

## Exploring synergies and opportunities at the interface between culture, ritual and science for landslide risk reduction

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### Project Background Information/Introduction:

Nepal is a mountainous country highly susceptible to a range of geophysical and hydro-meteorological hazards including earthquakes, floods, landslides, lightning and droughts. Recent disasters include 2017's monsoon floods that affected 35 of 77 districts killing 134 people, 2015's Gorkha Earthquake and its aftershocks resulting in 8,970 fatalities, and 2014's Sindhupalchok Jure landslide, that took the lives of 156 people and buried over 100 houses. Despite these high-profile events, the biggest net impacts accrue from pervasive small-scale local disasters that are rarely featured in the media and typically kill less than 5 people. Whilst local in scale, such events remain beyond local capacities to mitigate, whereby available hard engineering is often woefully mismatched to the scale of the hazard it attempts to reduce. As such, mitigation measures such as gabion boxes are commonly ineffective yet viable and effective alternatives are few and far between. Researchers also predict that the risks and impacts of landslides in Nepal will continue to increase due to a range of factors, suggesting that this is a burgeoning issue. These factors include: i) the ongoing proliferation of poorly engineered roads that destabilize already fragile slopes, ii) roadside migration and development in search of new opportunities exposing a greater proportion of the population to geohazards, and iii) climate change which is believed to be having a detrimental impact on the frequency and intensity of geohazards. These impacts are most often experienced in an uneven manner, and in particular by the ethnic groups that traditionally occupy Nepal's hilly and mountain districts, such as the Tamang. Indeed, the 2015 earthquake has been described as having a "Tamang epicenter" reflecting the concentration of these impacts.

"Neither born in Kathmandu, nor in Kyirong, Born in the middle ground, weak, unclothed, and hungry" (Campbell, 1997)

The above English translation of the verse of a song sung by the Tamangs of Rasuwa during the Gosainkunda pilgrimage symbolizes the socio-economic marginality of the Tamang community. Beginning in middle of 18th century, after the Gorkhali regime displaced Tamangs from their self-ruled autonomous polities, the Tamangs experienced oppression including extortion of wealth and labour causing economic deprivation, reduction to servitude, political exclusion and social marginalization. Such historical positioning and the ensuing cycle of poverty and marginalization has led some to suggest that Tamangs are, as a result, vulnerable to disasters, notably including to landslides. Contrary to this view is a highly nuanced and insightful knowledge of the hilly and mountain landscapes, and the lived experience of day-to-

day risks that frame individual and community choices, responses, and plans. This PhD project aims to explore the interface between these traditional knowledges and more technocratic efforts of landslide risk reduction that often claim to be participatory and synchronous with traditional knowledges, yet rarely seem to succeed in actually reducing risks. By blending ethnographic research to explore in detail such knowledges with a scientific perspective on novel ways of reducing landslide risk, such as citizen science, this research seeks to identify opportunities which may present openings for science and traditional knowledge to work more effectively and sustainably in tandem. This includes, for example, the synergies between regular rituals and the possibilities of systematic observation of hazards as a means of enabling citizen-led monitoring for community awareness raising. Ultimately, the project aims to provide the evidence to support the development of a new set of culturally based landslide risk reduction techniques for use by communities to reduce the risks that they face.

### **Research Aim/Objectives/Questions/Hypotheses:**

Nepal underwent multiple changes in the political and administrative arrangements in recent years. Following the endorsement of a new constitution in 2015, Nepal has initiated the three levels of government—federal, provincial, and local and endorsed the Local Government Operation Act (LGOA) 2017 to decentralize the state’s authority and service delivery. Nepal also transformed into a municipality and rural municipality-based system with more authority and responsibilities formed by dissolving over 3000 Village Development Committees (VDCs) and municipalities into 753 rural municipalities and had local elections in 2017, after nearly 20 years. Similarly, Nepal has also replaced the response focused Natural Calamity Relief Act 1982 with the complete Disaster Risk Management (DRM) cycle focused Disaster Risk Reduction and Management Act (DRR&M Act) 2017. The act had envisioned an autonomous DRR&M authority for which Nepal has most recently got its first Chief Executive Officer (CEO). In light of all these recent and ongoing transformations, this project plans to focus on the underlying and resulting political ecology of landslides in the context of a socially, economically, environmentally and politically transitioning Nepal with special emphasis to rural road construction. Overall, this PhD aims to:

- i)** Explore the extent to which physical, social, political and economic determinants of vulnerability are informing policies, plans, and practices on disaster/landslide risk management in Nepal.
- ii)** Assess the political ecology behind and impacts of rural road construction on landslide hazards and vulnerabilities in Nepal
- iii)** Explore the potential opportunities for better integrating science, culture and local knowledge for landslide risk reduction within Tamang Community with respect to rural road construction. The research will be conducted in Bhotekoshi Rural Municipality of Sindhupalchok District of Nepal.

### Data/Methods/Analysis:

This PhD will use: i) range of ethnographic tools and ii) a critical physical geography approach—an approach that combines critical attention to relations of social power with deep knowledge of biophysical science or technology in the service of social and environmental transformation (Lave et al., 2014) to better understand the landslide vulnerabilities and risks, and iii) participatory action research approach to co-produce knowledge (Callon, 1999; Whitman et al., 2015) useful for improving landslide risk reduction.

### Contributions to the SDGs:

This PhD will contribute across multiple SDGs. Better understanding the landslide vulnerabilities and risks and co-producing knowledge for landslide risk reduction will directly support combating climate change and its impacts (SDG 13) and will subsequently contribute to promoting gender equality (SDG 5), combating poverty (SDG 1) and hunger (SDG 2) through exploring sustainable ways to reduce risks of landslides on life and livelihoods in a participatory manner. Also, by exploring the inequalities of outcomes between communities in Nepal it contribute to SDG 10 (reduced inequalities).

### Lessons learnt and key takes/reflections:

This PhD project is at its early phase and hence, it is a bit early for major reflections. However, the author can be contacted for updates. Meanwhile, the review of different literature and initial interaction with stakeholders and community members signal that groups such as landless, single women, persons with disabilities, Dalits and ethnic minorities are more vulnerable to disasters due to their socio-economic marginalization and for getting enduring results in disaster risk management, it is important to integrate the scientific and local knowledge to understand and address the root causes of disasters.

### Project Information:

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- Project Duration: 3 Years (Feb 2019-Jan 2022)
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