

Payment for Environmental Services in Ecuador: The Fund for the Protection of Water

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Background/ summary

The Fund for the Protection of Water -FONAG- is a private mercantile trust in operation since January 2000; it is regulated by the Securities Market Law in Ecuador. The trust is an economic financial mechanism, permanent and stable, which uses the yields of its equity to co-finance activities and conservation projects, as well as maintenance of hydrographic basins that provide water to fulfill human and productive needs of the Quito Metropolitan District, and its areas of influence. Through payments for environmental services, FONAG works to obtain the provision of a sufficient quantity and quality of water through funding actions directed to protect water resources, based on long-term natural regeneration.

- Mission: Rehabilitate, care for and protect water basins which supply water to the Metropolitan District of Quito and surrounding areas
- Vision: To be the mobilizing agent that involves all actors in exercising their citizenship responsibly on behalf of nature, especially water resources.
- Aims: To lead processes and consensus through dialogue, proper decision-making, strengthening research and the appropriate use of technology to achieve integrated management of water resources in which active, responsible participation based on solidarity leads to sustainable water management.

What is the environmental service?

The fund promotes the provision of improved **water quality and quantity** – with particular interests varying depending on different water users.

Payments are made for the following actions:

- Conservation of existing ecosystems through land acquisition
- Improved management practices through watershed management project
- Provision of alternative income for local residence

- Implementation of improved agricultural practices
- Education and training

Conditions for participation:

- Contribute to water quality and flow protection
- Compatibility with the protected areas' management plans
- Promote community participation
- Action-oriented
- Follow the bylaws determined by the fund

Where does the money for the scheme creation come from?

The Fund was established by early 2000. It received its seed capital and initial contributions from TNC, with the help of the US Agency for International Development (USAID), and the Quito Municipal Sewage and Water Agency (known by its Spanish acronym, EMAAP-Q). By 2003 the fund had received \$480,000 from Quito's water agency (\$15,000 in seed capital plus 1% of water sales annually for three years), \$90,000 from Quito's electrical utility (which uses the water for hydropower), and \$6,000 from Cervecería Nacional, a local brewery. And by mid-2004 the fund had close to US\$1.7 million, thanks to a significant increase in the water agency's sales and financial returns.

Motivation – what makes this pes happen? (Law, private negotiation, ect)

The Nature Conservancy (TNC) and Ecuadorian Government were interested in increasing the funds available for management of the Cayambe - Coca and Antisana reserves in order to safeguard the hydrological environmental services provided by the reserves, on which Quito's water supply depends. Concerned about the conservation of water resources and committed to finding solutions for the problems generated by the inadequate management of the water resource (Quito's population exceeds 1.5 million; current water consumption is around 150 million m³ per year; recent construction of two major projects to ensure supply beyond 2020), The Water and Sewage Metropolitan Enterprise of Quito EMAAP-Q and The Nature Conservancy -TNC-, on January 25, 2000, entered into a contract for the execution of this mechanism. The Electric Power Company of Quito EEQ, on May 2001 and the Cervecería Andina S.A. on March 2003, also joined and became adherent members of this project The Fund for the Protection of Water-FONAG.

Legal framework

The FONAG is a heritage fund with a life of 80 years. Operating as a private mercantile trust fund and legally regulated by Ecuador's stock market law, its revenues are used to co-finance environmental activities in favor of water conservation.

What is the source of funds that supports the pes?

- Quito water utility (Metropolitan Enterprise of Water and Sewer Systems in Quito -EMMAP-Q) uses 1.5 m³/wk for drinking water and has agreed to pay 1% of monthly water sales, about \$14,000/month (US\$ 168,000/year) (it has also contributed US\$15,000 in seed capital).
- Brewery "Cervecería Andina" (entered in March 2003), one-off payment of US\$6,000.
- Hydropower producers: Quito Electrical Utility (Empresa Electrica de Quito -EEQ) which generates 22% of hydropower from watersheds around Quito, pays \$45,000/yr; HCJB (4.8 m³/w power generation); Electro Quito-Quijos project, INECEL-Cuyuja Project and INECEL-Coca Codo Sinclair Project (6.5 and 4.3 m³/w for power generation respectively).
- Recreation: Papallacta Hot Springs (0.008 m³/wk);
- Irrigation users: private farmers (2.1 m³/week); Ministerio de Bienestar Social (MBS) - Cangahua project (2.3 m³/week);
- International donors: Cooperación Suiza para el Desarrollo, COSUDE, one-off payments in 2005.

