

CASE STUDY

NEPAL 2016–2017 / EARTHQUAKE

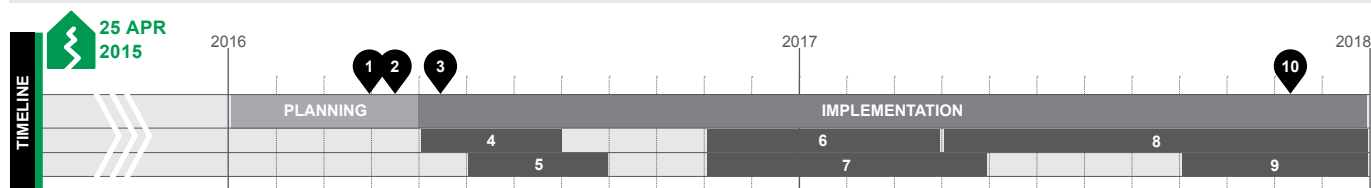
KEYWORDS: Reconstruction grants, Technical assistance, Community engagement

CRISIS	Nepal Earthquake, 25 April 2015 (and major aftershock on 12 May 2015)	<p><i>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.</i></p>
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	SHELTER SIZE 33m² SHELTER DENSITY 6.6m² per person
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	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
PROJECT COST	USD 4,200 per shelter (incl. operational costs) USD 5,054 per household (incl. training costs)	

* 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.

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.

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.

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 28–65m² 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 compromising 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.



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.