected area can economically redistribute the cost of these services. Examples of environmental services include water filtration functions from wetlands, storm protection in the case of mangroves, and carbon sequestration from forest biomass.

The following sections present greater detail on some of the above-mentioned mechanisms. Implementation of these mechanisms is illustrated through experiences gained by the Parks in Peril program.

Environmental funds

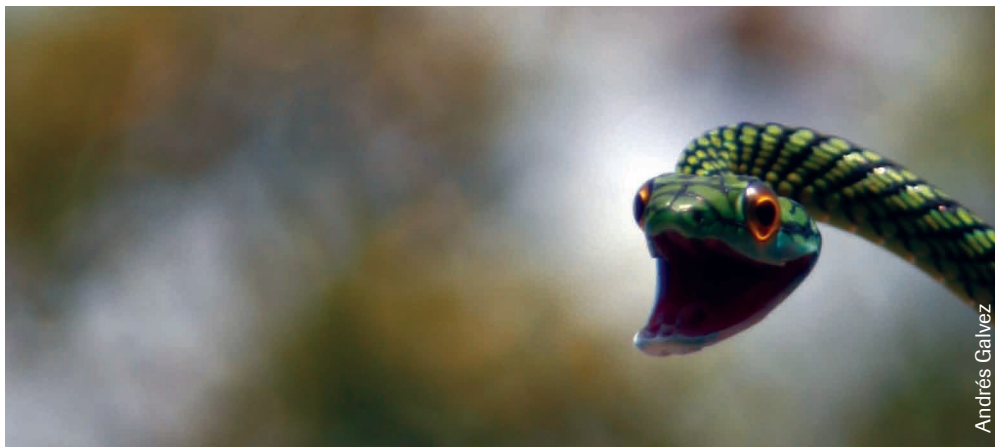
During the last decade, developing countries have established environmental funds as a way to finance environmental protection (CFA 2006). The EFs that are financing conservation are primarily comprised of institutions independent from the government and managed by an equally independent board of directors. Many of these environmental funds have a trust fund that has been capitalized by donations from the national government and international aid agencies. The environmental funds can also manage sinking funds created through debt-for-nature swaps or financial revolving funds through “user fees” or taxes earmarked for conservation (CFA 2006).

The primary objective in establishing an environmental fund is to ensure long-term financial stability for protected areas, or to provide small donations to non-profit organizations or community groups for biodiversity conservation projects or sustainable natural resource use. In the latter case, the environmental fund also complies with the function of generating capacity for emergent NGO and community groups that will be involved with biodiversity conservation.

The environmental funds are generally created through a comprehensive consultative process, governed by a board of directors comprised of representative public and private actors. The funds require transparent and credible operations procedures, as well as sound financial management practices in order to attract new donations, especially

when donors have misgivings about donating directly to a government agency. Environmental trust funds are almost always managed and invested by financial institutions independent from the fund, within or outside the country, with the expected result of providing an income flow for the fund’s specified needs (CFA 2006).

The majority of environmental funds involve three key actors. The first are donors that provide funds to create the mechanism. The Global Environment Fund – GEF has been one of the largest contributors to environmental funds. Other bilateral and multilateral donors include the United States Agency for International Development (USAID), the United Nations Development Program (UNDP), the World Bank, and the European Union. The second group consists of catalyst NGOs that help environmental funds move through the complex design steps, provide technical assistance for debt swaps and the establishment of the funds, as well as assist with fundraising and creating fundraising capacity. In some cases, NGOs have made small capital contributions to the funds. The last group consists of national government agencies interested in promoting an environmental fund as an opportunity to attract foreign conservation investment. Often, the donors insist on creation of a fund as a condition for implementing a debt-for-nature swap. Government agencies may seek a significant role in governing the environmental fund, in hopes of directing the fund toward national priorities (CFA 2006).



Global Environment Fund

The Global Environment Fund (GEF) is an independent financing organization providing donations to developing countries to implement projects benefiting the global environment and promoting sustainable livelihoods for local communities. The GEF was incorporated in 1991 as a financing mechanism for international environmental conventions such as the Convention on Biological Diversity, the United Nations Framework Convention on Climate Change, the Stockholm Convention on Persistent Organic Pollutants, and the United Nations Convention to Combat Desertification.

