



Arid America: a challenge to guarantee water for society and environment

Innovative Science and Influential Policy Dialogues for Water Security in the Arid Americas (Aguascepes)

Budget: US\$ 800,000

Main agency: The University of Arizona

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Countries: Argentina, Brazil, Chile, United States, Mexico and Peru



<http://www.aquasec.org>

Abstract:

A study of watersheds in six countries in the American continent concludes that collaborative work between the communities that live in the ecosystems, their political and social leaders, and scientific researchers, allows all parties to reach consensus on how to move beyond climate effects, and guarantee the availability of water resources.

Scientists from the Center of Excellence for Water Security (AQUASEC) supported by the Inter-American Institute for Global Change Research (IAI) spent several seasons on the frontiers between Sonora (Mexico) and Arizona (United States), the valleys in the east and west of the Andes of Chile, Argentina and Peru, and the northeast of Brazil, identifying the challenges of accessing water in these regions, and also making viable proposals for better resource management.

These are arid areas where climatic variability (droughts and floods) and land use require that inhabitants look for alternative ways to access water resources, for example through underground water, since it is impossible to find water permanently on the surface. This water shortage inhibits ecosystem services, reduces socioeconomic development, and changes the landscape.

The research team found that, despite the uncertainties, vulnerability and risks that insecurity in water access generates, there are also opportunities, particularly when scientists, decision-makers and communities work collaboratively.

During the five years of the project, AQUASEC scientists – some of them members of the Intergovernmental Panel on Climate Change (IPCC) – studied the social, ecosystemic and hydroclimatic interactions in 12 river basins: Mendoza and Tunuyán in Argentina, Capibaribe and Pajeu in Brazil, Maipo and Limarí in Chile, Piura and Ica in Peru, Santa Cruz and San Bernardino in United States, and Sonora and Yaqui in Mexico.

These are regions where the water resource is so valuable that it generates competition between urban and rural citizens. These basins are comparable with others that were the object of a previous study in another project supported by IAI, entitled *Towards an integrated evaluation of water security in the context of global change in the Americas*.

With a methodology that included climatic scenarios, mathematic simulations and surveys, the scientists concluded that “it is possible to improve adaptation to climate change with a reasonable efficiency, through cultural and productiveness activities without needing big investments.”

In order to generate public water policies that allow adaptation to the varying availability of water and promote “sustainable management” the project promoted interaction between the different actors, which included scientists, water or land managers, rights holders, water user associations, members of civil society and decision-makers.

Whilst looking to identify the consequences of hydroclimatic variability and land use, as well as possible institutional changes in water management, the research team outlined adaptation and resilience strategies specific to each studied area, taking into consideration both local practices and directives of the institutions responsible for water management.

“Each region, considered individually, represents an ideal lab where interactions between society, ecosystem and hydroclimatic features in a global context of change can be observed and can help teach lessons,” the researchers say.

When they shared information, the different actors were able to reach consensus on ways to guarantee the availability of water resources based on conceptual and practical analysis of the social use of water and taking into account the dependence of human beings on this resource, hydroclimatic processes, and historical knowledge of climatic conditions and land use in these basins.

Christopher Scott, lead researcher of the project, is director of the Udall Center for Studies in Public Policy and lecturer in hydric resources at the School of Geography and Development at the University of Arizona. Scott acknowledges the threat that the situation in these regions represents to human life and ecosystems in the basins.

“Most scholars and observers agree that the world’s dryland areas share numerous risks associated with growing demand for water in the face of large-scale environmental change,” says one of the papers written by the researchers. “And while context will always determine specific challenges, we believe that science-policy dialogues that aim to address vulnerability and promote adaptive capacity can be designed to improve environmental decision-making in most settings,” the paper says.