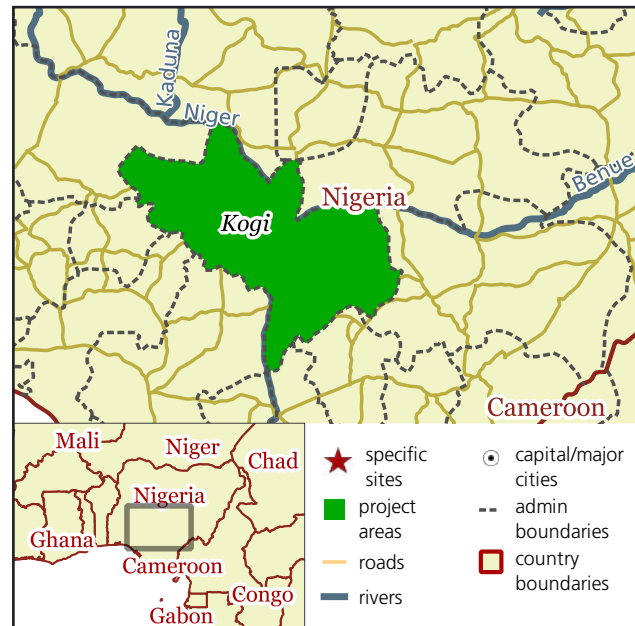


A.17 Nigeria – 2012 – Floods

Case study

Keywords: Household items; Core housing / progressive shelter; Training.

Emergency:	Floods, Nigeria.
Date:	August – November 2012.
Damage:	26,801 houses damaged.
People affected:	422,691 affected, 256,767 displaced.
Project location:	Kogi State (North Central Zone).
Beneficiaries:	100 households.
Outputs:	Support for 100 shelters.
Occupancy rate:	55% (beneficiaries have chosen to upgrade the houses with cement block walls and are waiting until after 2014 harvest to do so).
Shelter size:	18m ² .
Cost per shelter / household:	Cost of materials: US\$ 750. Labour cost: US\$ 270.



Emergency timeline:

[a] August 2012: flooding begins, lasting four months.

Project timeline (number of months):

[1-4] September 2012: Emergency NFI distribution.

[5] Recovery project implementation begins.

[6] Material procurement and construction begins in Mozum Ose and Ozahi.

[8] Material procurement and construction begins in Odogwu.

[10] June 2013: All materials distributed by agency, though construction not complete.

Project description:

The project aimed to support people affected by flooding, reducing their shelter and settlement vulnerabilities. Emergency shelter/NFI kits were distributed followed by a recovery project to support families with rebuilding their shelters using safer construction techniques.



Strengths

- ✓ Artisans, project supervisors, community members and volunteers were trained on housing improvements.
- ✓ Effective community participation in the beneficiary selection process resulted in good cooperation and acceptance of the project in one area.
- ✓ "Lessons learned" workshops were attended by national and local authorities who had been involved from the beginning. University experts suggested by the technical expertise partner were also involved.
- ✓ The improved shelter design has been replicated by other community members outside of the project.

Weaknesses

- ✗ Initial communication/language barriers were only overcome later in the project once local volunteers were recruited to help.
- ✗ In Odogwu, people were not used to being involved in projects employing a participatory approach. As a result, a lack of proper sensitisation led to lack of understanding of the project by the beneficiaries.
- ✗ Weekly payments, rather than payments for progress, meant poorly-performing construction supervisors were difficult to manage.
- ✗ A planned "consolidation phase" to reinforce national team implementation capacities was dropped after the quantitative results of the project were achieved. It is hoped that the implementing organisation will be able to replicate the project and adapt it to different contexts even without this formal phase.

Situation before the disaster

Many of those affected by the flooding were living in poor quality housing conditions. Houses were too close to the river bank. Many were simple mud houses, in bad condition and without concrete foundations. This meant that the houses had very little structural resistance against flooding.

Situation after the disaster

Most people affected by the disaster sought refuge in schools and abandoned buildings, with poor sanitation facilities, a lack of safe drinking water and inadequate space.

Beginning in August 2012, the floods spread until November and many people remained in temporary shelter until March 2013.

Kogi state was the worst-hit, due to the confluence of two major rivers in the state (Benue and Niger), both of which contained excess water released from dams in Cameroon and Nigeria.

Shelter strategy

There was no specific national strategy at the beginning of the crisis, though the Emergency Shelter and NFI Sector was later activated by the National Emergency Management Agency (NEMA) and the Shelter sector lead.

Project implementation

Following a state-wide assessment, three communities in Kogi state were selected for support: Mozum Ose (40 households), Ozahi (30 households) and Odogwu (30 households).

The project had three main components:

- NFI distribution.
- Construction of durable and flood resistant shelter.
- Training on safer and stronger construction techniques.

