# Ancient Risks, Current Challenges in the Himalayas

REINMAR SEIDLER, KAMALJIT S BAWA

In the face of climate change, disaster risk management must drive development and not vice versa. Seismic tremors, surface slippage of fragile sedimentary soils generating landslides, monsoon weather and cyclonic storms producing massive run-off are all relatively well understood, inherent to the Himalayan region, and by and large predictable. Yet governments, communities and international agencies repeatedly appear to have been "taken by surprise" when each of these occurs. What needs to be understood is that systems of mitigation and response are at the very foundation of economic development, built into the understanding of disasters.

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ormal reconstruction efforts began and thousands of Nepalis remained at risk after the 7.8-magnitude earthquake in 2015, which destroyed lives, homes and livelihoods. Just two years prior to that, flash floods induced by heavy monsoon rains and high-altitude landslides washed away thousands of residents and religious pilgrims in the Kedar Valley of Uttarakhand. In September 2011, a major earthquake shook Sikkim, destroying some 12,500 homes and blocking roadways with hundreds of landslides. Two years before that, in May 2009, cyclone Aila made its landfall at the Bay of Bengal, devastating Bangladesh and West Bengal and triggering fatal landslides in Darjeeling town.

As the pattern of large-scale tragedies combining geomorphological and meteorological shocks continues across the Himalayas, we must ask whether weas a society—are responding commensurately, and with the necessary knowledge, tools and institutions. Neither seismic nor climate-induced disasters can truly be described as surprises. The natural drivers are well-known: seismic tremors, surface slippage of fragile sedimentary soils generating landslides, monsoon weather and cyclonic storms producing massive run-off. These are all relatively well-understood, inherent to the region, and predictable, in general, though not specific terms. Underlying aetiologies such as tectonic shifts and climate change are difficult to study, but the outlines are clear. Yet, governments, communities and international agencies repeatedly appear to be "surprised."

This can only indicate that attitudes and activities preceding the event do not match up to the certainty of an event occurring at some point. In the Himalayas, the realistic expectation is that crises will recur—the question is not if, but

when. Therefore, systems of mitigation and response are at the very foundation of economic development. They must be solidly "built in." Without these, the social investments required for development will almost certainly be wasted.

The accumulated costs of disasters add up to a vast social-economic burden inhibiting and distorting regional development. Some estimates suggest that the cost of rebuilding Nepal after the earthquake will exceed a third of the country's total gross national product (Government of Nepal and World Bank 2015). Regionally, average annual losses exceed 10% of national annual social investments—at least five times the proportion seen in Europe and Central Asia (UNISDR 2015). And, of course, this figure excludes the incalculable losses in social capital due to trauma and social disruption. All these losses constitute a chronic drain on resources for investment in social protection, public health and education, all of which are indispensable for Sustainable Development Goals. Thus, unless disaster risks are minimised, these goals cannot possibly

These already-unsustainable costs are mounting rapidly due to a combination of factors. On the one hand, there are growing socio-economic vulnerabilities, with expanding populations and infrastructure. On the other, there are climatic factors. There has been a clear uptick since 2000 in the number and magnitude of extreme weather events in South Asia, and this trend is expected to continue. Geomorphological risks, of course, have not changed, but when a strong earthquake happens to coincide with extreme monsoon rains, as in Sikkim in 2011, the outcome is a major disaster. Policies are failing to keep up with the increasing risks from the synergies of environmental crises adding to the severity of risks in the Himalayan environment. The public reaction to each of these tragedies tends to be focused on the poorly coordinated and inefficient relief efforts. For instance, Bhatt and Pandya (2013) have called for a "New Deal" for disaster relief subsequent to

the floods in Uttarakhand, emphasising cash transfers, micro-insurance and other forms of "imaginative relief work." Just last year, Nambiar (2015) reviewed the many frustrations and few successes of the decade after the enactment of the Disaster Management Act in 2005. Some of these analyses tend to focus on preparation, response efficiency and recovery. We argue, instead, that this focus on readiness is the result of a conceptual and practical disconnect between disaster risk management (DRM) concerns and economic development concerns.

DRM is currently perceived as a necessary constraint, rather than a driver of development. As long as this is so, society will only be "catching-up" to the increasing risks posed by development and climate change. Due to the inherent regional challenges, economic development plans must be based on assumptions specific to the region, rather than on models simply imported from the plains (and ultimately from Europe and North America). In this survey we, (i) examine the weaknesses in the existing DRM and climate change adaptation (CCA) frameworks and their implementation; and (ii) propose a set of modifications to current frameworks that could create incentives for integration of DRM and cca into Himalayan development. Although we do advocate for stronger regional cooperation in developing risk management systems, we focus specifically on the Himalayan states of India. Cross-border comparisons can often be useful, though they must be taken as illustrative and suggestive, rather than definitive.

