Use of soil horizons for assessing soil degradation and reconstructing chronology of degradation processes: the case of Mwisanga Catchment, Kondoa, central Tanzania

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Abstract

This paper analyses the use of soil horizons for mapping soil degradation intensity and reconstructing chronology of degradation processes. Through "Pedogenetic Baseline Approach", the catchment was classified into two categories: the erosional and depositional zones. The eroded soils were reconstructed even in those areas where there had been total soil stripping. Profiles of the undegraded soil provided a reference mark (particularly the argillic B horizon of Lixisols). One specific criterion for determining the degree of soil degradation of a given map unit in the erosional zone was based on whether A or B horizons or both had been eroded. Another criterion for classifying the units in the depositional zone was based on relating the quality of the buried soil with the overlying young soil developed from the colluvium/alluvium. Hence, the study underscores the importance of being able to reconstruct soil properties of pre-eroded soil profiles with the view to determining erosion units. This will eventually help in developing appropriate land use and conservation strategies.

Keywords

Soil; degradation; intensity; Catena; horizon