Building Back Safer

Capacity Development for Safe Construction



January 2020

Swiss Red Cross



Picture cover page:
Sakuntala Thami (30) is helping with construction work in the village of Suspa, Dolakha district, where the SRC supported residents and workers with trainings and technical assistance to rebuild earthquake-proof houses.

The residents of Lapilang village in Dolakha district receive information from Red Cross volunteers on earthquake resistant reconstruction of houses.

Experience

Reconstruction of private houses and public infrastructure is a core competence of the Swiss Red Cross (SRC).

In its post-disaster reconstruction programmes, SRC consistently applies a build-back-safer approach.

In the past years, SRC implemented projects with explicit build-back-safer components in Haiti, Nepal, the Philippines, Pakistan, and Vietnam.

In these programmes, SRC operationalized the build-back-safer approach through labour trainings, knowledge transfer and awareness-raising in safe building techniques.

Strategy

The build-back-safer approach contributes to disaster risk reduction (DRR). DRR is a key component in the disaster risk management cycle throughout early recovery, rehabilitation/reconstruction and long-term development.

Reinforcement of institutional capacities and preparedness (SRC's own and those of its partners) are also crucial parts of the cycle.

Strengthening resilience is the ultimate goal of all DRR activities. SRC's build-back-safer projects strengthen resilience by reducing exposure and vulnerabilities to hazards and strengthening capacities in the shelter/building sector.

Response to needs

SRC builds on existing structures, systems, customs and capacities.

Assessments in the shelter sector analyse exposure and vulnerability to hazards, national building standards, gaps in adherence to these standards, the local building techniques in the project area, the division of labour in construction, and the materials used along with their quality and availability.

As a basis, SRC's assessments also evaluate the available human capacities (formal and informal labour), their skills and knowledge, needs of especially vulnerable people, as well as prevalent customs, norms and traditions.

Approach

Trainings and knowledge transfer for safer reconstruction are considered at all stages from the emergency phase to permanent reconstruction.

When working with community members on safer reconstruction, SRC draws on the Participatory Approach for Safe Shelter Awareness (PASSA) of the International Federation of Red Cross and Red Crescent Societies.

While reconstruction projects use local materials and workers whenever possible to contribute to the local economy, training components aim to strengthen the position of trained individual construction workers on the local job market.

Alliances

The national Red Cross/ Red Crescent Society is the first point of reference for SRC's partnerships. Based on decentralized branch structure, partners have strong ties with the communities. This provides an ideal condition for community-based or owner-driven reconstruction along with mobilization and training for building back safer.

SRC's trainings are in line with building policies and standards. Where possible, they draw on local training curricula and providers, and ideally provide trainees with recognized certificates.

SRC also occasionally partners with research institutions in the building and training sector.

Capacity Building

SRC's training and awareness-raising projects for safer (re-)construction build capacities on various levels, creating local, sustainable resources.

Communities and house owners are empowered to identify and mitigate their own construction-related risks. Workers obtain skills and knowledge to build safer.

Projects also address quality and availability of labour and of material as well as operation and maintenance issues.

The local authorities take part in planning and coordination, and SRC's local partners are strengthened throughout the projects.

Best practices

In Nepal and Haiti, the participatory approach for safe shelter awareness (PASSA) for communities, along with trainings for construction workers, linked the immediate response with permanent reconstruction through self-help approaches. In the Philippines, training for craftsmen were successfully implemented in partnership with two professional organisations; TESDA for training and certification, and Build Change for technical support and expertise. In Pakistan, the training was linked to the community-based cash approach, integrating training sessions into different construction stages and cash instalments.

Challenges

While disaster-affected people often start their self-recovery process immediately after the event, the formulation of policies can take months.

On the one hand, it can be a struggle for agencies to keep up with the communities' pace (recruitment of staff, for instance), while on the other hand, it is important to work in line with policies. Close coordination with authorities and sectorial clusters is key for this purpose.

Also, when implementing build-back-safer trainings and awareness-raising, it is crucial to clearly formulate the financial and material support given by the project to avoid raising false expectations.



A woman collecting bricks from the ruins of her house in Charikot (Dolakha district), which was destroyed in a devastating earthquake on 10th May 2015, the second of two severe earthquakes in Nepal within only 17 days.

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Information banner that explains how to restore safer shelter after Hurricane Matthew, organized by the Haitian Red Cross, Swiss Red Cross, and a Benelux Relief Team in Corail in 2016.

