MALAWI

Constructing Homes by Adapting Traditional Building Resilient Strategy for living with Floods

HUMANITARIAN RESPONSE CASE STUDY 40

CRS
CATHOLIC RELIEF SERVICES

PROJECT DESCRIPTION

Country: Malawi

Project location: Zomba, Phalombe and Machinga districts

Disaster: Floods

Disaster date: January 2015

Project Duration: 8 months

Target Population: 1,090 families

Material cost per family (in USD): $552 (inclusive of training and dissemination)

Donor: CRS private funds

Partner: Cadecom (Caritas Malawi)

What did CRS do?

CRS assisted flood-affected families to repair and reconstruct their houses, allowing them to return home. This was done through the supply of tools, materials and technical training, which focused on construction methods for durable, resilient housing. A total of 1,090 families benefited from the emergency repair and reconstruction activities, with nine model homes built across affected communities for replication. The more vulnerable families—which made up 10% of the households served—benefited from Cash for Work grants. CRS also developed a curriculum of training for builders, which it delivered with local builders, the local Caritas partner Catholic Development Commission in Malawi (CADECOM), and local government staff, including 66 building supervisors. Three Trainings of Trainers with 30 builders and eight programme support staff helped to extend the program's impact by sharing existing and improved construction practices with the whole community. The approach drew upon and aimed to implement the learning from the 'Extending Impact' study published by CRS in 2015.

Background

In Malawi, around 80% of the population live in rural areas and are reliant on agriculture for income. Families have amongst the lowest annual income in the world, and growth has been stagnant. Throughout December 2014 and January 2015, Malawi experienced above-average rainfall—the Southern Region alone received 400% more rainfall than the long-term average. More than half of the country's 28 districts experienced significant flooding, with a state of emergency declared on 13 January 2015. Because of the prolonged, heavy, rainfall, the Shire River reached its highest level in 30 years, bursting it banks in many areas.

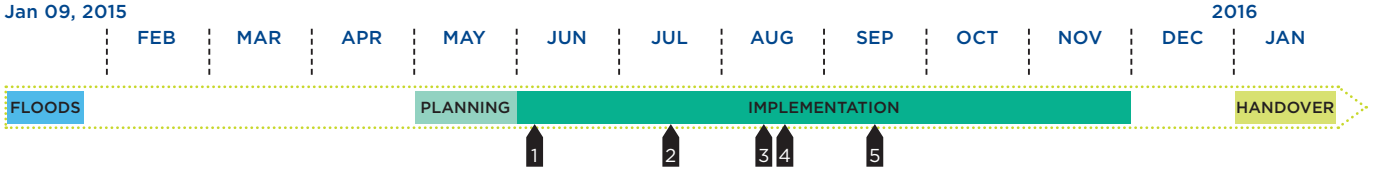
Problem Statement, including core questions

The floods affected 1,101,364 people[1] and led to displacement and widespread damage to housing in the affected areas. Early on, displacement sites were set up in public buildings (such as schools), where families received assistance from various actors. After the first few months, the focus shifted towards relocation: support for families to return home, and for the collective centres to return to their normal public functions. According to Shelter Cluster data, emergency shelter support consisted mainly of distributions of tents and tarpaulins, while assistance for home repair took the form of tool kits and/or shelter materials, coupled with trainings.

By early March, the government prioritized the closure of camps and the return of internally displaced populations (IDPs) to their homes. Families whose homes were fully damaged constructed simple emergency shelters or stayed with other families. The combination of driving rains, high winds and floods caused major damage to the one-story homes typical in the area. Constructed with traditional techniques and materials, such as sun-baked mud-bricks and thatched roofs, the homes disintegrated in the flooding and rainfall, and many of the roofs blew off in the wind. A correlation appeared between the level of damage and the construction techniques used: As shown by the Rapid Joint Assessment (March 2015), 47% of the homes built with fired bricks and CGI roofs suffered damage, compared with 71% of those built with sun-baked bricks, and 78% of wood and mud houses.

[1] *Source: Gov. of Malawi, Post Disaster Needs Assessment*

Project Timeline



1 **1 June 2015**: Initial discussions with community.

