

## Ecuador –FONAG

### *Water Conservation Fund in Quito - watershed protection contracts & land acquisition*

#### SUMMARY

Trust fund (FONAG) created in 2000 to which water users in Quito (drinking water, agriculture, hydroelectric power (HEP), tourism, etc.) contribute with the aim of sponsoring watershed management projects, in the surrounding protected areas. The fund's Board of Directors has representatives from local communities, HEP, the national protected area authority, local NGOs and government. Activities involve land purchase in critical areas and promotion of agricultural improved-management practices but no direct payments to farmers. Up to now the fund has been spending only the interest accrued but is considering using the capital to finance part of its activities.

#### MATURITY OF THE INITIATIVE

Emerging - pilot project agreed in 1998 when negotiations began. Contributions to the fund began in January 2000 and financing of watershed protection projects in January 2002.

#### DRIVER

NGO The Nature Conservancy (TNC) and 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. (Quito's population exceeds 1.5 million; current water consumption is around 150 million m<sup>3</sup> per year; recent construction of two major projects to ensure supply beyond 2020). The idea was to increase the price of water as good to include the costs of maintenance of these environmental services.

#### STAKEHOLDERS

##### Supply

*Public reserve inhabited by local communities (sellers).* The improved water supplies are expected to be achieved through investment in watershed protection, initially in the Cayambe-Coca (400,000 ha) and Antisana Ecological Reserves (120,000 ha) surrounding Quito, which are the main sources of water for the city. The area may be extended to incorporate the Condor Bioreserve. Glaciers in these areas store 1.4 km<sup>3</sup> water. The area is inhabited by 27,000 people distributed in small communities, who use water for agriculture and use the plateau for extensive livestock grazing.

##### Demand

*Pooled demand from various users.* Water users in Quito and surrounding areas, including: farmers (dairy, agriculture), hydropower companies, industrial, tourist operators and domestic users. Users pay different water use rates depending on whether they extract water or not. Local government (municipal water supply) -EMMAP-Q- (Water users in Quito (1,5million) and surrounding areas (27000); national government (MBS-Cangahua irrigation project); private corporate (brewery) Cervecería Andina, Cerveceria Nacional, (HEP) - Empresa Electrica de Quito (EEQ), HCJB, Electro Quito-Quijos project, INECEL-Cuyuja Project and INECEL-Coca Codo Sinclair Project, (spa&resort) Papallacta Hot Springs Spa & Resort; private landowners (irrigation); International NGO (donor) -SDC

##### Intermediary

Intermediation is done through a trust fund made up of several stakeholders involved. See below under (Mechanism) for a description of this fund.

##### Facilitators

The initiative was kick-started by TNC, an international NGO and the local municipality; recently SDC has also begun supporting the initiative.

#### MARKET DESIGN

##### Service

Water quality and quantity, although particular interests could vary according to the different water users.

## Commodity

*Conservation of existing ecosystems* through land acquisition.

*Improved management practices* through watershed management projects.

*Conditions to participate in the scheme:* “contribute to water quality and flow protection, be compatible with the protected areas’ management plans, promote community participation, be action-oriented, follow the bylaws determined by the fund. The selection is done by a competitive and transparent process implemented by a specialized institution (NGOs in particular)”

Possible activities that could be financed through this scheme include: land acquisition in critical areas, provision of alternative income for local residents, supervision, implementation of improved agricultural practices, education and training. 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.

### Payment mechanism

*Trust intermediary & user fees/pooled transaction* - regular payments by beneficiaries for watershed protection will be channelled 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:* 1) managed by Enlace Fondos, an independent private asset manager; 2) governed by a Board of Directors with representatives from local communities, HEPs, the national protected area authority, local NGOs and government; 3) legally registered - use of funds will be made in cooperation with the environmental authority; 4) execution of projects funded is done through specialised conservation entities and involves active local participation; 5) 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.

### Terms of payment

*Downstream users* pay a combination of one-off payments and cash-instalments based on the amount of water they use.

