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Landslide Hazard a Gigantic Problem in Indian Himalayan Region: Needs In-Depth Research to Minimize Disaster

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Abstract : The Indian Himalayan Region (IHR) is inherently fragile and susceptible to landslide hazard due to its extremely weak geology, highly rugged topography and heavy monsoonal rainfall. One of the most common hazards in the IHR is landslide, and this event is particularly frequent in Himalayan states of India i.e. Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Manipur and Arunachal Pradesh. Landslides are mostly triggered by extreme rainfall events but the incidence increases during monsoon months (June to September). Natural slopes which are otherwise stable but they get destabilized due to anthropogenic activities like construction of various developmental activities and deforestation. These activities are required to fulfill the developmental needs and upliftment of societal status in the region. Landslides also trigger during major earthquakes and reported most observable and damaging phenomena. Studies indicate that the landslide phenomenon has increased many folds due to developmental activities in Himalayan region. Gradually increasing and devastating consequences of landslides turned into one of the most important hydro-geological hazards in Himalayan states especially in Uttarakhand and Sikkim states of India. The recent most catastrophic rainfall in June 2013 in Uttarakhand lead to colossal loss of life and property. The societal damage due to this incident is still to be recovered even after three years. Sikkim earthquake of September 2011 is witnessed for triggering of large number of coseismic landslides. The rescue and relief team faced huge problem in helping the trapped villagers in remote locations of the state due to road side blockade by landslides. The recent past incidences of landslides in Uttarakhand, as well as Sikkim states, created a new domain of research in terms of understanding the phenomena of landslide and management of disaster in such situation. Every year at many locations landslides trigger which force dwellers to either evacuate their dwelling or lose their life and property. The communication and transportation networks are also severely affected by landslides at several locations. Many times the drinking water supply disturbed and shortage of daily need household items reported during monsoon months. To minimize the severity of landslide in IHR requires in-depth research and developmental planning. For most of the areas in the present study, landslide hazard zonation is done on 1:50,000 scale. The land use planning maps on extensive basis are not available. Therefore, there is a need of large-scale landslide hazard zonation and land use planning maps. If the scientist conduct research on desired aspects and their outcome of research is utilized by the government in developmental planning then the incidents of landslide could be minimized, subsequent impact on society, life and property would be reduced. Along with the scientific research, there is another need of awareness generation in the region for stake holders and local dwellers to combat with the landslide hazard, if triggered in their location.

Keywords : coseismic, Indian Himalayan Region, landslide hazard zonation, Sikkim, societal, Uttarakhand
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