



Landslides and glacier fall - ice/debris avalanches triggered by the April 2015 Gorkha Earthquake, Nepal

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On 25 April 2015, a large-scale earthquake of M7.8 attacked central Nepal. Epicenter is located in Gorkha, west of Kathmandu. Aftershocks epicenter area extended about 100 km long and 150 km wide. Acceleration records inside Kathmandu basin show that the main shock predominant period is 3 - 5 s and PGA is smaller than 0.2 g, because of underneath thick deposits. Japanese expert investigation team dispatched immediately after the quake found numerous small- to large-scale landslides in the earthquake fault rupture zone except Kathmandu basin. Those characteristics are (1) number of larger landslides are much smaller than expected from the main shock magnitude, (2) uncountable rock falls were observed which claimed casualties in the mountain communities; (3) as many landslides were reactivated since the main/after-shock area are occupied by landslide-prone hill slopes; (4) some large-scale rock slides resulting in landslide dam creation, were confirmed by the immediate satellite imagery analysis; (5) In the Langtang village in Himalaya mountains, an hanging glacier fall - ice/debris avalanche was triggered, claiming the lives of all the residents and trekkers staying in the community. Authors had returned debris sample to Japan, trying to apply geotechnical tests for mechanism study; (6) subsidence sites along the highway of artificial fills and adjacent communities of Kathmandu were observed; (7) Small-scale landslides and subsidence were observed in some of UNESCO's World heritage sites.