

Expertise, Labour, and Mobility in Nepal's Post-Conflict, Post-Disaster Reconstruction

Construction, Finance, and Law as Domains of Social Transformation

Policy Brief #3

Construction

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This brief emerges from a three-year collaborative research project that explored how expertise, labour and mobility affected the overall reconstruction process after the 2015 earthquake by inquiring into the three domains of construction, law, and finance. Research was conducted from March 2018 to February 2020 in three study sites in Bhaktapur, Dhading, and Sindhupalchowk districts, with additional interviews in Kathmandu. The study was funded by Canada's Social Sciences and Humanities Research Council (SSHRC), and implemented through a partnership based at the University of British Columbia in Canada, and Social Science Baha and the Central Department of Anthropology at Tribhuvan University in Nepal. See details at <https://elmnr.arts.ubc.ca>.

Context

Post-disaster reconstruction is a complex process of social transformation, whereby multiple forms of expertise, knowledge, and political-economic relations come into play, to reconfigure relationships between state and citizen as well as local, national, and international communities. Following the devastation of Nepal's 2015 earthquakes, the Government of Nepal promulgated the Reconstruction Act 2015 and established the National Reconstruction Authority (NRA). The NRA subsequently introduced various reconstruction-related laws, policies and provisions with the objective of facilitating 'owner-driven' housing reconstruction as well as heritage reconstruction, under the 'Build Back Better' policy. For this purpose, the NRA deployed 2700 engineers to assist affected households with building 'earthquake resistant houses'—a process incentivised by the provision of Private Housing Reconstruction Grants of NPR 300,000 (ca. USD 2500). The government also offered subsidised loans of up to NPR 2.5 million (ca. USD 22,000) in the Kathmandu Valley and NPR 1.5 million in other districts at 2 per cent interest for urban reconstruction.

House Designs

As early as the autumn of 2015, the Department of Urban Development and Building Construction (DUDBC) published a building catalogue focusing on rural housing reconstruction. The catalogue, which was subsequently adopted by the National

Reconstruction Authority (NRA) after its establishment in December 2015, promoted four types of rural houses: stone-and-mud mortar masonry, brick-and-mud mortar masonry, stone-and-cement mortar masonry, and brick-and-cement mortar masonry.¹ The second volume of the catalogue, published in March 2017, had 17 house designs to support both rural and urban reconstruction.² In the interim, urban reconstruction remained in limbo. But people in rural areas also faced problems since the house designs and materials were not in line with their needs and available resources. According to the project director of the Central Level Project Implementation Unit (CLPIU) at the DUDBC, Volume II of the catalogue considered alternative construction materials and people's cultural needs as well.³

Engineers from the NRA's District Level Project Implementation Unit (DLPIU) were deployed throughout rural areas to support homeowners in rebuilding. However, it took some time for them to gain the trust of community members. This was due to confusion over the prescribed designs as well as communication gaps between community members and technicians coming from other parts of the country.

Later, in mid-2017, the NRA published a correction manual⁴ which addressed many problems of non-compliance, enabling additional houses to qualify for further housing grants. By this time, some beneficiaries had already rebuilt their houses with locally available resources, using their own expertise

and skills, since their stone-and-mud mortar houses had been severely damaged, and they needed a place to live in. However, people were not aware that they had to build certain kinds of houses to claim reconstruction grants. Many houses were rebuilt within one agricultural cycle after the earthquake struck—before the engineers visited the village. However, these houses were generally not compliant with the post-earthquake building codes.

Before the earthquake, many rural houses were made of stone with mud mortar and a wooden frame. These houses were two to three storeys with attic space and roofed with slate; each storey had two to three rooms. After the earthquake, many families repaired their houses using stone walls on the ground floor and lighter materials like wood or corrugated galvanised iron (CGI) sheets on the upper one. Heavy slate roofs were often replaced with CGI sheets. These self-repaired houses were usually smaller than the multi-storey pre-earthquake houses, but still much bigger than the NRA-prescribed houses. People preferred to live in these self-repaired houses as this suited their lifestyle. They stored stacks of firewood on the ground floor and often had separate cattle sheds near their houses, made of stones, CGI sheets or tarpaulin.