The year 2015 saw the declaration of a new set of UN Sustainable Development Goals (in September); a potential shift in climate change negotiations in Paris (in December); and major human migrations (ongoing) that may be linked indirectly to drought (Kelley et al 2015). Given that further changes in climate and population are predicted over the coming decades, a new convergence of DRM, CCA and sustainable development pathways is not optional but essential for approaching development goals—and more broadly, for stability and progress in the region. In the lack of policy

interventions, the inherently unstable Himalayas will continue to be plagued by increasing human, economic, political and environmental disasters.

## **Existing DRM Frameworks and Deficits**

A decade ago, India established a centralised National Disaster Management Authority (NDMA) system along the lines of the UN global Hyogo Framework for Action 2005-15. Under the Disaster Management Act of 2005, the NDMA was envisioned as an agency that would set national standards and publish guidelines for states and ministries. Unfortunately, the agency was given no explicit responsibility for disaster response at the national level and has no power to ask the states to organise themselves adequately. Consequently, many states were slow in constituting State Disaster Management Authorities (SDMAs). By 2015, each Indian state had one spмA, or its equivalent, on paper, but the functionality of many of these agencies remains low. The third level of organisation for disaster management, the District Disaster Management Authorities (DDMAs), is often described as the most vital disaster response unit; yet huge numbers of districts remain without functional DDMAs. In short, a full decade after Hyogo and the Disaster Management Act 2005, the mere skeleton of the intended national system exists. In the absence of district-level agencies, community organisations or NGOs have none to coordinate with at the ground level in matters of planning or response. We often hear calls for "the involvement of all stakeholders ... [and that] the vision of achieving a disaster resilient India cannot be realised by the government alone" (Singh 2015). But deputed government agencies must begin by establishing workable organisational frameworks to interact with other stakeholders.

At the same time, there is little assigned responsibility for actions or outcomes at the top. When confronted with the weak NDMA response to the 2013 Uttarakhand disaster, NDMA Vice-Chairman, M Shashidhar Reddy, denied responsibility, even as he claimed that the Disaster Management Act gives the NDMA merely advisory

powers. He further faulted the Uttarakhand state for failing to set up statelevel machinery to carry out the NDMA recommendations (for example, *First Post* 2013). Thus, the structure meant for coordinated action among central and peripheral bodies became an excuse for shifting responsibility.

An acute irony of the Uttarakhand tragedy was that it followed on the heels of several major programmes enacted to reform and improve disaster preparedness in the state and nation. In the months leading up to the ill-managed char dham yatra of 2013, three major documents were published—a UNDP joint project (GOI-UNDP 2013), a Ministry of Home Affairs (MoHA) special task force report (2013) and a Comptroller and Auditor General (CAG) report (2013)—each of which gave scathing critiques of the condition of national disaster readiness, eight years after passage of the Disaster Management Act, 2005. Uttarakhand was singled out (as were the Darjeeling hill district and other mountain areas) for the absence of minimal response plans and basic preparedness measures. Clearly, authorities across the country had relegated the urgent demands of the act to one of low priority. The good news is that fatalities and numbers of people affected by large-scale Himalayan disasters over the decade of 2005-15 were fewer, overall, than during 1995-2005. However, economic losses were 4.5 times more, and the localised, recurrent disasters associated with poverty, inequality, poor governance, environmental degradation and climate change also increased (ем-рат nd).

In March 2015, the Sendai Framework for Disaster Risk Reduction 2015–30 was signed as successor to Hyogo. An important innovation in Sendai is the attempt to forge a consensus on the meanings of risk and of risk reduction. The final programme review of Hyogo (UNISDR 2015) points out that under Hyogo, most countries continued to practise disaster management rather than disaster risk management. The focus of the former is event-response efficiency; in contrast, the latter adopts the broader goal of understanding and reducing underlying risk factors—whatever their source—in

likely future conditions. Disaster risk management is thus intimately and unavoidably tied to economic development planning. In the Himalayas today, economic growth and development pathways have themselves become drivers of increased risk. The Hyogo review rightly suggests that "managing risk, rather than managing disasters ... now has to become inherent to the art of development" (UNISDR 2015).

