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PREDICTING SOIL EROSION BY WATER: RUSLE APPLICATION FOR SOIL CONSERVATION PLANNING IN CENTRAL RIFT VALLEY OF ETHIOPIA

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Abstract

In Ethiopia, research on soil erosion hazard assessment has largely focused in its cereal crop dominated subtropical and temperate highlands. This study has been carried out in the semiarid and arid lowland areas of pastoral and agro-pastoral economic belts of Ethiopia where little research attention has been given. The RUSLE model is employed to estimate soil loss erosion rates in this present study area, Ethiopia. The RUSLE parameters were acquired from meteorological, available soil and satellite image data, key informant interviews, focus group discussions and field observations. The result showed that mean annual soil loss rates varied from 0.5 on flatter slopes to slightly over 20 t ha^{-1} yr^{-1} on poorly vegetated areas. The study area was classified into very high (>20 t ha^{-1} yr^{-1}), high (10- 20 t ha^{-1} yr^{-1}), medium (1 –10 t ha^{-1} yr^{-1}), low (0.5 – 1 t ha^{-1} yr^{-1}) and very low (0-0.5) erosion risk categories. Areas with high (10 to 20 t ha^{-1} yr^{-1}) and very high (>20 t ha^{-1} yr^{-1}) erosion risk parts of the study site need to be prioritized for land management interventions. Areas which require immediate land management account about 22.06% (473.9km^2) of the study area. The severity of soil erosion was largely linked to high soil erodibility, poor vegetation cover and lack of conservation practices. Therefore, improving soil erodibility, vegetation cover and implementing locally suitable soil and water conservation technologies are commendable.

Keywords: agro-pastoral economies, erosion risk, RUSLE, hotspots, semiarid, pastoral area

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