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Influence of vulnerability on the risk analysis. Case studies of two villages in Dolakha district, Central-Eastern Nepal

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Khariswara and Thang Thang/Gairithok villages are situated in the middle hills in Dolakha district in Central-Eastern Nepal. Both are affected by similar threats due to landsliding but different levels of risk due to different types and levels of vulnerability. This is largely due to different social structures: one community is high caste, educated and organized; the second is an indigenous group and illiterate. Although this area is prone to landslides, the first village had not been affected by any landslide in memory. Some years ago, cracks appeared in the fields below the village. On 15th September 2010, a large landslide (area of about 20'000 square meters) occurred during the monsoon season, severely disrupting the village. As the landslide continues to expand, the closest houses are only 50 meters away and at high risk. The second village is Thang Thang/Gairithok, which has been affected by landsliding for about 30 years. Hazard levels in the two villages are similar but the causes and triggering factors of the landslides are different. They are both natural and human; geological structures, river erosion but also an irrigation canal causing seepage, and road construction.

Risk is defined according to: R = H x E x V x W,
where H is hazard, E exposure to hazard (in percent), V vulnerability (degree of loss) and W (monetary or human loss or cost of loss). This equation was used in the context of Khariswara and Thang Thang/Gairithok villages. A geomorphologic study was conducted in the field to characterize the landslide and its processes. To assess the exposure and vulnerability, interviews and participatory meetings were held in the village with people from different ages and both genders. Vulnerability indicators (ISDR, 2009; UNDP, 2004; Birkmann 2006) of households are frequently characterized as five different sets of factors: physical, social, economic, natural and human.

Both villages have many houses at high risk although the vulnerability is very different in both. Risk maps and comparative tables are used to illustrate and compare which factors most affect each village's risk level. The aim is to determine which vulnerability factors are influencing the risk equation as defined above.