



ADAPTS: Adaptive Water Management at a Local Scale

Peru case study

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GOAL OF ADAPTS

Climate change is expected to result in changes in temperature and rainfall patterns, higher sea level, increased climate variability and more extreme weather events, all of which threaten water availability and food security for millions of poor people. Adaptation strategies to deal with these impacts are urgently needed for communities as well as national governments.

In 2008 the Institute for Environmental Studies, Acacia Water and BothENDS began the ADAPTS project with the overall goal of increasing the adaptive capacity in developing countries with the inclusion of climate change and adaptation issues in water policy, local development planning and investment decisions. Country case studies are implemented in a NGO-government alliance.



Fig. 1 The six case study areas.

SUB-OBJECTIVES

To achieve this goal, ADAPTS focuses on:

- **1. Knowledge development:** developing climate change information and studying how local water management can be made more climate-proof.
- **2. Local Action:** the identification, support, documentation, evaluation and dissemination of innovative, locally-based measures to ensure that local knowledge and vision are included in basin and national policy dialogues.
- **3. Dialogue:** establishing policy dialogues between local and national stakeholders on the issues of sustainable water management and adaptation to climate change.

ADAPTS begins by showing that adaptation is taking place locally, and by providing practical experience and lessons from various contexts in ways that enrich the debate on climate-proofing water management from the local to (inter)national levels.

The project is underway in six river basins around the world. Three-year projects are implemented in Peru, Ethiopia and Ghana; one-year projects in Botswana, Brazil and Vietnam. This factsheet offers an overview of the main challenges and activities in Peru's Ocoña basin, in the Churunga and Arma-Chichas areas.

PERU: The Ocoña Basin

The Ocoña river basin covers 16,322 km², extending from the Pacific to 6,445 meters above sea level on the Coropuna glacier's peak in Peru's southern Andes. The watershed crosses 7 provinces in 3 departments, and is home to 70,000 people, most of whom live in poverty or, as in the case of families living at higher-altitudes, extreme poverty.



The Ocoña Basin originates in a vast network of glaciers and wetlands that recharge springs used in irrigation and provide the greatest dry-season discharge into Peru's Pacific coast. The unique natural and cultural resources of the Cotahuasi Canyon and neighboring upland *polylepis* forests are protected in the Cotahuasi National Scenic Preserve and two communal forest reserves. Ocoña Basin livelihoods reflect Andean traditional knowledge of native crops, farming, llama herding, shrimp fishing and medical plants.

AEDES, together with Peru's Environment Ministry, Water Authority, municipal governments and universities, supports adaptation to climate change through research, local capacity building and Integrated Basin Management. Tools that take climate change into account in planning and water governance are key for to regional and local policy-making concerning the Ocoña Basin.



CLIMATE CHANGE AND VULNERABILITY

The lower seasonal precipitation and higher temperatures of recent decades have resulted in accelerated glacier retreat in Peru. AEDES documented a 47 km² reduction in the Coropuna glacier for the period 1975-2009, equivalent to a 37% loss in its area. Global climate change models predict that in coming decades temperatures will continue to rise and inter-tropical glaciers, like those in the Ocoña Basin, will disappear.

Such changes will lead to reduced water availability in Peru's glacier-dependent Pacific watersheds, accompanied by heightened production risks and conflicts. Water is vital to sustaining Andean biodiversity and communities. When it becomes scarce subsistence farm production declines, and upland pastures and wetlands become parched. Reduced river discharge adversely affects shrimp fishing in the lower Ocoña river. The consumption and pollution of valued water resources by miners is a cause for concern and conflict in the Ocoña Basin.



LOCAL ADAPTATION

For over a decade AEDES has actively supported the creation of water commissions and *Consensus Tables*, where different stakeholders negotiate local concerns and propose solutions. ADAPTS-Peru introduces climate change adaptation measures and issues via these local decision-making groups by providing them with updated information on the changes in the hydrological system, and on the effectiveness of adaptation measures.

Studies of Coropuna glacier and the hydrology of two sub-basins are ongoing. Glacier retreat is monitored with Peru's Glaciology Institute and AcaciaWater helps to analyze hydrology data. This data is used to predict changes in glacial mass and runoff and to model its effect on local hydrology.

Measures currently under evaluation include:

- small-scale rainfall catchment reservoirs
- wetland (*Bofedal*) management by community
- Community based *Polylepis* forest reserves
- irrigation water conservation (drip, sprinkler)
- improved water distribution and use
- introduction of pasture adapted to arid Andes

DIALOGUE AND UP-SCALING

AEDES is experienced in supporting local groups in drafting of proposals for sustainable livelihood development. Organizational capacity building with federations (communities, irrigated farmers, women) is an ongoing process in five sub-basins. The recent Ocoña Water Governance Platform is the 1st basin-wide organization to be formed.

ADAPTS builds on existing relations with regional and provincial authorities to scale up successful adaptive measures and experiences. AEDES, the Environment Ministry, Arequipa's Regional Government and ANA (National Water Authority) will work together building consensus for an Integrated Ocoña Basin Management Plan, that involves diverse stakeholders such as farm families and communities, miners, shrimp fishers, youth and academic institutions.

FUTURE PLANS

The pilot experience with developing an Integrated Management Plan for the Ocoña Basin by stakeholders is evolving according to rules established by Peru's Water Resources Law (2009). AEDES, the Regional Government, AAA and fellow members of the *Grupo Impulsor* will incorporate climate change in the Ocoña process as a model for other Basin Plans.

ADAPTS will continue to evaluate glacial melt, change in local hydrology and adaptive measure effectiveness, and to inform others – locally, nationally and internationally – about these.

PARTICIPATING INSTITUTES

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