Involved actors: who pays and who receives?

Who Pays: The capital assets of the FONAG are mixed contributions from local businesses, private and international institutions. Funds are pooled from a variety of users in Quito and surrounding areas.

- Donors:
 - USAID
 - InWent
 - Inter-American Development Bank
 - La Corporacion Vida para Quito
 - El EcoFondo
 - Environmental Systems Research Institute
- Contributors:
 - Empresa Metropolitana de Alcantarillado y Agua Potable EMAAPQ
 - Empresa Eléctrica Quito S.A. EEQ
 - The Nature Conservancy-TNC
 - Cooperación de Desarrollo Suiza-COSUDE
 - Cervecería Nacional (HEP)
 - Tesalia Springs Co.
 - El CAMAREN (Sistema de Capacitación en el Manejo de los Recursos Naturales Renovables)
- Water users in Quito (1.5million) and surrounding areas and surrounding areas (27,000): Users pay different water use rates depending on whether they extract water or not
 - Farmers in dairy and agriculture
 - Tourist operators
 - Domestic users, local land owners
 - Hydropower companies
 - Industry associations
 - Local government (municipal water supply)
 - Papallacta Hot Springs Spa & Resort
 - MBS-Cangahua irrigation project
 - INECEL-Cuyuja Project and INECEL-Coca Codo Sinclair Project

Who Receives? Public reserves inhabited by local communities form the sellers. Upstream farmers receive support for watershed protection programmes.

- Cayambe-Coca Watershed (400,000 ha)
- Antisana Ecological Reserve (120,000 ha)
- The area may be extended to incorporate the Condor Bioreserve
- Total area is inhabited by 27,000 people distributed in small communities, who use water for agriculture and use the plateau for extensive livestock grazing.

Intermediaries: The fund's Board of Directors has representatives from local communities, HEP, the national protected area authority, local NGOs and government. Intermediation is done through a trust fund made up of several stakeholders involved.

Valuation and benefits distribution

Upstream farmers receive support for watershed protection programmes, but no direct cash payments. Total investment for the locally driven watershed protection activities paid through Quito's Water Fund, FONAG, was US\$9.3 million dollars between 2000 and 2008. In 2005, the fund amounted to 3 million US\$. Expenditure is equivalent to the annual interest raised (12% in 2005), which would result in an annual expenditure of US\$360,000. Total population concerned: 1,969,626; surface area covered: 5,025 km².

Terms of Payment: Downstream users pay a combination of one-off payments and cash-installments based on the amount of water they use.

Benefits Distribution:

- Communities in the Cayambe-Coca Reserve (Oyacachi micro river basin)
- Communities in the Antisana Ecological Reserve (Papallacta micro river basin and La Mica Lagoon)
- Communities in the Cotopaxi National Park (Pita micro river basin)
- Communities in the Los Ilinizas Reserve (San Pedro micro river basin)

Papallacta and Oyacachi River Basins: Through CESA -Ecuadorian Center for Agricultural Services- the Fund seeks to conserve water resources, improve sustainable productive activities such as animal husbandry, promote agricultural activities, reinforce local management and provide access to financial services. All these components will be developed during a first stage that lasts fifteen months, with an estimated cost of US\$78.000. FONAG, The Nature Conservancy and CESA provide these resources.

Antisana River Basin: Activities in the Antisana River basin are directed to the protection of the water quality that feeds the Mica Quito Sur reservoir, part of the project that provides potable water to the city of Quito. The main problem of this basin is related to an improper management of livestock practices in surrounding properties, which pollute water, erode the soil, and affect the preservation of wildlife of the Antisana Reserve. At the moment, studies estimated at US \$22,000 are being prepared. These represent equal contributions by FONAG, TNC, with an additional counterpart of the executing institution.

