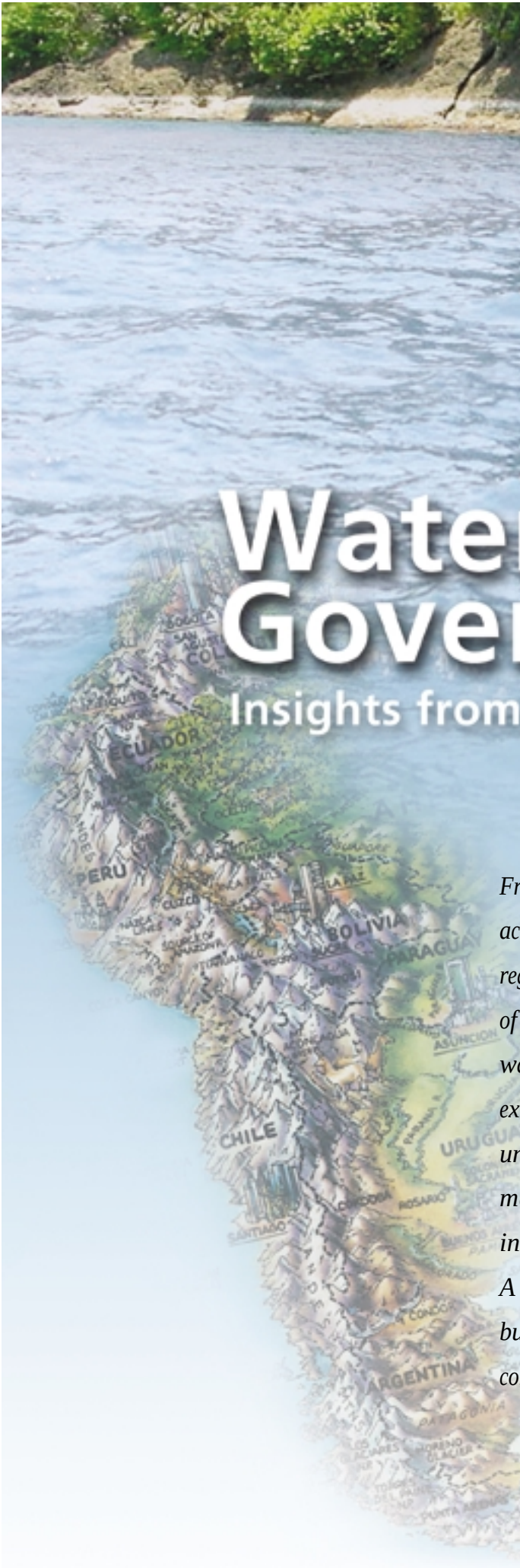
IDRC CRDI

# Water and Governance:

## Insights from Research in the Andes




*From burgeoning cities, to increased industrial activity, to shifts in weather patterns, the Andean region of South America is undergoing a broad range of social and biophysical changes. Andean sources of water are exploited to meet growing internal and external demands. As the water supply becomes more uncertain and debate over how water should be managed becomes polarized, local users and institutions are attempting to define a path forward. A critical factor for shaping the region's future is to build the skills, ability and experience necessary to confront complex, dynamic problems related to water.*

# Pressure on water resources will continue to increase…

The supply of water in the Andes is not matched to the growing demand for water. Local water supplies are squeezed to provide more drinking water to Andean cities such as La Paz, Arequipa, Quito, El Alto, or Bogota, and to Andes-dependent cities such as Lima, Trujillo, Arica or Santiago. Agriculture is a major water user and while irrigation practices are improving, farmers are being pressured to plant more water-intensive crops; they face increasingly unpredictable supplies, and must increasingly compete with cities for available water. This competition is compounded by industrial growth, particularly in the mining sector which uses large quantities of water to process gold, copper, and other metals and minerals. More water infrastructure is not necessarily the solution to local water scarcity. Even innovative technologies — such as water harvesting — require institutional innovations for their planning, operation, and maintenance. The very nature of appropriate technology needs to be understood within the contexts of changing technological options, local values, and political and financial conditions.