Many developing countries ratifying the Conventions do not have the necessary financial resources to satisfy all the agreed-upon obligations under the treaties and require the international community’s assistance. The GEF is the organization charged with providing this assistance. The GEF usually does not cover the entire cost of a project, rather, limiting GEF-based financing to those costs associated with world environmental benefits that would otherwise not be covered. These are referred to as *incremental costs*. For this reason, the GEF does not constitute the only funding source for a project as it only co-finances project components related to world environmental protection. The remaining costs are financed through other sources.

For more information see:
<http://www.gefweb.org/>



Hernando Cabral

case 1

PiP's experience creating conservation trust funds

In order to provide stable and long-term conservation financing, the Parks in Peril (PiP) program has been a pioneer in helping structure and capitalize conservation trust funds in Mexico, Guatemala, Panama, Peru, Bolivia, Belize, Jamaica, Honduras, Colombia, the Dominican Republic, Paraguay, and Ecuador. These funds are legally independent and managed by an equally independent board of directors. The foundations are generally capitalized through donations from national governments and international aid organizations. Conservation trust funds provide financing for national parks and other protected areas, or small donations to NGOs and community groups that implement biodiversity conservation or sustainable natural resource use projects. For example, TNC helped negotiate and design the **Foundation for Development of the National Protected Area System** (FUNDESNAP) in Bolivia, with a total of US\$46 million committed between 2001 and 2005; the Ecuadorian **National Environmental Fund** (FAN) administers US\$12 million through several bilateral debt-for-nature swaps and a GEF donation; and the **Latin American and Caribbean Environmental Foundations Network** (RedLAC), a network of 27 regional conservation funds, with total assets of more than \$150 million.

Source: TNC 2007

Debt-for-nature swaps

The debt-for-nature swap is a method a developing country or a private/commercial company can use to renegotiate debt with creditors to finance biodiversity conservation. Debt-for-nature swap financial transactions occur when the creditor forgives or reduces a country's government or bank debt in exchange for the debtor country investing a determined amount in its biodiversity conservation. These swaps can be done using commercial or bilateral debt. The payments generated by a swap generally finance local trust funds that earmark donations for specific projects or finance protected areas (CFA 2006).

Key actors participating in a debt-for-nature swap are debtors, creditors, conservation intermediaries, donors, and beneficiaries. In bilateral swaps, the debtors are the governments with the loan, while with commercial swaps, the debtors are private companies or banks. The debtors should have an interest in financing conservation projects and also have the disposition to drive the financial and legal negotiations with creditors and conservation intermediaries, as well as provide funds for the swap. Debtors are generally motivated by the political benefits a swap can provide for conservation and sustainable development, as well as for reduced obligations in external debt (CFA 2006).

The creditors are governments or private companies that provide loans. Government creditors include central governments, government aid agencies (USAID, for example) or government export-credit agencies. Commercial creditors include banks, commercial suppliers (equipment, for example), or other private creditors. Sometimes creditors are willing to donate or sell part of the loan for less than its original value, as they prefer to be paid part of the loan as an alternative to receiving nothing. Other times, commercial creditors can receive tax benefits, improve their image, or reduce financial risk by making these swaps (CFA 2006).