Institutional arrangement

Trust Intermediary & User Fees/Pooled Transaction:

- Regular payments by beneficiaries for watershed protection will be channeled through an independent trust fund, the Water Conservation Fund (FONAG).
- This fund was launched in January 2000 with support from The Nature Conservancy (TNC), USAID and Fundacion Antisana.
- Total seed capital US\$ 21,000.

Management of the Fund:

- Managed by Enlace Fondos, an independent private asset manager
- Governed by a Board of Directors with representatives from local communities, HEPs, the national protected area authority, local NGOs and government
- Legally registered - use of funds will be made in cooperation with the environmental authority
- Execution of projects funded is done through specialized conservation entities and involves active local participation
- Administration costs are limited to 10-20% total expenditure
- In addition to creating a central funding institution to coordinate watershed protection, users may form user associations to contribute to the fund

Financial mechanism – how are the payments made?

The Quito Water Fund (FONAG) is an example of a water trust fund. The municipal drinking water and electrical utilities, a private brewery, and a water bottling company commit resources through a long-term financial mechanism, or 80-year trust fund, as defined by local financial regulations. The returns from this investment leverage donations from international and local NGOs, governments, and Overseas Development Assistance.

These funds in turn are invested in critical conservation projects that involve strengthening parks and protected areas, supporting rural families to restore degraded lands and adopt sustainable farming practices, reforestation, and educating children about sustainable water management.

The fund's Board of Directors has representatives from local communities, HEP, the national protected area authority, local NGOs and government. Payments support activities and conservation - no direct payments are made to farmers. The fund spends only the interest accrued but is considering using the capital to finance part of its activities.

Main challenges

The main challenge of FONAG and its actions is to create a new culture of water, where the active and responsible participation of all stakeholders and actors create a more just, solidarity and sustainable resource that ensures health and development.

Legal Challenges:

- Navigating the numerous pieces of legislation concerning water in Ecuador
- In Ecuador, environmental services are recognized by the Constitution - however, Payments for environmental services are seen as contradictory to existing legislation that forbids changing land uses

- Capacity: Markets rely on supporting intermediary and implementing institutions
- According to TNC, although the land within the reserves is technically patrimony of the government, the original landowners were never compensated for their loss of land title deeds. Because of the continuous conflicts over land, the new strategy suggests that compensation should be attempted rather than expropriation. For example, using conservation easements or payments for environmental services designed to encourage more appropriate land uses to ensure the protection of water sources.

Economic Challenges:

- The areas targeted are already nature reserves and protected under law. However, face threats of conversion to agriculture still exist.
- Transaction costs are limited to 10-20% of total expenditure. Assuming annual expenditure is about US\$ 300,000 (see funds involved), transaction costs would amount to US\$30,000-60,000.
- The time scale for the negotiation process and capitalisation of the Trust Fund has been very long.

Environmental Challenges:

- Collected funds are used for funding management and conservation projects in the water supply areas. These measures should also have direct positive impacts over biodiversity, as the area is rich in abundant flora and fauna, especially orchids, bromeliads, and birds. This area contains species in danger of extinction such as the condor, puma, jaguar, spectacled bear and tapir.
- There is very limited information about actual environmental impacts from funded projects.

Innovations and obstacles solutions

FONAG carries out programs and projects that respond to the institutional challenge of building a water culture and achieving integrated water management. The programs and projects are carried out in FONAG's area of influence with the participation of different community actors, local authorities and governmental and non-governmental organizations, and educational institutions.

The FONAG co-finances projects that have a time-bound framework and development of these makes it through nongovernmental organizations with an interest in protecting the water and who are willing to shoulder part of the financing. There are approximately 20 projects in operation in all water sheds. The projects are an integral part of the programs, which are led by like-minded institutions with co-financing provided by FONAG. The projects are short-term, with a maximum of 2 years; 20% of the institutional budget is assigned to these projects in the micro river valleys.