The future holds only more change. The Andean region will have to cope with the impact of past water and land use practices. What effect climate variation — caused by the greenhouse effect and meteorological phenomena such as the El Nino Southern Oscillation — will have on water availability is not yet clear. Watersheds are also complex hydrological systems that are neither fully manageable nor predictable. Decisions about how to use water must necessarily be made in a context of uncertainty and be considered as an opportunity to learn more. Meanwhile, demand for drinking water will only increase with attempts to implement the Millennium Development Goal to halve the proportion of people without sustainable access to safe drinking water by 2015.

## …and coping with the consequences is necessarily complex

As water becomes scarce, decisions about water allocation will become increasingly critical for fair and equitable development. In open and democratic societies, multiple stakeholders claim a voice in water management — from small-scale farmers to wealthy landowners, from owners of industries to political institutions. Different stakeholders take opposing positions, and negotiating water management is as much about the art of diplomacy as it is about the science of hydrology.

Agreements can be forged on how to manage water, but there are no “one-size-fits-all” solutions. Approaches must be tailored to local cultures, landscapes, and conditions — and they must be supported by governments at various levels. The ways institutions go about managing water should strengthen people’s ability to respond to change. This document presents some of our research partners’ key insights in relation to multistakeholder processes for water management and some of the questions posed by their findings.

### The Minga Program Initiative at IDRC

The Minga Program Initiative of the International Development Research Centre supports research on alternative approaches to managing natural resources in Latin America and the Caribbean. Minga is currently involved in initiatives led by various Andean partner organizations that seek to stimulate learning to help address present and future water-related problems.

# Participation in Decision-making

Participatory approaches that open space for the involvement of diverse stakeholders in the management of water and other natural resources are vital for the future. Effective participatory approaches build the capacity and skills of individuals and organizations, allowing them to take on a greater role in management, fulfill more responsibilities, and eventually produce more equitable outcomes. In other words, finding solutions lies in the process through which they are sought.

## Research insights

- *Conflict over water can open spaces for dialogue.* Sharing information related to water can foster these opportunities; it can also build trust among stakeholders and confidence in the transparency of the decision-making process. Confidence is further enhanced when stakeholders share responsibility for gathering and analyzing information.

- *Not all stakeholders are equal.* To be effective, participatory processes need to consider the power relations, gender roles and other social differences existing everywhere. There are important differences even within apparently homogenous groups such as indigenous communities, farmers or irrigators' committees, and families.

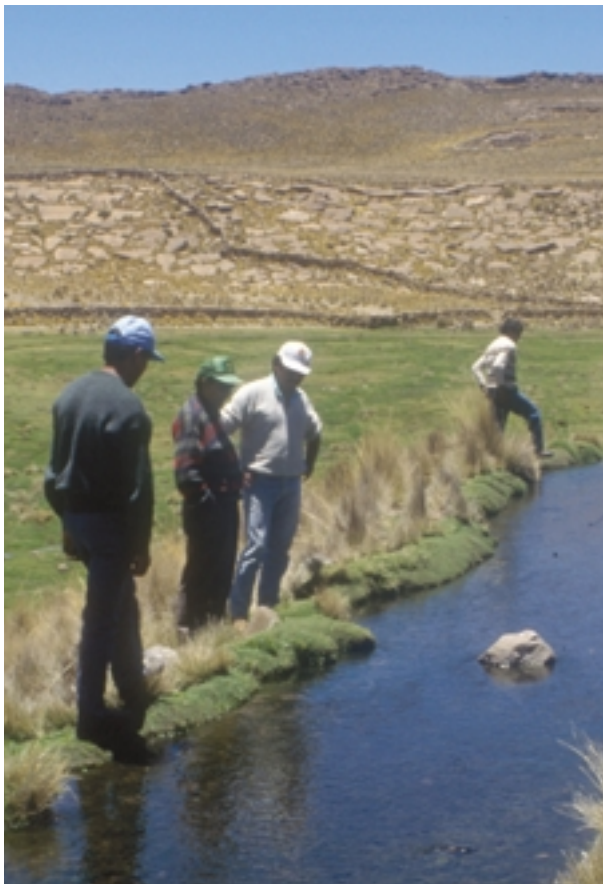
- *Powerful stakeholders can make or break a participatory approach.* Influential stakeholders need encouragement to recognize that they share a mutual dependency with other water users. Such recognition can motivate them to participate in constructive dialogue to ensure water is appropriately managed for all users.

