

Agua Sustentable's scientific research and participatory planning for adaptation to climate change in Bolivia incorporate economically accessible and localized methodologies. Focusing on the impact of receding glaciers on food security in the Municipality of Palca, Agua Sustentable works with Aymara farming communities to understand and anticipate potential reductions in water supply and develop culturally relevant plans for adaptation.

Hydroclimatologic research on the Illimani and Mururata mountains, GIS and water management mapping, and oral histories indicate currently observable impacts of climate change. The Mururata mountain, for example, has lost approximately 20.13% of its area since 1956, the majority lost from 1983 onward. Oral histories of community members, in addition to meteorological data, show a lengthening dry season, and greater variability in rainfall during the wet season.

Projected reduction in water supply due to the loss of the glacier's regulatory capacity in coming decades will have a serious impact on the region's agricultural production. This will be especially relevant in the dry season, during which farmers depend on glacier melt for irrigation. Potential social conflicts over scarce water resources in the basin are a concern in coming years.

Participatory planning workshops yielded diverse options for adaptation, including: improved water management and infrastructure, more efficient water use, return to traditional agricultural and cultural practices, improved agricultural inputs, and further technical support. Many of these adaptation mechanisms require economic resources that surpass community and municipal finances. An international fund for adaptation would help assure food security under future climate conditions in places such as Palca, Bolivia.