



## Water fund for catchment management in Quito, Ecuador

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**Short title:** Water fund for catchment management, Ecuador

**Key Message:** The Quito water fund is a sustainable finance mechanism that allows for long term protection of natural ecosystems and the provision of important ecosystem services. This water fund is an example of a public-private partnership that works towards conservation and human well-being goals, and it has served as a model for numerous other water funds (see Goldman et al. 2010).

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### What was the problem?

About 80% of the water for the city of Quito, Ecuador (nearly two million people) comes from three protected areas - Cayambe-Coca Reserve, Antisana Reserve, Cotopaxi National Park and their buffer zones - but a variety of activities threaten the availability of this regular clean water supply. These threats include insufficient budgets in the Ministry of Environment for adequate patrolling of the boundaries of protected areas to help prevent ecosystem conversion, agricultural and cattle expansion within protected areas and in the buffer zones, illegal logging and deforestation. Many of these land conversion pressures originate with the people living in the watershed as they depend on natural resources and water sources from the region for their livelihoods. Available productive land is diminishing as soils lose nutrients forcing families to move up in the watershed towards the natural ecosystems: a mixture of forest and páramo (high altitude grasslands). These ecosystems are the key hydrologic regulators of the system. Conversion means diminishing provisions of water services to people downstream, but keeping watershed communities out is unjust and unsustainable. This complex management problem required time and money that municipal authorities of Quito did not have. In the past, the municipality simply tried to provide clean water in the best ways they knew - through built infrastructure that did not address the root of the problem.

### What was done to solve it? How were ecosystem services considered?

In the late 90's, The Nature Conservancy (TNC), with the results of several water flow studies from a former SUBIR I, II project funded by US Agency for International Development, and a local partner, Fundación Antisana, approached the Mayor of Quito. The goal was to demonstrate to the mayor that protecting the watersheds that supply water to Quito was crucial if citizens were to continue to enjoy the same water quality and quantity in the future. The mayor asked TNC to design a mechanism that would link the citizens of Quito to the source of their water. TNC came up with the idea of creating a finance mechanism for watershed conservation. With the mayor's support (critical since he is the president of the board of the municipal water company), TNC's Ecuador Program Director at

that time, Roberto Troya, obtained the support of the Quito municipality and the Quito water company (the key water user) to create such a mechanism.

From this, a conservation trust fund, or water fund, was created to provide sustainable financing of watershed conservation activities - activities that should supply valuable ecosystem services (a clean, regular supply of water) to the citizens of Quito. The Quito Water Conservation Fund (Fondo para la Conservación del Agua – FONAG) is an endowment fund that receives money from the government, public utilities, electric companies, private companies and non-government organizations. An independent financial manager invests the money and the interest is used to fund activities for watershed protection. FONAG is governed by a board of directors comprised of water users that have contributed to the fund. The board approves the annual operational plan of FONAG and approves reports, conducts audits and makes reforms to bylaws. It also has a Technical Secretariat that acts as the executive director of the water fund. FONAG's goals include: improve/maintain water quality and quantity for downstream users, maintain regular flows of water throughout the year, maintain/enhance natural ecosystem biodiversity (both freshwater and terrestrial) and improve/maintain human well-being and quality of life for upstream human communities.

The Quito water fund was created with an initial investment of USD 1,000 from TNC and USD 20,000 from the Quito water company. Other water users have since joined the water fund, such as the Quito electric company and private organizations including a beer company (Cervecería Nacional), a water bottling company (Tesalia Springs Co.) and a Swiss Cooperation (COSUDE). The endowment reached USD 5.4 million at the end of December 2008 and is now almost USD 8 million. In 2008 alone, the endowment yielded USD 800,000 which FONAG invested in conservation projects. Recently, FONAG, with support from its board members, helped pass a municipal by-law by which the Quito water company will provide 2% of their revenue to the water fund (up from the initial 1% commitment).

