

## GREEN INFRASTRUCTURE FOR THE RESTORATION OF ECOSYSTEMS SERVICES

*Restoration of ecosystem services for water regulation in the Piuray Ccorimarca basin, through the implementation of the Payment for Environmental Services (PES)*

### OVERVIEW

- Organization data:
  - ✓ Name: **EPS SEDACUSCO S.A.** (Entity providing sanitation services in Cusco)
  - ✓ Organization type: **Public private company**
  - ✓ Year of foundation: **1984**
- Beneficiaries : **25 communities living in the basin (about 6000 people) and 30% of the population of Cusco**
- Donors and financing: **SEDACUSCO (Drinking water users) and private companies (tax works) - 5 471 582 USD**
- Location: **Piuray Lake, Chinchero district, Peru**
- Beginning date: **2013**
- Motivations: **Improve water recharge to Lake Piuray and other water resources in the basin, restore water ecosystem services, and avoid contamination of Lake Piuray**



### CONTEXT AND ACTION

**Summary** | From 1996 to 2013, strong tensions emerged between the communities of the Piuray-Corimarca basin and the SEDACUSCO EPS, due to the unequal distribution of water resources. Indeed, Cusco's drinking water supply model was managed in an extractivist way, i.e. based on the massive export of natural resources. Indeed, the equivalent of 50% of the water demand of the population of Cusco is captured in the Piuray lagoon, not only for human consumption but also for industry. Gradually, the water level in the lagoon dropped, impacting the communities living in the basin. In addition, the aquifer at the head of the basin, which supplies the lake with water, was no longer functioning properly due to erosion problems and loss of vegetation cover, preventing water infiltration and aquifer recharge.

Consequently, EPS SEDACUSCO has established an agreement with local stakeholders in the basin to implement actions to protect and restore water-related ecosystems services. Through the implementation of Payment for Environmental Services, contributors to environmental services (community residents) can receive remuneration from the beneficiaries and users of these services (Cusco residents). The project has led to action on more than 2000 ha: construction of infiltration ditches, restocking of natural pastures, reforestation with endemic species, recovery of "pata patas" or terraces of slow formation to prevent soil erosion, and finally, the construction of 2 earth dams for infiltration and retention of rainwater with a total capacity of 21 000 m<sup>3</sup>.

In addition, in order to avoid contamination of Lake Piuray, owners must develop conservation actions, for example through agroforestry and agriculture without plant protection products. SEDACUSCO has also installed 411 latrines in the communities, improving health conditions.

### Local challenges |

- Increasing water demand: urban and economic growth, especially for tourism activities;
- Climate change by 2030: seasonal precipitation reduced by -42% and maximum temperature increased to +1.2°C;
- Capitalist development of water management, without including people living in rivershed;
- Erosion problems and loss of vegetation cover: the aquifer that supplies water to Lake Piuray does not function under its initial conditions;
- Loss of ecosystem services related to water regulation.

### Local responses |

- Landscape management based on traditional peasant knowledge: "Andean technologies";
- Implementation of the Payment for Environmental Services;
- Recovery of ecosystem services through the development of green infrastructure, combined with the restoration of vegetation cover;
- Involvement of the local population in the development of the sub-watershed;
- Strengthening the organization of water resources management by setting up training courses for local people.

## BENEFITS

**Environmental |** This adaptive management of water resources allows water to return to abundance, with increased infiltration and retention of rainwater. In addition, biodiversity has increased and diversified. The management put in place allows the conservation and increase of the flow of natural sources in a sustainable way. In addition, it increases adaptation to climate variability.

**Social |** The actions developed aim at the active participation of local populations, by placing them as actors in water management. The restored sustainability of water resources allows this model to continue: water is recognized as a social good. This project also involves women in decision-making, thus contributing to gender equality.

**Economic |** The PES principle put in place allows families in the communities to have a constant flow of economic income.

## SUCCESS FACTORS

- Active and concrete participation of stakeholders, jointly with the Project Management Committee, Chinchero District Municipality and EPS;
- Establishment of a system of rotation between the communities involved in the work;
- Awareness raising on the conservation and sustainable use of water-based ecosystem services.

## OBSTACLES

- Obtain qualified personnel in the communities;
- Non-compliance with municipal contribution commitments during the execution of the work of the Payment for Environmental Services project;
- Lack of continuity in community management work.



*« Before, there was no development; I thank SEDACUSCO more than anything for helping us and for building this project that allowed the whole family to live in better conditions. »*

**Silvia MARQUINA MORENO,**  
inhabitant of Huila Huila  
community

- Contact:
  - ✓ Name: **Eric E. VILLAVICENCIO ZANS**
  - ✓ Status: **PES project coordinator at SEDACUSCO**
  - ✓ E-mail: [centinelalmv3452@hotmail.com](mailto:centinelalmv3452@hotmail.com)

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