Landslide hazard zonation of Gangtok area, Sikkim Himalaya using remote sensing and GIS techniques

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(Received: July 2, 2010; in final form April 4, 2011)

Abstract: The landslide hazard zonation of Gangtok area of Sikkim Himalaya has been carried out using field studies and Indian Remote Sensing (IRS) LISS-III data and generation of various geo-environmental parameters e.g. land use/land cover, slope, aspect, drainage density and lithology. Remote sensing and GIS techniques play a significant role in generating Landslide Hazard Zonation maps. Landslide hazard zonation (LHZ) map is helpful for selecting appropriate sites to implement development schemes in the hilly terrains and for adopting suitable mitigation procedures in the unstable hazard prone areas. Remote sensing methods supported by field verification are used to obtain different thematic information such as landslides, roads, drainage network and landuse/land cover pattern from satellite data of Indian remote sensing satellites. An LHZ map was prepared showing the five zones i.e. "very high hazard", "high hazard", "moderate hazard", "low hazard" and "very low hazard" by classifying the whole range of integrated values.

Keywords: Landslide, Hazard, Gangtok, Sikkim Himalaya