

ClimateWise: Climate-Smart Watershed Investments in the Montane Tropics of South America

Call: Mountains as Sentinels of Change

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Throughout South America, millions of people depend on water from high-elevation paramo grasslands and Andean and Atlantic forests, water sources under increasing pressure from land-use and climate change. Investments in Watershed Services (IWS) provide a potent, and heretofore untapped, network of sentinels, creating an unparalleled opportunity to assess the impacts of land-use and climate change on water resources throughout this sensitive region. ClimateWise will evaluate whether IWS successfully deliver water services now and if they will continue to be effective in a changing climate. In doing so, the research will inform broad questions about the hydrologic impacts of land-use and climate change in tropical montane South America. To evaluate whether IWS are currently improving water resources, we will 1.1) evaluate the outcomes expected by IWS stakeholders; 1.2) synthesize new IWS monitoring data; and 1.3) improve models for IWS design and evaluation. To determine how to make IWS climate resilient, we will 2.1) evaluate how IWS incorporate climate in their planning; 2.2) improve predictions of watershed response to climate and other changes; and 2.3) integrate land-use and climate change impacts to improve IWS resilience and help them contribute to climate adaptation. ClimateWise builds on a body of existing research by project PIs on hydrologic connectivity in tropical montane South America in general and on IWS in particular, bringing this expertise together for the first time. We will leverage existing connections with the Latin American Water Funds Partnership and the Brazilian Water Producer Program. ClimateWise will enhance sustainable water management by improving scientific understanding of the hydrologic impacts of land-use and climate change in tropical mountains, increasing the scientific foundation for ecosystem services-based management, and advancing outcomes for water users throughout the region. Our findings will be of direct use for water management within and beyond South America.