- *Local ownership is key.* In cases where external agencies are supporting participatory processes, learning is fostered by quickly devolving responsibilities to local people. External agencies can play a more direct role in activities such as training local stakeholders' committees in how to create their own research agendas, or supporting the development of municipal environmental units. Innovative institutions can strengthen skills and foster connections among social groups by providing environmental education for youth, organizing fora and roundtables, and engaging in participatory research.

## Pending issues

### *How can disadvantaged stakeholders be empowered to gain from participatory approaches?*

Powerful stakeholders can dominate dialogue to co-opt participatory processes for their own benefit and continue to impose undue cost upon the less powerful in society. There is a need to move participatory approaches beyond the assumption of egalitarian social conditions and create opportunities for disadvantaged groups to express their views and benefit from water management.



## The Carchi Consortium

Water is in short supply in the El Angel watershed of Ecuador's Carchi province. The river has been reduced to a mere trickle by the time it reaches farmers downstream, and this has been leading to conflict and water theft. Within this context, a research team known as Manrecur is working to define a cluster of solutions that could cumulatively resolve these problems and provide sustainable solutions in the long run.

Starting with the watershed as their unit of analysis, Manrecur gathered data on the geographic, environmental, social, and productive characteristics of the region. Manrecur found tremendous disparity in existing water concessions where a few concessions accounted for large volumes of more than 1,200 litres per second, while the majority of concessions allocated volumes between 0.02 and 10 litres per second. Furthermore, according to official data, the total supply of water was more than enough to meet the total demand, yet Manrecur's research revealed there was a water deficit.

A key component of their approach has been a multistakeholder forum known as the Carchi Consortium. In its beginnings in 1994, Consortium meetings were attended mainly by researchers, government representatives, and development workers who came together to discuss and coordinate their work. But it has since developed to attract a lively following within the community and has a locally staffed office in the town of El Angel. At least 50 people attend each meeting — including a mix of farmers, students, teachers, shop owners, members of water associations, and women's groups. The Consortium is one of the few places where people from all parts of the watershed come together.

Through the Consortium, people have begun thinking of the watershed as an interconnected system on which they all depend. Diverse strategies have been generated and implemented through the meetings, leading to an increased awareness among the general population about how water can be managed sustainably. By bringing together diverse stakeholders, the Consortium also facilitated a dialogue that led to the resolution of a significant conflict over water use.

# Institution Building and Decision-making

Rather than development solutions or models, water management institutions need approaches for adapting and responding to change — whether these changes relate to the biophysical dynamics of watersheds, complex relations between water users, or economic shifts. Adapting to change is fundamentally a local undertaking, yet it can be influenced by decisions taken by authorities located in other communities, cities, or even other countries.

## Research insights

- *Traditional Andean systems of water governance do function.* Although traditional systems for managing water could be more efficient and need to adjust to external pressure, they are logical starting points for building water management institutions. Local knowledge and institutions are crucial for coping with and mitigating the negative effects of change.

