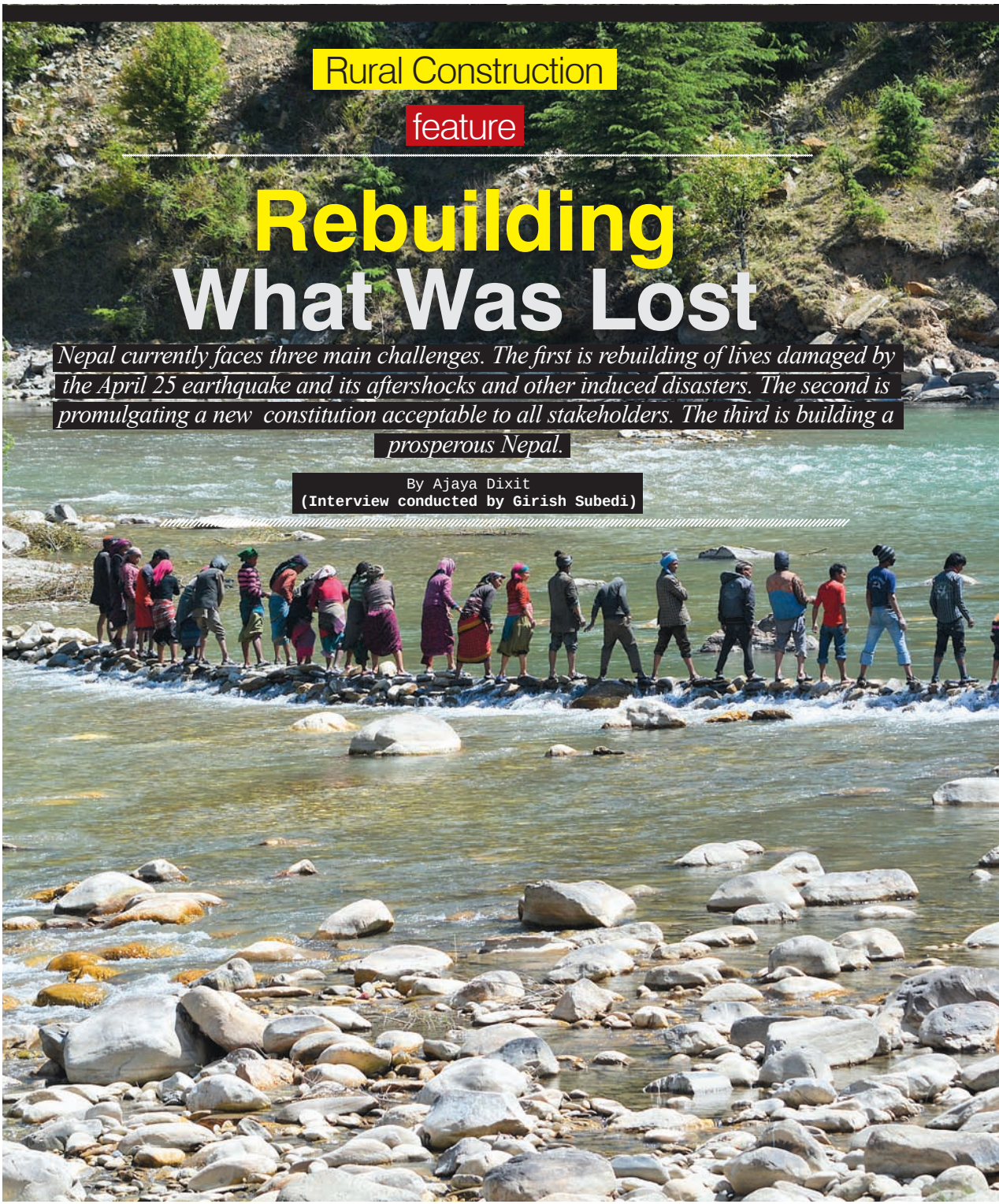
Rural Construction

feature

Rebuilding What Was Lost

Nepal currently faces three main challenges. The first is rebuilding of lives damaged by the April 25 earthquake and its aftershocks and other induced disasters. The second is promulgating a new constitution acceptable to all stakeholders. The third is building a prosperous Nepal.

