

Geospatial approach for landslide disaster management: A case study from India.

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Abstract: Landslides of shallow nature but disastrous are very common in the hill ranges of Kerala, the southernmost state of India. The increased frequency of slope failures have been associated with unscientific land use practices and developmental activities in naturally existing landslide hazard area. An assessment of landslide hazards is therefore, a prerequisite for sustainable development of the region. The present study uses Remote Sensing and GIS for finding susceptible zones of landslide hazards in Malappuram District which has an areal extent of 3555 Km². Nine factor layers responsible for landslide occurrence, such as, relative relief, slope, aspect, curvature, drainage density, drainage frequency, landuse, road buffer and drainage buffer are assigned numerical rating as per earlier workers and used for the purpose of landslide hazard zonation. Map delineates critical risk, high risk, moderate risk, low risk and no risk zones. 11.5% of the district is identified as critical and high risk zones. For the ready use in disaster management a hazard zonation map at the level of lowest administrative unit (Panchayath level) is prepared. Accordingly the Karulai grama panchayath has maximum area under critical risk zone (17.27 Km²) followed by Chungathara (12.84 Km²) and Karuvarakund (8.21 Km²). The landslide susceptibility assessment will be useful to planners and engineers to know the zones which are more vulnerable to landslide disaster and can evolve strategies for disaster risk reduction.

Keywords: Landslide Hazard Zonation, Charnockite group, Geo factors, Geospatial analysis.