- *Local multistakeholder fora offer opportunities for institutional innovation.* By creating opportunities for regular dialogue within and between neighbouring communities, multistakeholder fora are an effective way to promote planning and decision-making that adapts to local realities. Well facilitated fora can create a space where conflicts are managed or resolved, research results are discussed and used to generate options for change, and where better coordination among organizations can take place.

- *Collaboration can solve information gaps.* Limited financial and human resources seriously undermine the capacity of agencies with a mandate to monitor water resource availability and quality. Yet stakeholders can collaborate to share and analyze available information, identify knowledge gaps, and set priorities for information gathering and new research.

## Pending issues

***What role should multistakeholder fora have with respect to local government and existing water management agencies?***

Building institutions is a long-term process, involving stakeholders from local and municipal, through to regional, national, and international levels. Governments and external agencies can influence local multistakeholder fora by facilitating these processes, by gathering data and making information available, by granting legal recognition of local authority, or by providing political and financial support.

### ANDEAN WATER VISION FROM AN INDIGENOUS AND CAMPESINO PERSPECTIVE

For the Andean peoples, water can be much more than a natural resource. Within the indigenous cultures, there exist common beliefs that define an Andean water vision:

***Water as a living being*** that provides life to animate the universe;

***Water as a divine being*** that comes from the creator god of the universe, *Wirakocha*, to fertilize mother earth, *Pachamama*, thus permitting the reproduction of life;

***Water as the basis of reciprocity*** that unifies all living things, connecting nature and human society, creating ties within the family, family groups, and Andean communities;

***Water as a universal and communal right*** that is distributed equitably according to needs, customs and community norms, and water cycles;

***Water as an expression of flexibility*** that adapts to ecosystems, circumstances, and opportunities without following rigid norms;

***Water as a transformative being*** that obeys natural laws, according to seasonal cycles and the condition of the landscape;

***Water as a cohesive force*** that enables the self-determination of people and their communities based on a respect for nature;

***Water as a common patrimony*** that belongs to the earth and all living beings; and

***Water as a public good*** that is governed through local customary rights.

# The Complex Geography of Water

Problems arise when rules governing water access and use — and the institutions through which those rules are enforced — fail to guarantee social equity or to maintain water quality and environmental integrity. To confront water management challenges effectively, different jurisdictional boundaries and the spatial coverage of institutional authority need to be informed by an understanding of change and reconciled with watersheds and people's territorial identity.

## Research insights

- *Watershed perspectives can be a catalyst.* Encompassing the territory drained by a particular stream or river, the biophysical watershed is a useful scientific unit for analyzing water availability and how it can be better managed. Because watersheds cross political and administrative boundaries, a watershed perspective can assist water users and authorities to better understand the impacts of their actions and their mutual dependencies across those boundaries. Developing a shared sense of watershed can lead to changes in motivation and behaviour.

- *Social territory matters.* Although the watershed is a useful unit for analysis, there are many other ways in which the concept of territory is constructed. In addition to administrative and political jurisdictions, there are cultural, economic, and historical definitions of territory in the Andes that must be considered. These territories are not always geographically contiguous. People use land across a range of altitudes and water must be managed to support the spatial complexity of their livelihoods.

- *Transboundary issues are geopolitically important.* Water is vital for economic development, urban growth, poverty reduction, and environmental conservation. Issues such as conserving supplies, reducing pollution, managing groundwater sustainably, and reversing watershed degradation often need to be addressed jointly by neighbouring countries.

## Pending issues

### *How can successful participatory approaches be scaled up from the local to the regional level?*

As water management involves larger geographical areas, greater distances separate stakeholders and face-to-face dialogue becomes more difficult. Participatory approaches can provide the means for more effective dialogue and coordination across regions and nations, allowing people in different parts of a watershed to understand how their water use affects others. Processes for conflict resolution and negotiation can help to accommodate spatial and social diversity across administrative levels and even national borders.

