



Landslide susceptibility mapping along the Sino-Nepal road corridors: A case study of Pokhara-Korala road corridor, Nepal

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Belt and Road initiatives aims to promote peaceful economic development however these initiatives may clash with the environmental condition because of the expansion and upgrading of transportation infrastructure in environmentally sensitive areas. Most of the economic road connectivity passes through very high mountains and unstable slopes in the Belt and Road countries. Therefore, a better understanding of mountain slopes with the distribution of natural hazards area always important for sustainable infrastructure development and avoid placing infrastructure in unstable and vulnerable slopes. In this context, China will be connected to Nepal with three main trans-Himalayan roads namely: Gyirong-Rasuwadhi-Kathmandu, Jhyangmu-Tatopani-Kathmandu, and Korala-Jomsom-Pokhara. These proposed road connectivities will pass through the high Tibetan Plateau with rugged and fragile Himalayan mountain slopes where people are suffering different kinds of natural hazards and losing many lives and properties.

A detailed field study was carried out in the Korala-Jomsom-Pokhara road corridors which descends from Korala (4660m) pass between China and Nepal along the Kaligandaki River and connect Pokhara (1400 m) in western Nepal. The road passes the steep and fragile mountain slopes where Himalaya is acting topographic barrier and thus resulting two different kinds of landscapes with different kinds of natural hazards. This valley is experiencing different kinds of large landslides/debris flows in recent history i.e. Talbagar debris slide, Tatopani wedge failure, Baisari landslides, Dhumpu-Kalopani rock avalanche etc. The new road construction along this valley has created different small-scale slope failures and increased the landslide risk. Different landslide hotspots and vulnerable slopes are identified in this road corridors. These large-scale mass movements are very important to the hydroelectric power plants which are being constructed in this corridor as well as the stability of the road corridor. The road between Galeswor and Larjung has high landslide risk due to the steep valley and major Himalayan discontinuities i.e. Main Central Thrust (MCT) and South Tibetan Detachment System (STDS). A quantitative estimate of landslide hazard is done with the combination of spatio-temporal variation of landslides with their field verification.