LANDSLIDE PRONE ZONE MAPPING USING REMOTE SENSING AND GIS TECHNIQUES IN

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Abstract

Evaluating the susceptibility of land to various natural hazards in vital in evaluating land use suitability. Developmental activities such as construction of reservoirs will change the natural hydrological regime due to changes in land use. Changes in land use in the river basin such as conversion of forests to agricultural lands in the hilly terrain will lead to slope movements and would be prone to landslides. It is necessary to predict the slope movement for future development of the area. Most landslides are caused by combination of causal factors. Hence to carry out the landslide prone zone mapping, field knowledge of the terrain and analysis is crucial. The causal factors chosen to carryout landslide prone zone mapping are topography (slope angle and aspect), geology, lithology, soil, and rainfall records (intensity, total rainfall), land use, and anthropogenic factors (road network, building). Geographic Information system (GIS) with remote sensing and field data aided in carrying out spatial and temporal analyses of causal factors. After arranging the causal factors of past landslides the weight were assigned to all the factors, which regulate the degree of the various exogenous and endogenic factors that influence the activation and reactivation of landslide. By using these weights landslide prone zonation map was prepared by overlaying considering the existing weightages, and the slope instability assessment was done. Six zones of susceptibility to landslides in the study are have been classified as 1 (very poor), 2 (poor) , 3 Very moderate), 4 (moderate), 5(high) and 6 (very high). Finally, the socio economic analysis was done to evaluate the villages and populations likely to be affected in case of landslides.