***"The question isn't what is decided — but how it is decided. Unless fundamental principles of democratic governance are in place, outcomes will not reflect the ever changing needs for water management solutions"***

*(M. Moench et. al, 2003.* The Fluid Mosaic, *page 56)*

# Valuing Water

Since local water supplies are limited, it is necessary to value water and decide how to allocate this scarce resource. There may be some circumstances where price is an effective mechanism for promoting conservation or increasing the efficiency of water use. Yet the choice to pursue this option cannot be imposed upon disadvantaged groups to the benefit of private interests or through nondemocratic means. Problems arise when large private demands for water are met without proper consideration of the needs of rural communities and ecosystems for their survival.

## Research insights

- *Water is traditionally perceived as a public good.* An indigenous vision of water considers this resource to be a common patrimony "that belongs to all and belongs to no one"; it is "the right to life of humans, plants and animals." Water is a valuable part of cultural identity and worldview. This indigenous vision values water as a public good that should not be subject to expropriation by private interests to earn a profit at the expense of society.
- *Water has multiple sources of value.* Factors to consider in assessing the value of water include: available water quantity and quality, alternative sources of available water, the value of outputs for which water is used as an input, the value of maintaining critical water flow for ecological functions and human health, and water's role in influencing poverty and human survival. Water use often involves externalities so that some costs of use by one group are borne by others. The mechanisms for ensuring compensation for these costs are either inadequate or non-existent.

## Pending issues

### *How can we ensure that costs and benefits of water are equitably shared?*

Rather than asking whether water is a public good or a private commodity, both perspectives must inform effective management. Cultural perspectives and a social right to water must coexist with the strong pressures to consider water as an economic good, especially given the need to revitalize aging water infrastructure and the potential social benefits of private sector involvement in water treatment and distribution.

## Key Findings

*Coping with continued increases in water demand will require complex, adaptive governance approaches* rather than debate between opposing views over whether water should be treated as a private or a public good. Governance of water issues should:

- be locally focused and build upon local institutions;
- consider hydrological watershed processes as well as other biophysical and socioeconomic processes that influence the water supply and demand;
- open space for the participation of multiple stakeholders;
- consider locally appropriate means of sharing the costs and benefits of water use;
- allocate water use equitably among mutually dependent users within watersheds.

*It is vital to build institutional capacity to cope with change,* given climatic and economic uncertainties and the need to incorporate social values and equity into water management. No single water governance model can address the variety of contexts. Rather than implementing a particular static model of management, there is a need for governance processes that are locally acceptable, adaptable, and allocate decision-making at the most appropriate level — as close to water users as is feasible.

**We wish to continue working with partners to further a research agenda in this area and welcome comments or feedback.**

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## Key Sources

Andean Water Vision
**www.condesan.org/memoria/agua/VisionAndina.htm**

Virtual Information Centre on Water in the Altiplano
**www.agualtiplano.net**

El Angel Watershed, Carchi, Ecuador
**www.ire.ubc.ca/Carchi/html/intro.htm**

Comisión para la Gestión Integral del Agua en Bolivia (CGIAB)
**www.aguabolivia.org**

Collaborative Himalayan Andean Watershed Project
**www.ire.ubc.ca/himal/**

Consorcio para el Desarrollo Sostenible de la Ecorregión Andina
**www.condesan.org**

Fondo Mink'a de Chorlaví
**www.fondominkachorlavi.org**

Local-level Water Management
**www.idrc.ca/water/**

Water Demand Management Forum
**www.idrc.ca/waterdemand/**

Stakeholder Information System (SIS) (Jacques Chevalier)
**www.carleton.ca/~jchevali/STAKEH.html**

The Fluid Mosaic
(M. Moench, A. Dixit, S. Janakarajan, M. Rathore, S. Mudrakartha)
**www.nwcf.org.np/pub.htm**

Water Management in Ecuador's Andes Mountains (Lisa Waldick)
**www.idrc.ca/reports**

These and other references can be accessed from the Minga Web site at
**www.idrc.ca/minga**


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