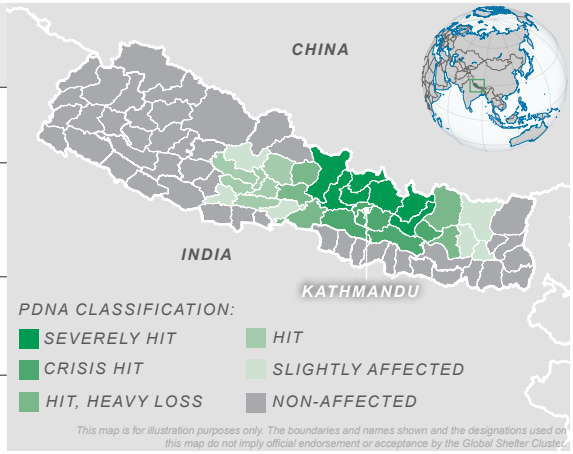
OVERVIEW

NEPAL 2015–2018 / RECOVERY

CRISIS	**Nepal Earthquake, 25 April 2015** (and major aftershock on 12 May 2015)
TOTAL PEOPLE AFFECTED[1]	**8 million** people (almost one third of the population)
TOTAL PEOPLE DISPLACED AS OF MARCH 2019	**3,913 households** (approx. 19,095 people) identified as eligible for relocation grant (1,669 of these households already completed relocation)[2]
TOTAL HOUSES DAMAGED[3]	**812,371 fully** damaged (to be reconstructed) **61,891 partially** damaged (to be retrofitted)
TOTAL HOUSING NEEDS	Over **4.2 million people** (based on number of houses damaged and average family size of 4.88)



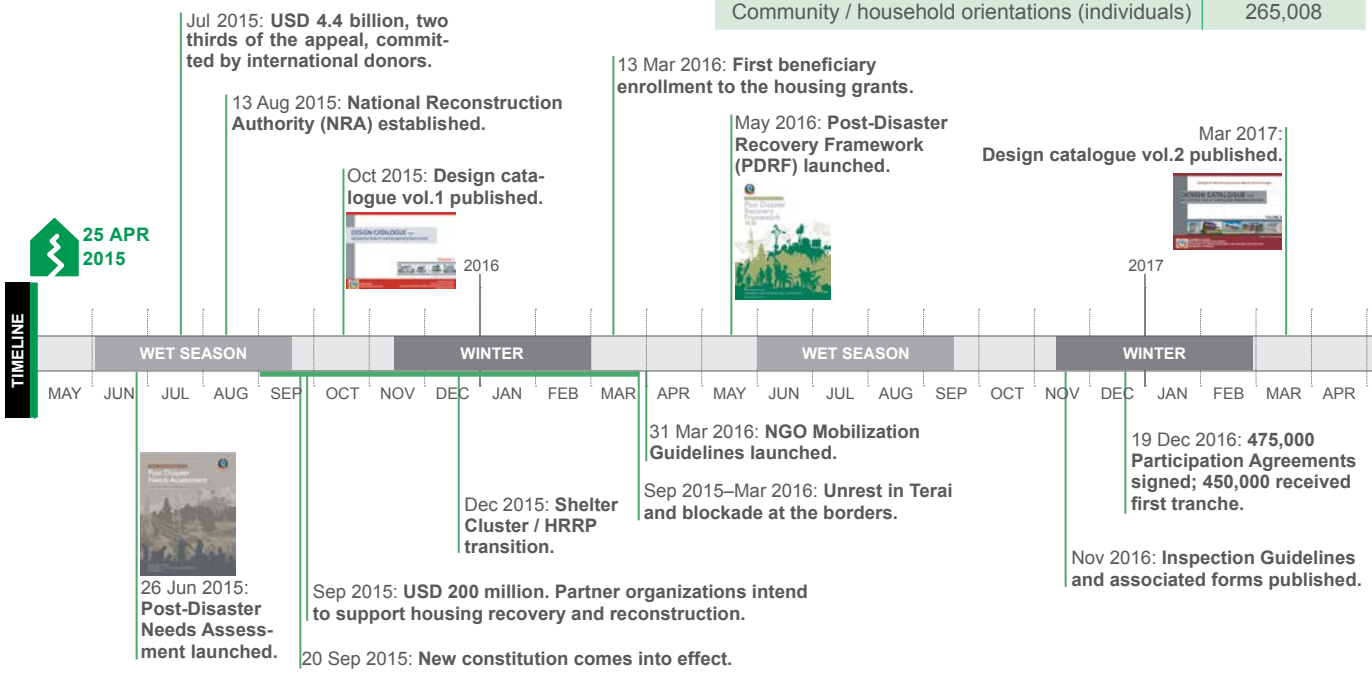
SUMMARY

The Nepal earthquakes of 2015 caused immense damage to housing stock across 32 districts, nearly half of the country. The Nepal Government surveyed over one million houses damaged or destroyed and then implemented an owner-driven reconstruction programme with a generous grant. The case studies that follow reflect on important elements of the humanitarian response and recovery four years after the event and highlight the continued need for recovery activities and coordination. A.17 focuses on coordination and transition from emergency to recovery; A.18 explores the importance and challenges of socio-technical assistance programmes to accompany reconstruction; A.19 describes a response to flooding during ongoing recovery.

RECONSTRUCTION AND RETROFITTING		
As of 8 Apr 2019	Reconstruction	Retrofitting
Houses surveyed	996,582	
Total beneficiaries	824,031	62,655
Partnership agreements	760,210 (92%)	19,716 (31%)
1st tranche received	755,826 (91%)	18,785 (30%)
2nd tranche received	563,225 (68%)	27 (0.1%)
3rd tranche received	401,161 (48%)	NA

SOCIO-TECHNICAL ASSISTANCE	
Coverage by municipalities (5 or more TAs)	55 / 282
Coverage by municipal wards (5 or more TAs)	179 / 2,552
Housing partners currently active	23
Demonstration construction (houses)	1,839
Number of door-to-door visits (households)	158,059
Number of community reconstruction committees formed or supported	2,425
Total number of masons trained (individuals)	66,338
Skills training	44,985
Vocational training	21,353
Support provided though help desk / resource centres / hotlines (households)	63,846
Community / household orientations (individuals)	265,008

[1] Post-Disaster Needs Assessment (PDNA), June 2015, Government of Nepal, https://bit.ly/2uylVE0.
[2] National Reconstruction Authority (NRA), Land Management and Geological Investigation Section, 18 March 2019.
[3] NRA, 15 March 2019, http://nra.gov.np/en/mapdistrict/datavisualization.



CONTEXT

See overview A.3 in Shelter Projects 2015-2016 for more background information.

Nepal is prone to multiple natural hazards.[4] Following the emergency response to the 2015 earthquake, recovery operations took place in a context of peace-building, political change and rapid urbanization.

SITUATION AFTER THE EARTHQUAKE

The 25 April 2015 M7.6 earthquake killed 8,790 people and injured 22,300. Eight million people were affected (nearly 30% of Nepal's population).[5] The biggest aftershock of M7.3 on 12 May killed a further 218 people. More than 800,000 houses were destroyed.

The Post-Disaster Needs Assessment (PDNA) categorized the 32 earthquake affected districts as 1) severely hit, 2) crisis hit, 3) hit with heavy losses, 4) hit, and 5) slightly affected (see map on previous page).

From September 2015 to March 2016, unrest in the Terai region, due to protests regarding the promulgation of the constitution, resulted in a border blockade that had a huge impact on the whole country. Goods, including fuel, could not be brought in or out of the country. The impact on the response and housing recovery was significant, as fuel shortages limited movement and shelter and winterization goods were either stuck at the border or much more difficult to access.

Initially, the government asked international actors to prioritize assistance for 14 of the affected districts.

NATIONAL SHELTER STRATEGY

Following the earthquake, all clusters were activated and began coordinating partners in each sector. The Shelter Cluster was co-led by the government and one international organization. The initial emergency shelter response targeted the most vulnerable and was focused on providing relief shelter and household items, such as shelter kits, tarpaulins, blankets, and bedding materials, or their cash equivalents.

The temporary shelter strategy was based on the government cash grant of NPR 15,000 (USD 136) to affected households to cover some of the labour and material costs of setting up a temporary shelter. In more remote areas, where transport costs were high, corrugated galvanized iron sheets of the same value were provided to households directly.

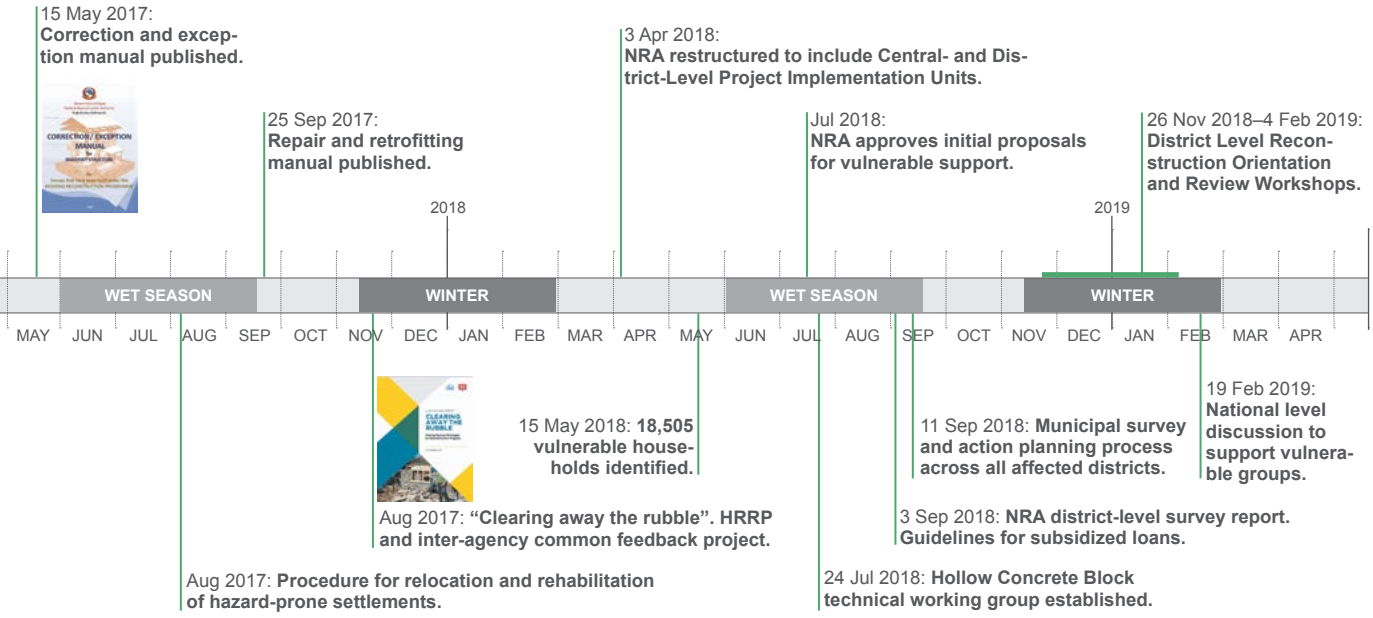
The early phases of the response also included work on recovery, such as early masons training and model houses. In December 2015, the Shelter Cluster handed over its role to the Nepal Housing Recovery and Reconstruction Platform (HRRP) to support coordination of longer-term post-earthquake recovery programming.

