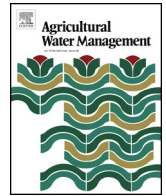




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Financing watershed conservation: Lessons from Ecuador's evolving water trust funds

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ABSTRACT

In early 2000, the city of Quito, Ecuador, established the Water Protection Fund (FONAG) to provide sustainable financing for the management and conservation of surrounding watersheds. FONAG was innovative in that it pioneered the use of trust funds in a voluntary, decentralized mechanism for financing watershed conservation. Since then, at least 15 water trust funds have been created or are under development in the Northern Andes, seven of which are in Ecuador. Ecuador's later water funds share many similarities with FONAG, but there are also important differences. This article analyzes the evolution of Ecuador's water trust funds since the creation of FONAG. It does so by comparing the development and effects-to-date of two of the most-recent Ecuadorian water funds: the Fund for Páramo Management and Fight Against Poverty in Tungurahua and the Regional Water Fund (FORAGUA). The article compares these newer water trust funds with FONAG and early payment for environmental services programs to identify four lessons regarding the financing of watershed conservation and related changes in community-level watershed management within Ecuador. The evolution of Ecuador's water trust funds highlights their ability to adapt to different socio-cultural and political conditions, including those that oppose the commodification of natural resources. As such, water funds provide an innovative model for providing sustainable financing for watershed conservation in countries like Ecuador where privatization is not possible for either legal or cultural reasons.

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1. Introduction

Ecuador, like many countries, grapples with problems of water quality and quantity and is unable to meet the demand for irrigation and human consumption (SENAGUA, 2009). One problem is the destruction of water catchment areas, spurred in part by the expansion of the agricultural frontier. In Ecuador, forests and páramo (high Andean grasslands) serve as collectors and regulators of water flow and prevent soil erosion that damages water quality (Célleri, 2009). Deforestation and the burning of páramo to expand agriculture, as well as the use of agrochemicals, disrupt the watershed's ability to provide these environmental services. Therefore, the conservation and sustainable use of forests and páramo in upper areas is crucial to ensuring an adequate quantity and quality of water available to downstream users.

Financing the conservation and restoration of water catchment areas has been difficult, given Ecuador's political and economic instability in recent decades (Jacome, 2004; Seelke, 2008). Rather than turning to private markets or relying on centralized state management, several Ecuadorian communities developed

innovative, voluntary, decentralized mechanisms for financing watershed management. These have evolved over the last decade, leading to new developments in water financing with important lessons for similar projects elsewhere. This article distills these lessons by analyzing the evolution of Ecuador's water trust funds as vehicles to enhance local capacity for managing water resources in an integrated, sustainable manner while balancing upstream and downstream interests.

Ecuador's experience is noteworthy because it is the site of two pioneering models for financing watershed conservation (Albán and Wunder, 2005). In 2000, the municipality of Pimampiro launched one of the world's first voluntary, decentralized, payment for environmental services programs to protect the watershed where its water originates (Echavarría et al., 2004). That same year, the city of Quito established the Water Protection Fund (FONAG, for its name in Spanish) to provide sustainable financing for the management and conservation of surrounding watersheds (Krchnak, 2007; Troya and Curtis, 1998). FONAG was innovative in that it pioneered the use of trust funds in a voluntary, decentralized mechanism for financing watershed conservation. Soon after the programs in Pimampiro and Quito were created, coalitions of Ecuadorian and international organizations formed to replicate each model through a series of campaigns, both within Ecuador and abroad.

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For reasons described below, over time there has been movement in Ecuador away from Pimampiro-style payment for environmental services programs toward the water trust fund model. Since 2000, at least 15 water trust funds have been created or are under development in the Northern Andes, seven of which are in Ecuador (Goldman et al., 2010; Goldman-Benner et al., 2012; The Nature Conservancy, 2011).¹ Ecuador's later water funds share many similarities with FONAG, but there are also important differences, resulting from learning and varied social and political contexts. Ecuador's early payment for environmental services schemes have also evolved as a result of this learning, including by moving toward the water trust fund model. As a result, Ecuador's newest water funds combine elements of both models.

To analyze the evolution of Ecuador's water trust funds, this article compares the development and effects-to-date of Ecuador's two most-recent funds: the Fund for Páramo Management and Fight Against Poverty in Tungurahua (hereafter referred to as the Tungurahua Fund) and the Regional Water Fund (FORAGUA, for its Spanish name). There are several reasons to focus on these water funds. Both are highly relevant to the issue of agricultural water management; both exist in Ecuador's Andean region in areas that rely on irrigation for agricultural production and that suffer from large water deficits and unequal distribution. In contrast to FONAG and Pimampiro's program, these funds remain understudied. Yet, they are considered to be among Ecuador's most developed water funds. Being newer funds, they provide greater leverage for studying the evolution of the water trust fund concept; their designs reflect lessons learned from earlier experimentations. Although they are recent funds, the process of creating them began shortly after the programs in Quito and Pimampiro were created and took years to come to fruition. During this time, design proposals varied and evolved in response to negotiations among watershed stakeholders. This article traces this process within each case and compares processes across cases to identify mechanisms behind the lessons described below.