2 **1 July 2015**: Beneficiary selection, shelter workshops with local builders, development of shelter designs and training curriculum.

3 **August 2015**: Training roll-out.

4 **August 2015**: Distribution of tools and materials.

5 **Sep.-Nov. 2015**: Continued technical support for reconstruction.

CRS created model homes built according to traditional designs. Additionally, CRS/partner provided materials and cash-for-work grants for the 10% most vulnerable families.

Photo: Jamie Richardson / CRS

CRS carried out its emergency program in close collaboration with a local partner CADECOM and its 52 staff members and builders. While CADECOM undertook work at the community level, seven CRS staff provided logistical support, coordination and overall supervision. In an initial shelter and housing assessment, CRS found that several proposed housing designs were not affordable and, if adopted, would only support a limited number of families. Given the extent of flooding and the need to maximize the scale of the project with the available funds, CRS aimed to support families to rebuild their permanent homes using low-cost, locally available materials, supplemented with in-kind assistance.

CRS also provided technical training and support to identify and build upon existing best local building practices, and to share this information with the whole community. To do so, CRS and CADECOM held a series of workshops at central locations in the target communities. Two builders from each community in the area joined the learning workshop along with women and local government staff. The workshop included theory, discussion, site visits and practical exercises to identify best construction practices. At the end of each day, the learning was recorded and used to develop a training curriculum for other builders to share with their community. During the training, participants completed the construction of a core house, and received construction curriculum and supporting communication materials. The builders were then engaged to construct houses for the most vulnerable families in each of their communities, which also provided a further training opportunity and model for demonstration. Partner field staff and the builders also provided technical support to families during the construction.

Coordination

CRS worked closely with the Shelter Cluster to agree on the areas where CRS and its partners could work, and to ensure that learning and approach were shared with the Cluster and partners. The Cluster Coordinator, Steve Barker, attended training sessions and assisted in parts of the training programme. All the materials developed during the programme were shared with the Cluster. District government and traditional authorities were involved in identifying the communities, and communication was carried out through them. The communities were then actively involved in deciding the approach for the project.

Materials

CRS purchased all materials from within Malawi, largely through local markets. Timber supplies came from other districts where trees were available for construction use, so as not to damage the local environment. Materials such as burnt bricks, cement and corrugated iron sheet roofing were beyond the financial means of the poorest households. Therefore, for wider impact, CRS had to focus its assistance on building solutions that used affordable local materials, and that were replicable and achievable by the most vulnerable and at-risk households. While earth for brick-making and grass for thatching were locally available, other materials and tools had to be purchased. CRS provided cash assistance for families to purchase materials, but an overwhelming number of requests came in for in-kind support due to the distance and capacity of markets, the cost of transport, and the needs for families to focus on agricultural activities.

Housing Design and Techniques

Many traditional houses had survived with little or no damage, even after weeks of standing water, including those constructed using earth brick and render. This was because these houses had raised platforms that protected the core structure from erosion, and the veranda and large roof overhangs ensured that the gables and walls were protected. This design, developed over centuries, provided protection from the elements and, other than some minor repairs needed for the veranda and walls, allowed many families to return home once the flood water receded.

In this response, CRS provided technical solutions, including refinements to the traditional house design, so that the roof could continue to be supported by the veranda posts should the earth walls collapse. During the training workshops, soil selection was a key topic for making adobe bricks and for a correct brick-making processes. The reason why many buildings collapsed was due to the quality of the bricks and insufficient thickness of the walls. Therefore, the improved design increased the wall width (from 10 to 15cm) so they were more stable. It also ensured that internal walls had proper foundations and were connected to the outside walls, to further strengthen the structure.

