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Managing fragile landscape: Interface analysis of natural-anthropogenic situation

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Along the north south (about 150 to 250 km) and east west (800 km) transect, Nepal Himalaya comprises three distinct landscape (High Himalaya, mid-mountain and Siwalik) and are characterized with peculiar features. In this study, the major hazardous elements and underlying causes are examined. The study mainly concentrates to: (1) What are the major hazards causing damages to life and properties; (2) What are the direct and underlying causes; (3) What are major mitigation plans implementing by government, non-government agencies. In mid-mountain, soil erosion (both mass movement and surface erosion) are prominent while in Siwalik landslide and flooding and inundation are prominent (annually 300 people are dying) with annual of about 12.9% of total development expenditure. Similarly, Siwalik area is very young mountain fragile landscape with structurally weak, characterized with massive erosion (900-20000 ton/km 2/yr.), heavy deforestation (1.2 percent/year), unconsolidated geological composition (gravel, sandy, schist, phyllite dominated) and located at high precipitation zone too (2500 to 3500 mm/yr.). There is high drainage density with sudden topographic break in a short range of distance. River bed gradient is frequently changing with distinct avulsion, bed widening (changed from 100 m to 1 km). In addition, mid-mountain region, Rural Road construction is rapid through cutting the unstable hilly slopes. An estimated average of 500 m^3/km/yr of debris and up to 2000 m^3/km sediment are generated, which is 10 times greater than those expected under natural conditions. In steep slope (>30 degree) farming system is common with low productivity. The above mentioned multi-hazards are directly linked with the livelihood of the people. The government and non-government sectors are joining hands together with structural and non-structural measures. The ecosystem-based disaster risk reduction, soil bioengineering, farming system improvement, adoption of climate change adaptive/mitigative approaches are major efforts.

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