The NRA was primarily concerned with building houses that complied with building codes, and therefore qualifying for the reconstruction grant tranches. Houses built with people's own traditional knowledge were generally assumed to be vulnerable and hence, unsafe, while the government-prescribed houses were deemed to be 'earthquake-resistant', and thus stronger and safer. This simplistic notion led to the disqualification of numerous houses built or repaired by people without consultation from the NRA engineers, compelling people to build a new wave of 'earthquake houses'. In July 2019, the NRA revised this policy flaw and introduced a legal procedure to assess and include qualifying houses built before deployment of NRA field engineers.⁵

New Guidelines

As reconstruction proceeded, the NRA added several new guidelines, created correction and retrofit manuals for different kinds of house designs, and revised major policies such as Grant Disbursement Guidelines and Grievance Redressal Procedures. It also imposed deadlines to accelerate the pace of reconstruction, only to remove them later. DUDBC officials acknowledged that the initial house designs were implemented based on external assumptions of what people needed, in

a top-down approach while the correction manuals were based on information collected from the ground, in a bottom-up approach.⁶ Officials said that the NRA was keen on making further policy revisions to ease the reconstruction process for the people.⁷ Despite the positive reforms seen in the latter years of reconstruction, NRA's tenure came to an end in December 2021 after several extensions, creating a tight schedule to complete the reconstruction process. Likewise, the I/NGOs involved in reconstruction also had to complete their project cycle within specified time limits.⁸ Beneficiaries therefore had to comply with often unrealistic construction deadlines.

Construction Materials

The DUDBC building catalogues stated that house designs and construction materials should be used with flexibility, allowing people an element of choice. The NRA promoted local materials for reconstruction, especially in rural areas based on available resources.⁹ Stone, wood and CGI sheets were the most commonly used construction materials in rural areas, while cement, iron rods, brick, gravel and sand were used by urban residents. The price of construction materials increased across all the research sites in the post-earthquake context. In areas without reliable road access, construction materials had to be transported either by mules or human porters, which further added to the cost of reconstruction.

Labour

Reconstruction was delayed due to the dearth of skilled labour. Homeowners everywhere struggled to find skilled labourers, mainly due to the mass migration of young men and women abroad for foreign employment. Although some households practiced the traditional *parma* system of labour exchange to build their houses, many were not able to do so because male household members were absent. Due to the increasing demand, labour wages soared. The daily wage of labourers generally increased between 40-60 per cent after the earthquake. To produce skilled human resources and address the shortage of labour, the NRA coordinated with various I/NGOs working in post-earthquake reconstruction to train local masons to build earthquake-resistant houses through training-of-trainer (TOT) programmes.¹⁰ However, only a few community members continued working in this capacity after completing the training. Instead, migrant labourers from other parts of Nepal supplied a significant portion of

reconstruction labour. There was a high rate of internal labour migration especially from the Tarai districts as well as from hill districts in Western Nepal such as Dang, Salyan, Rukum and Rolpa where the earthquake had had minimal or no impact. The labourers were generally well-treated and valued for their skills, especially in building reinforced concrete (RC) houses.

Dhading

The Baliyo Ghar ('strong house') programme was launched by the National Society for Earthquake Technology (NSET) in several villages, including our field site of Borang, to introduce earthquake-resilient building techniques and ensure that new houses complied with building codes. Baliyo Ghar employed a Social Development Officer (SDO) in the village to work in coordination with the NRA engineers. Community members were generally positive about the SDO's presence since he was a local who also helped them understand and implement NRA criteria more effectively.

As the programme only began after many families had already repaired their old houses, people began constructing new one-room stone houses nearby just to receive additional tranches of the housing grant. The area of the new one-room houses ranged between 12 x 12 feet to 17 x 14 feet with only one door and one window. By the time the fieldwork for the study ended, construction had been completed on many of these houses, but only a few were used as a storeroom or kitchen. Community members referred to the one-room houses as *sarkar ko ghar* (government house) or *anudaan ko ghar* (grant house).

There was a better sense of ownership towards the old houses that people had repaired, spending as much as NPR 400,000 to NPR 800,000, amounts which exceeded the NPR 300,000 government grant. Most interlocutors said that reconstruction had led to a loss of sociocultural identity. Although the one-room house design was officially only one of many possible models, due to communication gaps, resource and labour limitations, and pressure to complete building within deadlines, it appeared to be the only option for many.