Training as Key Component in Self-Recovery after the Hurricane in Haiti (2016–2018)

On 4th of October 2016, hurricane Matthew with winds up to 250km/h battered southwest Haiti, causing widespread damage in the impoverished nation and claiming hundreds of lives. The Haitian government reported 546 people dead and 438 injured. Nationwide, the hurricane nearly or completely destroyed around 200,000 homes. The UN estimated that 2.1 million persons were affected and 1.4 million in need of humanitarian assistance. The consequent flooding and landslides caused by torrential rains have exacerbated the situation, provoking major losses in crops and property. The need for food, drinkable water, shelter, and health services was immense. The Swiss Red Cross (SRC) decided to focus its relief support on the distribution of tarpaulins, provision of seeds, and chlorination of water points. In early recovery and recovery, the SRC continued its assistance in the priority areas of shelter, economic support, and Water Sanitation & Hygiene (WASH) in remote areas of Corail.

In the shelter sector, the SRC emphasized a self-recovery approach in reconstruction and rehabilitation of traditional houses composed of a wooden structure with stone walls. 640 families in three communities of Corail were supported to either reinforce or reconstruct their traditional homes and latrines. The approach included training for local craftsmen, distribution of conditional cash grants, and material support. For the repair and the self-reconstruction efforts, the SRC followed the

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Techniques Constructives Locales Améliorées (TCLA) formulated by the IFRC that had already been successfully implemented during hurricane Sandy in 2012. With the TCLA approach, local know-how in design and construction techniques was validated, regional markets and materials favored, and local competences increased.

Training in repairs and self-reconstruction represented a key component within the self-recovery approach. Thus, the SRC called in two specialized organizations: CRAterre, a French NGO, and Atprocom, a national agency. At the start, six local technicians participated in a training of trainers (ToTs) which was jointly realized with the IFRC and other RC/RC partners and implemented by CRAterre and Atprocom. The ToTs covered classroom lessons, practical exercises and demonstrations. These six technicians then worked in pairs and replicated their knowledge and experience by training 68 skilled local masons and carpenters from the three project communities, who then engaged 5 helpers each. The training was supervised by the SRC technical team, lasted six to eight weeks, and included aspects of improved disaster resistant building and repair techniques of traditional houses and latrines, the construction of 6 model houses for practical and demonstration purposes as well as the use of local materials and building techniques. Small elements served as additional illustrative material. At the end of the training, the trainees received a training manual and a certificate, the latter representing a valuable asset for working with INGOs. The trained local craftsmen subsequently acted as foremen on the construction sites, supervising the repair and self-reconstruction works at affected people's homes.

Furthermore, several half-day community orientations on TCLA were conducted at the model houses for all beneficiary households.



The house of the Marseille family in Corail was heavily damaged by Hurricane Matthew on 4th October 2016. With the support of the Swiss Red Cross, the family could repair their home so that it is now more stable than before the disaster.
The image shows (from left to right): Father Romane Marseille (39), son Mydens (7), mother Nadia Marseille (34), and daughter Rodna (18).

Due to the self-recovery approach chosen, it was a challenge to rate and measure the degree of disaster-resistance of the repaired and reconstructed homes. However, the quality of the houses was certainly strengthened and houses supported by SRC were easily distinguishable from other houses due to visible technical improvements.

In the Corail programme, the SRC followed an integrated approach, connecting interventions in shelter, WASH and economic support. The participatory approach towards the communities fostered the strengthening of local structures and decision-making.

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The village of Paslang near Gorkha has been almost completely destroyed in Nepal's devastating earthquakes of April and May 2015.

A Snowball Training System after the Earthquake in Nepal (2015–2017)

On 25 April 2015, a 7.8 magnitude earthquake struck Nepal's Gorkha district. A 7.3 magnitude aftershock hit 17 days later, this time with its epicentre in Dolakha district. More than 600,000 houses were reported as destroyed and an additional 285,000 houses damaged across the 14 most affected districts of Nepal.

In parallel to the distributions of temporary shelter kits, tools, Non-Food Items (NFIs), and cash grants, a training project transferring knowledge and skills in safe construction was planned for Dolakha, Ramechhap and Sindhuli districts, aiming to support the labour and communities to build back safer. It started out with an extensive assessment of the vernacular (traditional) architecture in each district, together with the French research centre CRAterre. The training curricula, modalities and proposed safe building technologies were then elaborated based on the assessment findings, taking into account locally existing materials, resources, knowledge and capacities, as well as traditional roles and responsibilities, along with the National Building Code and shelter cluster standards.