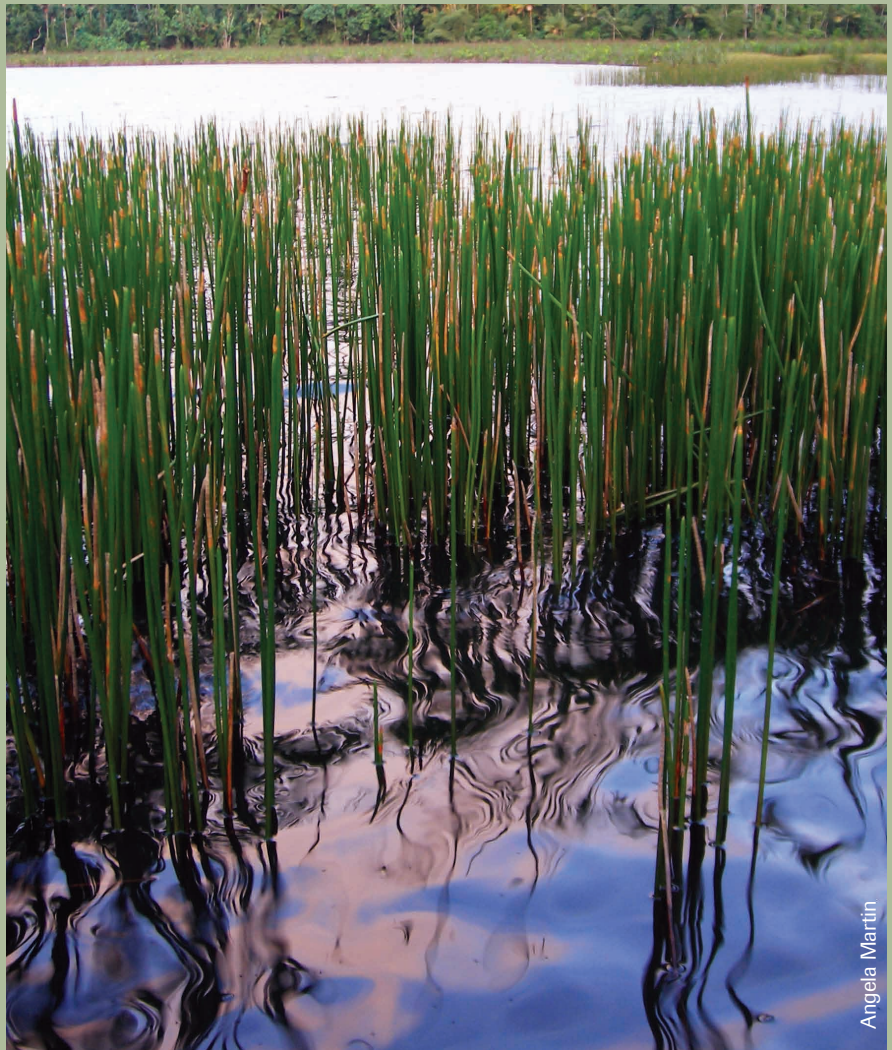
Intermediary conservationists are the ones acting as debt-for-nature swap “brokers.” These are, typically, non-profit organizations but can also be academic institutions, United Nations agencies, environmental funds, or private foundations. Conservation intermediaries usually initiate the deal and provide additional funds or foreign currency to purchase the debt. They also play an important role in negotiating the price with the debtor country’s bank to buy back the commercial bank debt in local currency.

Donors provide most of the funds to make a debt swap possible; they may be a developing country’s government, a private foundation, or international conservation NGO. Government creditors that forgive the debt can also be included here. The donors are involved in approving the swap’s financial conditions and, later, monitoring to ensure that the funds are managed to achieve conservation goals (CFA 2006).

Lastly, the beneficiaries are usually local NGOs, protected areas, or environmental funds. The beneficiaries are responsible for managing the funds provided through the debt-for-nature swap as well as managing the projects financed by the funds. Beneficiaries are also subject to periodic audits, and must present work plans and report results on resource use. Together with the conservation intermediary, beneficiaries should assume active leadership in the debt swap transaction and in implementing the conservation projects (CFA 2006).

Income generated from tourism

Tourism is the world’s largest industry and ecotourism is an important market segment (CFA 2006). Ecotourism is important for the world’s natural areas, generating conservation income and economic benefits for communities in and around protected areas. Indeed, nature-based tourism (of which ecotourism is a segment) has been growing at an annual



Angela Martin

case 2

TNC’s support for Latin American and Caribbean debt-for-nature swaps

TNC played an instrumental role in influencing United States Congress approval of the 1998 Tropical Forest Conservation Law. This law was a vehicle to increase support for multiple debt-for-nature swaps that created a link between a country’s external debt and biodiversity conservation financing. Since then, PiP has worked closely with the United States Treasury Department, debtor governments, and NGOs to apply this tool in several countries in diverse ways. PiP has supported debt-for-nature swaps in **Panama, Peru, Jamaica, and Guatemala**. In total, national governments in these countries have agreed to commit more than US\$60 million (US\$24.4 million Guatemala, US\$10 million Panama, US\$16 million Jamaica, and US\$10.6 million Peru) toward conservation efforts. In each case, a management structure was established, including different stakeholders, ensuring that future financing would continue to be used for the agreed-upon conservation purposes. For example, in Panama, financing supports the Chagres watershed, which is the water source for Panama City and the Panama Canal. In Jamaica, financing is managed by the Jamaica Protected Areas Fund and supports protected areas conservation in the country.

