Climate change impacts on water resource management and community livelihoods in the southern highlands of Tanzania

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Abstract

This paper is based on studies conducted in the southern highlands of Tanzania to assess the impacts of climate change and variability on natural and socio-economic environments. Data collection included household and key informant interviews, focus group discussions, historical timelines, resource mapping, and transect walks. Quantitative data were analysed using Statistical Package for Social Science. Qualitative data were triangulated with community members during participatory discussions. Results indicated concerns on progressive decrease of water flows and increasing seasonality of rivers and streams and drying up of some wetlands. Natural springs were reported to have decreased in water discharge or dried up completely. Climate change is locally perceived as the main driver of such changes, particularly associated with declining amounts of rainfall, shortened rainy seasons, delayed onset of rains, increased drought, and increasing temperatures. During the last few decades, unreliable rainfall in upland areas has resulted in increased expansion of agriculture into wetlands, with consequent increase in wetland use, deforestation, loss of biodiversity, and drying and/or shrinking of affected wetland ecosystems. Climate change is also locally perceived to have reduced the overall amount of water coming into the wetlands, causing them to dry much earlier in the dry season, and wetland crop cultivation cannot be extended much into the dry season as was in the past. This has limited agricultural productivity in these areas. These findings point to the need for appropriate water resource management strategies to ensure environmental sustainability and community livelihoods especially within the context of changing climate.

Keywords: Climate change, community livelihoods, environmental sustainability, water resource management, vulnerability, adaptation strategies, southern Tanzania