

SHELTER PROJECTS

EAST & HORN OF AFRICA: 14 Case Studies

CASE STUDIES OF HUMANITARIAN SHELTER AND SETTLEMENT RESPONSES RELEVANT TO EAST AFRICA



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Global Shelter Cluster
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Coordinating Humanitarian Shelter

Shelter Projects - East & Horn of Africa: 14 Case Studies

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* Note that the original case study codes from past Shelter Projects editions are retained on each case study.



South Sudanese refugees in Tierkidi camp in Gambella, Ethiopia, plastering the walls of the shelters with mud sourced locally by themselves, in areas agreed with authorities and host communities.

INTRODUCTION

This booklet is a compilation of case studies of humanitarian shelter responses relevant to the East Africa region, compiled from the six past editions of the interagency publication Shelter Projects. The series of publications, initially led by IFRC, UN-HCR and UN-Habitat, is now a Global Shelter Cluster product and includes contributions from over 300 shelter practitioners from across the world, from over 50 organizations and over 70 countries, including host governments' shelter responses.

The projects described in the case studies and overviews contained in this booklet represent responses to conflict, natural disasters and complex crises, demonstrating some of the implementation and response options available within the East African context. These include urban site upgrades (see n. 7 and 8), distribution of shelter materials/kits and NFIs (see n. 4 and 14), shelter construction (see n. 1, 2 and 3), cash-for-work, technical assistance, site planning, resettlement and multi-sectoral programmes (see 6 and 9).

The publication is intended to support learning by highlighting the strengths, weaknesses and some of the lessons that can be learned from different projects, which try to maximize emergency funds to safeguard the health, security and dignity of affected people, whilst – wherever possible – supporting longer-term shelter needs and sustainable recovery.

The target audience is humanitarian managers and shelter programme staff from local, national and international organizations at all levels of experience. Shelter Projects is also a useful resource for advocacy purposes, showcasing the work done by the sector, as well as for research and capacity-building activities.

All case studies and overviews contained in this booklet, as well as from all editions of Shelter Projects, can be found online at:

www.shelterprojects.org



Bentiu Protection of Civilians site in South Sudan. This site for displaced people fleeing conflict has grown to over 120,000 people at its peak and has been upgraded over two years to improve living conditions, reduce health and safety hazards, and address the high increase in population.

1 / A.7 Democratic Republic of Congo – 2002 – Volcano

Update:

Keywords: Returns, Urban neighbourhoods, Household NFIs, Construction materials, Transitional shelter / T-shelter, Community engagement, Mass communication.

Country:
Democratic Republic of Congo

Project location:
Goma

Disaster:
Goma volcano eruption in 2002

No. of houses damaged:
15,000 houses destroyed
(20 per cent of Goma's housing stock)

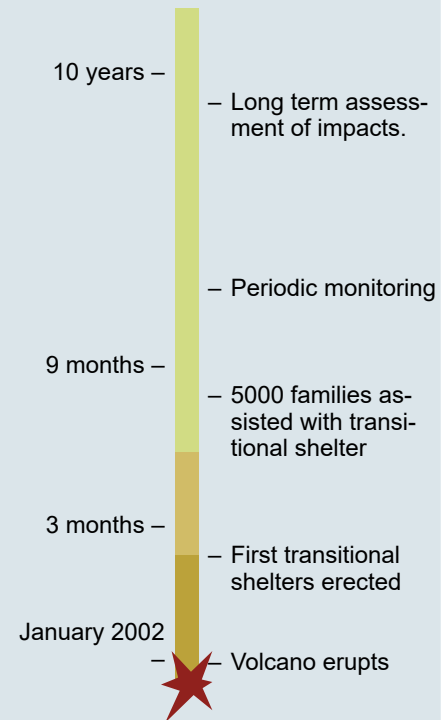
Number of people displaced:
300,000 people displaced

Project outputs:
5,000 families supported with shelter and latrine packages

Shelter cost:
US\$ 250 average cost: Shelter and latrine (materials and labour)



Project timeline



Project description

This case study summarises an assessment by a major donor of the transitional shelter and recovery programming that it funded in Goma following the volcanic eruption in 2002. The assessment was conducted ten years after the initial response. The assessment found that transitional shelter did help to facilitate the transition to permanent housing, and became a base for many livelihood activities. It also found lasting impacts from both the settlements approach taken and from the supporting activities to help people in Goma to “live with risk”.