Thus, the methodology used involves structured case comparisons and process tracing. Evidence comes from hundreds of primary documents, personal observation, and more than 200 in-depth interviews collected during two years of fieldwork between 2009 and 2011.² Interviewees included people involved in watershed management in each case representing municipal, provincial and national governments; local and international NGOs and donor agencies; private companies; indigenous and farmers associations; community organizations; individual landowners; and water fund managers.

The article proceeds as follows. Since the pioneering programs in Quito and Pimampiro influenced later funds, the next section briefly describes their main features and identifies key differences between them. The following section analyzes in more depth FORAGUA and the Tungurahua fund, comparing them along four lines: the financial mechanisms' designs, their governance structures, the history of social mobilization, and the use of funds' financial resources. Implicit comparisons are also made with FONAG and Pimampiro's payment for environmental services program to highlight changes and lessons learned over time. Key lessons from Ecuador's experience are summarized in the concluding section. Case comparisons suggest Ecuadorians are moving away from strict

payment for environmental services programs toward the use of water trust funds; are linking these funds with independent, participatory watershed management committees; are scaling programs up from the grassroots level; and are mixing their investments between capitalizing trust funds and financing early conservation projects.

2. Comparing Ecuador's original models for financing watershed conservation

Ecuador's two ground-breaking programs—Pimampiro's payment for environmental services program and Quito's water trust fund, FONAG—represent distinct models for financing watershed conservation in a voluntary, decentralized fashion. During the 2000s, coalitions of advocates formed to replicate each model throughout Ecuador. The Nature Conservancy began organizing campaigns to replicate FONAG almost immediately (Troya and Curtis, 1998). In addition to hosting conferences and disseminating publications, The Nature Conservancy enlisted the support of the U.S. Agency for International Development, which funded experts from The Nature Conservancy, FONAG and technical universities to identify important watersheds and work with local governments, NGOs, and communities to establish FONAG-style water funds. By 2009, this coalition helped create water trust funds in five other localities, including in Tungurahua.³ Simultaneously, the Ecuadorian NGO that helped create Pimampiro's payment for environmental services program, CEDERENA (Corporation for the Development of Natural Resources), worked to establish similar programs in municipalities across Ecuador. Examples include Loja, Celica, Puyango, and Pindal, four of the five municipal governments that subsequently founded FORAGUA.

Differences between the two models should not be overstated, but there are some important distinctions. The Pimampiro model is closer to a strict payment for environmental services scheme in which beneficiaries of environmental services voluntarily "buy" these services from "providers" who enact land use practices designed to ensure the services continue.⁴ In Pimampiro, the municipal government acts as the "buyer" of watershed environmental services on behalf of the city's water users. The municipal Environment and Tourism Unit (UMAT) manages the program. It negotiates voluntary agreements with farmers in water catchment areas to conserve and sustainably manage the forest on their land in exchange for cash payments. To finance the payments to farmers (ecosystem service "providers"), the government passed an ordinance levying a 20 percent fee on drinking water.⁵ This money is held in a municipal government account in the National Development Bank. Decisions on how to use these funds are made by a Fund Committee comprised of Pimampiro's Mayor and the directors of the municipality's Financial Unit, UMAT, and Environmental Commission.⁶ In summary, the municipal government serves as the program's governance structure.

Ecuador's water trust funds have several features that make them different from Pimampiro-style payment for environmental services schemes.⁷ First, and most importantly, they are managed

³ The five additional localities include Zamora, Tungurahua, Paute, Riobamba, and Espíndola.

⁴ For details of Pimampiro's program, see Echavarría, 2004; Albán and Wunder, 2005. For a definition and description of payment for environmental services, see Wunder, 2005; Goldman-Benner et al., 2012.

⁵ The Inter-American Foundation and the Ecuadorian NGO CEDERENA also made initial donations.

⁶ There was initially also a representative from CEDERENA until the NGO left in the mid-2000s.

⁷ See Goldman-Benner et al., 2012 for a detailed description of the differences between water trust funds and payment for environmental services programs.

¹ In Ecuador, water funds have been created in Quito, Tungurahua, Zamora, Paute, Espíndola, Riobamba, and Ecuador's Region 7 (FORAGUA). Water funds also exist in Colombia, Peru, Bolivia and Brazil.

² Primary documents were collected from the private archives of watershed stakeholders involved in each case, including the municipal governments, water fund technical secretariats, NGOs, and donor agencies mentioned in the following case studies.

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