

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

New active control algorithm based on uniform deformations

Reza Karami Mohammadi and H Ghamari

K. N. Toosi University of Technology, Iran

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/km²/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 m³/km/yr of debris and up to 2000 m³/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.

rkarami@kntu.ac.ir