HOUSING RECONSTRUCTION PRINCIPLES

The principles of the housing reconstruction programme were also decided early and were set out in the PDNA, which was published in June 2016. These included:

- Empower communities to take control of their recovery using an owner-driven reconstruction approach;
- Apply integrated safer settlement principles, such as holistic habitat development, with an emphasis on basic services and community infrastructure;
- Promote long-term community resilience;
- Strengthen the local economy through processes supportive of the poor, marginalized and informal sector, to improve their overall living and economic conditions;
- Ensure sustainable and environmentally conscious processes that keep in mind issues such as climate change, natural resource management and scientific risk assessments;
- Ensure that the programme is equitable and inclusive, with equal rights to land and property accorded to women;
- Targeted strategies should address the specific needs of the diverse communities and settlements affected by the earthquakes.

[4] K. Oven et al, May 2017, Review of the Nine Minimum Characteristics of a Disaster Resilient Community in Nepal. Available at https://bit.ly/2G4eSbU.
[5] PDNA, June 2015.



HOUSING AND SETTLEMENT TYPOLOGIES*

Nepal is a geographically diverse country, ranging from as low as 59m above sea level in the Terai region to 8,848m above sea level at the peak of Mount Everest, in just a couple of hundred kilometres. This creates a diversity of housing typologies and settlement styles, which also vary owing to sociocultural factors, such as caste or ethnicity.

In mountainous areas in the North of the country, the traditional style of building is dry-stone masonry and families typically have two houses – one higher up that is used during the summer months and one lower down that is used during winter months.

In historic, core traditional settlements in urban areas (particularly in the Kathmandu Valley but also outside), the traditional style of construction is brick masonry with carved timber windows and doors, often built around courtyards.

In non-traditional settlements in urban areas, the most prevalent form of construction is multistorey reinforced concrete frame with brick infill walls.

In rural, hilly areas, the most common type of construction is 2.5-storey stone or brick masonry with mud mortar. The attic space is used for storing grains and other goods, the ground floor is used for livestock, and the first floor is the living space.

In more tropical climates, houses traditionally were built with timber frames with thatched roofs, and the walls were made of bamboo and mud plaster. This is changing dramatically as access to traditional materials is becoming more challenging, and many families are investing remittances from family members working overseas in construction of reinforced concrete or block houses.

Construction in rural areas is predominantly non-engineered and self-built. The introduction of the National Building Code in 1996 and the Building Act in 1997 launched building code implementation processes across the country. In Village Development Committees, the process was relatively basic and focused mainly on registration of intention to build. In municipalities the process was more complicated and required engineering designs, including inspection visits during construction.


Gatlang in Rasuwa (Photos: HRRP).


Left: traditional style house around courtyard in Patan. Right: traditional timber window frame on a house in Patan (Photos: HRRP).


Left: Chitwan, Khairahani Municipality, Ward No. 2. Right: Sindhuli, Sunkoshi Rural Municipality, Ward No. 6 (Photos: HRRP).


Left: Syangja, Waling Municipality. Right: Lalitpur, Gimdi (Photos: HRRP).


Nawalpur district (Photos: HRRP).

* See 'Housing Typologies: Earthquake Affected Districts.' HRRP, Sep 2018. Available at https://bit.ly/2Vx9XGJ.

HOUSING RECONSTRUCTION PROGRAMME

The government housing reconstruction programme provided grants in three tranches to contribute towards the costs of earthquake-resilient elements in reconstruction and retrofitting, and to incentivize households to include these elements.

GOVERNMENT RECOVERY GRANTS		
Tranches	Reconstruction	Retrofitting
1st	NPR 50,000 (USD 455)	NPR 50,000 (USD 455)
2nd	NPR 150,000 (USD 1,360)	NPR 50,000 (USD 455)
3rd	NPR 100,000 (USD 910)	NA

The average exchange rate of USD 1 = NPR 110 was used for cost conversion.

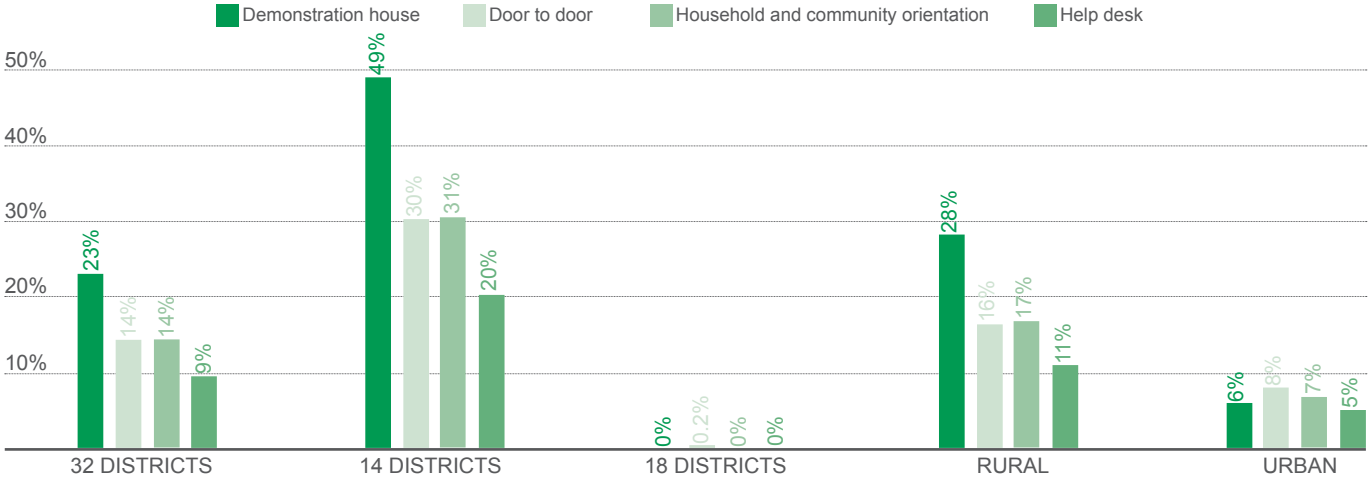
As of March 2019, the government had disbursed more than USD 1.63 billion through these grants. Recognizing that the government engineers would be primarily occupied with the inspections associated with these grants, the government requested I/NGOs not to provide households with the reconstruction grant, but instead to support socio-technical assistance (STA). By the end of 2018, coverage of STA provided by I/NGOs remained below 10 per cent, with much of the international funding still concentrated in a few areas. This was exacerbated by the focus of shelter actors on the "safe shelter" product rather than critical, process-oriented, interventions.

The heavy focus on the 14 most-affected districts left the 18 moderately affected districts with almost no support. Urban areas also received limited to no support from I/NGOs and other recovery actors.

Around USD 2.5 billion were needed for the housing grants alone, with the needs for overall recovery exceeding USD 7 billion.[6] USD 4.1 billion (two thirds of the appeal) was pledged by international donors. As of Nepal fiscal year 2016–17, just over USD 3 billion had been committed by donors, and only 16 per cent had been disbursed (less than USD 0.5 billion).[7] I/NGOs contributed an estimated USD 300 million towards the overall recovery (just 4% of the funds estimated for the recovery and response).

[6] Post-Disaster Recovery Framework (PDRF), available at https://bit.ly/2N86v1Y.
[7] Government of Nepal, Development Cooperation Report, December 2017, available at https://bit.ly/2OW7R0B.

COVERAGE OF KEY TECHNICAL ASSISTANCE ACTIVITIES BY % OF WARDS (BASED ON NRA 5W, FEB 2019)



Outside the 14 most-affected districts, very little international support was provided. The HRRP advocated for technical assistance to be spread across all affected areas.

RECONSTRUCTION HIGHLIGHTS

The PDNA and the Post-Disaster Recovery Framework (PDRF) were completed in a timely fashion, which provided the groundwork for the government housing programme, which allocated a generous financial assistance to over 800,000 households, established policies and guidelines, and put in place over 3,000 engineers to provide technical support and house inspection. Over 66,000 masons were trained in earthquake-resistant building techniques. Newly elected municipal officials and bureaucrats were supported to engage and take the lead for the recovery, disaster risk reduction and contingency planning in their respective areas.

In areas where I/NGO partners and donors supported recovery, the quality and pace of reconstruction was improved, however the focus of partners was primarily on the emergency and temporary shelter phases. A top-up grant for the most vulnerable was also provided by some partners. Hazard mapping and identification allowed at-risk households to be supported with associated relocation and resettlement grants.

Although 70 per cent of households were headed by women, the overall engagement of women in reconstruction activities was limited.

SOCIO-TECHNICAL ASSISTANCE

Socio-Technical Assistance (STA) is accompaniment during recovery to people affected by disaster. It should not be a one off activity and should be delivered on an ongoing basis, according to need, throughout the process of recovery. It should be designed in a tailored way with different approaches targeted towards different needs.