By Ajaya Dixit
(Interview conducted by Girish Subedi)



The devastating earthquake of April 25 affected the lives of Nepali people in many ways. This interview feature with Ajaya Dixit helps us take a deeper look into the intricacies of what happened, and what needs to be done to rebuild damaged lives.

"Right after it happened"

The sheer magnitude of the April 25 earthquake made it clear immediately afterwards that thousands of houses in Nepal's cities and villages must have collapsed, valuable property must have been lost, infrastructure and heritage sites destroyed, livelihoods affected, people injured, and many loved ones would have died. The government was caught totally unaware. That it was not prepared to coordinate rescue and relief efforts became clear as the scale of the disaster unfolded.

Relief efforts lacked proper procedure, and were poorly coordinated. Soon after the earthquake, the government decreed that external support for humanitarian aid must be channeled only through government coffers. The rule was revoked a few days later following global outcry in the social media. The general media reported squabbling among top officials about allocation of responsibilities. It soon became evident that the biggest limitation in response was the lack of locally elected bodies that would have mediated better rescue and relief efforts. Let us hope sanity prevails, and that our political leaders facilitate this process. We do not again want to feel sorry for ourselves.

The scale of the disaster was huge but the irrepressible Nepali spirit sprang into action. Citizens, youth, and communities rallied together to reach out to affected families. Government units, especially those at the forefront of rescue—the Army, Armed Police, and Nepal Police—began doing all that they could. Their lack of preparation and of specialized equipment was stark. In some instances, people trapped in fallen concrete could not be rescued because saws, ancillary equipment, and know-how to cut through the debris were not sufficiently available. Nepal's friends from all over the world provided sympathy, solidarity, and support.

Air traffic controllers in Kathmandu's Tribhuvan International Airport kept the valley's sky safe, as wide-bodied cargo jets brought humanitarian aid into the capital and helicopters to the affected districts. This record was marred by two unfortunate helicopter crashes in Dolkha and Sindhupalchok. Kathmandu's airport's runway survived the shock, so did the major highways linking Kathmandu to the affected districts. However, many far-flung villages remained isolated and could not be provided with immediate relief. Party affiliation and kinship triumphed over genuine needs in some instances of relief distribution, and mechanisms to address grievances were almost non-existent. Lack of physical access compounded this bottleneck.

The National Emergency Operation Center (NOEC) began to work. The experts at the Nepal Seismological Center kept track of aftershocks recorded by its stations across the country. Civil servants under different ministries worked under ad-hoc and often unclear conditions, while many health post professionals and community volunteers rushed to provide essential services even with minimal infrastructure and supplies. Radio Nepal, FM stations, and local television stations sought advice from geologists, seismologists, engineers, and analysts to inform citizens about earthquakes, aftershocks, and necessary safety measures. Newspapers hit the stands the very next day with details on damages, stories that inspired further rescue efforts, and suggestions for remaining safe. Not everything expressed in the electronic and print media was relevant in meeting local needs, though. It seemed everyone was learning to improvise under the situation.

Some earlier scenarios developed concerning a major earthquake hitting Nepal

had suggested higher scale of damage than what we experienced. Essential services such as electricity, telephone, banking, and internet services were not hindered, as feared. Damages to hydroelectric plants could have been serious, but were not. Scientific uncertainty among laypeople, as well as experts, did allow myths, hearsay, and divine prediction of another major quake to spread and cause ill-informed panic. Kathmandu's rumor mill had a field day, but sane voices eventually drowned out unfounded rumors. Seismologists, geologists, humanitarian relief workers, engineers, military personnel, and other experts from various countries that came to Kathmandu offered suggestions and support in many aspects of disaster risk reduction.