Strengths and weaknesses

+ *Transitional shelter really can facilitate the transition to permanent housing.* As intended, nearly all of the original 5,000 “t-shelters” have been improved in some way as part of making it a permanent home. A site visit 2012 noted that most beneficiary families continue to live in their transformed transitional shelters. After ten years, some families are still making improvements leading to permanence, suggesting that the process of incremental housing development is both evident and likely to continue in the foreseeable future.

+ *Transitional shelters have become “shophouses”.* As intended, many project beneficiaries have expanded their shelters to create space for livelihood activities of all kinds, thereby either restoring livelihoods lost in the disaster, or creating new economic activity using the shelter as a much-needed platform for production. This has contributed to both community and regional economic recovery since the volcanic eruption.

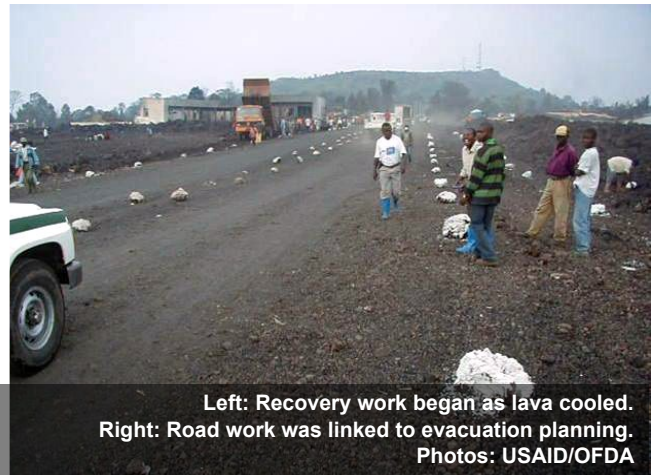
+ *A deliberate focus on “Shelter and Settlements” is a critically needed approach to humanitarian assistance in urban areas.* Longer-term recovery was dependent upon regenerating its urban economy. Providing transitional shelter in the city, based on the “city-focused” approach, maximised

and concentrated the economic benefits associated with investments made by the humanitarian community. In turn, residents have had better access to jobs and public services in an urban context than in a remote camp, contributing further to the recovery of their city. Disaster Risk Reduction measures were incorporated into the reconstruction of road and service networks, to enhance both evacuation options as well as access to land and housing markets. The city-focused approach orientated humanitarian assistance towards settlement planning and also reflected beneficiaries' wishes to return to their own neighbourhoods.

- In *Shelter Projects 2008*, the implementing organisation noted:

- For families with eight or more people, shelters were initially not big enough.
- Some people felt that plastic walls compromised their privacy and security.

- The project was one of the first-ever attempts by the donor to promote an explicit shelter and settlements approach to shelter activities.



Left: Recovery work began as lava cooled.
Right: Road work was linked to evacuation planning.
Photos: USAID/OFDA

The volcano

(See case study A.1 in *Shelter Projects 2008*)

Nyiragongo, a volcano located approximately 16 kilometers (ten miles) north of Goma, the major town in Eastern Democratic Republic of Congo (DRC), began erupting on 17th January 2002. Lava flowed from the southern flank of the volcano, heading towards Goma.

This eruptive activity triggered an exodus of Goma, a city of approximately 450,000 people. Of which an estimated 300,000 people fled briefly to Rwanda, while others fled to settlements to the west of Goma as well as elsewhere within the DRC. Most people returned to the city within three months.

The lava flows and subsequent fires caused severe damage in Goma. An estimated 13 per cent of the city's 35km² land area was covered by lava. It heavily inundated the central part of the city, destroying up to 15,000 dwellings (20 per cent of the city's estimated housing stock). In inundating the most developed portion of the city, arguably the most developed portion of eastern DRC, the lava flows destroyed numerous economic enterprises and community structures, and thus thousands of livelihoods.

