

Predictive Modelling For Landslides In Certain Parts of Western Ghats, India.

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The Western Ghats is the main peninsular hill range extending over 1400km and runs parallel to the West Coast of India, stretching from Kanyakumari in the South to Tapti in the north. The rock formation consists of high grade schist and gneisses which are traversed by late Proterozoic acid and basic magmatic rocks. In many locations intense subaerial weathering has caused the formation of extensive cover of lateritic rocks under the influence of tropical climate. The slope stability problems associated with this terrain are unique. Landslides occur frequently along the hill slopes of the Ghats terrain, particularly after heavy monsoonal storms. Many locations in Kottayam and Idukki district of Kerala such as Vadavathur, Chuzhappu, Murinjapuzha, Ninnumullippara are a few typical slide prone areas identified. The degree of weathering, frequency and orientation of discontinuities, material properties, hydrological conditions and anthropogenic factors in the hard rock and laterite road cuttings are examined. Wedge failure is the most common type of probable failure. A hazard zonation map has been generated which categorised the location into High Hazardous Zone, Moderate Hazardous Zone, Less Hazardous Zone and Stable Zone on the basis of morphometric and detailed geotechnical analysis. Heavy rainfall has triggered landslides in many locations. 703mm rainfall for 30 days and 168mm for a 7 day period may be used as the rain-fall threshold to alert the civil administrators to set for disaster management measures if rainfall prospects still continue.