

Geological Characteristics of Landslides in Siwaliks Zone of Nepal

Bharat Prasad Bhandari^{1*} and Subodh Dhakal²

¹Central Department of Environmental Science, Tribhuvan University, Nepal

²Department of Geology, Tri-Chandra Campus, Tribhuvan University, Nepal

The Siwaliks region of Nepal comprises of fluvial sediment which were deposited as a result of Neogene tectonics of Himalaya. Lying between two major thrusts (Main Boundary Thrust and Main Central Thrust), the Siwaliks region is fragile and responsible for several landslides and mass movement during rainy season. Having weak and fragile sedimentary rocks and adverse geological conditions the Siwaliks regions is badly affecting by shallow landslides. The Government of Nepal has raised the serious issue about the situation of landslide in Siwaliks region and its economic impacts. The purpose of this study is to find out the geological causes of landslide in the Siwaliks zone of Nepal.

The landslide distribution map was prepared by using remote sensing data. The field study was carried out for landslide verification and geological study. Geological characteristics, geological structures and other geological attributes which are responsible for landslide were identified in the field.

The major causes of landslide in this area are geological structures and adverse geology. Most of the landslides are observed in weak sandstone beds. The existing landslides are unstable and possibility of reactivation is higher. The landslide density is found higher toward the fault zone and geological contact. The thin layer of weak mudstone bed between less compact sandstone beds has been played vital role for rock fall and rock slide in stiff slope. Highly permeable conglomerate beds are resulting to debris fall and debris flow during heavy rainfall. The landslide cluster nearby fault zone, geological contact and lithological variation suggested that there is vital role of geology to causes landslides.

Keywords: Siwaliks, Landslide, Geology

Biography:

Mr. Bharat Prasad Bhandari is conducting his PhD research from Central Department of Environment Science, Tribhuvan University, Nepal since 2017. He has completed his Masters in Geology in 2013 from Central Department of Geology, Tribhuvan University. He is teaching assistant in Central Department of Environment Science since 2014. He has conducted several scientific researches in the field of geosciences. His research interest is "Evolution of landslide in the Tectonic Himalaya". He is conducting his PhD research in Landslide characteristics of Siwaliks Zone of Nepal.