

Remote Sensing and GIS based approach for Degrade Land Identification in Central Province of Sri Lanka

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Development of a methodology for identification of degraded land areas is a vital requirement for future land use planning, management and conservation. Land degradation can be investigated through remotely sensed techniques as a cost and time effective method and can be monitored over a large extent of lands using satellite imageries.

This objective of this study is to identify degraded lands of Central province using remote sensing, derived with soil erosion factors, surface runoff (with annual average rainfall), vegetation cover developed from Landsat 8 OLI satellite image (2015) while incorporating socio economic factors which influence land degradation. Accordingly, the spatial distribution map of physically degraded lands in Central province under 03 different severity levels have been developed as; highly degraded, moderately degraded and low degraded.

Accordingly, spatial distribution of degraded lands in Kandy, Nuwara-eliya and Matale calculated separately as; 33,920ha, 11,029ha, 1,168.8ha of highly degraded, 72,336ha, 27,181.98ha, 9150.6ha of moderately degraded and 85,844ha, 137,638ha, 191,607.9ha of low degraded.

The results show that, positive correlation with highly degraded lands with landslide incidents in the study area. The accuracy assessment was done by conducting GPS based 169 field observation points and observed 63% overall and 0.41 Kappa accuracy. The outputs of this study can be used as a tool for future land suitability analysis, planning and management in the province.

Keywords: Land degradation, Remote Sensing, soil erosion, vegetation cover