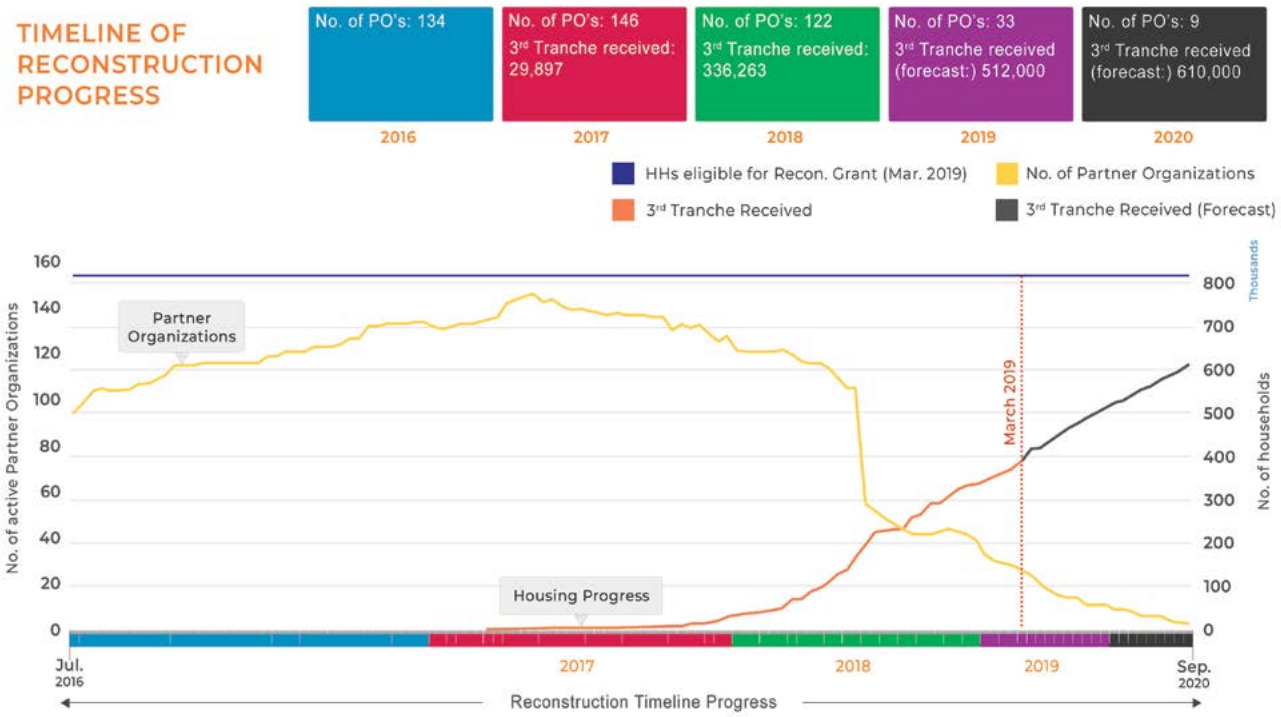
In Nepal, a minimum and basic STA package was agreed with government and partners. However, there are many other areas where STA can play a role, including in Housing, Land and Property, access to finance, disability services, translation services, employment and livelihood integration. As such, STA quality can vary greatly, monitoring is complex and largely focused on outputs rather than outcomes.

The basic minimum package for STA in Nepal included the following core activities: community/household orientations; mobile technical support / door-to-door support; short and refresher trainings for masons; vocational / on-the-job training for masons; help desk / call / technical support centre; demonstration constructions; and community reconstruction committees set-up and support.

At the time of writing, this package and guidance was being updated.

CORE SOCIO-TECHNICAL ASSISTANCE PACKAGE IN NEPAL

Basic STA package in Nepal. STA is not a one-off activity (Diagram: HRRP).



MAIN CHALLENGES

Despite some significant successes in the government-led recovery programme, there were also some concerns and lessons:

- Nepal has a predominantly female population, and in some districts more than 70 per cent of households are headed by women. Yet engagement of women in reconstruction by aid agencies and government departments was limited.
- There was still a lack of clarity in communication of response policy and guidelines and inconsistency of advice and support between central and field levels. These included false rumours such as blacklists, requirement to follow the design catalogue or one room houses, which caused significant issues at household level.
- There are urban areas across all 32 earthquake-affected districts, including 589 urban wards across 94 municipalities. However, while some urban policies were in place and there were government agencies working on urban issues, there were few I/NGOs focusing on urban recovery issues.
- More than half of the affected houses had taken a loan. This meant that, overall, there was a post-earthquake debt burden of nearly USD 1.3 billion, often taken out at extortionate interest rates (average annual rate of 23%). There were realistic concerns about a looming debt crisis, as households may struggle to keep up with repayments.
- A total of 29 I/NGOs provided the recovery grant (or committed to) to 22,680 households, totalling just under USD 68 million. As of March 2019, over USD 48 million of this had been distributed. Because the systems were not fully set up when I/NGOs started, there were concerns that over USD 20 million may have been duplicated.

DISASTER RECOVERY TIMELINES

Experience shows that the average time frame for recovery from major disasters is 12 years.[8] Recovery actors often forget this reality and, as was the case in Nepal, the disaster response front-loaded collective resources into the immediate humanitarian phase, without taking realistic time frames into account. No provisions were made for additional temporary shelter support or maintenance over the years. The most vulnerable households that were not able to engage in the reconstruction in most cases remained in inadequate temporary shelters. With most international partners leaving the country, and less accompaniment being provided to navigate the reconstruction process, many households were expected to be living in temporary shelters for the years to come.

Although humanitarian responders should have been prepared for longer time frames, they should also be conscious that in reality there is no rule, and appropriate time frames are set by the affected population and rarely align with responders' own timelines. Households planning their reconstruction needed to align with their projected income, their family concerns, traditions and other factors that were largely not considered by responding agencies. Compounding this was the essential time for the process of policy, procedure and systems development by the government. The impetus for responders to be fast meant activities were delivered or designed before the government systems were in place, or communities ready.

In Nepal most recovery partners were finalizing their activities in 2019 and, based on project approvals, the HRRP estimated that in 2020 less than 10 organizations would remain to provide accompaniment to households in the recovery process. At the height of the response in 2015 there were over 250 shelter partners, while in 2019 less than 40 were active and less than 30 were reporting. However, the households that remained were those who struggled more to engage in recovery, who normally were the most vulnerable and would therefore require more support.

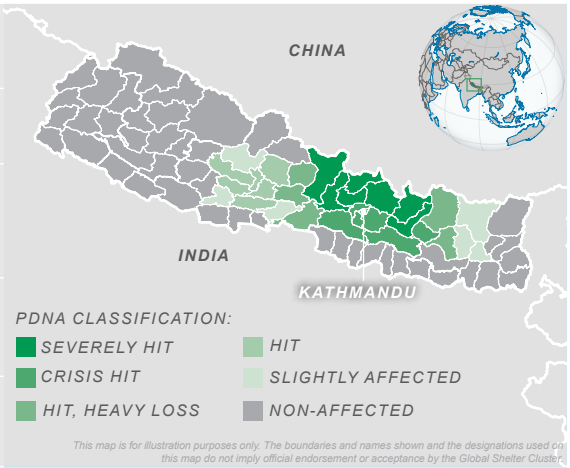
[6] S. Platt, 2017, Factors affecting the speed and quality of post-disaster recovery and resilience.

CASE STUDY

NEPAL 2015–2019 / COORDINATION

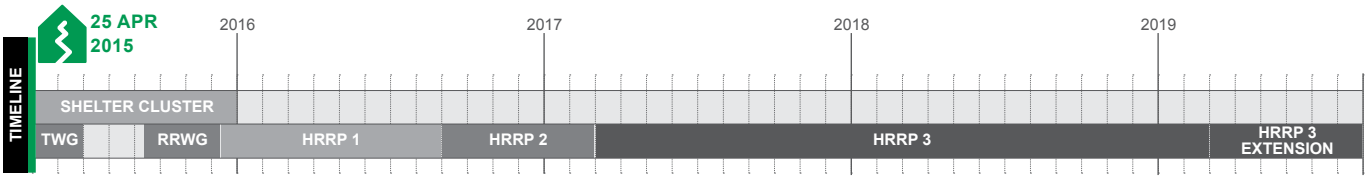
KEYWORDS: Housing recovery, Coordination, Advocacy

CRISIS	**Nepal Earthquake, 25 April 2015** (and major aftershock on 12 May 2015)
TOTAL PEOPLE AFFECTED[1]	**8 million** people (almost one third of the population)
TOTAL PEOPLE DISPLACED AS OF MARCH 2019	**3,913 households** (approx. 19,095 people) identified as eligible for relocation grant (1,669 of these households have already completed relocation)[2]
TOTAL HOUSES DAMAGED[3]	**812,371 fully** damaged (to be reconstructed) **61,891 partially** damaged (to be retrofitted)
TOTAL HOUSING NEEDS	Over **4.2 million people** (based on number of houses damaged and average family size of 4.88)
PROJECT LOCATIONS	National level and 32 earthquake-affected districts
PROJECT OUTPUTS	**Coordination services** provided across 32 districts for a total of 203 partners (45 active as of Feb 2019) **Guidance and reports** including: joint advocacy report,[4] information bulletins,[5] and Socio-Technical Assistance package agreed with NRA and partners[6]
PROJECT OUTCOMES	**61%** of survey respondents made changes to activities based on information from HRRP 3 district-level events; **99%** agree that HRRP 3 technical guidance is easy to access, **86%** that it is well researched, and **96%** that it is relevant to their work; **82%** agree that HRRP 3 has reduced gaps and prevented duplication in reconstruction efforts; **60%** agree that HRRP 3 has supported strengthening of emergency preparedness and response



PROJECT SUMMARY

After the Nepal earthquake of 2015 and its aftershocks, coordination of recovery efforts was critical. Since 2015, the coordination platform for these efforts evolved, with leadership from a series of different recovery actors. The case study focuses on two periods of time. First, on the transition of coordination leadership from the Nepal Shelter Cluster to the Housing Recovery and Reconstruction Platform (HRRP) in its first phase. Second, on the HRRP's third phase, under the co-leadership of a national and an international NGO. Through these two snapshots, the case study highlights the impact of initial challenges and successes on later recovery coordination efforts.



25 Apr–31 Dec 2015: **Nepal Earthquake Shelter Cluster.**

May–Jun 2015: **Shelter Cluster Technical Assistance and Training (TWG).**

10 Sep–7 Dec 2015: **Recovery and Reconstruction Working Group under Shelter Cluster (RRWG).**

Dec 2015–Aug 2016: **HRRP 1 (led by two UN agencies).**

Sep 2016–Feb 2017: **HRRP 2 (led by one UN agency).**

Mar 2017–Feb 2019: **HRRP 3 (led by INGO). Extension expected until July.**

Aug 2019–Dec 2020 / Jul 2021: **HRRP 4 (planned). Depends on National Reconstruction Authority timeframe.**

Refer to the expanded timeline on "The Path to Housing Recovery", available at https://bit.ly/2UhxkXt.