The project also had a WASH component conducted by a separate team, which included hygiene

promotion activities and the construction of latrines.

The NFI distribution was made up of shelter toolkits and two tarpaulins, blankets, mosquito nets, buckets, laundry soap, kitchen sets, sleeping mats and aqua tabs.

The recovery programme then began in January 2013, with a strong community participation method.

Following sensitisation visits to the communities (provided in their local languages through local volunteers for the organisation) and the completion of the selection of beneficiaries, safe plots were identified.

Some beneficiaries were relocated further away from the river banks and allocated new land to build better houses. The organisation worked with local government authorities to ensure that beneficiaries received a Customary Right of Occupancy.

Construction

The organisation provided support to build the structure and roof for the new houses, with beneficiaries required to complete the walls themselves.

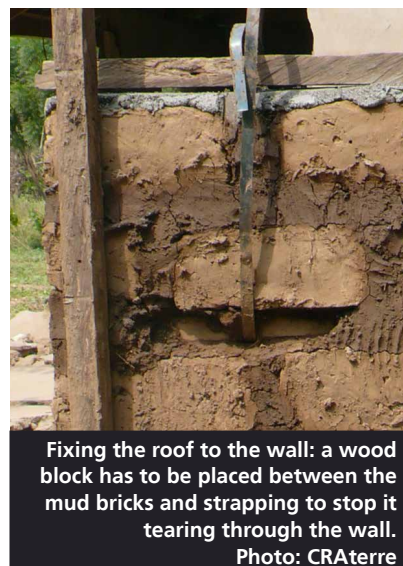
The community also provided the labour for excavating the foundations, and provided the water and sand required during the construction process.

Training

Trainings on Disaster Risk Reduction (DRR) building techniques were conducted in the communities, targeted at both community members and volunteers from local voluntary organisations.

The training was conducted by a team made up of the organisation's own shelter experts, the organisation's technical partner, and a university-based expert. The training focussed on improved roof-fixing methods, constructing a damp course, and bracing techniques.

The project maintained continuous communication with the communities in order to elicit ongoing feedback, and participation from communities in Mozum Ose and Ozahi was particularly good. Odogwu proved to be much more challenging, and despite continual explanation, the organisation was unable to get



Fixing the roof to the wall: a wood block has to be placed between the mud bricks and strapping to stop it tearing through the wall.
Photo: CRAterre

the community leaders to understand that it was not representing the government and was not planning to carry out all the building activities directly.

Only half of the shelters were completed during the project's lifetime. This is due to the fact that beneficiaries needed to know what their budget would be for their planned self-upgrading of their houses (beyond the materials supplied by the organisation) once they had sold their produce after the harvest. In the meantime, they remained in makeshift shelters.

Beneficiary selection

Beneficiary selection criteria was defined by the organisation as being households who met one or more of the following criteria:

- House completely destroyed or damaged by floods.
- Single-parent headed household.
- Child-headed households.
- Households with elderly, disabled, or chronically ill family members.
- Households with a monthly income below 20,000 naira (US\$ 120).

The beneficiary criteria were explained to the communities during the community meetings, and the

community leaders selected the households that met the criteria in open meetings.

A beneficiary verification was carried out in early January 2013, to verify that the households selected by the communities met the beneficiary criteria.

Coordination

The organisation worked with several government authorities, including the National Emergency Management Agency (NEMA), the State Emergency Management Agency (SEMA) and the Local Emergency Management Agency (LEMA).

To secure land rights, the organisation had to contribute to the costs of land titles in the Odogwu community.

Shelter design

The architectural design for the emergency recovery shelters was based on a local two-room house with a four-pitch roof consisting of building foundations, five-courses cement block walls, corrugated iron sheets, and cement floors.

Due to different traditional construction practices in the communities, two shelter designs were employed, with each one taking local construction knowledge and adding DRR improvements.

Mozum Ose and Ozahi communities

The permanent shelter design provided an 18m² covered living area, with walls to be completed by beneficiaries.

The foundations were made of rammed sand and cement (10%) while the first five courses of the walls were built with cement blocks, following the current vernacular style.

If beneficiaries completed the walls with mud bricks then they were shown how to add a Damp Proof Course (DPC) to protect the bricks. Some beneficiaries completed the walls with cement blocks, even though these were more expensive.

The roof was made of a wooden frame covered in corrugated iron sheets and supported by wooden

columns and beams. This made the roof independent from the walls.

To prevent column bases from rotting, they were placed on small concrete or sand columns. In this way, if mud wall bricks fail in a flood, the roof will not collapse and this technique is already employed by some of the local population. Bracings were added to improve stability.

Odogwu community

Following individual assessments of each house, two different types of shelter support were planned.