An estimated 90,000-105,000 people, many of whom were already vulnerable because of conflict-induced insecurity and limited economic opportunities, lost their homes and other assets, and were in need of shelter.

Although eruptive activity ended within 24 hours, seismic activity related to the volcano continued until early February 2002. On February

9 seismologists declared that the eruption was over.

Since early 2002, Goma has subsided by nearly 50cm. Minor subsidences have periodically occurred as a result of on-going tectonic activity.

Response

With thousands of jobs lost, and the urban and regional economy devastated, national and international organisations mounted a rapid response, with the international community contributing a total of US\$ 40 million in assistance.

In this case-study, the donor's share of the contribution was nearly US\$ 5 million. This included US\$ 2.6 million in emergency relief: water, food, health, and non-food assistance (including blankets, household goods, and plastic sheeting); and a US\$ 2.3 million programme featuring a transitional shelter project and disaster risk reduction activities.

The response featured the design and implementation of one of the donor's first transitional shelter projects.

Recovery

After critical needs had been addressed, the humanitarian community began to develop strategies for helping residents of Goma rebuild their lives and livelihoods. Shelter quickly emerged as the most pressing need for affected families. People displaced by the volcano needed a place to call "home".

Options for meeting this need included moving the entire city to a new site, dispersing people to different regions of the country, moving people into camps, and a "city-focused"

option aimed at rehabilitating Goma itself, allowing as many people as possible to remain. These options were discussed at length among representatives of all key stakeholders.

The perceived and real security and political conditions in the immediate region affected decisions in shelter assistance by constraining relocation options to the east, north, and west of Goma. The city is also located on the northern shore of Lake Kivu, making large-scale southern movement of the displaced impractical.

There was also the local security consideration that many people wished to remain close to their former houses to prevent appropriation or looting.

Following consultations with affected communities and authorities, the donor devised a two-pronged strategy that would bring new life to Goma and reduce the impacts of future disasters.

Transitional Shelter

Due to the security, safety and economic concerns of the affected population, the first element of the programme was to support a city-focused transitional shelter program, devoting 80-85 per cent of program funds to the Goma urban area. The donor and its partners determined that there was sufficient space in Goma to shelter residents there, and that the existing social and economic infrastructure, even post-eruption, made it easier to assist people in the city rather than elsewhere.

The donor funded a single organisation to provide shelter in Goma to assist 5,000 households. All of the households were assisted within nine

“The central business district, buried under rock, is re-emerging; there is even a new Volcano Internet Café on the edge of the destruction. The camps set up for displaced residents are now mostly shuttered, and Goma is experiencing something of a housing boom.”

The New York Times (emphasis added), November 10, 2002



Transitional shelter (left) has evolved into permanent housing (right) for thousands of families. Photo: USAID/OFDA

months of the eruption. Other donors saw the efficacy of this strategy and provided a combined total of 8,000 additional households with transitional shelter. A further 2,000 households received other assistance from a variety of other organisations.

Assistance was used to expand or supplement host family homes, or build on under-used or vacant private residential parcels of land. Shelter supplies were sufficient to create 21m² of covered living space for an average beneficiary household of up to six people. The supplies included plastic sheeting, zinc roof sheeting, wood framing, and concrete screed flooring. A modest latrine was also provided.

Three-quarters of households were assisted on land occupied by host families (relatives or friends); many of these beneficiaries have remained on hosted land.

Living with risk

The second element of the strategy was rooted in the basic message of learning to live with risk: a Disaster Risk Reduction programme was designed to promote improvements in volcano hazard monitoring (provision of equipment, staff support, and technical assistance to the Goma Volcano Observatory).

The donor also sponsored a two-year, community-based Disaster Risk Reduction programme linked to the Goma Volcano Observatory to enhance early warning systems, upgrade evacuation routes, and improve community awareness of what to do and where to go when eruptions and earthquakes occur.

