

Soil Physical Properties: A Determinant of Soils Susceptibility to Gully Erosion Menace in Uyo Metropolis, Akwa Ibom State, Nigeria

by

¹Comfort M. Abraham, ²Unyime Saturday, ³Akan A. Tom and ⁴Isaac Ibanga

Department of Geography and Natural Resources Management

Faculty of Social Sciences

University of Uyo, Uyo, Nigeria

Abstract

This study assessed soils physical properties as the determinant of soil susceptibility to erosion menace in Uyo Metropolis, Akwa Ibom State, Nigeria. Five gully sample sites and five non-gully sites were randomly selected from where soil samples were collected at both topsoil (0-15cm) and sub soil (15-30cm) and subjected to laboratory analysis for the determination of physical properties. The laboratory results of the soil physical properties in gully sites showed that the gully locations had indistinguishable soil characteristics hence; there was not much variance in soil among the study locations. Generally, the result of this study showed that the soils consisted of vast fractions of sand contrary to that of non-gully locations. Hence, since sand lacks consistency, soil strength was inevitably weak giving rise to gully erosion menace. The soils in which the physical properties were within such range were in a loose state, leading to high erosion, leaching of valuable nutrients and low retention capacity which triggered the development of gullies. It was, therefore, concluded that gully development in Uyo Metropolis was indeed not unconnected with the vulnerability of soil to rain wash. Hence, it is necessary to adopt soil conservation measures and farming practices which ensure sustainable soil productivity while maintaining equilibrium between the ecosystem and regular anthropogenic influence and likewise afforestation should be encouraged; this will reduce sand contents and enriched the soil nutrient thus reducing the risk of gully development.

Key words: Soil Physical Properties, Soil Susceptibility, Gully Erosion.