Materials list

Materials	Quantity	Unit Cost (USD)	Total Cost (USD)
Ridge Poles	6 Pcs	2.30	13.79
Rafter Poles	30 Pcs	1.84	55.17
Wall Post Poles	10 Pcs	1.15	11.49
Battens	80 Pcs	0.46	36.78
Black Plastic Paper	1 Roll	13.79	13.79
Tiewire	1 Roll	4.60	4.60
3" Nails	2 Kg	2.30	4.60
Timber for Doors	1 Pcs	13.79	13.79
Timber for Windows	2 Pcs	4.60	9.20
Earth Bricks	2,400 Pcs	0.01	16.55
Thatch	1 Pcs	20.69	20.60

Disaster Risk Reduction

The communities are prone to heavy rains, high winds and flooding. Therefore, CRS embedded Disaster Risk Reduction throughout the programme, including the dissemination safer building information to educate, inform and provide examples. CRS also encouraged the planting of trees to protect against driving high winds and rain, and other strategies. Trees could also be used as building materials or for firewood. Communities received information on Safer Earth Building for floods and rains via a simple booklet and training curriculum for builders. The information included guidance on hazards, appropriate site selection and construction techniques to reduce flooding in houses, as well as appropriate protection and maintenance of houses and the environment.

Main Challenges

CRS needed to convince government personnel, politicians and other organizations that houses constructed from local materials could provide a sufficiently durable solution. This challenge was overcome mainly by building model houses that demonstrated this potential. Additionally, extra technical support was brought in during the implementation process, to strengthen the local partner's capacity.

Participant Selection

CRS targeted the three districts with the highest levels of damage. The local partner had a strong presence in these districts and good relationships with the communities. Priority was given to areas at greatest risk of future flooding according to flood risk data, where most houses were damaged or destroyed, and that had substantial loss of crops and livelihood and fewest alternative income opportunities. CRS and its local partner carried out family selection in partnership with the government District Offices and Traditional Authorities, and further verified in household visits. Priority was given to the most vulnerable families, based on criteria including single- and child-headed households, elderly, disabled, households affected by HIV, and low-income families with children under 5 years. The project aimed to advance gender equality and female empowerment against cultural discriminatory norms, involving women in masonry and building workshops.

Learning & Recommendations

- The challenges of material distribution and model house construction have the potential to dominate program focus and divert from the wider objective of supporting the whole community with information and support for safer building practices.
- CRS Malawi program needed to be better prepared to respond to future disasters, particularly with regards to technical support, number of staff, as well as capacity to conduct quality surveys during the beneficiary identification and selection processes.
- The emergency response should have covered aspects such as restarting livelihoods and food security to address the needs of families who were keen to return home earlier than others.

Strengths

+ Increased technical skills of local builders in construction of durable houses, thanks to workshops conducted at the community level.
+ The programme allowed for a more durable emergency response, using an affordable solution that would help withstand future flood risks, yet be accessible to the poorest and most vulnerable families.
+ Resources were used directly to support housing reconstruction---accelerating the overall recovery process—instead of providing emergency or transitional support first.
+ Model houses provided a reference for locals to replicate. Communities have started building houses using the safer building guiding principles based on the model houses, which therefore had a wider impact by providing a reference for other members of the community.
+ The programme recognized traditional skills and knowledge as an affordable, effective means of coping with heavy rains and floods, managing to convince the community that these traditional methods were a good alternative to more expensive materials, such as burnt bricks or concrete blocks.
+ Throughout the response, we were able to support the increased capacity of the local partner.

Weaknesses

– The programme did not cater for all income levels, as it only provided a low-cost solution and did not consider those who could have afforded more durable housing.
– Lack of experience in shelter projects of CRS's country programme and local partners meant that this had to be developed during implementation.
– Delays in beneficiary selection and verification process caused by poor planning slowed down the implementation.
– Lack of adequate market assessment resulting in logistical challenges in finding doors and windows, as no large supplier could be found.

Main Challenges

The programme explored and built upon existing local knowledge and practices, which enhanced the ownership and commitment of the residents and ensured that any recommendations were site-appropriate. The resources and information produced were shared with the Shelter Cluster, so that other actors could use them. Ultimately, this approach provided a practical, inexpensive and replicable model to respond to similar flood events, in this and other parts of the country.

Acknowledgements

Thanks to: CRS Malawi and the Cadecom team.
Jamie Richardson, Shelter Technical Advisor
This case study is dedicated to the memory of Malawi Cluster Coordinator Steve Barker who also worked with CRS on the program but sadly passed away in his last days in Malawi, 17th October 2015.

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