



Characteristics of debris flow hazard in the Siwalik hills of Nepal: a case of Babai watershed

Bharat Prasad Bhandari,
Tribhuvan University, Nepal

Abstract:

Generation of debris flow after landslide in steep slope is very common in Siwalik hill of Nepal. In this paper, characteristics of debris flow hazard in the Siwalik hills of Babai watershed is evaluated based on the geological, physical, topographical and hydrological factors. To achieve this goal, debris flow inventory map has been prepared using Google earth imagery, field validation and field study. Profile of landslides, debris flows and further analysis was performed in Arc GIS. After developing the profile, we explored the characteristics of debris flow, analyzing debris flow distribution and topographical features. To analyze the various factors, Digital Elevation Model (DEM) obtained from topographical map of 1:25,000 has been used. We obtained the length of gully, length of debris mass and area of debris flow channel. We also explored landslide frequency for lithology, slope, deposited materials, channel length and debris flow area for all the debris flows mapped in the study area. Further, we took the precipitation data of 17 years from the Department of Hydrology and Meteorology, Government of Nepal and the debris flow events has been correlated with rainfall data. The result showed that the debris flow mostly evolved after the deposition of landslide mass on the steep slope and continuous erosion from the slope. The rainfall and debris flow frequency are in positive trend. Major three types of debris flows are categorized in the Siwalik of Babai watershed on the basis of its origin. Those three types are slide induced debris flow, fall induced debris flow and erosion induced debris flow. Out of these three, slide induced debris flow is predominant in the study area.



Publication of speakers:

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3. Bharat Prasad Bhandari, Subodh Dhakal : Spatio-temporal dynamics of landslides in the sedimentary terrain: a case of Siwalik zone of Babai watershed, Nepal : April 2020 : 10.1007%2Fs42452-020-2628-0
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