

# Spatial Pattern Analysis of Land Degradation Using Satellite Remote Sensing Data and GIS in Mandalay Watershed, Central Myanmar

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## ABSTRACT

Land degradation in term of soil erosion is the single most important environmental concern in the developing countries. Eroded sediment also acts as both a physical and chemical pollutant. It has been become an ecological, social and economic problem. This study explored the influence of major socioeconomic factors on erosion processes and conservation measures in a Dry Zone farming context for producing Erosion Risk Map of the study area. We also put forward a way of studying soil Erosion and relations of soil erosion factors by integrated GIS and RS. Knowing extent and severity of the land is important as a decision support system to policy makers, resource managers as well as local communities and farmers. Firstly, satellite images (ETM) and the ground real conditions have been rectified. Secondly, according to the ecological environmental factors, the spatial database and Digital Elevation Model of the study area have been built. Finally, referring to Universal Soil Loss Equation, the quantization and distribution of the soil erosion, risks and changes have been obtained. The result of this assessment showed spatial distribution of different land degradation severity across the area in watershed basis. Soil erosion susceptibility was estimated through Universal Soil Loss Equation USLE. To examine land potential, land capability classification was carried out using Storie Index Rating SIR. Population density was included in the model since human pressures on the land was considered as a major contribution factor for land degradation. Soil erosion, land capability and population density parameters were modeled in GIS platform. Though modeling of land degradation assessment is specific and involving much basic information such as suitability of crops, soil fertility, social and environment benefits etc., this study was only intend to develop a model based on spatial information and demographic data.

**Keywords:** soil erosion; USLE; SIR; pollutant, GIS.

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