



## **Linking deforestation to the flow regime in the Upper Blue Nile Basin: community perception vs/and/or the observational record**

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Traditional knowledge and people's action towards forest, climate and water-flow management are fundamental data for studying social attitude on integrated water resource management. We conducted a study to understand the changes in forest cover, climate and extreme flows using local community knowledge in the 264 km<sup>2</sup> Koga watershed, which is a part of the upper basin of the Blue Nile. The study period covers from the early 1960s to 2004. To tap the community knowledge, different PRA (Participatory Rural Appraisal) tools were used. Key informants (elders), focus group discussion, historical matrix analysis and triangulation were used to gather the information.

The community indicated that special events related to massive deforestation (forest cover changes) were the changes in political power in 1975 and villagization in 1984 and 1985. The analysis from the community showed that forest cover and wetland were highly characteristics of the watershed before 1975. The information from the community were used to interpolate data drawn from conventional remote sensing sources in 1957 and 1983. Rainfall was described by the community as not changing consistently over time.. There was a difference in the perception of stream flow regime between communities in the upper part of the catchment (above a large wetland), and communities in the lower catchment area below a wetland. The upstream community reported marked changes in peakflow and baseflow starting in 1975, while the lower

community did not note changes until 2000. In a comparison with the river gauging made near the downstream community (a continuous daily record from 1960 to 2005), climate factors match the community perception. Peakflow and baseflow gauged at the downstream site match the perception of the downstream community, but not that of the upstream community. We believe a likely explanation is the influence of the wetland between the area where deforestation occurred and the gauging station.

From this study we concluded that community knowledge is a great asset in complementing the physical data analysis, and should be exploited more extensively in integrated water resource management.