The labour training made use of a snowball system with Training of Trainers (ToTs) as multipliers: first, 60 lead trainers from 20 different Village Development Comittees (VDCs) were trained on district level. These lead trainers subsequently went back to their VDCs to train

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masons, carpenters and community mobilizers from each of the 9 wards (villages) contained in their VDCs. A demo-wall was constructed in each ward to illustrate the key messages of safe building techniques. At the end of each course, trainees received a set of safety items and tools. On the third level, these trainees again transmitted their newly gained knowledge during awareness raising sessions in their home wards by adjusting the training content to the general public and to informally skilled labourers. As practical on-the-job-training and as illustration of the application of the safe construction technologies for the general public, the mason and carpenter trainees also constructed one demo-house in each of the 20 project VDCs.

Entering the recovery phase, authorities and clusters promoted an owner-driven reconstruction approach with Government cash grants, in which NGOs took over the role of providing training and technical assistance. The Swiss Red Cross (SRC)/Nepal Red Cross Society (NRCS) program was well prepared for this approach, given that hundreds of trained workers were available for the house owners to engage. Thus, the SRC/NRCS complemented the training by using the demo-houses in Dolakha district as field offices staffed with engineers and social mobilizers, where house owners could ask for technical advice or request the project staff to visit their construction sites and provide technical support for safer reconstruction on the spot. Increasingly house owners also directly consulted trained workers when reconstructing their houses.

The owner-driven housing reconstruction approach consisted of the three components technical assistance, cash instalments, and quality inspections. For a successful implementation, it was essential to timely harmonize these three components and to closely coordinate between the various actors involved – a challenging endeavour in Dolakha, as the inspections and the cash instalments were not under the responsibility and control of SRC/NRCS. Yet the trainees and the affected population benefited from the safe construction trainings and awareness sessions regardless of who financed and inspected their homes.



Sakuntala Thami (30) assists in the reconstruction process in Suspa village in Dolakha district, where the Swiss Red Cross supports workers and residents to rebuild houses in an earthquake resistant manner.

Through the snowball training system, the project reached 840 masons and carpenters as well as around 6,000 community members in the 3 districts within 6 months. During the on-the-job-training, 20 demo-houses were built, later on used as field offices for technical project staff, and 180 demo-walls illustrated the key elements of safe construction.

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After the devastating floods of 2010 and 2011, the Swiss Red Cross supported the Pakistan Red Crescent in reconstruction as well as disaster preparedness projects in Manoor Valley near the city of Mansehra, located in the North of Pakistan in Khyber Pakhtunkhwa province. Among other infrastructure, paths and roads were rebuilt.

Construction Training after Floods in Rural Pakistan (2011–2013)

In July 2010, the worst floods in 80 years caused a humanitarian crisis of enormous proportions in Pakistan. An estimated 20 million people were affected and more than 4 million were left without shelter. The Swiss Red Cross (SRC) started providing emergency relief items immediately after the onset of the floods. Later, an Emergency Response Team (ERT) was deployed and the SRC subsequently decided to provide food assistance, health care support, and support to establish camps around Hyderabad for internally displaced families.

At the end of January 2011, families originating from the district of Dadu, province of Sindh, started to return to their homes only to discover that their houses which are traditionally built from mud, were either washed away or had been severely damaged by the floods. That was when the SRC together with its local partner, the Pakistan Red Crescent Society (PRCS), decided to implement an owner-driven reconstruction project with a community-based cash approach in three villages in the Dadu district.

Trainings constituted a crucial part of the reconstruction project. During community meetings and through training on the ground, the know-how and capacities in earthquake and flood resistant construction techniques of local craftsmen, skilled workers and beneficiary families were increased and the selection of appropriate

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construction materials was discussed. The trainings were conducted by SRC construction technicians and took place in five specific steps, always linked with the respective cash instalments and the following reconstruction stage. Technical guidelines and manuals served as detailed work instructions for local craftsmen and beneficiaries.

The shortage of construction materials over certain periods caused considerable delays in this project, as the period following the floods saw large-scale reconstruction programs ongoing over very large areas of the country.

