

Modelling soil erosion potential using remotely sensed data

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Soil erosion is one of the leading forms of soil degradation. Estimating soil erosion from field measurements is expensive hence the extent of soil erosion in many tropical watersheds is unknown. Erosion is a complex process; some of the eroded materials are deposited within the watershed while the rest is transported through waterways into lakes and lowland areas at the coast. The use of remotely sensed data and GIS provide a quick and reliable method to model, estimate, and monitor erosions over large areas even in data deficient tropical areas. In this study, Revised Universal Soil Loss Equation (RUSLE) model is being used to model soil erosion potential in a transboundary catchment of River Uмба in Kenya and Tanzania. Data derived from MODIS (land cover), TRMM (rainfall), SRTM (elevation) and FAO (soil map) are processed in GIS environment for use in the model. Preliminary results, including; rainfall and run off erosivity ($400 - 1700 \text{ MJ mm ha}^{-1} \text{ h}^{-1} \text{ yr}^{-1}$), soil erodibility ($0.018 - 0.025 \text{ t ha h ha}^{-1} \text{ MJ}^{-1} \text{ mm}^{-1}$), slope length and steepness ($0 - 1338$), and vegetation cover factor ($0.001 - 0.2$) will be overlaid to predict the potential soil lost from the catchment annually. Results of this work will provide information on the extent of soil erosion in the catchment which has adverse effect on critical marine habitats. This information is key for policy makers and scientific community in making sound management decisions. Keywords: soil erosion; RUSLE; remote sensing; transboundary; critical habitats