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Landslide and Flood Induced by Impact of Climate Change in Manang District, West-Central Nepal

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Abstract

Nepal is a mountainous land-locked country located in between India and China. Like rest of the world, Nepal is facing the consequences of climate change indicated by the increase in temperatures, altering pattern of precipitation, snow melting and so on. Manang district located in Trans-Himalaya (beyond the Himalaya) is characterized by arctic type of climate and rain shadow zone. Geologically, the area is composed of loose sedimentary rocks and the sediments of glacial origin. The impact of climate change is most prominent in the high-altitude regions like Manang. In June 2021, unusual torrential monsoon rainfall caused devastating landslide and flood in this region. It wreaked havoc on the road, agriculture, hydropower projects and other physical infrastructures. Physical loss of more than 1 million USD had been estimated in which the road sector self-witness the loss of 0.8 million USD. The public had never experienced such torrential rainfall in this area. The rainfall seems to melt the snow and destabilize the stable slope that are formed during glaciation. The unconsolidated sediments of this region that can only bear the snowfall and light rainfall, resulted to rapid erosion, landslide, and debris flow when it was exposed to heavy rainfall. Holistic approach of disaster preparedness should be adopted by the local government and communities to cope against the impacts of climate change induced disasters in upcoming days.

Keywords: Climate change, disasters, preparedness, torrential rainfall, Trans-Himalaya