

Assessment of Soil Erosion Using GIS Base Erosion Potential Method – A Case Study of Victoria Reservoir Watershed

EMGTGVD Premarathne^{1#} and IAKS Illeperuma¹

¹Faculty of Geomatics, Sabaragamuwa University, Belihuloya, Sri Lanka

[#]vishvapremarathna@gmail.com

Abstract

Soil erosion is a serious environmental problem that adversely affects ecosystem health and land productivity. Effective land management and erosion control strategies depend on accurate assessment and identification of areas vulnerable to soil erosion. To identify areas prone to erosion, this study focuses on soil erosion assessment using a Geographic Information System (GIS)-based erosion potential method. The study used different layers of data including topography data, land cover, soil properties, rainfall and temperature patterns to estimate the overall erosion potential model. GIS technology facilitated the integration and analysis of these data layers, enabling a spatially clear assessment of erosion risk across the study area. The results of the erosion potential assessment revealed spatial patterns of erosion susceptibility across the study area. It ranges from 0.008 m²/year to 3.2 m²/year. Areas with little vegetation and areas with steep slopes were found to have a higher potential for erosion. On the other hand, areas with abundant vegetation and gentle slopes showed less potential for erosion. The analysis highlighted the influence of rainfall and temperature, by emphasizing the importance of considering climatic factors in erosion assessment. The findings of this research provide valuable insights for land managers and policymakers in implementing targeted soil conservation measures.

Keywords: *Erosion potential method, GIS, Soil erosion, Victoria Reservoir watershed.*