FONAG uses the revenue from the water fund to finance various programs and projects. The programs currently underway are: control and monitoring of protected areas, restoration of natural vegetation, environmental education and outreach, training in watershed management, productive projects with local communities and a hydrological monitoring program. One of the main beneficiaries of the activities are the local communities that live close to the water sources. They receive permanent support from FONAG through different programs, from environmental education to community-based projects that invest in rural livelihoods. For more information on FONAG see Echavarría 2002; Krchnak 2007; Benitez et al. 2010; Goldman et al. 2010; and the FONAG website: <http://www.fonag.org.ec/portal/>

### **What was needed to solve the problem in terms of data, resources and capacity?**

The Quito water fund is 10 years old. It took almost 5 years for the authorities to understand the concept and almost 7 years to approve the ordinance dedicating 2% of water utility company revenues to the fund. Large investments of human capital are needed for fundraising, communications and raising awareness. FONAG has dedicated staff implementing the fund's projects and programs, but the beauty of the mechanism is that few staff are needed to run the program and the majority of the budget goes to action.

Initial fund launch rested on two main things: water user financial contributions and staff capacity to implement programs. When FONAG was created the water users committed to support a mechanism without having precise scientific data regarding ecosystem service provision. FONAG has now invested in developing the science including studies to understand the water balance, running models to develop a geographic and social prioritization mechanism, and creating and implementing a monitoring program to measure

the impacts of fund investments. FONAG now serves as a model for other water funds such as the water fund based in Cuenca, Ecuador - FONAPA (Fondo del Agua para la conservación de la Cuenca del Rio Paute) - and in Bogota, Colombia.

**What resulted from taking an ecosystem service perspective? Did the approach influence public management or result in policy uptake?**

FONAG was created based on the link between nature and nature's benefits to people – namely downstream water users. As mentioned, the city council decreed that 2% of all water fees would be dedicated to FONAG, thus demonstrating the impact the fund has had on public management. The municipality of Quito now looks to watershed conservation in addition to built infrastructure as a way to provide clean water to its citizens.

In addition, FONAG has served as a model for numerous other water funds in the region. In Colombia and Ecuador alone there are at least 12 new water funds in some stage of development thanks to dedicated work by TNC and partners. These funds were launched using FONAG as an example. While each new fund has its own particularities, each works with a set of water users to finance conservation. In East Cauca Valley, Colombia, for example, this includes sugar cane producers and the regional environmental authority, among others; and in Bogota this includes a representative from the National Park agency and the main public utility. In all the water funds, public agencies, like utilities and electric companies, are expanding the way they manage clean water provision by investing in conservation and the protection of biodiversity for the services nature can provide.

**What else was necessary for it to be influential?**

FONAG might never have been created without the support and leadership of the mayor of Quito at the time, Jamil Mahuad. His vision and leadership helped develop the idea. He became President of Ecuador in 1998 and his successor, Roque Sevilla, was an environmental leader furthering the support and dedication to launching FONAG in 2000. In 2004, TNC invited the then mayor, Paco Moncayo, to visit the water fund in New York City, the example upon which FONAG was created. There, Paco was able to meet the mayor of New York City and learn about the Catskills water fund. This helped grow his support leading to the ordinance dedicating 2% of water fees to FONAG. TNC and the FONAG secretariat have been instrumental in helping explain and explore the benefits nature can provide to people - in this case, water services.

Beyond political support, it was important to involve various water users in the process. In Quito, this included the water utility but also a public electric company and various private users. In each water fund, it has been important to reach out broadly and engage all big water users in the fund. Each user gets representation on the board of governors, another critical component of the water funds.

Finally, showing results has been crucial for maintaining support. In about 10 years FONAG has:

- Helped conserve the watersheds that provide 80% of the water upon which the citizens of Quito, a population of 1.8 million, depend
- Impacted 500,000 hectares/1.2 million acres of land
- Involved 30,500 children in Environmental Education Programs
- Re-vegetated and maintained ~600 hectares of land/year for the past 4 years
- Reforested 2,033 hectares/5,023 acres of land with over 2,000,000 trees
- Hired, trained, and employed 11 community parks guards to help conserve protected areas
- Engaged over 200 families in community development projects in rural basins

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