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Comparing factors of vulnerability and resilience of mountain communities affected by landslides in Eastern Nepal

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This paper describes a methodology for assessing and quantifying vulnerability and resilience of mountain communities in Eastern Nepal increasingly affected by landslides and flooding. We are interested in improving our understanding of the complex interactions between land use, landslides and multiple dimensions of risk, vulnerability and resilience to better target risk management strategies. Our approach is based on assessing underlying social, ecological and physical factors that cause vulnerability and on the other hand, those resources and capacities that increase resilience.

Increasing resilience to disasters is frequently used by NGOs, governments and donors as the main goal of disaster risk reduction policies and practices. If we are to increase resilience to disasters, we need better guidance and tools for defining, assessing and monitoring its parameters. To do so, we are establishing a methodology for quantifying and mapping an index of resilience to compare resilience factors between households and communities based on interdisciplinary research methods: remote sensing, GIS, qualitative and quantitative risk assessments, participatory risk mapping, household questionnaires and focus groups discussions.

Our study applied this methodology to several communities in Eastern Nepal where small, frequent landslides are greatly affecting rural lives and livelihoods. These landslides are not captured by headlines or official statistics but are examples of cumulative, hidden disasters, which are impacting everyday life and rural poverty in the Himalayas. Based on experience, marginalized populations are often aware of the physical risks and the limitations of their land. However, they continue to live in dangerous places out of necessity and for the economic or infrastructure opportunities offered.

We compare two communities in Nepal, both affected by landslides but with different land use, migration patterns, education levels, social networks, risk reduction and coping strategies. Stone quarrying and road construction, offering economic opportunities, are aggravating landslide problems. The villages are faced with a delicate balance between economic development and physical risk in this fragile terrain. Based on our comparison, we discern which factors contribute to vulnerability and resilience, while drawing conclusions about the limitations of these concepts for developing risk management strategies. Our goal is to keep this method relatively simple, low cost and useful to decision-makers and communities for managing and designing integrated development and risk management approaches under changing climate conditions.