Source: TNC 2007.



Paulina Arroyo

case 3

Economic valuation of tourism in Ecuador's National Protected Area System

Protected areas tourism in Ecuador has generated benefits for conservation, the tourism industry, and local communities. However, in reality, tourism is also a conservation threat due to lack of tourism management capacity within the protected area system. Financial investment to achieve adequate tourism management has been insufficient or non-existent in the majority of Ecuador's protected areas. This has been partially due to deficiencies in resources flows at the state level and lack of political will to sufficiently reinvest funds, as a result of lack of understanding of the financial situation of protected areas.

In order to design strategies that allow generated funds to be used to optimize tourism management, The Nature Conservancy (TNC) --along with Conservation International, Ecociencia, and Green Consulting -- have developed a tourism economic valuation study for Ecuador's National Protected Area System (SNAP). This study was conducted between 2005 and 2006, and focused on the Cotacachi Cayapas Ecological Reserve, Cajas National Park, Cuyabeno Wildlife Reserve, Cotopaxi National Park, Machalilla National Park, and Cayambe-Coca Ecological Reserve.

Simultaneously, a demand analysis was conducted using the "contingency valuation" methodology. This analysis permitted making predictions on visitor demand variance, if fee changes were made.

The analysis demonstrated that the majority of areas in the study did not have appropriate budgets to meet realistic minimum needs,

placing the natural resource capital and visitor demand for these areas at risk. The study discovered that the SNAP in Ecuador was losing an important income source through lack of a systematic, established fee-structure, as well as through lack of both facilities- and fee-charging mechanisms. The analysis also found that, although an appropriate legal framework existed, several complementary activities that could generate income and increase demand were not being exploited, primarily due to lack of applying norms and laws (such as concessions or rent).

One of the valuation study recommendations concerned the need to revise and readjust protected areas income fees, using systematic criteria based on analysis of real costs and demand. However, before fees could be increased, it would be necessary to increase corresponding expenses and capital investments to improve tourism services being offered and visitor-experience quality. The study also recommended analyzing and implementing new entrance fee mechanisms that could be adjusted to reflect actual tourist needs or technological changes, as well as how to charge third parties for entrance fees. Lastly, it recommended applying laws, rules, and regulations to facilitate reinvestment in protected areas, permitting concessions, charging third party fees, delegating, and/or charging rent to favor implementation of improving tourism infrastructure and services.

Source: Rodríguez (2007)

rate of between 10% and 30%, compared with the overall tourism industry growth of 4% annually (Drumm *et al.* 2004).

This makes ecotourism a valuable conservation tool. Ecotourism can provide economic value to the environmental services provided by a protected area, as well as direct and indirect income to local actors; it can also promote the sustainable use of natural resources and reduce biodiversity threats (Drumm *et al.* 2004).

A series of market-based tourism user-fee mechanisms exist, which can generate a significant portion of income from tourism activities. The fees partially reflect the cost of providing recreational services, demand for natural resources, and the value visitors place on their site experience. The income generated by the payment of fees can be earmarked to support protected areas and other conservation activities (CFA 2006).

The majority of tourism user-fee mechanisms are at the site level, where specific fees are charged for specific activities within the protected area. Other types of fees exist at the national level. For example, several countries charge a tourism fee (frequently as an airport exit tax) and a fee for tourism facilities, with collected income earmarked for conservation. These national mechanisms are more common in countries where nature tourism represents an important portion of the generated foreign currency, for example, in Belize and Costa Rica (CFA 2006; Emerton *et al.* 2006). The different types of tourism user-fee systems are presented in the following box.

It is common for protected areas to capture only a very small portion of the economic benefits generated from tourism visits. Many protected areas do not charge an entrance or recreation fee; those that do only receive a small portion of the actual cost of protecting the resource or providing visitor facilities. However, innumerable studies have demonstrated that protected area visitors are willing to pay much more than what is charged (IUCN 2006). Establishing fees closely

aligned with tourist-willingness-to-pay and improved fee collection systems have the potential to significantly increase protected area income, especially those areas with high visitor traffic.