If the April earthquake had occurred on a weekday or during the night, the devastation would have been unimaginable. We got lucky. Yet, had we heeded earlier warnings and taken precautionary measures, thousands of deaths could have been avoided. We now need to systematically glean lessons from our experiences and prepare better for the next earthquake and other hazards. We must perform better to save lives and ensure that our development gains are not demolished by future disasters.

Seismic analyst Roger Bilham recommends Nepal's policymakers to reconstruct the entire damaged region, incorporating earthquake-resistant construction.

"Not episodic"

The April 25 event occurred 80 years after the 1934 earthquake, and there were many more hazardous events in between. In that interval, not only did we face earthquakes, but also floods, landslides, droughts, epidemics, and cloudbursts. Unfortunately, these events were considered episodic and weren't adequately linked to their impacts on our social and political spheres. This lack of institutional learning has made persistent the flaws, gaps, and dysfunction in our social systems. The scale of the damage has made this oversight amply clear. Seismic analyst Roger Bilham recommends, "Nepal's policymakers must use this opportunity to reconstruct the entire damaged region, incorporating earthquake-resistant construction, and to initiate ubiquitous retrofits of village dwellings throughout western Nepal." This is necessary, he suggests, because, "Another major earthquake to the west of Kathmandu is unavoidable. And, this future quake could be much more powerful."

"Reconstruction's three navels"

The rebuilding efforts can be broadly conceptualized into three domains: private property, community property, and public property. According to government's post disaster needs assessment report, almost two thirds of the damage was to private property, such as houses and assets.

Building a home in Nepal is still very much an owner's project; unlike in many countries where housing companies are involved and buyers pay mortgages. The Nepali process goes something like this: finances are organized, design is undertaken, and skilled masons, etc., employed; vastu puja, which can take on very elaborate forms these days, is performed on an auspicious day, and construction begins. Nepalis typically build the ground floor first and begin adding additional floors once adequate finance and need are established. One can see numerous houses in

Kathmandu with vertical rods on the roof sticking out. More recently, private companies have started constructing modular houses and high-rise flats, while the construction industry has started becoming a bit more organized. Yet, regulation of construction quality has been grossly deficient.

Families in the villages, on the other hand, were happy living in shelters built with randomly layered masonry walls bonded by wet mud. No one seems to have realized that an earthquake would hit other districts than Kathmandu, as well. Because of this oversight, walls of village houses crumbled easily and took away loved ones. In many places, given the inertia of governmental support for rebuilding, houses are being reconstructed using outdated methods. Vulnerabilities are being recreated. If new houses are to be safer, we must improve methods and material use; we have to do things differently. The government needs to become more proactive, learn from our own experience. Affected families must have better access to good design models, masons, skilled workers, ancillary services, and finances for rebuilding houses.

Will the government provide concessional loans to families? If such a policy is envisioned, there is a question as to how the fund transaction can happen. Appropriate channels would be commercial banks, local finance institutions (LFIs), cooperatives, or self-help groups. Existing policies do allow LFIs to provide wholesale lending to locally organized groups for various needs. Above all, provisions for concessional lending must be made conditional on incorporating new designs that

promote earthquake resistance. There is scope for involving local hardware suppliers and local construction groups to play useful roles in the process of building safer houses. All this requires an institutional mechanism, or simply put, organizations that have two basic characteristics: people must have easy access to organization, and those in the organization must respond to peoples' needs and concerns.

"Fail safe shelters"

Building earthquake-safe shelters in Nepal faces three basic challenges. We have not seriously studied our traditional buildings and taken steps to improve the technology and materials. They are now designated unsafe, but we have no alternative. This is the first limitation, and leads to cement concrete being proposed as an alternative. When done appropriately, yes, such a building can be earthquake-safe. But, quality assurances of such buildings are grossly lacking from planning, design, and construction. A bag of cement in areas without roads costs 10 times more than that in Kathmandu. So are materials like reinforcement bars and other materials. Sand, a key constituent of cement concrete, is a rare commodity in many upland hill settlements. Add to this lack of skilled masons, and when available, at highly inflated prices. Thus, the whopping cost involved in constructing cement concrete shelter is the second major challenge. Given these limitations, prefabricated material may be preferred, but it leads to huge social and economic implications—the third challenge.