Programs are long-term processes, executed directly by the Fund and intend to meet changes in attitude of human beings to nature; programmes are related to environmental education, recovery of vegetation cover, Surveillance and Monitoring, Training in Integrated Management of Water Resources, Communication and Water Management. 80% of institutional funds are allocated to developing and strengthening these programs.

Key factors for the case development

The first step in creating a fund like this is raising awareness. In most places, like in Quito, people didn't realize that the quantity and quality of their water depends to a large extent on the conservation of protected areas upstream. In the case of Quito in particular, as much as 80% of the city's drinking water comes from just two ecological reserves: Antisana and Cayambe-Coca.

Secondly, the key users of water need to be identified, prioritized, and informed. In the case of Quito, the largest water user by far was the Municipal Sewer and Water Agency, a public entity that responds, ultimately, to the city's Mayor. For this reason, city government (and, as a result, the city's residents), became a key target audience for FONAG. One of the first and most influential things that FONAG did was to produce a short and attractive publication detailing the idea for the fund, the importance of conservation to the maintenance of water quality and water flows, among other things. This publication, eventually became a key tool for convincing not only the Mayor's office, but also the boards of directors of the Water utility, the electric utility, and all other participants in the fund.

Social Benefits: Projects propose a high degree of community participation. Environmental education is encouraged, and components for capacity building to improve agricultural methods and encourage alternative environmental-friendly activities are included. For instance: The Cayambe-Coca reserve is inhabited by 7,000 persons distributed

in small communities, who use water for agriculture and use the plateau for extensive livestock grazing. The adjoining buffer area is inhabited by about 20,000 people in tenant farmer cooperatives, indigenous communities, and private landholders, many of whom are poor. These communities will benefit from increased income from land purchases, support in securing land tenure, education in environmental-friendly production and improving agricultural methods, and organizational capacity.

Where are the opportunities?

Advantages of establishing a Trust Fund:

- Coordinate and enhance individual efforts
- Take advantage of the skills and capabilities of all players
- Ensure continuity and transparency in conservation activities
- Provide long-term conservation financing
- Expand public/private participation in conservation

Conclusions

Results to date: FONAG has generated an endowment of more than US\$6 million from its members, which has allowed it to invest US\$2.3 million and leverage an additional US\$7 million to spend in key conservation activities. Watershed protection activities financed through FONAG from 2000 to 2008 amounted to US\$9.3 million.

The Quito model is now being replicated for many Andean cities, such as Palmira, Cali, Bogotá, Medellín, and Cartagena (Colombia); Lima (Peru); and Zamora, Espíndola, Ambato, Riobamba, and Cuenca (Ecuador). 2008 was a landmark year for making operational several funds in Ecuador (Cuenca-FONAPA, Tungurahua province, and Espíndola) with a total seed capital of over US\$1 million.

Sources

http://www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page_id=7582§ion=home

http://www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page_id=3783§ion=home

http://www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page_id=4988§ion=home

http://www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page_id=6917§ion=home

<http://www.fonafifo.com/english.html>

http://www.sum.uio.no/research/networks/redd/student/Master_thesis.Anja2-1.pdf

http://www.forest-trends.org/publication_details.php?publicationID=2384

http://moderncms.ecosystemmarketplace.com/repository/moderncms_documents/vcarbon_2010.2.pdf

<http://www.ecosystemmarketplace.com/documents/acrobat/sbdmr.pdf>

http://moderncms.ecosystemmarketplace.com/repository/moderncms_documents/state_of_water_2010.pdf

<http://www.nicuesalodge.com/ecotourism/carbon-footprint.html>

<http://www.adventuretravelnews.com/horizontes-donates-10000-to-new-conservation-concept>

http://www.ecosystemmarketplace.com/pages/dynamic/web.page.php?section=water_market&page_name=crwb_market

http://www.watershedmarkets.org/casestudies/Ecuador_FONAG_E.html