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GENERATION OF DEBRIS FLOW INTO THE SIWALIK HILLS OF NEPAL

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Debris flow is very common phenomena in the steep and heterogeneous surface of mountainous terrain during heavy rainfall. The fragile geological condition of sedimentary rocks like sandstone, mudstone and conglomerate are easily erodible with rain water. Under the high rainfall, many new landslides and expansion processes occurred easily at high slope, providing loose materials for debris flows. This research was conducted in the Babai Khola watershed of Siwalik region to identify the spatial and temporal generation of debris flow and examine the evolution of debris flows under the influence of different environmental triggering factors. The interpretation tools in Arc. GIS were used to delineate the profile of landslide and debris flow on Google earth imagery. The evolutionary characteristics of landslide and debris flow were analyzed by using various environmental factors. The spatial-temporal evolution patterns of debris flow were obtained. The result showed that the debris flow mostly evolved after the deposition of landslide mass between the slopes 300-700. There are three kind of debris flow on the basis of evolution; landslide induced debris flow, erosion induced debris flow and flood induced debris flow. The water carried the deposited loose materials from landslide and eroded debris during intense rain on the slope greater than 300. The result showed that debris flow evolved from the slides between the slope angles 300-600 in the Siwalik hill. The evolution rate of Landslides and debris flow has increased from 2001-2008 whereas decreased during 2009-2014 and again has increased from 2014 to 2017. The evolution of landslide (debris flow) and rainfall pattern showed the positive correlation. The landslide and debris flow triggered by future extreme rainfalls is still expected and this kind of fluctuating cycle may last for an unexpectedly longer period.

BIOGRAPHY

Bharat Prasad Bhandari is pursuing his PhD research at Central Department of Environment Science, Tribhuvan University, Nepal since 2017. He has completed his Masters in Geology from Central Department of Geology, Tribhuvan University in 2013. He is researcher 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.

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