Prefabricated houses may look tidier, and can be built faster; but are they livable? Importantly, many of the elements for pre-fab houses are imported; what impact do they have on the national economy? It is important that we shape the reconstruction process to local economy. Local materials such as stones, bricks, and timbers as construction materials, when used under appropriate engineering practices, can result in safer houses. Use of straw bales, bamboos, and earth bags also can be explored. These latter materials are already used in other countries, and can help expand choices of affected families for rebuilding. Whether they prefer designs with such materials is a different story. These alternative building materials face greater challenges, such as the lack of a commodity chain, appropriate

skill sets, and scalability. Families need to be asked about their preferences and their ideas about safe houses.

We at ISET-Nepal, in partnership with Partnership Mechanism for Community Radio (PMCR), a community radio broadcasting group, have developed and are broadcasting Surakchit That Thalo, a radio magazine that discusses issues regarding shelters. We ask earthquake victims from different VDCs of affected districts to share their ideas about what they consider as a safe home. What we have captured till now has helped us conceptualize the process of re-building village houses. Interviewees wanted an earthquake-resistant home with a goth, a chicken coupe, a dhikki, a janto, and community life. Commercial items have been gradually replacing local artifacts, yet interviewees had not forgotten their traditions and practices. Our challenge now lies in helping these families make informed choice, as they rebuild their houses and lives. They need to incorporate elements of basic engineering and quality control measures. Those still living in areas made unlivable by the earthquake tremors may have to shift to new locations. This is not straightforward. It requires being sensitive to people's livelihood requirements. Families will have to maintain linkages with their production bases. After all, a settlement is an outcome of production activities.

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Nepal has immense physical and social diversity, and the way people build shelters depend on the local climate, availability of materials, skill sets, and economic base of families. Traditional house designs in the Himalayas, mountains, hills, valleys, and terai regions depend on many factors. Yet, with expanding road network, families are changing from their indigenous practices and investing instead in constructing cement concrete houses with columns, beams, and brick or stone walls. However, most of these 'modern' houses do not incorporate even the basics of engineering, nor local weather conditions in their design.

In Kathmandu itself, house designs do not incorporate earthquake-resistant elements. At the same time, these houses are poorly insulated, hot in summer, and cold in winter. Further south in the terai, houses are not well adapted to inundation from flood. Clearly, much more needs to be done to make houses earthquake-resistant and adapted to climatic and social variability in the country. A safer house is ultimately linked with more reliable and regular source of income. Families with a regular income source can invest in safer and more comfortable houses for themselves and their children. This link to income and employment takes us straight into Nepal's economics and development policy arena. Homeowners and builders have to also be cognizant of new challenges introduced by changes in the climate. Cement concrete houses have a carbon footprint as well.

"The rural urban continuum"

Nepal's rural and urban divide is blurring, but there are still obvious differences. In rural areas, we see that families have asset baskets almost similar

to urban ones. Many own TVs and mobile phones, and use LPG for cooking; men along the highways and newly opened dirt roads use motorbikes, etc. However, many rural families still depend on local ecosystems for fuel-wood, livestock fodder, irrigation and drinking water. Life in the hills is even more localized, because settlements are scattered and commuting is hard; women walk for hours to tap stand or other local sources to bring drinking water home; health posts, health service providers, and availability of medicines are inadequate; government departments that provide basic services are few and poorly staffed; while the schools have poor supplies, human resource, and infrastructure.

In the 'community property' domain, user-based resource management institutions are active and responsive. In the immediate aftermath of the April earthquake, many were involved in rescuing, providing immediate relief, as well as in restoring basic services like electricity, drinking water, and health posts. These community institutions were able to make quick decisions, because they were closer to where actual resource use and the services they generate occurs. Many operate democratically as well, with elected office bearers. However, they do fall prey to influence by local elites, are prone to iniquitous distribution of benefits, and lack problem-solving capacity. Well-governed user-based institutions can play a significant role in the rebuilding process, and along with the market and the State, can keep the policy terrain in a creative tension.