Types of tourism user fees

- ⊙ **Entrance fees:** Visitors are charged a fee for entering a protected area.
- ⊙ **Concession fees:** Companies (“concessionaires”) providing services within the protected area—such as lodging and food vendors—are charged a fee for operating the concession.
- ⊙ **Licenses and permits:** Private companies operating with or around the protected area (for example, tourism operators, guides, cruise ships, etc.) and individuals participating in specific recreation activities (for example, diving, fishing, camping, etc.) are charged for licenses or permits.
- ⊙ **Tourism-based tax:** Taxes can be collected from hotels, airports, and other collection points. The income is then channeled toward conservation activities.

Source: CFA 2006

Payments for environmental services

The system of payment for environmental services (PES) seeks ways for consumers to pay for environmental services provided by the protected area. One common PES example is economic payments to protected areas for the service of protecting water sources through increased fees charged to water consumers. A PES scheme can also focus on creating resource-user incentives with the goal of voluntary adoption of environmentally beneficial activities and technology. Two examples are government payments to farmers who either conserve or restore natural vegetation or adopt agricultural practices that reduce agrochemical usage (IUCN 2006).

In theory, payment schemes can be developed for any type of environmental service a protected area provides. However, in practice, PESs are primarily developed for clearly-defined environmental services, activities highly valued by beneficiaries, and/or those legally protected through market and commercial-driven legislation. Examples of PESs used to generate income for protected areas include payment for carbon sequestration, biodiversity conservation and watershed protection.



Ati Ruark



Hernando Cabral

Payment for watershed environmental services is perhaps the most widely-applied PES in numerous countries and situations (IUCN 2006).

Watershed PES schemes require that water consumers are convinced of the need to pay to protect and maintain healthy watersheds, and that they understand the real economic value watersheds provide for hydrology services. Hydrology services can consist of providing potable water, protecting water quality, and reducing vulnerability from flooding and drought. Maintaining the natural regimen for

water flow and sediment catchments can also be important in maintaining wetland ecological processes, estuaries, and coastal zones. In this sense, conservation is extremely compatible with maintaining hydrology services; both goals are mutually beneficial (CFA 2006).

Financial mechanisms linked with watershed protection can vary according to the type of established arrangements between “buyers” and “sellers,” as well as the degree of required government participation. CFA (2006) groups them into three categories: voluntary contractual agreements, public payment schemes, and negotiable permit schemes.

Voluntary contractual agreements consist of direct negotiations, generally between private individuals, but can also involve public entities. Negotiating parties may be individuals or buyer-and-seller associations. An example of a voluntary contractual agreement negotiation is one between water users and upriver land owners, whereby the land owners agree to implement management practices that reduce erosion and sedimentation. This type of agreement tends to function best on a small scale.

In a public payment scheme --meaning government or public sector organization-- funds are collected through a fee or tax, and used for watershed management activities such as purchasing conservation

easements or paying property owners or resource users to change management practices. This scheme almost always requires making changes or additions to the legal framework. For example, it may be necessary to create or increase water fees, establish environmental easements, and/or implement fines for non-compliance with soil use or discharge limit agreements by the “buyer” as well as the “seller.” Public payment schemes are common financial mechanisms for protecting watershed services.

Finally, negotiable permit schemes are the least common of the three financial mechanisms and are generally used in more developed countries as this scheme requires an established regulatory framework. Under the negotiable permit scheme, the government establishes maximum emissions or discharge limits for a particular contaminant. Land owners or industries later receive government permission allowing them to discharge up to a maximum contaminant level. These levels are translated as “credits.” If a company or owner realizes they will not reach their allowable limit, they can sell the excess credits to other companies or property owners who cannot easily stay within their own limits. The purchase and sale of credits allows companies and land owners to decide on the least expensive alternative, which could be reducing emissions or purchasing credits from those having already reduced emissions.