The road network was expanded following discussions with local

officials and representatives. This was intended to increase the number of evacuation routes.

Outcomes

Despite the considerable changes in Goma during the 2002-2012 period, including recent conflict in and near the city, several outcomes of the donor-supported post-eruption activities have become visible over time:

- In addition to providing much-needed shelter, the city-focused programme had a significant impact on Goma's economy. Beneficiary families supported nearly 45,000 person-days of labour to transform their transitional shelters into permanent homes. This generated nearly 3,600 new jobs, and helped to jump-start economic recovery in Goma.
- Volcano monitoring is ongoing, with most of the equipment provided still functional, though upgrades are needed.
- The Goma Volcano Observatory continues to operate many community-based education activities, although updating is required. Activities include providing volcano activity reports to radio stations, sharing information at a local volcano information center, and updating alert levels in public areas.
- Over time, nearly all beneficiary families transformed their transitional shelter into permanent housing, resulting in the re-establishment of local markets and communities, contributing to overall recovery.

The rapid response to the 2002 volcanic eruption, the incorporation of Disaster Risk Reduction into the

response, and the explicit shelter and settlements approach adopted were aimed at strengthening the resilience of Goma's citizens by promoting recovery and lessening the impact of future disasters.

The 2012 assessment by this donor found that the activities that it supported have contributed to a transition to recovery and reconstruction. This outcome is notable, for it demonstrated the utility of using shelter as a means of promoting economic recovery and linking humanitarian community shelter activities to the process of longer-term permanent housing development. Furthermore, shelter activity was deliberately concentrated in neighbourhoods, where people wanted to resume their lives and livelihoods. It enabled people to learn to live with risk, supporting them with risk reduction activities.

2 / A.9 Ethiopia – 2012 – Conflict and Drought

Case Study: **Keywords:** Planned and managed camps / relocation sites, Transitional shelter / T-shelter, Site planning

Country:

Ethiopia

Project location:

Dollo Ado

Conflict / Disaster:

Conflict and drought in Somalia

Conflict date:

Conflict since 1992

Number of people displaced:

Over 1 million registered Somali refugees

By the end of 2012, 177,000 refugees were registered in the five Dollo Ado refugee camps

Project target population:

9,000 families (2011-2012)

Project outputs:

7,127 shelters by end of 2012

Occupancy rate on handover:

High

Shelter size:

6m x 3,5m (21m²)

Materials cost per shelter:

US\$ 525 including transport

Project cost per shelter:

US\$ 800 excluding overheads



Project timeline



Project description

Four organisations built semi-permanent shelters for Somali refugees living in the camps at Dollo Ado. Each organisation set up production lines in the camps to prefabricate the components. The projects worked within the constraints of challenging logistics and very different social environments between camps. The shelter design was selected following a consultative process during which different options were shared with camp residents.

Strengths and weaknesses

+ The design process was coordinated between organisations to avoid conflict between refugees over different shelter standards.

+ The process to select the shelter design was designed to be transparent and include all stakeholders, including camp residents.

+ Shelter construction provided refugees and the host community with paid work. It is estimated that the shelter projects contributed US\$ 16,000 per month to the economy of each camp.

- Joint procurement of supply of materials was attempted but did not prove successful.

- Significantly fewer shelters have been built than initially anticipated. The strategy supported less than 20 per cent of the population of the camps by the end of 2012.

- The original design used mud render, but this required a significant amount of water and transportation, and

was not possible to implement. Negotiations with the host communities over the use of mud slowed progress.

• Different organisations have had very different completion rates as a result of different budgets, management structures, logistics, supply and relations with camp residents and host communities.

• Most materials were not available in Dollo Ado markets and were imported from other regions. Price fluctuations led to a 16 per cent increase in the total shelter cost.

• The shelter strategy was developed based on the assumption that it would achieve 100 per cent shelter coverage. Production and delivery remains short of these targets.



Completed shelters in Buramino camp at Dollo Ado. It was initially intended that the shelters would be plastered in mud but this proved difficult to implement. Photo: Joseph Ashmore

Camps at Dollo Ado

Following a resurgence of the conflict and drought in Somalia, a series of five camps were established in 2010 and 2011 within 100 km of the Ethiopian Border town of Dollo Ado.

