



Payment for environmental services: offering smallholder farmers a choice for sustainable change

Looking at ways in which the negative effects of unsustainable land use can be minimized in five Andean watersheds.

■ Research Highlight #5



■ The link between environmental services and rural poverty

In the Andean region, valuable environmental services that support surrounding ecosystems and cities are being threatened by erosion, climate change, carbon emissions and other greenhouse gases, and natural disasters. These services include providing clean water in the dry season, regulating floods and contributing to soil formation and nutrient cycling. The situation is made more serious by the actions of poor smallholder farmers living in the upper catchments of the Andean

mountains. Declining agricultural prices and decreasing investments in the rural sector encourage farmers to engage in land use practices that degrade soil and contaminate water, which have adverse impacts on the natural resources base in the watersheds of the Andean region, in turn affecting the users of environmental services in the lower catchments.



Rice farming, Fuquene watershed

■ A sustainable choice for change

The Challenge Program on Water and Food (CPWF) project 'Payment for environmental services as a mechanism for promoting rural development in the upper watersheds of the tropics'. This project looks at ways in which the negative effects of unsustainable land use can be minimized. In five Andean watersheds, it explores the feasibility of credit arrangements and direct payments to poor farmers in the upper catchments to improve land use practices and family income. Credit

provides poor farmers with a choice to change agricultural practices that degrade water and soil and compromise the livelihoods of communities living downstream. By recognizing the value of the natural resource base as a provider of environmental services, the project is linking the poorer smallholder farmers in the upper catchments with the beneficiaries of these services in lower catchments.



Mayo river, Peru

Photo: CONDESAN

■ Improving environmental management in watersheds

A key objective of the project is to improve environmental management of the selected watersheds and facilitate a wider understanding of the value of environmental services. Project activities strengthen local institutions and networks and their links with researchers, development projects, politicians, and farmers to build capacity and share knowledge on best approaches for sustainable land use in each watershed.

In the Fuquene watershed, for example, a few hours from Bogotá, Colombia, the upper catchments are cultivated by farmers engaging in agricultural practices that cause soil losses and water contamination by agrochemicals. The Fuquene Lake in the middle part of the watershed is used for local tourism. These two factors combine to affect negatively the quality and quantity of water for downstream uses.

Through the analysis of land use management and water and production flows in the watershed, the project identified how best to distribute the benefits of reduced sediment discharge, water treatment and dredging, reduced production costs and increased crop productivity in the catchments to the various stakeholders, farming communities and areas that require the most support. This knowledge is being used to inform public and private sectors about the environmental impacts of current land use practices, and about the importance of promoting new farming alternatives with the potential to reduce negative environmental impact and improve socio-economic conditions for the rural poor in the upper catchments.

Project activities have resulted in the formation of a farmers union upstream that manages development resources in a credit fund. This fund will be used to

guarantee credit to small upstream farmers to implement alternative practices such as minimum tillage, green manuring and direct sowing in more areas. A "machinery fund" has also been created to supply the required equipment for implementing new management practices. These initiatives will allow better downstream flow of clean water and reduce soil loss.

■ Working with public utilities

In Ambato, Ecuador and Moyobamba, Peru, the project is exploring ways in which to work with town water supply agencies and irrigation districts to help small farmers in upper catchments. Efforts aim to improve the quantity, distribution and quality of water, and reduce sediments by alleviating the costs of shifting to sustainable land use systems.

Payment for environmental services schemes are designed specifically for each watershed according to local conditions with the direct participation of the environmental services providers and the potential buyers of those services. In Ambato, a fund will be created to preserve the paramo – a unique Andean highland ecosystem that regulates water flows. Moyobamba's local fund will compensate upland producers for shifting from slash and burn practices for maize and coffee cropping to a system for growing coffee under native and planted trees—a new method associated with complementary agroforestry management.

The project uses research activities as an interactive space for local universities and other public institutions to understand their potential role as intermediaries between buyers and sellers of environmental services. It aims to enhance the capacities of public institutions at the national, regional and local level in policy reform and institutional change.



< Highlands of the Fuquene basin



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■ **Project information**

CPWF Project

Payment for environmental services as a mechanism
for promoting rural development in the upper
watersheds of the tropics

■ **Partner organizations**

- Consortium for the Sustainable Development of
the Andean Region (CONDESAN)
 - International Center for Tropical Agriculture
(CIAT)
 - Danish Institute for International Studies (DIIS),
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 - GTZ Germany
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