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Mountain Communities' Perception of Climate Change Adaptation, Disaster Risk Reduction and Ecosystem-Based Solutions in the Chicon Watershed, Peru

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Abstract

Located in the Urubamba mountain range, the Chicon glacier is one of the third highest tropical glaciers of Peru and is the source of water of the Chicon Watershed. Moreover, from this watershed four communities obtain water for human consumption and agriculture, which is their main economic activity. In the last years glacier retreat is evident in the area and threatens the livelihoods of the people.

The general objective of this research is to analyse the perception of people living in this watershed to climate change, disaster risk and ecosystem-based solutions. The specific objectives are to identify natural hazards and climate change effects in the community, to recognise potential ecosystem services suitable for ecosystem-based adaptation (EbA) and ecosystem-based disaster risk reduction (Eco-DRR), and to assess to which climate change effects and disasters the communities are vulnerable based on their own perception. The methodological steps are based on literature review, expert interviews, questionnaires at community level, workshop and field observations.

The results show that people perceive changes in the climate such as increase in temperature, less precipitation and shifts in rainy and dry season. The climate-related disasters that were identified are glacial lake outburst floods (GLOF), droughts, frosts and hailstorms. However, GLOF are not frequent in the area and drought is the hazard considered to become more frequent. Additionally, pests were identified as biological hazards. Several ecosystems services can be obtained for EbA and Eco-DRR from forests, especially if native trees such as Qiwiña (*Polylepis*), Chachacoma (*Escallonia resinosa*) and Aliso (*Alnus jorullensis*) are exploited.

Finally, the tested hypothesis was rejected as people in the study area are well aware of climate change impacts, although they only partially understand causes and effects. However, they recognise and exploit ecosystem services provided by the forest. Therefore, local population started to implement ecosystem-based solutions in the watershed with support of external institutions.

Keywords: Chicon watershed, climate change, disaster risk reduction, ecosystem-based solutions, perception of communities

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