

**LANDSLIDE SUSCEPTIBILITY MAPPING
IN THE NILGIRIS DISTRICT, SOUTH INDIA BY
CORRELATING TOPOGRAPHY AND GEOLOGICAL STRUCTURE**

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ABSTRACT

Geological structure and topography are important factors controlling the occurrence of landslides. The purpose of this study is to develop and apply a *Remote Sensing and Geographic Information System (GIS) based* technique for landslide susceptibility analysis using topographic and structural information. The Landslide Susceptibility Mapping classifies the area of interest with respect to different classes of landslide hazard. The Landslide Susceptibility Mapping could support geological hazard mapping and could be considered as an important tool for land use planning and environmental impact assessment.

In the study area, the Marapalam and Burliar area of the Nilgiris district, South India, landslide locations were detected from Indian Remote Sensing (1RS) satellite images by change detection, where the geological structure was surveyed and analysed. The landslide occurrence factors (location of landslide, geological structure and topography) were constructed into a spatial database. Then, strike and dip of the foliation and the *aspect and slope* of the topography were compared and the results, which were verified using landslide location data, show that foliation of gneiss has a geometrical relation to the *joint or fault* that leads to a landslide. Using the geometrical relations, the landslide susceptibility was assessed and verified. The verification results showed satisfactory agreement between the susceptibility map and the landslide location data.

Key words: Landslide, susceptibility, GIS and Remote Sensing.