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case 4

Environmental services in the Sama Mountain Range Biological Reserve, water source for Tarija, Bolivia

The Sama Mountain Range Biological Reserve (108,500 hectares) is located within the province of Tarija, Bolivia, and contains a significant portion of the La Vitoria River and Tolomosa River watersheds. The La Vitoria River watershed is the primary potable water supply for Tarija's urban area (170,000 inhabitants) and supplies 65% of water requirements during the rainy season. The Tolomosa River watershed is the principle water source for three entities: 25,000 rural inhabitants, the San Jacinto dam that generates electric energy for industry near the Central Tarija Valley, and for irrigation needed by communities near the dam. As such, these two watersheds are of invaluable economic importance for the region.

Although important water sources, these two watersheds are subject to a diverse set of pressures and changes due to deforestation, overgrazing, forest fires, and inappropriate agrochemical use. On top of it all, Tarija's urban population has the highest water waste rates and population growth of Bolivia, primarily due to the fact that the province houses the majority of Bolivia's hydrocarbon resources.

Given this situation, TNC and the Tarija Environment Protection NGO (PROMETA) initiated a water-source valuation strategy, as part of a project to maintain the Sama Biological Reserve environmental water service that supplies the city of Tarija and nearby communities.

The first step was developing an awareness campaign geared toward urban and rural areas to distribute information on the Sama Reserve's existence, importance, and value for biodiversity conservation, natural beauty, and as the city's water source. The communication and education campaign concentrated on raising general awareness about the Sama Reserve, and the Tolomosa and La Vitoria Rivers as the province's principal water sources. This was followed by an economic valuation study to determine the value Tarija's urban and rural populations placed on the economic, social, and environmental benefits derived from these hydro environmental services. Using contingency and opportunity-cost valuations, the study estimated that the population reported the total economic value benefit for hydro environmental services to be close to US\$500,000 per year.

At the same time, information was gathered to determine the current state of the Tolomosa and La Vitoria River watersheds. This information consisted of a cartographic database and a hydrology study to understand the current water supply situation, sedimentation, and the magnitude of the rivers' growth. To analyze the effect these watersheds would have on hydrology performance, a simulation was conducted on land use and deteriorating vegetative-cover changes.

An institutional solution proposal was developed for water source conservation based on the generated information. This proposal was widely shared from the outset and consensus reached with the highest public authority institutions (the Provincial Prefecture (provincial governing body), National Protected Areas Service, and the Tarija and San Lorenzo Municipal Governments) and four members of civil society (The Potable Water and Sewer Cooperative Service, the Pro-Tarija Province Committee, the Sama Reserve Mancomunidad Farmers Community, and PROMETA). This consultation evolved into a new, independent organization: the "PRO-AGUA Water Source Conservation Association." However, after further reflection on viability, PRO-AGUA further evolved into an open and free forum for private citizen participation, leading to creation of the "PRO-AGUA Water Source Conservation Forum for Tarija City."

In the last two years, the PRO-AGUA forum has positioned itself as a recognized entity to address water source conservation-related issues. It was also able to raise awareness among public civil society organizations, leading to assignment of financial, technical, and human resources within operating plans for water issue-related activities. As a result, occurrences, severity and negative impacts derived from forest fires have been reduced, while at the same time, an institutional framework was created and human capacity strengthened for forest fire prevention, detection, and control within Tarija province.

Lastly, Tarija's urban and rural populations are now better informed and aware of the importance of the Sama Reserve, and the Tolomosa and La Vitoria watersheds, which has translated to a gradual change in attitude and behavior toward environmental topics.

Source: Aguilar (2007)



case 5

Water Protection Fund in Quito, Ecuador

Quito is Ecuador's capital and obtains 100% of its potable water from Andes streams and rivers. More than 4.5 billion gallons of water are consumed monthly by residents (1.5 million people), industry, and nearby irrigation, which is equivalent to filling an Olympic size swimming pool 15,000 times. Most of the water comes from the Condor Bioreserve, making its protection one of Ecuador's greatest conservation challenges.

In 2002, TNC, USAID, and local Ecuadorian partners came together to create the Quito conservation fund, called the Water Protection Fund (FONAG). This fund received payments from Quito's residents and local industry to finance water source conservation projects. The fund's principle goal is to supply sufficient quantities of quality water to meet Quito's needs, as well as provide permanent protection for water sources located within the Condor Bioreserve.

