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A mediated modelling approach to promote collaborative learning in Andean rural micro-catchments in Colombia

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In rural catchments of developing countries water-related diseases, due to land use patterns (agriculture and livestock), microbial pollution, inadequate sanitation systems, access to water of poor quality, and lack of institutional support are common problems which disproportionally affect poor and vulnerable people. This research aims at developing a system dynamic model to improve the understanding of the macro and micro factors that influence human health and environmental health in rural micro-catchments in Valle del Cauca, Colombia. In this catchment livelihoods for most people depend on agriculture, particularly coffee. The research uses a mediated modeling approach, in which different stakeholders in modeling sessions, develop a STELLA model that allows them to identify relations between the economic, social and environmental factors and driving forces over the performance of their system. Stakeholders jointly develop the model structure in sessions facilitated by the researcher and the data required is gathered using secondary information from the different relevant institutions and primary information from field surveys that cover socioeconomic and environmental aspects that has not been previously collected by any institution or organization (i.e. household survey, stream water survey, and drinking water survey). Representation and understanding of their system will allow the stakeholders to test the effect of different management strategies in the micro-catchment and their associated socioeconomic, environmental and human health outcomes.