

Incorporating Perceptions of Use and Risk in a Mixed-Methods Assessment of Change along the Urban/Rural Fringe of Cuzco, Peru: Applications for Sustainable Watershed Management

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Abstract. From majestic Andean glaciers to fertile Amazonian basins to ecologically diverse beaches, Latin America continues to invite fantasies of adventure and scientific exploration, beckoning visitors from around the world. Eco-tourism mixes with heritage tourism exploiting cultural and archaeological wonders, the remains of ancient, mysterious civilizations. These idealized, Indiana Jones-esque descriptions sharply contrast with the realities of community life and management of these natural and social systems pushed to their thresholds. Peru, in particular, is facing a number of natural resource challenges centered on the availability of water for both growing urban centers and agricultural landscapes. Only ~5,000 sq km, out of ~1.3 million sq km, of the total land area of Peru is dominated by water, making allocation of water resources a critical land use management issue. Cuzco, the ancient Inca capital city and a prime example of the role and impact of dependence on a tourism economy, continues to experience unchecked growth, expanding its urban landscape out of the valley and up steep, unstable slopes prone to hazards (landslides, debris flows, earthquakes, floods) with consequences for surrounding rural and agricultural communities along the rural/urban fringe (Carlotto et al., 2009; Gade, 2016). Annual rainfall for the regions is ~700 mm (~28 in), the vast majority of which is received in extended torrential downpours between November/December and March/April, further complicating water resource and hazards management (ClimaTemps.com 2015; Squier 1973). In addition, between 1963 and 2015, Cuzco's population grew five times to now over 400,000 people (Gade 2016). This presentation, then, will provide an overview of this project exploring change along the urban/rural fringe of Cuzco, Peru by leveraging a novel framework that offers a dynamic means of evaluating the social and environmental systems and the degree to which they may be utilized for collaborative-based management of watersheds using a mixed-methods framework.