"Revitalizing tourism"

It is a fact that many tourism infrastructures, hotels, and lodges, as well as landslides triggered by the earthquake have damaged trekking routes and trails. For example, in Rasuwa District, an entire village was swept away. Near Everest, avalanches led to high death toll. These events have projected a very negative image of Nepal to the rest of the world, and adversely impacted the tourism sector. Nepal's tourism industry involves national and international stakeholders, and its restoration and revitalization would require participation of all stakeholders.

I am confident that the damaged tourism infrastructure (hotels, lodges, trails, heritage sites, etc.) will be restored because the country's vibrant tourism sector is assertive and creative. Not doing so will incur huge losses and costs, because thousands of local livelihoods and local economy are involved. Restoration efforts would do much better with support from the government. The challenge now is on re-building consumer confidence and the goodwill that Nepal enjoys.

The expression of sympathies after the earthquakes from across the world was perhaps a manifestation of the human relation we have built with the hundred of thousands of back-packers, trekkers, and visitors who have visited Nepal over the years. We have welcomed them as friends and made them feel at home. We must continue to improve on these attributes as key ingredients of our tourism industry.

Simultaneously, we need to convey messages that Nepal is safe, sound, and tourist-friendly. We must improve the quality of our human services, reliability of our internet and telecommunication systems, and transport infrastructure. Weather forecasting and preparedness measure must be put in place to ensure safety of travelers, back packers, mountaineers, and pilgrims for possible extreme events. Guides, porters, lodge owners, homestay owners, and staff backbone of Nepal's tourism industry also need safe accommodations. The government must take special measures and encourage our embassies to organize promotional campaigns. The government must support tourism entrepreneurs take part in trade fairs and exhibitions to help convey the positive message that Nepal is indeed safe.

"A new infrastructure layout"

Major systems such as roads, hydropower plants, electricity transmission lines, telecommunication and internet systems, damaged cultural heritages, our taxation system and banking systems fall in the public property domain. Sectoral departments and the proposed Reconstruction Authority can play supportive role in restoring these assets. In each domain—of private, common and public property—the objective should be to build back better. Everyone is using this phrase these days. But how do we do it? There is no silver bullet answer given the myriad predicaments we face. Indeed, we need to build back better physically, but how do we build our intangible institutions? How do we make that rebuilding process inclusive, local economy enhancing and publicly-reviewed?

The use of the term, 'resilience', is becoming very common. Yet, it is very difficult to determine what building resilience means in practice. Actions to build resilience cannot be one-off intervention. It has to be a continual process of assessment, reflection, and learning, so that people and their systems can better handle changing circumstances and riskier

futures. The iterative process of assessment, reflection, and learning helps devise suitable strategies to deal with those riskier circumstances. Building resilience is, therefore, a journey. Simply using the term without appreciating its meaning in practical sense is fraught with dangers. This is because in Nepal, generally, we rarely assess, reflect, and learn. Will we do things differently now?

The idea of building resilience is not only about building physical systems with more reinforcement bars and cement concrete. Building resilience is also about building local capacity to manage such systems effectively under uncertain conditions so that services from the systems are available equitably, during, and in the aftermath of a hazard event. It requires us to consider the dynamics of multiple systems—natural as well as infrastructure—that range from, for example, local drinking water supply network to internet services. We must examine linkages and interdependence among various elements of the system that would help identify vulnerabilities and strengths, and help us take ameliorative actions for improving the resilience of the system. If resilience building is to be the guiding value in reconstruction of both affected cities and villages, developing mechanisms to assess, reflect, and learn will remain fundamental. Otherwise, we will fall into the undesirable danger zone: using the term 'resilience' without any commitment to its actual meaning.

