

Thinking Resilience

in a Post Disaster context



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Resilience building is a process within the ongoing social and political dynamics in the context of multiplicity of hazards

Despite its vulnerability to multiple natural hazards, Nepal is poorly prepared to minimize disaster risks. Post-disaster efforts are largely guided by rescue of those affected by the event. Generally, neighbours and local communities are the first responders. The government provides immediate support in the form of cash, drinking water, emergency shelter, basic medicine and food items, but relief distribution is poorly organized. Many times, the processes, coordinated by state agencies with support from humanitarian organizations, are ad hoc. Also, in most cases, support to the affected people is seen to wane after the first-order distribution of relief. Those

affected are thus left to recover on their own. Nepal's lack of preparedness to reduce disaster impacts is exacerbated by its fragile infrastructures, degrading livelihood sources, limited in-country employment opportunities and ineffective implementation of policies. It is the poor and marginalized families who are on the frontline when disaster strikes. They face immediate and long-term negative consequences of the exposure to hazards.

Different for different people

These socio-political characteristics of Nepal were on full display when the Gorkha Earthquake struck. Overcoming them would need sustained efforts and real commitment to operationalize Sendai Framework concepts like “build-back-better”. The term “build-back-better” is easier to understand in an engineering context as pre- and post- situation of, say, human built systems. The newly built version should be better than the version before disruption, though the concept itself can have a much broader meaning. The concept of resilience, the other idea commonly used in Nepal in the aftermath of the Gorkha Earthquake, is more difficult to operationalize. Commonly, resilience is conceived as the ability to “bounce back” or return quickly to the “situation” before a shock or stress hits a society. In a post-disaster context, this notion of resilience, conceived as returning to the same condition as before a disruption, is problematic because the existing condition itself can be a source of vulnerability. Resilience has emerged from many disciplines such as engineering, psychology and ecology and is used to deal with challenges related to recovery and reconstruction processes. Hence, it can lead to widely divergent outcomes when applied in real life situation.

Yet the messages of both the ideas, “build-back-better” and resilience, are clear—“be-better-prepared” to deal with events that disrupt the normal functioning of a society. Any approach towards better preparedness requires paying attention to the nature of the event that causes disruption. It could be a high magnitude, but low probability event, such as the Gorkha Earthquake, or a high magnitude flood. It could be a high probability, low intensity event, like droughts and persistent air pollution that cause high cumulative impacts on people. The impacts of both types depend on basic attributes of a family, such as income, sources of livelihood, education, skills and access to information. They also depend on the integrity of the natural ecosystem and its services, as well as the quality of human built infrastructure and the services available from them. In almost all cases, policies, norms, practices and behavior determine the quality of the natural ecosystem and infrastructure, services from them and whether people have access to those services. Social, ecological and human systems are becoming more complex while various risks are increasing. Thus, while building resilience, the starting point of exploration must be the interaction among exposure to hazards, the natural ecosystem and human built systems, those using the system's services and those managing them, not to mention the rules in use.

Resilience and adaptive capacity are inversely related to vulnerability, the condition of harm and defenselessness. In a practical sense, adaptive capacity is conceived as the ability of people to shift strategies and/or modify the system as conditions change while they make attempts to do well. It depends on the ability to learn, flexibility to pursue new tools and solutions while responding to a range of challenges. This ability, of a household, for example, depends

Table Approaches to building resilience in Nepal

Knowledge of hazard exposure	Social amnesia and limited appreciation of geology, geography, safety and preparedness	Build capacity to monitor hazard events, and invest in interdisciplinary studies on various aspects of disaster risk reduction, include citizen science in the process as well as local practices.
Quality of homesteads	Little incentive for constructing safe homes, lack of support for making choices, limited awareness	Develop and apply region-specific codes for houses and increase the capacity of rural and urban municipalities to implement safe practices with special attention to low-income and marginalized groups, community connectedness, social solidarity and culture as well designs with climate friendly materials.
Role of agencies	Ineffective coordination and implementation	Strengthen the capacity of the National Emergency Operation Centre and Department of Hydrology and Meteorology so they can play a greater role in information collection and standardization than they currently do. Begin capacitating rural municipalities and municipalities in creating local level data base for indicators to be used in building local resilience.
Policy context	Top-down and bureaucratic with no opportunities for continuous and reflective learning	Create a mechanism of systemic review and continuous learning as the disaster legislation and other guidelines are implemented in close coordination with coordination with rural municipalities and municipalities.

Source: Dixit, A., Venkateswaran, K. and A. Shukla. 2016. *Gorkha Earthquake 2015: Unpacking Resilience for Reducing Disaster Risk*. Kathmandu: Institute for Social and Environmental Transition (ISET)-Nepal.



primarily on assured access to basic services like drinking water, food, energy and the flow of reliable information across scales and boundaries. This notion of adaptation logically takes us to thinking about resilience.

