

STUDIES ON LANDSLIDES IN PARTS OF SIKKIM HIMALAYAS

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Landslides and slope instability problems are quite common in Sikkim Himalaya. More than 38 persons have been killed and more than 50 injured due to unprecedented rains and consequent landslides in the night of June 8, 1997, in number of places in and around Gangtok area. The study area in Sikkim region of Eastern Himalaya falls between $27^{\circ}10'$ and $27^{\circ}30'$ N latitudes and $88^{\circ}25'$ and $88^{\circ}40'$ E longitudes respectively. Geologically, Pre-Cambrian rocks cover a major portion of the Sikkim area. The Chandmari landslide near Gangtok is one of the major landslides occurred on June 8, 1997. In this area highly jointed and fractured gneissic rock is thickly covered by soil and lie over the schist rock. Foliation plane shows NNW-SSE trend and dipping towards North-East. During heavy rainfall (cloudburst on June 8, 1997 i.e. 211mm. in 4hrs.) the saturated soil and gneissic rock slipped over the schist rock due to gravity pull. Factors promoting landslides in the region are heavy rainfall, poor drainage system, stability of geologic materials, undercutting of slopes, supersaturation of soil mass over a lithological contact, heavy construction and tectonic imbalance etc. A landslide susceptibility map is prepared based on geology, geological structures, slope aspects, drainage system, petrography of rock and soil samples, rainfall data and GIS studies. This map delineate the safe and unsafe areas for environmental security due to such natural and manmade environmental hazard.