- Quito water utility (Metropolitan Enterprise of Water and Sewer Systems in Quito -EMMAP-Q) uses 1.5 m<sup>3</sup>/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 m<sup>3</sup>/w power generation); Electro Quito-Quijos project, INECEL-Cuyuja Project and INECEL-Coca Codo Sinclair Project (6.5 and 4.3 m<sup>3</sup>/w for power generation respectively).
- Recreation: Papallacta Hot Springs (0.008 m<sup>3</sup>/wk);
- Irrigation users: private farmers (2.1 m<sup>3</sup>/week); Ministerio de Bienestar Social (MBS) - Cangahua project (2.3 m<sup>3</sup>/week);
- International donors: Cooperación Suiza para el Desarrollo, COSUDE, one-off payment in 2005.



*Upstream farmers* receive support for watershed protection programmes, but no direct cash payments.

#### **Funds involved**

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

### **ANALYSIS OF COSTS AND BENEFITS**

#### **Economic**

The areas targeted are already nature reserves and protected under law. However, NGOs and groups interested in conservation face threats of conversion to agriculture. *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**

Collected funds will be 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 no information about actual environmental impacts from funded projects.

#### **Social**

The project proposes a high degree of community participation. Environmental education will be encouraged in order to reduce poaching, garbage dumping and illegal fires. There is a component for capacity building to improve agricultural methods and encourage alternative environmental-friendly activities. The project supports capacity building in environmental-friendly production, improving agricultural methods, and organisational capacity.

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 and more support in securing land tenure.

### **LEGISLATION ISSUES**

Market relies on the formation of supporting intermediary and implementing institutions. Unclear how much of the funding is transferred to upstream residents. Many regulations and laws 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.

### **MONITORING**

According to Montserrat Alban, from EcoCiencia, an estimation of the cost of patrolling the upper parts of the watershed is approximately US\$ 0.001/m<sup>3</sup>, representing approximately US\$ 0.04/month per family, for an average use of 40m<sup>3</sup>/month. Main constraints

According to Marta Echavarría, the process has been very slow and painstaking. "And project implementation is just beginning because we work only with the interest, not the capital, on the money in the fund. But it has been highly instructive."

[http://ecosystemmarketplace.net/pages/article.people.profile.php?component\\_id=468&component\\_version\\_id=452&language\\_id=12](http://ecosystemmarketplace.net/pages/article.people.profile.php?component_id=468&component_version_id=452&language_id=12)

The existence of FONAG as an institution depends on the continued financial contribution from the users. The board of directors of the companies makes this decision and it may change at any moment.

## MAIN POLICY LESSONS

1. According to Echavarría, the first step in creating a fund like this is raising awareness. In most places, like in Quito, people do not 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.
2. Secondly, the key users of water need to be identified, prioritised, and informed. In the case of Quito, the largest water user by far was the Municipal Sewer and Water Agency, a public entity that is accountable, 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 Echavarría claims one of the most influential - things that FONAG did was to produce a short and attractive publication detailing, among other things, the idea for the fund and the importance of conservation to the maintenance of water quality and water flows. This publication, explains Echavarría, eventually became a key tool for convincing not only the Mayor's office, but also the boards of directors of the water utility company, the electric utility company and all other participants in the fund.
3. Advantages of establishing a 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 and; expand public/private participation in conservation.

## OTHER INFORMATION

### CONTACT

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### REFERENCES

Echavarría, M. 2003. Three watershed protection experiences at different scales in Ecuador and Colombia. Presented at the training workshop on " Reward Mechanisms for Environmental Services: How to Assess, Negotiate and Monitor" 17-25 September 2003, Chiang Mai, Thailand.

Echavarría, M. Vogel J. Alban M and Meneses F. 2004. The impacts of payments for watershed services in Ecuador. Emerging lessons from Pimampiro and Cuenca. MES 4London, ENVIRONMENTAL ECONOMICS PROGRAMME- IIED. Markets for Environmental Services- MES. <http://www.iied.org/docs/eep/MES%20Series/MES4EcuadorWatersheds.pdf> .

Echavarría, M. and L. Lochman. 1998. Watershed Conservation Fund in Quito, Ecuador. Policy Mechanisms for Watershed Conservation: Case Studies. Washington, D.C., TNC.

Johnson, N. 2000. Market Strategies to Build Sustainable Links Between Forests, Water and People. Discussion Draft presented at Forest trend's Environmental Markets and Forest Workshop. Sydney, Australia. April 10-12, 2000., World Resources Institute.

### LINKS

<http://www.fonag.org.ec>