FONAG is an example of environmental service valuation. The Condor Bioreserve's seven natural protected areas provide a gamut of environmental services that directly and indirectly benefit Quito's inhabitants and those in nearby areas. These environmental services include protecting watersheds, providing non-timber forest products, capturing carbon from the atmosphere, and providing both ecotourism and recreation opportunities within the protected areas. In this sense, PiP has worked to create a system that ensures financial benefits derived from environmental services are allocated to the corresponding protected areas and local communities, thereby helping improve the environment and livelihood of local residents.

FONAG was initially capitalized through the Quito Metropolitan Potable Water and Sewage Company (EMAAP-Q), the Quito

Electric Company (EEQ), and TNC. Partner contributions were later incorporated from the Andean Beer Company and the Swiss Agency for Development and Cooperation (SDC). PiP has helped strengthen the fund's capacity to implement conservation and development projects in the Condor Bioreserve, as well as to manage its financial resources. With PiP support, FONAG has begun to attract additional funds from international aid agencies, having accrued more than US \$5 million in its trust fund thus far. Given the way the trust fund is structured, it can only invest interest or returns, which were more than US \$500,000 in 2006. The income is used to leverage other match-funding from donors. In this way, FONAG has been able to obtain US \$2 in match funding for every dollar earned from the fund's investments.

EMAAP-Q continues to be FONAG's principle donor. Through a municipal ordinance in 2006, the Quito Metropolitan District officially contributed 1% of EMAAP-Q's collected potable water and sewage fees to FONAG. It also approved a 0.25% per year increase until it reaches 2% of the amount EMAAP-Q charges consumers. This significant contribution is approximately US\$70,000 per month, which has considerably contributed to the fund's growth.

FONAG is an example of how the public can be introduced to the value of the environmental services it uses. Environmental services valuation can help generate public support toward conservation efforts, or in some cases, lead to creation of mechanisms that allow users to help resolve conservation issues and maintain the resources they depend upon.

Source: TNC (2007)

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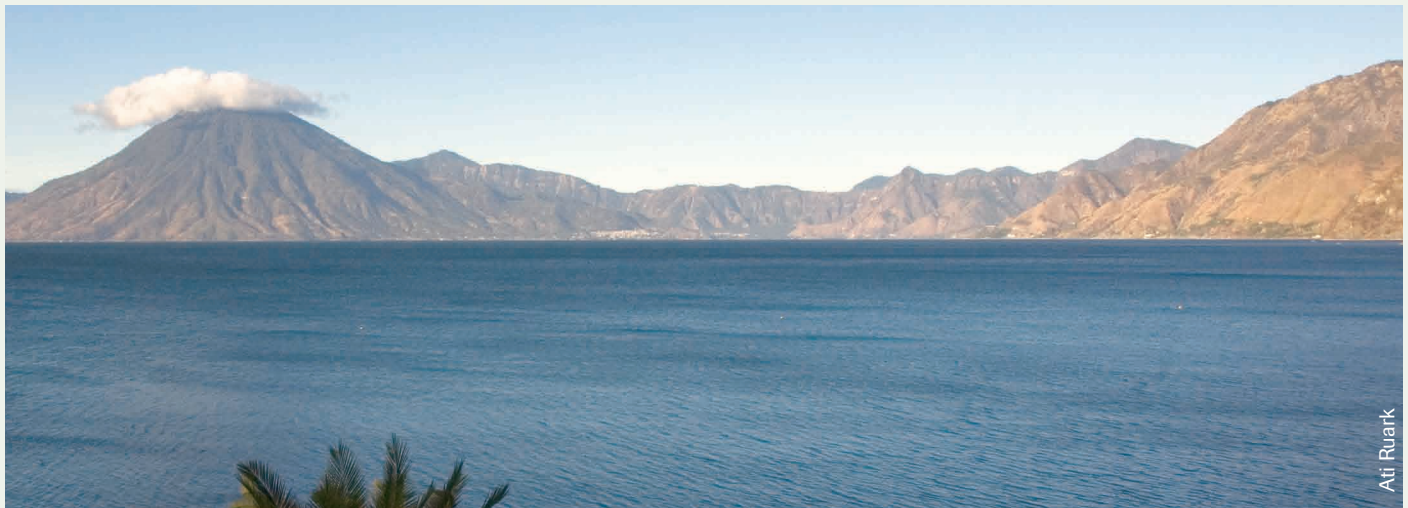
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