By the end of 2011, the five camps of Bokolmayo, Melkadida, Kobe, Hilaweyn and Buramino hosted 34,000 Somali families, the largest refugee presence in Ethiopia. The refugee population increased during 2012, and by the end of the year, 180,389 individuals refugees were registered in the camps. As these camps became more established and the numbers of registered refugees continued to increase, it seemed likely that the camps would remain open for some years.

Being close to the equator and at low altitude, Dollo Ado is subject to harsh weather conditions with high temperatures, strong winds and seasonal heavy rains.

The people living in the camps mainly come from rural parts of Somalia. A significant proportion are nomadic pastoralists, accustomed to lightweight and movable shelters.

In 2011, shelter was identified as an urgent need in the refugee camps. The number of new arrivals peaked with an average of 168 persons per day in June 2011. They were provided with tents. However, the life span of the tents proved to be around 6 to 8 months, meaning that alternative solutions for the shelter in the camps were required.

Beneficiary selection

Shelters were built by four organisations and each was allocated one or

two camps. Camps were established within host communities or in isolated locations. Some had been established for months whilst others had existed for years. As a result each site presented very different challenges.

There was some variation in beneficiary selection: One organisation targeted blocks in each camp according to agreed criteria. Within each block the most vulnerable households were prioritized, and all shelters in each block were completed before moving on to the next. Another organisation prioritized individual households across the camp rather than prioritising individual blocks.

In addition to building shelters for camp residents, 120 shelters were built for host community households in 2012. Additional targets were set for 2013.

Implementation

Each implementing organisation started at different times with different total budgets and in different sites. The most effective projects established strong supply routes, prefabrication facilities and clear procedures for managing supply and construction.

Workshops

Each organisation established a workshop and materials storage area close to construction sites. In the workshops, timber was pre-cut, bamboo was split, and doors, windows and roof trusses were prefabricated.

A well-organised workshop with effective quality-control mechanisms was necessary to maximise production efficiency. The minimum workshop and storage area for efficient production was 1 hectare (10,000m²). Workshops

were staffed by a mixture of skilled carpenters and daily labourers.

One organisation found particular challenges with the splitting of bamboo, facing a 50 per cent shortfall at the time that the bamboo had to be fixed. It turned out that this was due to many bamboo poles being split into two pieces by the daily labourers as opposed to four or six.

Training and supervision

Training was provided for skilled labourers who were responsible for the on-site construction. On-site works included digging holes for foundations, erecting the frames, fitting the roofing, covering the walls with bamboo slats and fixing windows and doors. Training in mud rendering for walls was given where mud was available.

All organisations directly hired both skilled staff and daily labourers. To select carpenters for on-site works, candidates were asked questions on minimum foundation depths and how to best nail a joint. They were then assigned one shelter to prove their skills. Staff monitored the construction.

The ground at the different sites varied. In some sites it was relatively straightforward to dig 60cm deep holes by hand, in other sites the ground was hard and concrete was required in the foundations.

Shelter selection

In September 2011, the organisations agreed to develop common shelter standards and build shelter prototypes for review.

At this time, the three organisations involved in the shelter programme were invited to produce prototypes based on the shelters that they had been building. Each of the



Three different prototype shelters were built and a group of refugee representatives, the government and the key organisations agreed on a common design
Image: NRC

three shelters was built to the same design brief.

Each shelter was evaluated by a gender balanced group of refugee representatives, the government and the key organisations.

The model selected had a corrugated iron sheet roof, a eucalyptus post-and-beam structure and split bamboo wall cladding. The intention was to plaster the walls with mud.

The shelter had an internal partition, two lockable windows, and a door that could be locked both from the inside and the outside for improved security. Corrugated iron sheet was chosen for roofing on account of its durability and fire safety.

Mud plastering

The shelter was originally designed to have wattle and daub walls using local mud. Bamboo laths would be covered with chicken wire and the shelter would be rendered with mud. This was initially considered to be a low cost and sustainable walling solution.

