

**Assessment of the role of forests and mountains in water quality changes of the Eastern ARC mountains and management measures using an available water quality model**

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The focus of this research was to study the effect of land use activities on water quality of rivers flowing from the Eastern Arc Mountains and Forests. The study area constituted the eastern Arc Mountains, particularly the Northern part of the Eastern Arc Mountains consisting of the Sigi River basin and part of the Pangani Basin . The relevant literature was reviewed, data for land use and water quality were collected and analysed. Field visit, for fact-finding mission and collection of field data including land use activities within the catchment area, was carried out in the northern part of Eastern Arc Mountains. During the field visit, interviews and collection of grab samples for laboratory experiments was carried out. The results of laboratory analysis together with the existing records for three rivers Sigi, Mkomazi and Soni were discussed in relation to the existing land use activities. The impact of forests on quality was related to activities in the forest which affects the quality. Quality parameters were compared to Tanzanian Standards and they showed a discrepancy whenever human interference on forests and land cover was more evident. Rapid assessment method showed a decline of quality with time and QUAL2E water quality model is assessed to address the probable management options. Excel files consisting of processed water quality data for the Eastern Arc catchment are included in the appendices and are also submitted as a soft copy.