STRENGTHS

+ Early start of the Recovery Working Group under the Cluster.
+ Holding technical meetings at national NGO offices helped developing a collective approach to technical assistance.
+ Having a recovery advisor within the Cluster early.
+ High involvement of national organization in HRRP 3.
+ Flexibility of HRRP 3 to adapt to the changing context.
+ Two-year funding was attracted thanks to initial contributions from the HRRP 3 lead INGO.

WEAKNESSES

- Collaboration challenges in HRRP 1 reduced effectiveness.
- Limited translation services led to the exclusion of local actors.
- Assistance was prioritized towards 14 out of 32 districts affected.
- Lower global experience and support mechanisms of the HRRP 3 lead INGO compared to larger agencies.
- Some activities were not handed over to the government.
- Lack of funding diversification.

[1] Post Disaster Needs Assessment (PDNA), June 2015, Government of Nepal, https://bit.ly/2uylVE0.
[2] National Reconstruction Authority (NRA), Land Management and Geological Investigation Section, 18 March 2019.
[3] NRA, 15 March 2019, http://nra.gov.np/en/mapdistrict/datavisualization.
[4] A Joint Advocacy Report: Clearing Away the Rubble, November 2017. Available at https://bit.ly/2uwwqb8.
[5] Available at http://www.hrrpnepal.org/.
[6] Available at https://bit.ly/2YCPgv8.

Government grants were used to rebuild a variety of different housing typologies. From load bearing brick masonry and reinforced concrete (above-left) to timber frame and stone masonry (above-right).

CONTEXT

See overview A.16 in this edition and overview A.3 and case study A.4 in Shelter Projects 2015-2016 for more information.

The Shelter Cluster has been working in Nepal from 2008, contributing annually to the local, district, and national monsoon and earthquake contingency planning process led by the government and the United Nations (UN) Resident Coordinator's Office.

In response to the 2015 earthquake, the Shelter Cluster was fully activated, along with the majority of other clusters. The government designated a ministry for coordination of the emergency response activities, which was supported by other ministries as well as by UN agencies and a number of national and international NGOs working in the country. However, a government authority to lead the recovery and reconstruction was not designated until August 2015.

Post-cluster coordination for recovery and reconstruction has generally been ad hoc, because there is no global support mechanism to replace the cluster system. In many cases, national governments have the capacity to take on this role. Where this capacity is not fully developed, additional support is requested from the international aid community. The development of HRRP Nepal is one such case.

TRANSITION FROM CLUSTER TO HRRP

The 2015 earthquake was a major disaster for the housing sector and was met with a large-scale response by over 300 agencies. The wider humanitarian coordination context favoured ending operations and coordination and closing the cluster system as soon as possible. Deactivation of the clusters was endorsed by the Humanitarian Country Team. Most clusters, including Shelter, were deactivated by December 2015. This occurred in the context of an ongoing winterization response, along with the continuing development and roll-out of government structures for the recovery phase, potentially impacting the transition. Given the scale of the response, it was acknowledged early by the Shelter Cluster, donors, government, and I/NGOs, that coordination support would be required in the long term. Two UN agencies jointly led the Recovery and Reconstruction Working Group (RRWG), which launched in September 2015 under the Shelter Cluster. Importantly, all the lead agencies of the Cluster and the HRRP were members of the Global Shelter Cluster Strategic Advisory Group (SAG), which promoted linking the emergency shelter coordination with the subsequent recovery.

HRRP PHASE 1

In December 2015, the RRWG transitioned to become the first phase of the HRRP (HRRP 1). HRRP 1 was jointly led by the two agencies and was funded by two donors, with significant in-kind contributions from partners to implement the platform. With both agencies having been involved in the Cluster response, it was an opportunity to ensure a smooth transition of work, staff and knowledge. Coordination under HRRP 1 kept the same structure and core functions as it had under the leadership of the Shelter Cluster. National coordination was led by the same two agencies, and in the districts there was an effort to maintain the leadership from the same organizations that had supported the Cluster. The leading agencies conducted a series of consultations with key partners, including government, NRA, HRRP SAG members and donors, to make recommendations for the following 18 months of the platform, captured in a strategic document.

HRRP PHASE 2

Based on the recommendations, the second phase of the HRRP saw one of the lead agencies at the national level discontinue its involvement. This ensured that there was greater clarity and ownership of HRRP 2 for the remaining lead agency and for platform members. Launched in September 2016, HRRP 2 was mainly funded by one donor and some contributions from the lead agency. As a result of the review process and limited funding, HRRP 2 initially adopted a different model with no technical coordination and with limited district staff. Partners were expected to provide technical coordination capacity. The lead agency collaborated with an existing INGO member of the platform to fill the National Coordinator position. HRRP 2 then began to implement changes to include some technical coordination and increase its district presence. The lead agency discontinued its role in February 2017, and the platform tendered for a new lead agency.

The response and recovery efforts from INGOs were limited in urban areas.

Grants were given in three tranches, based on construction milestones. However, some houses were missed in damage assessments and did not receive the grants.

HRRP PHASE 3

For the third phase of the HRRP, an INGO took the leadership and agreed to co-fund the platform, while sub-national coordination in five districts was led by Nepalese NGO partners. Technical coordination at national and district levels was led by a national NGO with extensive technical and coordination experience from Nepal and the region.

The three-tiered structure (district, national and hub) was shared by all phases of the HRRP. However, the make-up was a bit different, with three types of coordinators at each level: technical, information management, and general. The national level structure of HRRP 3 included some new elements. For example, HRRP 3 included a dedicated staff member and a comprehensive system for monitoring and evaluation; technical coordinators in the districts; operational, finance, IT and administrative staff; a translator; and a recovery advisor. Building on the relationships developed during HRRP 1 and 2, the majority of HRRP 3 staff worked from government offices. The platform maintained a high level of investment in staff capacity-building and development, as part of a platform-wide staff performance management system (non-agency specific).

With the recovery needing significant time, and having regained some trust with partners, donors and government, the platform secured two years of funding for the first time under HRRP 3. This allowed for longer-term planning and the chance to adapt implementation to changing circumstances. In February 2019, the platform was going to be extended for five months and a new phase planned to start in August.

MAIN CHALLENGES IN THE TRANSITION

In spite of the willingness and significant investment in handover, there were challenges in engaging partners and establishing government ownership of the Shelter Cluster RRWG, the precursor to HRRP. Significant and frequent leadership changes in the government institutions established to oversee reconstruction were happening, making it difficult to build momentum and agree on longer-term goals and coordination strategy.

In addition, the transition of resources and knowledge from the Cluster to HRRP 1 was challenging, including staff continuity, and some key activities were dropped or redone. Challenges with joint leadership of the HRRP 1 also affected the overall performance of the platform. With limited resources and many roles yet to be fully established, discussions remained at a high level. Challenges of continuity during the transition, phase 1 and 2 of HRRP were exacerbated by uneven sporadic funding.

MAIN CHALLENGES IN HRRP 3

With the September 2017 changes to Nepal's administrative structure, HRRP 3 had to stretch funding levels to provide capacity-building and information-sharing support to the newly elected municipal officials.

The structure of HRRP 3 involved multiple agencies, each with different salary scales, operational support and expectations, and a very large geographical area. This presented challenges to team spirit and cohesion, management, staff security and maintaining a positive reputation.

Differences in communication, language, representation within the Humanitarian Country Team, and management structures created **challenges to meaningful engagement of local NGOs** and limited the platform's impact, although their involvement was key to its success.

International partners were asked to focus on socio-technical assistance, to support households in rebuilding using earthquake resilient techniques

Since NGO deputed staff often had to dedicate time and effort to non-HRRP related work, **there were issues of identity and impartiality.**

The platform lead also faced operational and administrative challenges, including central management of staff hired by multiple organizations, especially in relation to expenditures and performance.

WIDER IMPACTS

The transition from Cluster to HRRP set the scene for recovery and reconstruction coordination support after the closeout of clusters.

HRRP provided technical input for the development of reconstruction guidelines and policies, allowing the government inspection of housing reconstruction for tranche disbursement to be uniform and harmonized.

Advocacy on STA and overcoming barriers to reconstruction led to some agencies changing their programmes to include more or more effective STA. HRRP advocacy also resulted in the government engaging more in co-funding activities, and considering provision of direct STA.

District- and local-level orientations and trainings for I/NGO and government staff reduced the misinformation presented to affected households, increased the knowledge and improved the practices of responders, as well as improved government access to tools for coordination.

Information management provided access to dynamic data and analysis, which was used by government and partners to reduce gaps, avoid duplications and target appropriate responses, based on better defined needs. This resulted in households having better access to more appropriate support.

The HRRP provided coordination services, guidance and advocacy to support reconstruction efforts. The early start of the Recovery Working Group under the Cluster was key in facilitating a transition from the relief phase.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED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National actors assumed a stronger role in the third phase of the HRRP, which helped developing a shared approach to technical assistance and more local ownership.

STRENGTHS

+ The planning for the RRWG began early and was supported by the Shelter Cluster SAG and contributions from the two organizations that co-chaired the group. Partner organizations were also supportive of the group and actively engaged with its activities.

+ Holding technical working group meetings at national NGO partner offices provided a space for them to share experience and guidance collectively, and enabled planning for a shared approach to technical assistance and training.

+ Having a recovery advisor within the Shelter Cluster providing input at early stages of the response.

+ In HRRP 3, the number and responsibilities of national organizations implementing coordination at district and national levels increased, also thanks to the partnership focus of the INGO lead.

+ HRRP 3 was able to adapt to the changing context. It did so by expanding coordination support to the newly-established municipal-level government; expanding support to a wider geographic area without additional resources; and supporting training needs of government and partners as gaps arose.

+ The lead agency of HRRP 3 contributed significant funds to the platform, which made the timing for receiving donor funds less critical. This then allowed to attract two-year funding.

WEAKNESSES

- The two lead agencies of HRRP 1 found it challenging to work together, which impacted the effectiveness of the platform and undermined transition, creating gaps in coordination services at critical moments.

- Limited translation services led to the exclusion of local actors and, subsequently, less than optimal communications.