Unfortunately, mud of suitable quality was only available from certain locations in river beds and these were owned by the host communities. Each shelter required slightly more than 2m³ of soil to render it with mud, as well as a significant volume of water. This worked out at over 2,000 truck loads for the 10,000 shelters that were planned in the first year. Up to 1m³ of mud would additionally be required each year for repairs after the rains.

By the end of 2012 there were sufficient resources available to implement mud walling for 60 per cent of the shelters in Dollo Ado, and the decision was made to discontinue the use of mud in the future. The design

was adapted using closer spacings between the bamboo strips for walls instead of rendering it with mud.

For bamboo-only walls, plastic sheets or fabric were often placed inside to provide protection from the rain and the wind. The resulting structure was relatively well ventilated in the hot climate and provided adequate protection from the rain. Households were relatively satisfied with these shelters.

Tighter construction quality controls were required for bamboo-only walls to ensure that no large gaps were left between the lathes.

The use of local wood for shelter construction was a major issue for the host population, and as a result, timber was brought in to the area. However, each camp resident burned a significantly greater volume of wood when cooking than each shelter used in its construction.

Logistics and supply

Although highland Ethiopia has significant plantations and production of both eucalyptus timber and bamboo, the nearest eucalyptus and bamboo plantations are at least a day's drive from Dollo Ado. The suppliers who can produce the paper work required for large procurements are further away, mostly based in Addis Abbaba.

The transport requirements proved demanding. One truck only carried enough materials for 15 shelters. Building 10,000 shelters would require over 600 trucks.

Over the year, the biggest cost increases were with bamboo and transportation. This led to a 16 per cent increase in the cost of a shelter.

Materials list

Materials	Quantity
Corrugated galvanised iron sheet roofing (2m x 0,90m)	24 pieces
Eucalyptus poles (8cm diameter)	32 pieces
Bamboo (6cm diamter, min. 6.5m, dry, straight)	62 pieces
Nails (#9, #8, #6, #4)	10.5kg
Roofing nails	3kg
Metal straps (2cm wide; 1.5-2mm thick)	10m
Wire mesh (1.8m x 30m; 2cm opening)	1 piece
Hinges (T hinge 4 cm long sides)	6pieces
Lock system	4 pieces
Black wire (10 kg rolls)	0.1roll.

Workshop tools

Materials	Quantity
Electric Radial arm saw	2 pieces
Hammer	5 pieces
Tape measurer	4 pieces
Cutting table	2 pieces
Assembling table	3 pieces
Oil barrel for treating timber	1 piece



Top: View of a camp before construction.
Each organisation established a large workshop in each camp to store materials and prefabricate components.
Images: Joseph Ashmore

3 / A.8 Ethiopia – 2011 – Sudanese Conflict

Case Study: **Keywords:** Planned and managed camps, T-shelter, Site planning, Training, Tools, Construction materials, Infrastructure.

Country:

Ethiopia

Project location:

Bambasi camp, Assosa

Conflict:

Sudan and South Sudan conflict

Conflict date:

September 2011

Number of people displaced:

40,000 refugees by end of 2012

Project outputs:

Camp for 12,000 people (3600 households)

2,175 shelters built (two organisations, 70 percent built by one organisation)

Shelter size:

<2 people: 10m²

3-4 people: 14m²

4-6 people: 21m²

Cost per shelter:

US\$ 640 - 10.5m²

US\$ 800 - 14m²

US\$ 920 - 21m²



Project timeline



Project description

The organisation planned and built a camp for Sudanese refugees. Semi-permanent shelters were constructed by refugees, with two partner organisations providing materials, carpenters and training. Refugees were able to choose their own plot configuration and the shelters were constructed with locally procured materials.

