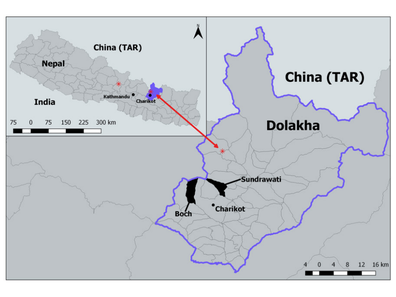
Resilience and Transcommunity Knowledge-Sharing in Agroecosystems at the Base of the Himalaya

UC BERKELEY SOCIAL SCIENCE MATRIX

Disaster events and environmental shocks disproportionately affect rural and poor populations. The Nepali Himalaya are particularly vulnerable to landslides, floods, and earthquakes, and livelihood security is precarious in these circumstances, as more than 80% of Nepal's rural population is dependent on agriculture and home-produced food.

To better understand how rural communities in Nepal (and around the world) can better manage environmental shocks, this Social Science Matrix Research Team brings together students and researchers from UC Berkeley and the University of Bergen, Norway, as well as ForestAction Nepal, a non-profit organization, to explore community and individual adaptive strategies for ensuring a more sustainable future for people and the land under conditions of uncertainty. The team's work is guided by two interconnected core questions: 1) How do diverse farming systems and livelihoods interact with individual and community characteristics to provide resilience against environmental shocks? 2) What are the farming, household and community practices that helped Nepali families withstand and recover from the earthquakes of April/May 2015?



Map of study sites in the Dolakha District of Nepal.

Epicenters of the two massive earthquakes (April 25th, magnitude 7.8 NW of Kathmandu in Gorkha District and May 12th, magnitude 7.3 NE of Kathmandu in Dolakha District) are denoted by *.

Source: "Adaptation and ecovery after the 2015 Nepal earthquakes: a smallholdr household perspective," by Kathleen Epstein, Jessica DiCarlo, Robin Marsh, Bikash Adhikari, Dinesh Paudel, Isha Ray, and Inger E Måren.

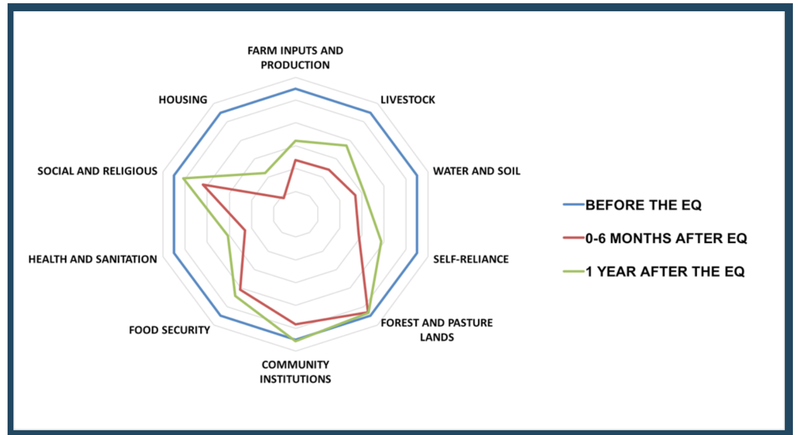
The researchers are assessing how variables such as agricultural production, home gardening, crop and livestock diversity, ecosystem service delivery, and food storage and provision can contribute to agro-ecological resilience, the ability of rural farming communities (and ecosystems) to spring back from and/or adapt to the outcomes of natural disasters. "Evidence suggests that diversified agroecosystems and agricultural practices are more resilient to economic and climate variability and change, compared to monocrop systems that rely heavily on external inputs and market demand," the team's organizers explained in their proposal.

Using a mixed-methods and participatory approach, the international team conducted fieldwork near the epicenters of the 2015 earthquakes in Nepal. In addition to more traditional methods of data collection, the team conducted numerous informal interviews, attended community events and festivals, and engaged in transect walks to observe damage, resilience, recovery, and transition.

"This work seeks to question traditional forms of data collection and instead use transdisciplinary and participatory approaches, which will be critical to assess disaster relief and resilience from a community perspective," explains Isha Ray, Associate Professor in UC Berkeley's Energy and Resources Group, who is one of the project's principal investigators.

RESEARCH GOALS

- Investigate how (and if) agricultural and farm system diversification has contributed to livelihood strategies and food security practices.
- Identify key strategies that rural communities have adapted for coping with interconnected and ongoing variability (climate, demographic, economic) and sudden shocks (earthquakes, landslides).



'Spider diagram' of earthquake impacts on social-ecological system variables. Scores for individual metrics are averaged across total respondents (n=79). The outer edge represents the (self-assessed) pre-earthquake baseline. The closer to the center an indicator falls, the more it declined relative to the pre-earthquake baseline; the closer it is to the outer edge, the more it recovered.

Source: "Adaptation and recovery after the 2015 Nepal earthquakes: a smallholder household perspective," by Kathleen Epstein, Jessica DiCarlo, Robin Marsh, Bikash Adhikari, Dinesh Paudel, Isha Ray, and Inger E Måren.

"The findings from this exploratory research will sharpen our understanding of how rural communities cope, adapt, and transition when faced with devastating shocks on a backdrop of continuing change from economic and climate forces," adds Robin Marsh, a Senior Researcher with ISSI and Ray's Co-Principal Investigator. "The team hopes to continue collaborative research and facilitate knowledge-sharing among affected communities in Nepal."

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Photos by Jessica Dicarlo