- Although 32 districts were identified as affected, the humanitarian community advocated for partners to work in 14 districts, as outlined by the government. **This left the majority of those affected with little international support.**

- The global experience, size and support mechanisms of the lead INGO of HRRP 3 were limited compared to larger agencies. This resulted in a learning curve and an additional workload for staff, who had to balance the operational requirements with national and global expectations, and needs of post-cluster coordination services in Nepal.

- Some activities and services were not handed over, especially in the area of communications. For example, the HRRP developed a significant subscriber audience for email updates and for social media. However, with no government counterparts and not enough effort by the platform itself, these initiatives may struggle to be sustained after exit.

- Up to 2019, most funds came from only one donor, while more efforts should have been made to attract more diverse contributions.

LESSONS LEARNED

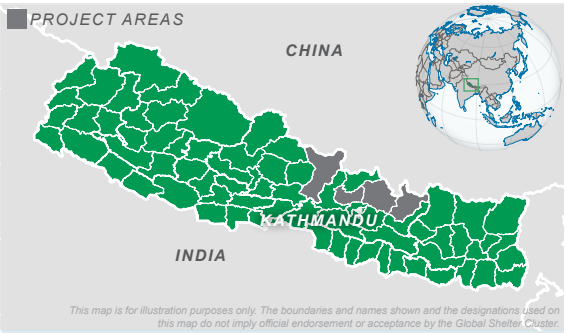
- **The concept of "transition" is not entirely applicable.** In Nepal, coordination for recovery began early (May 2015), but coordination for residual humanitarian needs was also needed in 2017 (e.g. winterization).
- **Recovery specialists should be deployed early** and have provision for remaining beyond the cluster.
- Coordination services for reconstruction need to be **mindful of the time frames for various government activities.** NGOs and donors often make rigid decisions on projects and activities in advance of policies and frameworks from government. **Transition should build on and support government structures for recovery,** not only emergency.
- **Strengthening engagement of a wide range of partners** – especially national organizations – contributes to the effectiveness of the platform. **The higher the degree of impartiality, the more effective** the coordination platform. Agency visibility may hamper this.
- **Longer-term, dependable funding** contributes to better retention of staff (as well as allowing time to support capacity-building initiatives), dependability of coordination services, and establishing and developing key relationships with reconstruction actors. It also aligns better with recovery time frames.
- **No coordination mechanism should operate without translation as a core service.** Having live translations at meetings requires additional consideration and investment. With such investment, the platform could improve inclusivity of meetings at the national level and continue to support document translation.

CASE STUDY

NEPAL 2016–2017 / EARTHQUAKE

KEYWORDS: Reconstruction grants, Technical assistance, Community engagement

CRISIS	**Nepal Earthquake, 25 April 2015** (and major aftershock on 12 May 2015)
TOTAL HOUSING NEEDS*	**874,262 households** (4.2 million individuals)
TOTAL HOUSES DAMAGED**	**812,371 fully, 61,891 partially**
PROJECT LOCATIONS	Gorkha, Nuwakot, Sindhupalchowk and Dolakha districts
PROJECT BENEFICIARIES	**1,797 households** (8,985 individuals) receiving shelter grant and technical support **4,699** engineers, workers and masons trained
PROJECT OUTPUTS	**1,797 permanent shelters** built **260** engineers and technicians trained to be trainers **3,140** construction workers trained **1,299** unemployed youth received vocational training
PROJECT COST	**USD 4,200** per shelter (incl. operational costs) **USD 5,054** per household (incl. training costs)



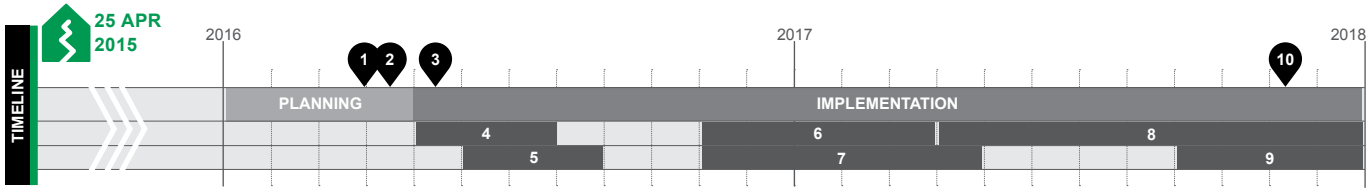
This map is for illustration purposes only. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the Global Shelter Cluster.

SHELTER SIZE	**33m²**
SHELTER DENSITY	**6.6m²** per person
MATERIALS COST PER SHELTER	**USD 4,000** on average
TRAININGS COST	USD 251 per day for ToT USD 205 for construction workers USD 635 for vocational training

* Estimated based on average household size and number of damaged houses. ** *Source*: National Reconstruction Authority (NRA), 15 March 2019.

PROJECT SUMMARY

The project targeted 1,797 vulnerable households in remote areas affected by the 2015 earthquake. It provided a housing reconstruction grant, coupled with technical assistance, to build a seismically safe structure. The implementing organization trained over 3,000 masons on earthquake-resistant, code-compliant construction techniques using local materials, and offered vocational training to over 1,000 youth in the project areas to address the severe lack of skilled labour. A national awareness campaign on the government reconstruction procedures and Build Back Safer messages was also conducted, to reach a wider group of the affected population outside of the direct targeted households.



1. 31 Mar 2016: **Launch of the NGO Mobilization Guidelines.**
2. Mid-Apr 2016: **The National Reconstruction Authority (NRA) begins signing reconstruction grant agreements.**
3. May 2016: **The organization signs a MoU with the NRA to construct permanent shelters and train engineers and construction workers.**
4. May–Jul 2016: **Seven-day trainings to 3,140 masons conducted.**
5. Jun–Aug 2016: **Agreement with the beneficiaries and release of the first tranche of financial support.**
6. Nov 2016–Mar 2017: **Vocational training for 1,299 unemployed youth.**
7. Nov 2016–Apr 2017: **Construction up to plinth level and distribution of the second tranche.**
8. Apr–Dec 2017: **Construction up to roof level and distribution of the third tranche.**
9. Sep– Dec 2017: **Construction or repair of latrines and completion of construction activities.**
10. Nov 2017: **The organization starts another project only focusing on door-to-door technical assistance.**

STRENGTHS

+ Effective coordination.
+ Community engagement.
+ The project provided an example for the government programme.
+ Integrated programming at the settlement level.
+ Door-to-door technical support.

WEAKNESSES

- Lack of labour market assessment.
- Limited employment opportunities for masons beyond the project.
- Lack of supply chain engagement.

The project trained masons who were then deployed to work in reconstruction.

For more background information, see overview A.4 in Shelter Projects 2015-2016 and A.16 in this edition.

NATIONAL RECONSTRUCTION STRATEGY

Eight months after the earthquake, when the emergency response was closing and the Shelter Cluster phasing out, the government officially established the National Reconstruction Authority (NRA) to lead the reconstruction activities. The government strategy was to enable people to rebuild permanent houses by providing conditional cash grants. In view of the lack of adequately skilled labour for large-scale reconstruction, the training of construction workers was prioritized. Initially, guidelines and training for retrofitting were not prioritized.

Through the NGO Mobilization Guidelines and the Post-Disaster Response Framework (PDRF), the NRA provided guidance for NGOs to engage in development or reconstruction activities, requesting them to focus on socio-technical assistance. The government would remain in charge of disbursing the grants. However, as some NGOs were already planning to hand out the grants while the guidelines were being developed, this option was also accepted.

PROJECT COMPONENTS

The organization leading this project submitted a proposal to the NRA for an integrated recovery project with shelter as the main focus, also including WASH and livelihoods. For shelter specifically, three aspects were prioritized:

1. Public awareness on safer construction;
2. Capacity-building of community members and youth for reconstruction work;
3. Technical and financial support to vulnerable families.

TARGETING OF LOCATIONS

This project was implemented in 13 Village Development Committees (VDC) of four of the most affected districts which had already received support from the organization during the relief phase.[1] This allowed to maintain the relationships already established with the same communities. For the reconstruction project, only the most remote areas were selected.

BENEFICIARY SELECTION

In order to prioritize the most vulnerable households, a pre-selection was conducted from the NRA-approved list in coordination with the local authorities. Beneficiaries were then selected from this list using a scorecard system, which considered several vulnerability criteria. The list was finalized in consultation with local stakeholders and, to avoid duplication, was sent to the government's information management units at national and district levels.

PROJECT IMPLEMENTATION

After the approval of the proposal, the organization signed a tripartite agreement with the NRA and the appointed unit for the implementation of reconstruction activities. Thanks to this agreement, the project gained full support from the NRA, which was otherwise discouraging NGOs from disbursing the grant directly.

The organization had a shelter unit composed of architects and engineers at the national and field levels, supported by social mobilizers at district level. The project was implemented by a local NGO partner (in line with government directives), whose shelter staff included architects, engineers, social mobilizers and trained masons. The organization was responsible for coordination with the Cluster and government authorities, capacity-building of partners and monitoring and quality assurance. The partner conducted construction works, verified adherence to the building code and released the grants in designated tranches. The project included the following activities.

PUBLIC AWARENESS CAMPAIGN. Public awareness activities were implemented through printed brochures and handbooks, short audio and video messages, a song, a short tele-serial disseminated via various media such as television, radio, national and local press and by distribution of leaflets and billboard materials directly to the community.

MASONS TRAININGS. A seven-day practical course developed by the government was given to 3,140 existing masons and construction workers (7% women). A list with trainees' contact details and photograph was provided to the local authorities to maintain a roster of available trained masons.

[1] See case study A.7 in Shelter Projects 2015-2016.

The project provided a holistic support package including shelter, WASH and settlement-wide interventions. It was implemented in close coordination with a variety of government and non-governmental agencies at the national, subnational and field level.

VOCATIONAL TRAININGS. 240-hour trainings were conducted in partnership with the Council for Technical Education and Vocational Training. The curriculum included theoretical studies and "on-the-job" practical works. Using a scorecard system, pre-tests and recommendations from local authorities, 1,299 unemployed youth (below 40 years in age) were selected for this training (38% women). After its completion, trainees were supported to take a skill test, equipped with construction tools and paired with experienced masons.

BENEFICIARY AGREEMENTS. Selected households signed an agreement with the NGO partner (witnessed by the local authority) for the construction of a permanent shelter and construction or refurbishment of a latrine.

DESIGN AND CONSTRUCTION. Beneficiaries were organized into groups of 10 and invited to attend orientation sessions. These focused on earthquake-resistant houses, including how to procure quality construction materials.

