What is the strategic importance of adopting a watershed perspective when dealing with the impacts associated with climate variability and change on the mountain-flat lands dynamics?

Climate change is definitely affecting the tropical Andean region’s hydrological cycle. Mainstreaming CC adaptation together with the sustainable management of land and water resources is therefore of the utmost importance for the region as a whole. The main recommendation of this policy brief is to adopt an Integrated Watershed Perspective (IWP) to design policy and institutional solutions both at different river basin scales, and at the whole basin areas. The IWP we propose aims to demonstrate that the sustainable restoration and management of the hydrological cycle is everyone’s responsibility, from the top of the Andes to the Pacific and Atlantic coastal areas. Planning with multiple stakeholders and involving local municipal and regional governments in watershed management can be institutionalized linking watershed committees and inter-municipal commissions with an integrated watershed perspective. In the tropical Andes, the involvement of rural dwellers in Watershed Users’ Organizations (WUOs) and Payment for Environmental Services (PES) in watersheds by city dwellers and industries is some institutional arrangements that have been recently attempted. Watershed Commissions and the inter-municipal (mancomunidades) commissions should be linked following an IWP to sustainable manage natural resources, including all stakeholders in a participatory manner. This shared responsibility could be institutionalized through a watershed PES (Payment for Environmental Services) or CES (Compensation for Environmental Services) scheme.

The tropical Andes hydrological dynamics

The hydrological dynamics of the tropical Andes regulate both the access upland rural communities have for irrigating their farms and other productive activities, but also for domestic and industrial consumption in both downstream urban and rural areas. Mountain ecosystems are particularly fragile. Therefore, water management and watershed protection have an enormous importance because of the differing demands it places on water use.

Climate change is definitely affecting the region’s hydrological cycle. Mainstreaming climate change adaptation together with the sustainable management of land and water resources is therefore of utmost importance for the Tropical Andean region as a whole.

To achieve this end we need to adopt appropriate policy solutions both at different river basin scales, and at the whole river basin as well. This is why a watershed perspective is needed. Ours is, however, a call for an Integrated Watershed Perspective (IWP) which takes into consideration not only the physical (hydrological) dynamics of each basin, but also considers the complex physical and human interactions covering its whole landscape.
Where does an Integrated Watershed Perspective operate?

The IWP we are proposing aims to demonstrate that the sustainable restoration and management of the hydrological cycle is everyone’s responsibility: from the top of the Andes to the Pacific and Atlantic coastal areas. And, at each watershed, from the upland’s water recharging zones, through its middle part where frequently extensive agriculture and livestock productions takes place, to its lower altitudes where most urban centres are located.

Raising awareness about this interconnectedness is a key challenge. The IWP recommended here is of strategic importance because it represents the participatory institutionalization of NRM.

Because watershed boundaries seldom coincide with political boundaries, the environmental point of view that favours watershed boundaries often conflicts with an institutionally-oriented point of view. The forces of nature ignore political boundaries. Water flows, land-slides, erosion, and water pollution take place paying no heed to political boundaries. The challenge is to move toward greater integration of these two points of view.

Planning with multiple stakeholders and involving local municipal and regional governments in watershed management can be institutionalised linking watershed committees (comisiones de cuencas in Spanish) and inter-municipal commissions (mancomunidades de municipios also in Spanish) with an integrated watershed perspective.

Management of local watershed basins

At the local level watersheds should be managed by inter-municipal commissions, thereby creating a chain of municipalities which follow the flow of water, going beyond a narrowly-conceived hydrological perspective.

In the tropical Andes, the involvement of rural dwellers in Watershed Users’ Organizations (WUOs) and Payment for environmental services (PES) in watersheds by city dwellers and industries are some of the institutional arrangements that have been recently attempted. These good practices provide valuable lessons for the design and implementation of the management of other local watershed basins elsewhere in the region.
watershed management at Las Piedras river in Colombia

The 'Planes de Ordenación y Manejo de Cuencas Hidrográficas' (POMCH) implemented by the Río Piedras Foundation are an excellent example of a public agency which manages watersheds in a participatory manner. The Foundation is a mixed public-private entity associating eleven organizations, which designed the first management plan, favouring the discussion of issues such as environmental protection, education and conservation, as well as the long-term production plans. It is worth noting that the municipal government, the local aqueduct corporation, and the regional Cauca Autonomous Corporation, participated in this plan made possible a broad debate on the relationship between protection, education and environmental conservation, and the city aqueduct, and the Regional Autonomous Corporation of Cauca were active participants in the design of this plan. Desi...
Policy Recommendations

- Our main recommendation is that Watershed Commissions and the inter-municipal commissions (Mancomunidades de Municipios) should be linked following a IWP to sustainable natural resource management including all stakeholders in a participatory manner. This means that communities at all altitudinal levels should be involved in the management of the whole hydrological cycle.

- In water-recharging zones, users are the first people who must be included in the institutionalization of NRM, as their livelihoods and productive practices have the most direct impact on the watershed hydrologic systems. In the middle part of the watersheds, where frequently extensive agriculture and livestock production is located, producer organizations must be involved in the correct management of hydrologic resources, especially by controlling and limiting water contamination. Last but not least, in all urban centres, and especially in the wealthiest ones situated at the low altitudes of watersheds (for example Lima), citizens must be made aware of where their water comes from, how it is generated and especially who is responsible for the provision of such valuable resource.

- Therefore, the watershed perspective within an inter-municipal context promotes the collective responsibility for sustainable NRM. This shared responsibility could be institutionalized through a watershed PES or a Watershed Compensation for Environmental Services scheme.