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"The right kind of knowledge"

As we begin to look at systems, their elements and linkages, we must recognize that knowledge, especially access to knowledge, will play a central role. There are many challenges on this count. We must examine the evolution of the use of construction materials, technology, and the regulatory regime over the past several decades. So far, we have copy-pasted methods developed elsewhere, done little homework, and made very little investment in generating appropriate knowledge. In fact, the Nepali state has not invested in the welfare its citizen; if it had, millions of young Nepali men and women would not be working in faraway places. They would be here in productive employment, participating and contributing in improving overall wellbeing.

The challenges that have arisen from persistent under-investment in scientific and social education, and the attendant systems, make immediate efforts at dealing with disaster risks and development extremely daunting. We must begin to invest more in both natural and social science education, so that our students and experts have a better understanding of plate tectonics, geology, engineering, the behavior of the natural processes, and how our social and political systems react to those natural and physical systems. Increasing investment in research and experimentation are equally crucial. Yet, these investments must be matched by

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supporting the mainstreaming of indigenous practices and knowledge into public policies. While expanding investment in knowledge production, the government must support Nepali analysts, scholars, and scientists' work in partnership with universities, research groups, and think tanks in other countries across the world. Investing in such endeavors will legitimize Nepalis as producers of knowledge, rather than just consumers, and enable the younger generation to be engaged in global knowledge and policy making arena.

"The larger picture"

Nepal currently faces three main challenges. The first is rebuilding of lives damaged by the April 25 earthquake and its aftershocks and other induced disasters. The second is promulgating a new constitution acceptable to all stakeholders. The third is building a prosperous Nepal. If done well, overcoming the first two challenges should help meet the third challenge. Let us look at our developmental challenge: the country's GDP growth is rated at 3%, its trade deficit in 2013-2014 reached 33.34% of the GDP from 15% in 2004-2005. Remittance accounts for 29% of the country's GDP, about 7 million young Nepalis work outside the country, Nepal's manufacturing related employment base is miniscule. What do these macro indicators mean? The numbers speak for themselves. Our lawmakers and those at the helm of the nation's economy should be extremely worried. That will not begin to change until we build our institutions to reverse these indicators, better prepare reducing future disaster risks, and improve wellbeing of everyone.

Despite the pains and terrible consequences that the April 25 disaster brought, it does offer an opportunity to establish new relationships that will make governance more accountable. Our responsibility is to improve provision of health, resource access, education, employment, poverty alleviation, employment, water and food security, and safe shelters, besides addressing a host of other challenges. If resilience is to be accumulated as opposed to risks, our government must facilitate decentralization and participation of wide range of actors, as well as strong and accountable local bodies in the risk reduction endeavor.

The April disaster showed, disregarding principles of risk reduction and good governance led to high loss of lives, reversed our development gains. While emergency humanitarian response may require specialized agency, such as an authority, risk reduction must be part of normal development process. The principle of 'Building Back Better', therefore, requires us to move from reactive relief to more proactive risk reduction approach as inherent element of governance, just regulation, participatory planning, education and knowledge generation, taxation, and so on. Clearly, their absence led to multiplication and accumulation of risks.

As we move forward, we must reflect not only on what we decided to do, but also how we did what we decided to do. We must work hard to overcome the gaps we experienced in rescue, relief, and reconstruction of the April 25 earthquake and other disasters. In that journey, the concern and wellbeing of Nepali people in the affected and unaffected districts must remain on center stage.

Ajaya Dixit started his career as a civil engineer in 1977. After receiving his master degree from United Kingdom in 1981, he returned to Kathmandu and began teaching hydrology, hydraulics, and water resources at the Institute of Engineering. After about a decade as a lecturer, he pursued a career of independent research, exploring issues of drinking water, irrigation, hydropower, floods, droughts, and trans-boundary rivers. Since the mid 90s, he has devoted his time in studying climate change induced vulnerabilities, adaptation, and resilience building. Currently, he pursues these interests as Executive Director of Institute for Social and Environmental Transition–Nepal, where he mentors young researchers and is working to build vibrant research-policy study-ecosystem in Nepal. He edited Nepal's 'First National Report on Disaster', which was published in 2010. He regularly contributes articles to local newspapers and magazines.