#### **Climate Change Ups the Ante**

This lack of institutional preparedness for the familiar kinds and quantities of disasters will only be exacerbated by oncoming climate distortions. India has been vocal in international negotiations over the last two decades. Is climate being similarly brought into nationallevel disaster risk management discussions? The Ministry of Environment and Forests (MOEF) was redesignated as Ministry of Environment, Forest and Climate Change (Moefcc). This move appears to mark a step forward by giving the issue of climate change in India an official status and an administrative home base. At the same time, it has the effect of segregating the issue, labelling it an "environmental" concern related to forests and biodiversity but not to industrial and urban livelihoods. Climate is then further

isolated as a separate unit within the ministry hierarchy (MOEFCC 2015), with no direct contact with affected environmental units, such as dessertification, river conservation, or coral reefs-let alone with "source" areas, such as coal mining or trade and environment. Thus, intimate linkages between development activities and climate—and between climate and disaster risk—are obscured. Under this arrangement, comprehensive cross-sectoral debate and planning requires coordination among multiple agencies and ministries, including some with very limited budgets. To make things worse, there are reportedly no more than a handful of full-time staff working on climate change at the MOEFCC (Dubash and Joseph 2015).

### Climate Change Policy and Inter-agency Cooperation

In India, the National Action Plan on Climate Change (NAPCC) has been organised in a multi-tiered hierarchy that parallels the Disaster Management Authority system. This makes it vulnerable to the same problems, in adition to some of its own. The NAPCC adopts a strategy of dividing responsibility for its various goals among eight sectoral missions, each headed by a committee (with the Narendra Modi government recently

adding four new missions). This ad hoc approach dissipates focus, providing little incentive for coordination. Moreover, the individual missions are housed in different ministries. Since the ministries are already committed to their own agendas, it is difficult for them to propose interdisciplinary work without conflicts of interest; yet this is precisely the kind of disciplinary flexibility and independence that the missions model ought to provide.

For example, the National Mission for Sustaining the Himalayan Ecosystem cannot be successful without a broad interdisciplinary approach, but it is entrusted to the Ministry of Science and Technology, where its research focus seems to have narrowed to glaciology. On the other hand, the National Mission on Strategic Knowledge for Climate Change could provide an overarching framework for knowledge gap analysis across all the missions, but it is assigned no such coordinating role. But what is most damaging, is that minimal personnel resources are devoted to these issues, revealing the low priority accorded to them despite high-flown rhetoric.

State action plans on climate change (SAPCCS) are indispensable to interpret the broad NAPCC directives in terms of the varied regional biophysical and

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social realities of individual states. Ideally, sapccs should provide the basis for updating notions of environmental sustainability to include climate resilience (Dubash and Jogesh 2014) and bringing them into development planning to be implemented by sectoral departments at the district level. Unfortunately, the Indian approach has been relatively inflexible (as compared to the smaller Himalayan countries) in that the sapces have tended to dictate terms at a level of detail that cannot possibly be applicable to all districts in a large state—to "prematurely view state climate plans as vehicles for generating implementable actions" rather than as opportunities to "redirect development toward environmental sustainability and climate resilience" (Dubash and Jogesh 2014). Thus, implementation on the ground tends to fall into businessas-usual default patterns. Forestalling this and bringing climate change into the mainstream of India's development discussions will require far more active attempts to engage civil society, business and academia.

#### **New Perspectives**

Clearly, economic and social development of the Himalayan region requires a different approach. We propose that by modifying existing policies, the same landscape traits that currently present inherent challenges to development can be converted to drivers of development. DRM must be made an integral part of Himalayan economic development processes and both must be firmly linked to climate awareness. In particular, DRMand climate adaptation-must be integrated with rural and urban employment opportunities. These efforts must not be allowed to be at cross purposes with the mainstream of public economic activity. There can be no sustained economic progress in the Himalayas without improved physical security. Thus, what is required is real movement towards the "Green Economy" (touted by various missions but showing no visible signs of life as yet). What is a green economy, if it is to be more than a slogan? One useful definition would be: economic development that works with the constraints imposed by the local

natural environment. In the Himalayas, those constraints are relatively severe, and will become more so as climate change progresses. Yet they must not be ignored.