Beneficiaries could choose their house design. Project staff advised them during this selection, explaining financial implications, material choices and the best location for the house. Staff then supported households to lay out the building and provided an orientation to the masons on the chosen design.

During the construction phase, the project team conducted frequent monitoring visits. Mobile masons were also recruited by the partner NGO to support around 10 houses each, preferably within their own communities.

CASH TRANCHES. The project provided a cash grant of about USD 3,000 (NPR 300,000) in three tranches, as per government policy. The first tranche, worth USD 500, was released immediately after the agreement was signed, and covered site clearance and foundation works. The second tranche of USD 1,500 was released after completion of the plinth level. The final tranche of USD 1,000 was provided upon completion of the superstructure up to the roof and the construction of a permanent latrine. Following government guidelines, for households in remote mountain areas an additional USD 500 was provided for transportation.

At the start of each new stage of work, the project teams worked with beneficiaries on material requirements and construction details to ensure appropriate planning and management of the funds. Each group of beneficiaries was required to complete the houses of all of the respective members before the next tranche of the cash grant could be disbursed.

Government engineers certified the construction work prior to releasing the second and third tranches. The release was dependent on compliance with the National Building Code and measured against a checklist developed by the government. Once the official authorization was received, the organization approved the transfer of cash to the beneficiary's bank account.

SHELTER MONITORING COMMITTEES

Shelter monitoring committees were formed to facilitate the quality assurance process and identify when beneficiaries faced any challenge. The committees consisted of representatives from the ward citizen forum, beneficiaries and other community members, and pre-dated the Community Reconstruction Committees that were later prescribed in the government guidelines.

INTEGRATED PROGRAMMING

Following a holistic approach, water supply projects were also implemented in the same communities. WASH staff provided technical support for the design, placement and construction of latrines and sanitation systems. All households were provided with a new or repaired latrine near their houses. cash for work and other livelihood activities enabled families to generate more income, which was then often invested in their houses. The health team supported reconstruction of five health posts and seven outreach centres, and the education team rebuilt 13 school buildings in the project areas.

COMMUNITY ENGAGEMENT

Owing to the prior links of the partner with the targeted communities, all decisions related to beneficiary selection, tranche release, procurement, mobilization of workers, daily wages and construction monitoring were taken with the active involvement of the community and other local stakeholders.

Regular meetings were held with local authorities and the community to solve issues around implementation of the project and explain that assistance would only target the most vulnerable.

The shelter monitoring committees helped in resolving issues during construction, supporting the less able with procurement and labour mobilization, ensuring other requirements such as water and road access were available, as well as assisting teams in monitoring quality and progress.

Community action planning was conducted to identify local hazards at the settlement and house levels, and to assess people's capacities in addressing these issues. A small fund was allocated to enable a selection of quick-impact projects to be implemented. These included:

- Improvement of foot trails and roads;
- Establishment of a drinking water supply system;
- Implementation of a mass hygiene campaign;
- Cleaning and debris removal.

The action planning stimulated a sense of ownership and greater capacity to implement some of the simpler mitigation issues identified. The process was designed to produce ward-level action plans that in turn fed into the VDC development plan.

Vocational trainings included practical sessions on seismic resistant construction techniques. 38 per cent of participants were women.

HOUSE DESIGNS

The organization prepared alternative, more affordable, local housing designs to those in the government's design catalogue, which were then circulated as approved alternatives. The focus was on the earthquake-resistant components. These included vertical and horizontal seismic bands, the use of light materials in gables and roofs, the selection of quality construction materials and workmanship, the appropriate size, proportion and height of the buildings.

Traditional houses in the earthquake-affected areas were usually made of stone masonry with mud mortar and plaster, covered with corrugated iron sheets or occasionally slate roofing. Typically, houses had a footprint of 28–65m^2 and had three stories. Most people used the ground floor as kitchen and living space, the first floor for sleeping and the attic for storage of crops.

To minimize construction costs and comply with the building code, the new designs were often smaller than traditional houses. Nonetheless, as most of the targeted households had small family sizes, it was easy for them to adapt. Larger families decided to use alternative designs with greater floor plans, expanded the attic floor (without compromising structural integrity), or used the transitional shelters built in earlier response stages for livestock or storage.

MAIN CHALLENGES

DELAYS IN POLICY FORMULATION. As the NGO Mobilization Guidelines were only released at the end of March 2016, activities were delayed for almost five months. This caused additional challenges as the monsoon season was approaching. Specific procedures were adopted to speed up the reconstruction, such as mobile masons, community working groups and additional support for transportation to more remote areas.

AVAILABILITY OF MATERIALS. Due to increased demand caused by the response activities and the difficulties for international imports via the land border between India and Nepal, materials such as cement, reinforcement bar and CGI sheets were scarcely available and very costly. With this in mind, the house designs were flexible and allowed a variety of options to use local materials.

LABOUR SCARCITY. In the target communities there had never been large construction programmes and many young people had left to find jobs abroad, hence there was a real shortage of experienced workers. To address this issue, along with the training, in some locations local labour organizations were engaged to enable construction workers from outside the community to be employed in the reconstruction works.

Designs were flexible and allowed the use of local materials without comprimising on compliance with the building code.

WATER AND TRANSPORT IN REMOTE AREAS. In remote communities, water scarcity during winter caused problems for construction activities. This was addressed through the small-scale projects, in coordination with the organization's WASH team. As some of these locations were also far from local markets, transport costs were extremely high. In these cases, the working groups and shelter monitoring committees arranged bulk procurement and transport to reduce costs.

LAND ISSUES. In some cases, families either did not have proof of land ownership or were subject to relocation due to the imposition of a "right of way" to construct new roads. From the first group, some families were referred to the government, while for the second land deeds were signed with relatives or community members free of charge, thanks to the efforts of the project team and the local authorities. For the second group, it was possible to find an agreement with the authorities to realign the road.

HANDOVER AND EXIT

Upon completion, beneficiaries signed possession acceptance certificates confirming that the construction standards had been verified by the authorities. The organization also supported them in the application process to receive additional services from the government, such as electricity and phone connections.

Towards the end of the project, following the shift from the NRA allowing NGOs to provide only technical support, the organization decided to implement another intervention focusing on door-to-door technical assistance, while the government provided the grant. This allowed to reach an additional 7,000 households across five locations in about nine months.

WIDER IMPACTS

This project was one of the first to start permanent reconstruction in the targeted locations, providing a testing ground for a variety of processes later adopted or adapted by the government. Other project components were also widely adopted, such as the mobile masons, the formation of community groups and the additional transportation support for vulnerable families.

Model houses were built to act as a demonstration for the whole community and surrounding areas. Technical suggestions were provided to the wider community through the site office in all project locations. The houses built through the project also served as examples of seismically safer construction techniques for the wider community. Thanks to these measures and the awareness sessions, many other families in the project area were observed to have replicated the techniques and designs implemented within this project.

Door-to-door technical support was provided to households, who were divided into groups of ten to support each other during the construction process.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

+ Coordination. All stakeholders were involved directly at each stage of the project cycle, including government actors at national and local levels, humanitarian organizations and coordination bodies such as the HRRP.

+ Community engagement through the organization of groups of households to work together during construction, which fostered social cohesion and helped keeping the momentum. The shelter monitoring committees were also essential to identify early where delays could occur and help the project team to find solutions.

+ Example and testing ground for the government reconstruction programme. The identification of existing masons and the training and mobilization of construction workers from the local communities benefited the wider reconstruction campaign. As this was one of the first reconstruction projects, many processes were tested for the first time.

+ Programme integration with WASH, Food Security and Livelihoods, Education and Health. This provided a holistic support package within each settlement, addressing interdependent needs. It also generated other positive outcomes, such as the cash earned in livelihood or infrastructure projects being reinvested in the houses.

+ Door-to-door technical assistance. The project team provided support through individual house visits to all beneficiaries. This was effective in raising awareness of construction safety and disseminating practical knowledge to the community on simple seismic-resistant construction techniques.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WEAKNESSES

- A labour market assessment would have been useful to better understand whether the supply of labour was adequately skilled and, if not, understand the wider range of capacity-building efforts required to improve the construction industry as a whole.

- Masons had limited employment prospects after the project ended. Apart from supporting the creation of the district-level roster, there was no further follow-up to track the locations or further employment of trained masons beyond the project timeframe. There was no livelihoods planning beyond the reconstruction phase.

- Lack of supply chain engagement. The organization did not work with local suppliers and markets to provide bulk construction materials at negotiated rates. Beneficiaries were free to procure imported materials from any vendor in the local market. A collective approach for price bargaining or testing of materials' quality would have helped.

MATERIALS LIST FOR A TYPICAL HOUSE

Items	Unit	Qty	Unit cost (USD)	Total cost (USD)
Stone*	m^3	36.61	13.00	-
Cement bag (50kg)	pcs	39.93	8.00	319.44
Sand	m^3	2.78	21.00	58.38
Aggregate	m^3	5.30	19.00	100.70
Wood	m^3	0.93	500.00	465.00
CGI sheet	bundle	3.00	75.00	225.00
Mild steel	kg	527.27	0.72	379.63
Skilled labour	daily rate	176.46	8.15	1,438.15
Unskilled labour	daily rate	184.42	5.80	1,069.64

** Stone is considered to be acquired locally or salvaged.*

LESSONS LEARNED

- **Small coverage.** The project provided grants and technical support to a limited number of vulnerable households, using a targeted approach. This was partly because it was implemented ahead of the change in guidance from the government, whereby NGOs had to only focus on socio-technical assistance. Having chosen to focus on technical support would have allowed to reach a much larger group, for a longer term. After this project, the organization chose to move to the provision of technical assistance only.
- **Use local materials and human resources where possible.** Without compromising safety, the use of local materials – such as stone and timber – was much more cost-effective than using imported materials, which were expensive and required prohibitive transport costs for remote areas. Local materials were also more familiar to communities, which helped explaining seismic-resistant techniques without introducing new materials. Moreover, local labour had localized knowledge and relationships with the community, which motivated to achieve higher quality. It was also cost-effective, reducing the need for transportation and accommodation costs.
- **Community action planning should be central to assessing needs.** It was clear that there was greater scope for this approach to encompass a far wider range of stakeholders to more effectively identify the needs and opportunities for early recovery. **Learning from this project made the organization expand its settlement-based approaches,** to reach more actors and link into local government development processes more effectively.
- Data showed that **many houses with moderate damage could have been retrofitted** to achieve seismic safety levels, however this was not identified from the beginning. Early advocacy and action could have stopped many households from destroying what remained of their houses, in reaction to announcements of reconstruction grants.

