



# **DISASTER RESILIENT SHELTER REPAIR/CONSTRUCTION**



Introduction

In August 2018, Kerala received heavier than usual rain leading to severe floods across the state and landslides in the mountainous districts of Idukki and Wayanad. In addition, out of 54 dams in Kerala, heavy rains caused 35 dams to release excess water, adding to the increased water levels.

Agricultural lands were destroyed, crops were submerged underwater, and huge economic losses were incurred by the farmers. The floods also resulted in an increase in food prices, making it difficult for the poor to secure even one meal a day. The impact on animal husbandry was equally severe. CARE India responded to the destruction and loss caused by the flooding and landslides, in Idukki and Wayanad, promptly and in a concerted manner.

Approach

CARE responded in 17 panchayats and 174 villages in Wayanad and Idukki were selected as the areas of intervention because they were amongst the worst-affected districts.

As per the organisation’s mission and humanitarian mandate, CARE India focussed on helping single women-headed households, households with pregnant and lactating mothers, persons with disabilities, sole survivors of families, and people from socially excluded tribes and Dalit communities.



Intervention

After completing the initial phase of distributing relief kits, the next stage involved recovery activities. With the support of our on-ground NGO partners, ESAF in Idukki and Shreyas in Wayanad, activities like shelter repair, well cleaning and repair, awareness building meetings on WASH, and community centre repairs were undertaken. Distribution of bleaching powder, capacity building and awareness generation were also an integral part of the overall project plan. Accordingly, 60 women were trained in well repairs.



The Challenge

Flood waters led to water logging which caused damage to soil structure and foundation. Moreover, walls cracked, and water seeped in resulting in increased moisture content which is greatly harmful to the structure.

Typically, several types of cracks occur in masonry walls in a building which can be minor and insignificant, some requiring expensive repairs, and in some extreme cases the only solution is total demolition of the wall. The causes of these cracks in masonry walls can be attributed to the movement of building causing settlement and subsidence. Floor levels of residential buildings are higher than the natural ground level and most of them crack because of landslides. Roof and windows of the houses were damaged because of heavy wind and landslides.

There are various technical standards which apply to disaster response and post-disaster shelter construction in India, including the National Disaster Management Authority (NDMA) guidelines on the management of earthquakes, floods and cyclones, the Indian National Building Code, building bye-laws and the SPHERE Standards.

The NDMA guidelines highlight the importance of, and include specifications for hazard-resistant construction, and CARE India’s Disaster Preparedness Strategy includes the approach of ‘Building Back Safer’ with the aim to use post-disaster recovery programming to increase resilience of buildings and communities to future hazards.

Shelter Repair

Within the Kerala Flood Response and Recovery initiative, repair of 171 individual shelters and 84 community centres was undertaken. The purpose was to repair shelters and incorporate disaster risk reduction features as appropriate to repair work needed in the individual shelter/ community centres like wall cracks, damage to foundation structures, corner portion of the shelters, pillars, concrete slabs and concrete roofs.

The masons involved in shelter repair work were also trained on disaster resilient construction - dos & don’ts as well as on maintenance work requirements.



Impact

The basic needs for safe shelter have been met for the most vulnerable people including socially excluded groups and persons with special needs in the villages where CARE India intervened.

The shelter repair work undertaken ensured that specific resilient features were incorporated in terms of quality, technical specification of construction materials, and its usage.

- Solid concrete bricks instead of hollow bricks for walls
- Quarry stone for foundation work
- M. Sand used for concreting work
- P. Sand used for plastering works
- Increased thickness of TMT bars for Reinforced cement concrete work
- Higher grade cement for masonry works
- Increased size of metal used for Plain Cement concrete (PCC) and Reinforced cement concrete (RCC) works
- Aluminium Roofing Sheet used for roofing instead of asbestos





## Good Practices

The implementation of this project brought forth some examples of the following good practices:

- There was flexibility in levels of assistance to give minimum assistance to large numbers and more intensive assistance to the most vulnerable which helped in achieving greater relevance and coverage
- Ensured representation in participation of the families, specifically of women members in the entire process of shelter repair

## Lessons Learned

The implementation of individual shelter and community centre repair project following the tenets of building disaster resilient structures yielded the following lessons:

- Adequately document initiatives for cross learning; and use communication tools and media to reach out and educate communities.
- Vernacular technologies need to be looked at since they are time tested, culturally suitable, environment friendly and cost effective. At the same time, it needs to be kept in mind that they may not be able to offer a desirable level of disaster resilience; particularly in the face of climate change and unprecedented risks.
- Engage and work through multi-stakeholder institutions including governments, civil society and the private sector to influence shelter policies and practices.
- Feedback and complaints mechanisms put in place for the project and communities allowed relatively easy access to information for Shreyas and ESAF who were CARE India's partner in the response, with relative ease. However, in what was a difficult project due to paucity of time, funding constraints and remote locations, the on-ground partners were not very responsive to such feedback.
- Shelter programmes should aim to meet a larger proportion of the need without compromising on the inclusion of key disaster risk reduction (DRR) features in houses.



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- Programmes involving construction of houses should pay much more attention to maintenance requirements and options for upgrading. Recipients should be given clear instructions on how to maintain each part of their homes, with anticipated durability (life to first maintenance) of all key parts and estimates of maintenance costs.
- Post-disaster shelter programmes which involve construction/ repair of houses (rather than emergency or makeshift shelters) with very tight deadlines for completion must budget for greater resources for community engagement in order to ensure sufficient accountability, and effective choice from disaster affected people.

## Replicability & Sustainability

Repair/construction of shelters can be made disaster resilient by identifying DRR features based on house typology, community participation and enhanced knowledge on maintenance of shelters.

Significant emphasis needs to be put on educating the local communities, involving them across all stages, training masons and construction workers and advocating with local governments.

**CARE** has been working in India for over 68 years, focusing on alleviating poverty and social exclusion. We do this through well-planned and comprehensive programmes in health, education, livelihoods and disaster preparedness and response. We also focus on generating and sharing knowledge with diverse stakeholders to influence sustainable impact at scale. Our overall goal is the empowerment of women and girls from poor and marginalised communities, leading to improvement in their lives and livelihoods. We are part of the CARE International Confederation working in over 90 countries for a world where all people live with dignity and security.

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