With the support and expertise of the SRC technical team on site, the beneficiary families managed to purchase construction materials themselves and either built with their own manpower or had the possibility to hire local trained craftsmen.

At the end of the project, a total of 709 families, 9 masons and 54 local craftsmen were trained in earthquake and flood resistant construction techniques.

Living conditions were improved by the rebuilding of permanent houses, including simple pit latrines, and the rehabilitation of village pumps. The house design allowed for expansion and modification according to taste and capacities of the beneficiary families.

The houses were in line with the principle of building back safer, and mud houses have been replaced by brick structures. These are not only more resilient to flooding but also fulfil a disaster risk reducing function because belongings, people and animals can be kept safe on roofs when areas are flooded.



Newly reconstructed school in Manoor Valley in Pakistan.

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The Red Cross explains residents of Tara Island in the Philippines how to rebuild their homes that were damaged by Typhoon Haiyan more safely.

Successful Partnerships for the Transfer of Technical Expertise after the Typhoon in the Philippines (2013–2018)

Typhoon Haiyan, one of the most powerful storms ever recorded, made landfall on 8th November 2013, causing loss of lives, injuries and extensive destruction of housing, livelihoods and infrastructure. More than 9 million individuals across 9,300 communities were affected. Shortly after the typhoon hit, Swiss Red Cross (SRC) supported the Philippine Red Cross's (PRC) efforts within the Red Cross Movement's approach in providing humanitarian assistance.

In February 2014, an integrated Red Cross Recovery Framework for the Haiyan Operation was produced. It envisaged the rehabilitation in the affected communities applying a holistic approach, including interventions in the shelter, Water, Sanitation and Hygiene (WASH), and livelihood sectors, with integrated Disaster Risk Reduction (DRR) components.

One core aspect of the project was the training and engagement of local carpenters in the construction of expandable and upgradable progressive core shelters and the repair of partially damaged houses. The build-back-safer approach was respected right from the beginning, by integrating typhoon resistant construction

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techniques in the 1,396 core shelters as well as measures for improving still existent house structures in 1,188 repairs.

For training local skilled labourers and transferring expertise to the technicians involved, SRC and PRC collaborated with two different partners: The Technical Education and Skills Development Authority (TESDA), a nationally recognized agency of the government of the Philippines. TESDA is responsible for managing and supervising technical education and skills development in the country, and provided technical training courses for the local carpenters. The TESDA training covered theory and practice, including classroom sessions on principles of safe settlements and disaster resistant building techniques as well as the construction of model shelters and model latrines. Having successfully passed the course, trainees received a set of construction tools as well as safety items and then served as lead carpenters in the project. The build back safer key messages and other safe shelter construction techniques and measures to increase storm safety of shelters were integral components and core learning objectives of the training. Materials written in the local language was handed out to trainees in the form of a laminated 10-page booklet.

Additionally, SRC partnered with the US-based organisation Build Change in order to refine and improve its building back safer approach and technical assistance. The Build Change team supported the project staff, volunteers and beneficiaries with technical advice, on-the-job training and useful hands-on technical guidelines. Thus, a fruitful dialogue on measures for building back safer was launched within PRC and also within the communities.

Awareness-raising sessions in safe reconstruction in the communities and among staff members were important as well. Project staff, PRC and community volunteers, local carpenters and helpers, core shelter and repair beneficiaries, and Barangay Council members attended such sessions.



The picture shows a family in Boroc on Ormoc Island: Luna T. Malinao, 23, her husband Luarencio N. Tolero, 30, and their children Analyn, Elsi and Laurence lost their house in Typhoon Haiyan and received support from the Swiss Red Cross and the Philippines Red Cross to rebuild their home.

At times when the project struggled with supplies of certain materials, ongoing constructions were not keeping all trained carpenters busy, despite team compositions being adapted. Only the patient carpenters remained active throughout the entire project duration. This was an ongoing challenge, but the project team was able to cope by hiring trained carpenters from a previous project phase.

Within the framework of the programme, 216 local carpenters and builders successfully passed the course and were awarded the TESDA certificate, and 2,637 beneficiary households attended awareness raising sessions.

For the carpenters, the TESDA certificate was especially valuable. Many of them have not completed a formal apprenticeship, and this was often the first time they obtained formal recognition of their skills. The certification also increased their chances to find employment on the job market beyond their engagement in the project.

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