

Conservation of Water Sources in Moyobamba: A Brief Review of the First Experience in Payments for Environmental Services in Peru

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Authority (ANA), the Superintendence of Water and Sanitation (SUNASS), the Regional Government of San Martín, the Alto Mayo Special Project (PEAM), the Municipal Government of Moyobamba and the Moyobamba water enterprise EPS.¹ It is supported by the German Technical Cooperation (GTZ).

Background

The water used by the population of Moyobamba, a small town at the eastern flank of the tropical Andes in northern Peru, is generated in the micro-basin of the Rumiyaqu-Misquiyacu and Almendra rivers. In recent years, the tops of the river basins have been negatively affected by a number of factors, including the migration of families from the high Andean regions. They have been responsible for conversion of premontane tropical rainforest into land used for agriculture and livestock,² which has resulted in loss of forest cover, biodiversity, and an increase in water contamination levels, reducing the quality and availability of the resource. This has affected city inhabitants as direct users of these ecosystem-derived services.

Compensation for environmental services (CES)³ in the Alto Mayo valley: evolution and first results

Due to their importance for water provision, Rumiyaqu-Misquiyacu and Almendra were declared Municipal Conservation Areas (ACM), in 2004. Within this context, the PEAM and the EPS Moyobamba, with guidance from GTZ, performed studies regarding the adequate management of the basins. These included:

- Hydrological modeling based on the Soil and Water Assessment Tool (SWAT)⁴ to estimate water supply and sedimentation rates.
- Calculations of the socio-economic and environmental costs and benefits associated with different land uses as perceived on site by farmers and off site by downstream communities, using the economic, social and environmental assessment model of soil use (ECOSAUT).
- Demand-based assessment for water for household purposes and irrigation.
- Several cost-studies, which assessed the costs of water treatment by the EPS and found an increase from US \$80,000 in 2001 to \$250,000 in 2004.

Agricultural activity - by far the productive focal point in the area - is considered the main threat to the micro-basins, whilst livestock and coffee wastewater have been found to be the main source of contamination. Hence, data on the socio-economic conditions, profiles and relationships between stakeholders was recorded, and a survey conducted on users' water demand and willingness to pay. The results from the research studies were crucial for identifying possible sources of finance and the mechanism to be developed, because they allowed a better understanding of the interests and needs of participants involved in the scheme.

In order to raise environmental awareness and inform about the ongoing activities, PEAM and EPS Moyobamba created communication tools and educational materials with technical assistance provided by GTZ from the very earliest



Water resource in Moyobamba. Photo: Isabel Renner.

Abstract

The present article is a summary of a multi-stakeholder process put into action in the Alto Mayo Valley, which aims to generate positive incentives for sustainable resource usage and to maintain key environmental goods and services. This is the first experience of its kind in Peru, and is promoted by the Ministry of Environment (MINAM), the National Water

¹ Organisation for Sanitation Services

² 70% of the land in these upland areas is used for agriculture and 10% for pasture for around 200 families, all of whom are stewarding up to 4 ha of land. About 20% of the population live in extreme poverty.

³ The stakeholders involved in the process prefer the term "compensation for environmental /ecosystem services" (in Spanish, compensación por servicios ecosistémicos - CSE) in order to address negative associations with the word "payment". Compensation in this case includes technical assistance, capacity development and material support as well as small works on infrastructure (instead of liquid assets).

⁴ <http://www.brc.tamus.edu/swat/>

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stages of the project. Simultaneously, a steering committee (*comité gestor*) was founded that is now growing to be at the core of the mechanism. It is made up of governmental institutions such as the municipality of Moyobamba, the Regional Government of San Martín, the EPS Moyobamba, the PEAM, and representatives of civil society, including NGOs, a small agricultural association representing the people living in the basins, interest groups of the city of Moyobamba, academics, journalists, and the Church.

Objectives

There was a clear need to omit certain agricultural practices in parts of the upper watershed and introduce agro-forestry systems in the lower parts, and to reduce the impact of unsustainable forest use and water contamination by livestock and coffee waste-water. The felling of forest species and practices such as the widening of agricultural land limits required significant land use changes in order to allow regeneration and the conservation of the micro-basin's ecosystem. As such, these are the main conditions to access the compensations provided by the mechanism.

Putting CES into practice

During a public meeting, the inhabitants of Moyobamba agreed to add a fee for the CES in the water bill from August 2009 onwards, allowing the inclusion of water source conservation as a specific subject within the enhanced master plan of the EPS Moyobamba.

Compensation consists of 1 Peruvian Nuevo Sol (PEN) per household/month and generates approximately 100,000 PEN per year (corresponding to approximately US \$30,000). The money collected goes to a separate account of the EPS administration and is supervised by the steering committee. Currently a public investment project of the Regional Government of San Martín assumes part of the relatively high transaction costs (about US \$800 per hectare) of the switch from slash and burn agriculture to agro-forestry systems. Formal contracts between service providers and the municipality and the steering committee are in negotiation.

Final considerations and outlook

The changes generated by the process described are expected to have three main results: a medium-term regeneration process of the damaged ecosystems (five to ten years), the maintenance of the capacity to generate water in the micro-basins, and the improvement of the quality of water, directly benefitting the population of Moyobamba-City. At the same time, civil society is beginning to take part in decision making processes, and local governance structures are being strengthened. It should be noticed that the main results (total regeneration of the ecosystem and its services and self-sufficiency of the CES) will be seen within a medium to long term basis. The main challenges relate to ongoing capacity development and institutional strengthening, as well as environmental awareness building and education and fundraising to assure sustainability of the process.

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Looking for solutions to environmental degradation. Photo: Isabel Renner.

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