Sindhupalchowk

In Sindhupalchowk, alongside the old houses, people constructed their new houses according to the government-prescribed designs. There were more brick-masonry houses with cement mortar and iron-truss frames and RC houses. 'Hybrid houses'¹¹ were also

common, combining stones alongside other materials like bricks or concrete blocks. Despite the variety in house designs, newly built houses were generally smaller than the previous houses, except in the case of RC houses. As people were accustomed to living in a much bigger space, many people were dissatisfied. Later, bigger house designs arrived as the stone-masonry houses were allowed to extend an additional space for an attic (about 3-4 feet high) if they used RC bands instead of wooden one in the walls. These latter designs were still smaller than people's previous houses, yet big enough to be 'liveable' for a small family. The NRA guidelines did not allow stone houses to build a 'shutter'¹² to run their shop business, as it affected the resilience of the structure; a shutter was allowed only in RC frame houses. Since many people's livelihoods depended on having a shop or business in the area, not having a shutter was crippling to their income source. In order to build a shutter, people either had to build a more expensive RC house or simply compromise the resilience of their stone houses.

Bhaktapur

Bhaktapur Municipality's heritage code was perceived as more powerful than the NRA's building code. Homeowners had to comply with the NRA's building code to qualify for the housing grant, but the heritage code was enforced to maintain safety as well as preserve Newar cultural and architectural designs. Nevertheless, people were not satisfied with the enforcement of this code because they thought some of the requirements, such as the limitation of a house's height and sloped *jhingati* tile roof, were impractical. Adhering to the heritage code also increased the financial burden for households since they were held to a higher standard than households in other areas in a context of increasing material and labour costs.

Recommendations

- Building codes and housing designs mandated or recommended by governmental and other implementing agencies and organisations should be flexible to ensure culturally appropriate and economically affordable outcomes for affected people and communities, with adequate space to accommodate existing residential patterns, livelihoods and practices.
- People's design preferences and local availability

of labour, skills and construction materials (such as mud, wood, bamboo, stone) should be considered alongside earthquake-resistant engineering as reconstruction plans are formulated.

- Incentives and technical support for retrofitting should be prioritised as a key strategy for achieving culturally appropriate outcomes.
- Traditional social practices such as exchange of labour (*parma*) should be promoted.
- Financial implications of new building designs and codes for disaster-affected people should be considered in advance, particularly for poor, marginalised and vulnerable community members.
- Reconstruction policies should focus on enhancing gender and social inclusion in the building process, ensuring participation of people from different gender and socio-cultural backgrounds, while also linking existing nodes of social capital.
- Technical information needed to achieve

compliance with codes should be communicated clearly and accessibly, with additional on-the-ground technical support available when needed.

- Skills developed in the wake of the 2015 earthquakes should be maintained and utilised in planning and preparedness measures for future disasters, as well as in other livelihood and development activities across all three tiers of government.
- Data about semi-skilled and skilled human resources involved in recovery and reconstruction activities should be maintained at both local and central levels, and the government should consider certifying their skills for future work.
- Government agencies and I/NGOs should employ social mobilisers (such as the Baliyo Ghar SDO) to ensure that both technical and social policy issues are addressed during reconstruction and development projects.

Notes

- 1 'Downloads: House Division: Design Catalogue for Reconstruction of Earthquake Resistant Houses Volume I, 'Department of Urban Development and Building Construction, accessed November 16, 2019, <http://www.dudbc.gov.np/uploads/default/files/0ef9f3598df115407ae9ed4e7bfab24a.pdf>
- 2 'Downloads: House Division: Catalogue for Reconstruction of Earthquake Resistant Houses Volume II,' Department of Urban Development and Building Construction, accessed November 16, 2019, <http://www.dudbc.gov.np/uploads/default/files/a1efdb9058f9151775d9a2bae473ac0b.pdf>
- 3 KII with Project Director of CLPIU, 03 July 2019, Kathmandu.
- 4 National Reconstruction Authority, Corrections/Exception Manual for Masonry Structures (Kathmandu: National Reconstruction Authority, 2017). <http://www.nra.gov.np/uploads/docs/hK3E3YCz1b170925085057.pdf>
- 5 'NRA approves guideline to provide grant to houses reconstructed before deployment of technicians', http://www.nra.gov.np/np/resources/details/W6qQqhtVqXqPjgia5Z8AyCo_S7DQ9MvffKajShf-Dg.
- 6 KII no. 42, 3 July 2019, Kathmandu.
- 7 KII no. 40, 1 July 2019, Kathmandu.
- 8 KII no. 41, 2 July 2019, Kathmandu.
- 9 National Planning Commission, Post-Disaster Recovery.
- 10 KII no. 40, 01 July 2019, Kathmandu.
- 11 NRA's Hybrid Structure Manual 2017 defines hybrid structures as the combination of two or more types of structural system constructed with different technology and materials.
- 12 A 'shutter' refers to the rolling shutters made of steel. Shutters are used as the frontside of shops. Due to their widespread use and popularity in Nepal, the term 'shutter' is also used synonymously to refer to shopfronts.

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