Type A involved two phases. The first phase involved providing cement and gravel for foundations and timber, plastic sheeting, and nails for the structure. The second phase involved the provision of corrugated iron sheets for the roof.

In-between the two phases, the beneficiaries built up the walls between the columns using a frame of wooden poles and bamboo plastered with mud. The final covered living area is 27 m².

Type B did not receive any roofing materials. Instead, these families were supported with cement blocks to protect the base of the house and cement for plastering the walls.

Disaster Risk Reduction (DRR)

Improvements to construction techniques to enhance flood and storm resistance were demonstrated using physical examples of foundations and walls erected within communities using local materials.

Special emphasis was placed on securing the timber structure to the roof and foundation. The timber columns were placed on top of concrete pier foundations and secured with metal bands, whilst the roof structure was secured to the columns with storm-straps, locally called "langa-langa".

Those communities employing a waterproof plinth (using Concrete Hollow Blocks) were educated about the capillarity characteristics of materials, and how this can be prevented using a damp proof course in the wall.

The project's DRR messages needed to be communicated to



Building a protecting a raised platform to protect the shelter from floods.
Photo: CRAterre

communities that were not affected by the current flooding but were at risk of future disasters. This was unfortunately outside the project remit.

Materials

A market survey was conducted at the start of the project to identify what kinds of materials were available locally and the shelter construction was designed with this in mind.

The transportation of materials to the beneficiary communities was paid for by the organisation.

Wider project impacts

A Beneficiary Satisfaction Survey was conducted at the end of construction. Project evaluations also found that a small number of community members who were not direct beneficiaries have replicated the improved construction methods. Many other people who didn't qualify for assistance expressed a desire to implement the new techniques in the future.

Following the project's success, funding for at least an additional 30 shelters has been secured and the NEMA is interested in using the shelter design for future shelter projects in the country.

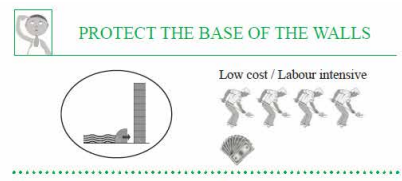
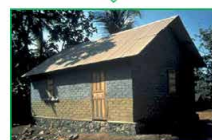
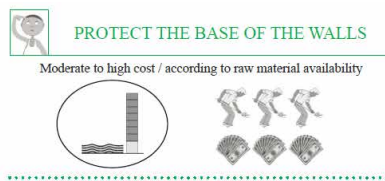
The technical partner's recommendations for integrating local resources in shelter projects included the following:

- Put the local populations at the centre of the needs assessment and the evaluation of local capacities and adopt a participatory approach.
- Identify local know-how and methods of organisation, adaptation and housing protection strategies and integrate them into the project.
- Implement pilot projects that enhance and demonstrate the potential of local materials for building quality housing.
- Get involved in the improvement of local housing, integrating local capacities, modern technologies and major risk prevention awareness.

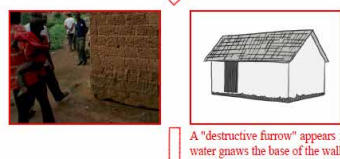
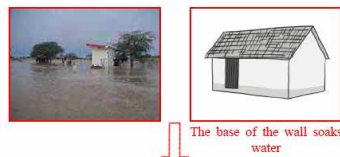
- Pay attention to economic accessibility issues, so that the greatest possible number of people can afford to duplicate the approach.
- Integrate the reinforcement of local capacities and competences by working with local training institutions to ensure a long term impact.
- Make sure that the funds invested in reconstruction programmes result in new income generating activities, with a maximum impact on the local economy and development.
- Define standards that guarantee quality products and processes.
- Influence and sensitize decision-makers and institutions so that they can better contribute to the development of a sustainable and responsible construction sector.

Bill of Quantities

Description	Qty
Cement for foundations, blocks, floor and mortar	25 bags
Stones (30 cm)	0.15 m ³
Gravel for foundations and floor	0.6 m ³
Wood	
Iron wood 4" x 4" x 8 ft (corner columns)	4 pcs
Iron wood 2" x 4" x 12 ft (columns, wall plates and rafters)	39 pcs
Iron wood 2" x 3" x 12 ft (bracings)	6 pcs
soft wood 2" x 3" x 12 ft (purlins)	30 pcs
Iron wood 1" x 9" 12 ft (facing boards)	9 pcs
Corrugated iron sheets 1.8 x 0.7 m	52 pcs
Nails (various sizes, including roof nails)	16.5 kg
3m flat bars for columns and roof	24pcs



1 RISK REDUCTION FOR MODERATE FLOODS



AVOID THE RISK OF WATER RAISING



The technical partner produced training material that included a focus on how best to protect walls from water damage. Graphics: CRAterre / Nigerian Red Cross