CASE STUDY

NEPAL 2017–2018 / FLOODS

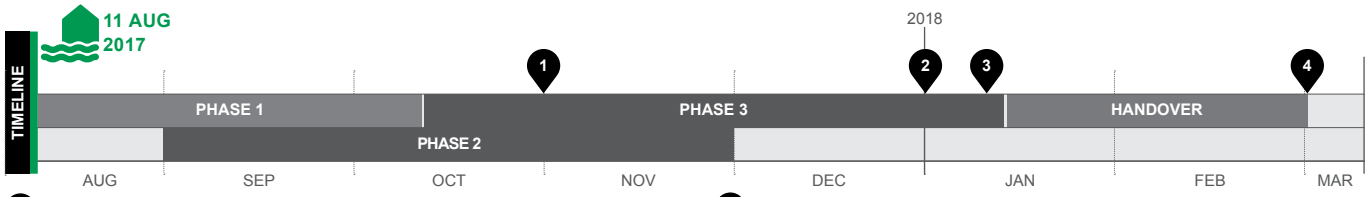
KEYWORDS: Emergency shelter, Local construction techniques, Training, Links to recovery

CRISIS	Floods, 11 August 2017
TOTAL PEOPLE AFFECTED	**336,695 households*** (1,688,474 individuals)**
TOTAL PEOPLE DISPLACED*	**158,575 households**
TOTAL HOUSES DAMAGED**	**41,626 damaged, 150,510 destroyed**
PROJECT LOCATIONS	18 municipalities in Morang, Sunsari, Jhapa, Saptari provinces in east Nepal; Banke province in west Nepal
PROJECT BENEFICIARIES	**1,418 households** (approx. 6,950 individuals) supported with NFIs and temporary shelter solutions **1,300 individuals** trained on bamboo construction
PROJECT OUTPUTS	**1,418 temporary shelters** built **400 NFI kits** distributed **21 trainings** conducted in communities
SHELTER SIZE	**21m²**
SHELTER DENSITY	**3.5m²** per person (up to six people)
MATERIALS COST	**USD 344** per shelter
PROJECT COST	**USD 393** per household

PROJECT SUMMARY

This project provided 1,418 flood-affected households with emergency shelters through a participatory process and using locally available materials. Shelters were made of bamboo and included several risk mitigation features. Trainings were conducted on safe construction techniques, resulting in many people upgrading their shelters during and after the project. The organization also advocated and paved the way for longer-term reconstruction programmes, and looked at addressing land tenure issues of landless populations.

* Nepal Red Cross Society, Situation Report, 20 Aug 2017.
** National Planning Commission, Post-Floods Recovery Needs Assessment (PFRNA), Nov 2017, https://bit.ly/2Riom6D.



1. 31 Oct 2017: **15 demonstration emergency shelter units constructed and training implemented.**
2. 1 Jan 2018: **1,341 emergency shelter units constructed.**
3. 10 Jan 2018: **Extra 62 units constructed with remaining resources.**
4. 1 Mar 2018: **Handover event attended by the government to formally hand over the shelters.**

STRENGTHS

+ Risk mitigation through design features.
+ Cultural appropriateness of the materials and design used.
+ Innovative monitoring and evaluation tool.
+ Community participation and complementarity of assistance.
+ Volunteer and community mobilization for improvements.

WEAKNESSES

- Some elements of the shelters were not always preferred due to households' differing backgrounds and low flexibility of the design.
- Limited WASH solutions for remote locations.
- Problems with the bamboo supply.

Heavy rains in August 2017 caused heavy flooding and massive damage to housing. The floods displaced over 150,000 families and damaged nearly 200,000 houses.

CONTEXT

Nepal has three distinct regions stretching east-west, namely Himalayas, Hills and Terai (plain land). Most of the 2015 earthquake-affected districts lie in the hilly region, while the 2017 floods mainly affected the southern plains, where most of the agricultural production of the country comes from.

Humanitarian organizations working in Nepal in 2017 were mostly involved in ongoing reconstruction programmes after the 2015 earthquakes, while in the flood-affected districts only a few organizations were active in development projects, including the organization implementing this project.

SITUATION BEFORE THE FLOODS

People living along the river banks were highly vulnerable to floods, primarily due to the increase of climatic events and the environmental degradation of the region, compounded by their financial situation that made them unable to adopt mitigating measures (such as relocating to safer areas or retrofitting their existing dwellings). Although disaster preparedness activities had been conducted by various stakeholders (including the government), these proved insufficient to avoid the disaster.

SITUATION AFTER THE FLOODS

In August 2017, days of heavy rain resulted in large-scale flooding, affecting 35 districts and causing massive damage. Despite response efforts by humanitarian agencies and local government, many displaced families were forced to stay in overcrowded locations and makeshift tents, with no privacy nor basic facilities. Many flood-displaced families temporarily settled close to the highways (usually on higher ground), exposing themselves to severe health and safety risks – such as dust, fumes and accidents.

NATIONAL EMERGENCY RESPONSE

A state of local emergency was declared in the affected districts, the cluster system was activated and local and central government, humanitarian organizations, I/NGOs, business groups and communities supported affected populations with emergency items. Damage and needs assessments were conducted by the National Planning Commission. The Flood Reconstruction and Rehabilitation Project (FRRP) was established under the National Reconstruction Authority (NRA) to coordinate recovery activities. The NRA distributed a grant of about USD 98 to each affected household and USD 0.7 per person per day for 30 days, for immediate emergency support.

PROJECT IMPLEMENTATION

The project aimed at enabling affected households to recover as quickly as possible. As such, it was designed in three phases, implemented through local partners and with a high involvement of the selected communities.

PHASE 1 (EMERGENCY DISTRIBUTIONS). Launched immediately after the flood, this phase primarily focused on distribution of NFI kits including tarpaulins, water filters and purifiers. At the same time, donors were approached to secure funds for the construction of temporary shelter units.

PHASE 2 (DEMO SHELTERS). As funds were secured, 56 demonstration shelters were built in several affected communities to refine and agree designs, bill of quantities and construction procedures. Bamboo was chosen as the main material for the frame, as it was locally available, culturally appropriate and cost-effective, as well as relatively easy and fast to assemble.

PHASE 3 (SHELTER CONSTRUCTION AND TRAINING). An additional 1,362 emergency shelters were built in this phase. The construction was accompanied by distribution of tools to selected families and training of the wider community on bamboo construction techniques.

COORDINATION

The project was undertaken in close coordination with the government, particularly with the FRRP. Weekly meetings to review project steps were conducted with government officials, who also participated in the supervision, monitoring and evaluation of the project. Meetings were also conducted with local NGO partners and community representatives, to quickly address project implementation issues.

IMPLEMENTING PARTNERS

As international organizations cannot directly conduct activities in Nepal by law, this project was implemented through existing local partners and other actors with extensive experience in working in the target communities. Partners were responsible to implement specific project activities, such as coordinating with local government, distributing NFI kits, mobilizing the community and building the emergency shelter units.

The project provided emergency shelters for flood-affected populations using local materials, and was implemented by local organizations who trained community members on bamboo construction techniques.

SHELTER DESIGN & TECHNICAL SOLUTIONS

The main frame of the shelter was made of untreated bamboo. Treatment was not used due to the temporary nature of the shelters and the decision to prioritize the scale and timeliness of the response. The walls were made of tarpaulins that could be later replaced, while the roofing was made of corrugated galvanized iron (CGI) sheets.

Some key features of the shelter were as follows:

- **Raised floor** to reduce the effect of seasonal floods. However, some families claimed this was not needed when shelters were built in areas not prone to flooding. The design was adapted following this recommendation.
- **The posts were wrapped** in plastic sheets for the portion underground, to protect them from damp and water and increase the shelter lifespan.
- **Bamboo was used to tie down the roofing sheets** with lashing connections and not nailed down onto the rafters; this way, the CGI sheets were not perforated and could be reused to build permanent houses in the future.
- **The central CGI sheets were raised** by an extra layer of purlins to allow the heat to escape from the gap created at the top. The high ceiling was also aimed at providing better ventilation.
- **Bamboo bracings** were used to strengthen the frame by making it a single structural unit.
- **Connections** were done with lashings.
- **Anchorage** was used to increase stability.

COMMUNITY ENGAGEMENT

Community leaders participated in the selection process and volunteer mobilization. They lobbied with government officials to leverage the resources to provide permanent housing following this project, especially for the landless and other vulnerable groups.

Family members – including women – participated through various tasks, including distributing NFI kits, safeguarding materials and providing labour to build the emergency shelters.

The shelter design was developed through a workshop with 48 households who were supported in the first phase of the project. After the consultation, the organization's technical team prepared the designs and provided the communities with a step-by-step manual with technical and 3D drawings. Although this process was largely successful, some elements of the design (e.g. windows and one-sloped roof) were not preferred by a few families and more flexibility could have been given to adapt to the intended design (e.g. selecting alternative walling materials).

Communities were also mobilized to make improvements to the shelters provided, such as improved mud floor, mud plastering in walls, and substitution of plastic sheeting by bamboo mats.

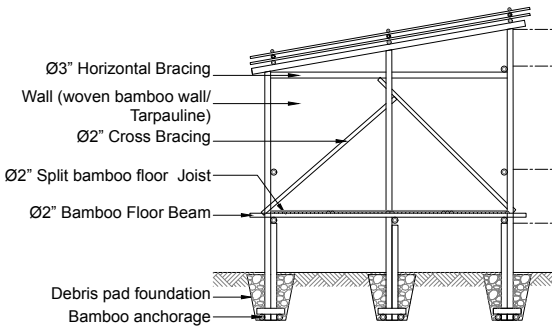
TARGETING

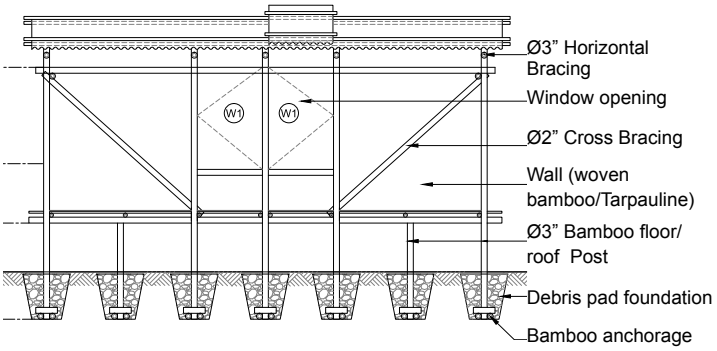
All decisions regarding project locations and beneficiary selection were taken in close consultation with government officials, local leaders, implementing partners and community members, in order to guarantee transparency and validation of the process.