From the perspective of minimizing vulnerability to hazards, the concept of resilience presents challenges, particularly in defining a resilient system, in determining its criteria and in assessing the distributional benefits of such a system. Resilience, however, should not mean recovery of a system to its original or initial state. In a 2012 book, *Resilience: Why Things Bounce Back*, Andrew Zolli and Ann Marie Healy suggest, “Resilient systems may have no base line to return to. They may reconfigure themselves continuously and fluidly to adapt to ever changing circumstances while continuing to fulfill their purpose.” The proposition leads to logical questions: what would a system comprise, how will an analysis of vulnerabilities help in resilience-building and what are the theoretical trajectories? Within the canvas of the Nepali hazardscape, the use of knowledge about hazard exposure; the status of the built environment, the roles of users and organizations of the state and the policy context are useful in seeking answers to these questions. The answers can help shape the way resilience might be mainstreamed.

Elements of resilience

The Gorkha Earthquake demonstrated that it is not the earthquake that kills, but poorly built houses. Humans have little control over the occurrence of natural hazards. In the following section, we discuss about systems, agents and institutions and how their

interaction may create vulnerability to changing to nature exposure. We also see how building each may help in minimizing vulnerability. And, vulnerability is determined by exposure to earthquakes, extreme rainfalls and drought, the quality of natural ecosystems and human-built systems, the context of families in the socio-political hierarchy and institutional practices.

Systems: The functioning of human society depends on services obtained from natural and human-built systems. Natural ecosystems consist of agricultural land, parks, wetlands, forests and ponds. They help deal with many climate shocks as the first line of defense. Human-built systems include infrastructures, their services and functions (e.g. water supply and wastewater treatment, roads, transmission lines, food storage, health services, education and finances). Thus, infrastructure and the natural ecosystem provide key services, such as the production and distribution of energy, food, water and other provisions. The better designed, built and operated they are, the higher the resilience.

People and organizations: With respect to the management of elements of natural and ecological systems, understanding the behaviour of people and organizations is central to building resilience and adaptive capacity. The three main types of agents—the government, market actors and civic or community groups—have different behavioural incentives under different circumstances. Socially and economically marginalized agents are the most vulnerable to systemic shocks, as they, along with constraining policies, have the least political, economic and technical ability to address any failure

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or to improve the management of a system. Because people can engage in deliberation, independent analysis, voluntary interaction and making strategic choices in the face of new information, developing their capacity to do so is an important part of resilience-building.

Institutions: Institutions or “rules in use” either create opportunities or introduce constraints for people to manage systems and access their services in an equitable manner. In response to different stresses, both informal and formal institutions govern the behaviour of people and organizations and interactions among them. With regard to livelihood, employment and food security, patriarchy, caste and other discriminatory social practices can impede actions for achieving wellbeing, as do constraints such as prices. Institutions play a key role in resilience-building.

Thus, transitioning to a resilient future requires overcoming deficiencies in policies and practices. This means building the capacity of agents by promoting institutional learning, applying the knowledge gained, reflecting and adjusting to new realities. For Nepal, such effort requires simultaneous focus on the elements identified above.

Be systematic, reflective and iterative

Resilience building is a process within the ongoing social and political dynamics in a multi-hazard context. Multi-hazard characteristic means that in many cases, the impacts occur in tandem. The Gorkha Earthquake has, for example, increased the incidence of landslides, which have, in turn, increased

the risk of flash floods. The monsoon of 2015 and 2016 indeed underscored this interdependence. The tremors have altered the dynamics of water springs in the hills already stressed by erratic rainfall and land-use changes. The discharge of springs that support thousands of community-based drinking water systems in the hills and mountains are depleting. This has had serious consequences. The disaster has instilled in them a sense of fear.

From the perspective of building resilience, it is helpful to think about the quality of the natural ecosystem and the human-built systems on whose service people live. In Nepal, ecosystem services are the sources of livelihood for a majority of the population. At the same time, they are increasingly dependent on human-built systems (i.e. energy, transportation, telecommunication etc.) to maintain their lives and livelihoods. Improved access to markets and employment and communicating with each other to overcome disaster impacts remain key. Thus, the knowledge that individuals, households, communities and organizations of the government and the private sector use in analyzing problems and finding solutions are important.

The processes of recovery and rebuilding of components damaged by past disasters have to be systematic, reflective and iterative. They must aim to address the multi-hazard context, rather than just one specific event. To integrate resilience with disaster risk-reduction efforts, it is necessary to focus on continuous learning, avoiding design and managerial flaws, creating and implementing better policies and building the capacities of users and organizations.

Past disasters are opportunities to learn from so that mechanisms are put in place that can prevent the reproduction of the vulnerabilities that caused losses. If vulnerabilities in various forms remain, future hazards will lead to more damages and less development gains. In building the societal capacity to avoid such a future, resilience can remind us that we remain prepared every day. ■