### Administrative Organisation for DRM

First and foremost, the progressive legislation that has been enacted must be fully implemented. A reconstituted central authority such as NDMA is indispensable, but the Disaster Management Act 2005 must be amended to give the institution real weight and influence within the overall government. The NDMA must be fully staffed and funded to be capable of interacting strongly with multiple agencies. NDMA must be given authority to seek establishment of functional SDMAs and must have adequate information to oversee the operation of DDMAs as well. One administrative option for consideration would be to divide up the NDMA into state-level clusters which face common environmental risks. A cross-state Himalavan group, for instance, would benefit greatly from closer technical and regulatory cooperation.

#### Disaster Risk and Climate Awareness Linkages

The NAPCC system should be interlinked much more closely with the NDMA system. As presently constituted, the climate missions have little future—they are administrative orphans. A more radical proposal would be to merge the disaster risk and climate change administrative systems and raise the profile of the combined system within the government. Climate concerns are firmly tied to disaster mitigation, and both must become integral parts of development planning.

#### Science, Technology and Social Policy Instruments

All these concerns must be inserted into existing educational, social employment and livelihood security programmes across the Himalayas. This is where the "New Deal" metaphor (Bhatt and Pandya 2013) becomes essential; this cannot happen, at the scale and pace required, without a concerted effort on part of the

central government to bend existing institutional resources to these ends. In many cases, it may not take a tremendous sea-change. Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), for instance, has been using up to 30% of its funds in building rural roads (DORD 2013). In the Himalayas, at least some of these are exacerbating landslide risks. Meanwhile, climate resilience measures such as winter drought-proofing, groundwater rehabilitation and steep slope bio-engineering (Dhital et al 2013) are being performed at much slower rates. However, Sikkim has responded to the worsening drought with major changes in the emphasis of the MGNREGS projects (IRMA 2010; Tambe et al 2012b). The same can be done in other Himalavan states.

Similarly, the Pradhan Mantri Grameen Swarojgar Yojana (рмдзу) needs a strong injection of engineering professionalism in the Himalayan states. Convergence of PMGSY with MGNREGS is underway to aid in rural road maintenance (MORD 2011). In mountain areas, however, such a synergy could be counterproductive, unless quality standards are substantially raised and protected (Venkatesh and Patel 2015). It seems that a "national security" profile lends considerable professionalism to many tasks. Despite criticisms (PIB 2015), for example, the Border Roads Organisation (BRO) seems several steps ahead of PMGSY in the efficiency of road building and design. Is there any more serious national security issue than protecting citizens and essential infrastructure from the next major earthquake and the oncoming severe risks posed by climate

Furthermore, for housing, traditional light construction techniques and materials should be studied for adaptation to modern requirements, especially in rural areas (Tambe et al 2012a). Engineers must receive training in earthquakeresistant technologies, and these should be made mandatory in new construction. Property owners and lending institutions too must be informed, educated and then made responsible for demanding that construction standards be upheld (NDMA 2010).

If the goal is society-wide change, youth—perhaps India's greatest single asset—and civil society must be involved. But the missions lack clear opportunities for linkages with higher education institutions. According to Moefcc (2014), six new centres "relevant to climate change" have been established under the National Mission for Sustaining the Himalayan Ecosystems; yet collaborative, interdisciplinary knowledge generation and project implementation, involving government agencies, NGOs and community organisations are either fairly basic or virtually non-existent. Crowd-sourcing of information from citizens and their engagement in DRM and response are further under-explored resources. Following the recent Nepal earthquake, researchers and citizen scientists provided important real-time information to relief agencies (Shrestha et al 2015). Science volunteerism could be even more effective if pre-disaster planning were to involve networks of NGOs and citizens.

#### **Conclusions**

In South Asia, by and large, high-level policy statements on DRM reform consistently run far ahead of on-the-ground implementation. This "implementation deficit" is common wherever policy is designed by one set of actors and implemented by another (Dupuis and Knoepfel 2013). Yet, effective policy must incorporate the means for its own implementation. If large-scale programmes like MGNREGS, the NDMA system, NAPCC and the sapccs in India make explicit the growing links between development and risk, they will help move DRM and climate awareness into policy "mainstreams" all along the Himalayan arc. There is tremendous scope for people's involvement in labour-intensive programmes promoting landscape security and sustainable natural resource use. These programmes can (and must) be strengthened and harmonised under the umbrella of DRM and cca. Achieving this will require efforts on a comprehensive scale, but the investment would yield high returns in driving regional development forward along sustainable pathways. What is required is leadership and a realistic sense of urgency about priorities.

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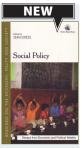
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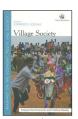


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