Use of Remote Sensing and GIS Technology for Landslide Hazard mapping using ANN

S.Prabu[1], S.S.Ramakrishnan[2], R.Vidhya[3],

[1] Research Scholar / IRS, CEG, Anna University, Chennai-25, Email: sevu_prabu@yahoo.co.in
[2] Professor / IRS, CEG, Anna University, Chennai-25, Email: ssramki@annauniv.edu
[3] Assistant Professor / IRS, CEG, Anna University, Chennai-25, Email:vidhya@annauniv.edu

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Abstract: Use of socio economic data, remote sensing and GIS for developing a technique for landslide susceptibility mapping using artificial neural networks is the main objective of the present study. The technique is applied in the selected study areas in Nilgiris district of Tamil Nadu The Second objective of the study is to analyze the socio economic impact of the landslide. Landslide locations are identified by interpreting the satellite images along with the field survey data, and spatial database on the topography, soil, forest, and land use. The landslide-related factors are extracted from the spatial database. These are then used with an artificial neural network to analyze landslide susceptibility. Each factor's weight is determined by the back-propagation training method. Different training sets are identified and applied to analyze and verify the effect of training. The landslide susceptibility index is calculated by back propagation method. The susceptibility map is created using GIS. The results of the landslide susceptibility analysis are verified using landslide location data. The artificial neural network has been found to be an effective tool for analyzing landslide susceptibility compared to the conventional method of landslide mapping.

Keywords: Landslide susceptibility mapping, Geographical Information System, Socio Economic Impact, Artificial Neural Networks.