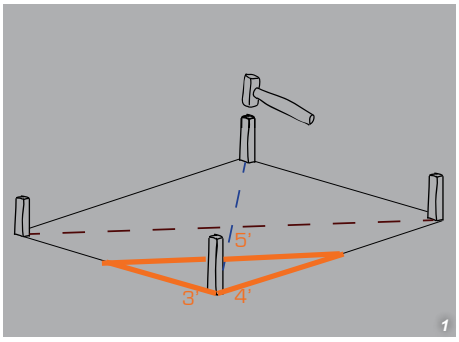
Families had to be enlisted as flood-affected by the government, have a fully destroyed house and have not received any previous shelter support. As general vulnerability criteria, landless, poor and vulnerable families (e.g. women heads of household, disabled, orphans) were prioritized for this project. Families were selected from diverse communities in terms of caste and ethnicity, including minorities.

The selection process was conducted in three steps. The list of potential beneficiaries was obtained from the local government, then verified through field visits and, finally, validated through meetings with local stakeholders.

Shelters included mitigation features, such as raised floors, bracing and secure connections, and allowed for some adaptations, such as the upgrade of floors and walls.







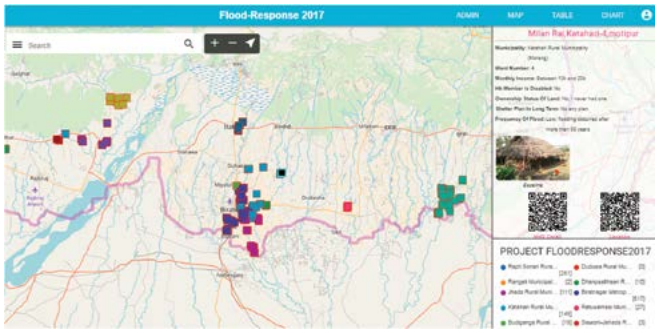
Left (1): Draw lines for foundation according to the dimensions and place the stakes in the ground. Check whether the stakes are at right angle using the 3-4-5 method. Centre and Right (2-3): Dig 21 post holes of 2' x 2' in the ground. (Photo credits: Habitat Nepal).

Left (4-5): Cut the required length of floor and roof posts with saw, tie them together and wrap them with polythene sheet. Cut the upper ends of the posts with a fish-mouth cut. Right (6-7): Place and tie floor beams to the bamboo floor post with rope. Place the next set of beams on top, perpendicular to the beam below. Place split bamboo joists above the floor beams. (Photo credits: Habitat Nepal).

Left (8-9): Tie bamboo posts to the anchorage and place it inside the post hole. Then fill the hole with debris and tamp using wooden tamper. Right (10): Tie diagonal bracings of required dimensions to the roof post. Then tie the horizontal bracing at lintel level. Place the roof beams on top of the bamboo post and tie with rope. Place the cross bracings at roof level and then tie to the beams with rope. Right (11): Place bamboo purlins on top of the roof beam and tie with rope. Arrange 8 CGI sheets over them leaving one sheet width vacant in the middile. Tie 2 layers of purlins together to hold the CGI sheets in place. Place the remaining CGI sheet over the void and place 3' length purlins on top of each purlins below to hold the sheet down. This provides air movement inside the shelter through the roof. (Photo credits: Habitat Nepal).

MOBILE MONITORING TOOL

A web- and mobile-based Monitoring and Evaluation tool was used from assessments and baselines to progress reports. It created interactive maps and charts and allowed to collect an open-source database of all supported households, for future use by the organization or other stakeholders as needed.



MAIN CHALLENGES

PROCUREMENT DELAYS. Due to the large quantity of bamboo needed at short notice, the identification of vendors able to deliver was lengthy. To address this challenge, bamboo components were directly harvested from nearby plantations, in consultation with vendors and certified bamboo cultivators. However, for the western region, the bamboo had to be transferred from the east to maintain uniformity in material price – as per requirements from the donor – and because bamboo supplies were not sufficient in the west. Additionally, after the disaster the prices of construction materials spiked, so the organization negotiated with suppliers on bulk quantities to keep prices down.

LAND ISSUES. Many of the affected families residing along river banks did not have proof of ownership. To include them in the project, the organization only requested the tenure status to be validated by the community leadership and local authorities, as the shelter solution was temporary. Around 75 per cent of the shelters were built on government or community land. After the floods, the government developed plans to provide safe land and housing for families living in disaster-prone areas, including river banks. At the time of writing, in some communities in the east 220 families had already received an official letter from the local government to access safer plots of land.

POORER FAMILIES WERE DISADVANTAGED. Extremely poor families – who depended on daily wages – could not attend to their livelihood activities, because household members were involved in the construction and other project activities. To mitigate this negative effect, guidance was given to help families access food distributed by the government and other organizations.

EXTENDED LIFESPAN OF THE SHELTERS

The minimum lifespan for the shelters was estimated at six months, but it could be prolonged with regular maintenance, repairs and protection measures from the elements. Early observations after the project was finished showed that beneficiaries were already upgrading the original shelters, for example by substituting worn plastic sheeting on walls with bamboo mats and plastering, improving floor finishes and installing more secure windows and doors. This was mainly because bamboo was a locally known material and households and local masons had been involved in the construction process. A year after the completion of the project, families were still living in the shelters and it was expected that the structures could last for at least another year or two. It was also anticipated that, depending on the longer-term solutions for each household, the temporary shelters would continue to be used, either by recycling the materials or giving alternative uses to the shelters.

LINKS TO RECOVERY

The organization took steps to support flood-affected families in their path to recovery. It hosted an official handover event which drew top government officials, aiming at making the government accountable toward landless and vulnerable families. It advocated for these families to be included in reconstruction programmes from the government. Community leaders also played a vital role in this regard, throughout and beyond the emergency project. As an outcome, both the central and municipal governments allocated funds for 2019 for housing programmes for landless flood-affected families, and the latter also allocated land. Additionally, households who received the emergency shelters were considered for a joint permanent housing project by the Biratnagar municipality and the organization.

WIDER IMPACTS

The emergency shelter project avoided further displacement of the targeted households. This made it easier for other organizations to initiate support projects in the affected communities, such as food distribution and health and sanitation programmes. For example, some communities were supported with toilets and public water taps after the construction of the shelters.

In addition, the use of bamboo benefited local cultivators and businesses, reinforcing the local building culture and the use of an environmental sustainable material. The skills provided to the communities in terms of bamboo construction techniques allowed the families to perform repairs, maintenance and expansions of the emergency shelters and beyond, and could increase future livelihood opportunities.

Materials and designs were culturally appropriate and designed in consultation with the affected households. After the project ended, families were already upgrading the shelters and it was expected that these could last for up to two more years, if properly maintained.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

+ Mitigation by design: the shelters were elevated on stilts to mitigate flood risk; connections throughout the structure were reinforced with nylon elements that work well with bamboo; the bamboo post footing was protected from water to increase its lifespan.

+ Cultural appropriateness: construction materials were locally appropriate, and the shelter design was contextualized thanks to thorough consultation with the affected families.

+ Innovation: the mobile-based monitoring and evaluation tool was extremely useful during the project and created an interactive, open-source database available to the organization and partners for future projects.

+ Community participation: affected community members, including women, contributed to project activities, from selection to implementation to advocacy. This was successfully complemented by technical and in-kind inputs, and enhanced by the involvement of local government and implementing NGO partners.

+ Volunteer and community mobilization for improvements of original shelter solutions provided.

Affected families were actively involved in project activities and, for example, contributed to the distributions of materials in their communities.

WEAKNESSES

- Relatively low flexibility of the designs. Some elements of the design were not always preferred and the use of alternative wall materials was not sufficiently discussed. This was mainly due to the differing backgrounds and preferences of targeted households. However, issues only occurred in a few cases.

- Limited water and sanitation solutions for shelters built in remote locations.

- Problems with the bamboo supply: transportation costs were excessive for some locations in the west, and delays were faced in material procurement, as normal procedures were followed, resulting in untimely delivery of bamboo and unavailability of vendors.

MATERIALS LIST

Items	Unit	Qty	Unit cost (USD)	Tot cost (USD)
Shelter Materials				
Bamboo	pcs	70	1.67	116.90
CGI sheets	pcs	9	11.11	99.99
Lashing rope	kg	4	1.97	7.88
Polythene sheets	kg	1	3.25	3.25
Tarpaulin sheets	sq ft	566	0.10	56.60
Tools (to be used by 2 families)				
Hammer	pcs	1	2.46	2.46
Saw	pcs	2	4.92	9.84
Measuring tape	pcs	1	2.46	2.46
Marker pens	pcs	2	0.59	1.18
Shovel	pcs	2	2.95	5.90
Pick	pcs	2	3.44	6.88
Tamper	pcs	1	7.87	7.87
Cotton thread	roll	5	0.20	1.00
Khukuri (knife)	pcs	1	5.90	5.90
Lime (powder)	bag	1	0.49	0.49
Labour				
Skilled mason			7.87	15.74

LESSONS LEARNED

- **Use of alternative materials according to the context and household preferences:** bamboo is a renewable resource and is culturally appropriate as construction material in the targeted regions. However, cultural preferences on materials and shelter design should be better understood and **greater flexibility should be allowed** for households to express their feelings during consultation and make modifications.
- **A streamlined procurement process should be in place** to prevent delays in the order and awarding phases, ensure availability of the quoted items and mitigate price increases. A systematic distribution flow should also be identified prior to implementation, to ensure smooth and fast release of materials.
- **Local government's involvement** in relief programmes helps making distribution processes smoother and reducing implementation challenges, particularly those related to beneficiary selection.
- **Secure tenure and permanent shelter solutions are directly related in Nepal.** While it is challenging to work with landless populations, emergency shelter projects should explore modalities to support people regardless of tenure status. Organizations can advocate for households' tenure security, which is directly linked with recovery.