Strengths and weaknesses

- + The shelters followed local housing designs to make them cool in the day and warm at night.
- + The shelters were cost-effective, and were durable alternatives to tents.
- + Materials were procured locally, reducing transport costs and injecting cash into the local economy. This provided some economic compensation to the host community.
- + Shelter dimensions were tailored according to family size.
- + Each plot was provided with a fence, a latrine and a shelter.
- + Refugees contributed labour to build the shelters. This helped to foster a sense of ownership.
- Initial plans for the organisation to build the shelters itself were dropped as other organisations had management systems better suited to implementation.
- Technical staffing capacity was a constant challenge.
- Difficulties in sourcing and transporting mud for the walls were not foreseen.

- Initial estimates of construction time were too low, and additional carpenters and masons were required. Fewer shelters were built than initially anticipated.
- Many refugees did not receive a shelter. Of those who did, many received a tent whilst waiting.

- Bamboo is grown extensively in the area, the eucalyptus was sourced from a neighbouring state owned forest.
- There was a very strong input from the government of Ethiopia in all issues relating to the camps.
- Many families were separated when the first families arrived. The rehousing of refugees was undertaken in parallel with replanning the camps and a family reunification exercise.
- Sudanese refugees brought large numbers of livestock with them. Space for animals in the camp had to be allocated (See B.3).



Refugees were supported with materials, carpenters and masons to build tukuls based on the designs used by the host community. The refugees contributed labour. Photo: UNHCR

Before the influx

Sudanese refugees have sought safety in Ethiopia since 1969, first settling in the Gambella region. Additional refugee influxes 1983, 1987 and the early 1990s led to the creation of five refugee camps in western Ethiopia. Three were established in the Gambella Regional State and two in the regional state of Benishangul-Gumuz in the area surrounding the town of Asossa.

Following a peace agreement between north and south Sudan, refugees began returning home from March 2006 onwards and three of the camps could be closed. 23,000 refugees remained in one camp in Gambella and a further 4,000 remained in one of the Assosa camps. The refugee population included several hundred refugees from the Democratic Republic of Congo. Those remaining in the camps included several hundred Congolese people.

Displacement in 2011

Fighting recommenced in September 2011 in the Blue Nile State of Sudan, displacing more refugees into Ethiopia.

By mid October 2011 there were an estimated 54,000 Sudanese refugees and asylum seekers in Ethiopia. About 34,000 were registered and accommodated in three refugee camps: Sherkole and Tongo near Assosa and Pugnido near Gambella.

Most of the new arrivals from the Blue Nile State stayed with host

communities in border areas, and a transit centre was established at Ad-Damazin. With the camps at full capacity, this transit site became more permanent. Given the scale of the influx of refugees, new camps were needed.

Site selection

Negotiations began with the national government's refugee agency and the local government to identify sites.

A 450 hectare site owned by the adjacent village was identified at Bambasi, 50km from the border. It had with suitable drainage and access and was around 600km or a two day drive from Addis Ababa, the capital of Ethiopia.

The host community and the refugee population had a similar tribal heritage which, once some initial differences were resolved, led to a good relationship between the two communities.

Site planning

From March 2012 the preparation of the master plan began. The plan took four months to develop and agree. The process was significantly delayed by complications in awarding the contract to build the access road.

The camp was designed to be no closer than 500m to the village. The camp was divided as follows:

- Number of Zones: 3
- Number of Blocks: 40
- Number of Communities: 265
- Number of Family Plots: 5,240

- Average Plot Size per Household: 15mx10m

Site development

Despite delays, by the summer of 2012 plot demarcation had begun and the road was upgraded in order for it to be functional during the rainy season.

Once Bambasi camp was established, water was provided from eight shallow wells (up to 60m deep). Later three boreholes were developed and a system of 34 tap stands was established.

Shelter construction

The organisation initially planned to build all of the shelters itself, and built some sample shelters. However, it became clear, that the organisation lacked the management systems required to build the numbers of shelters required. As a result an alternative implementation process was chosen, using partner organisations.

Two organisations were identified to implement the shelter programme.

Implementation by the partner organisations began in August/September 2012.

A fixed design of shelter (a tukul) was built. It was based on the shelters built and lived in by the host community, differing from the shelters that the refugees were accustomed to building. As a result construction training was required.

Carpenters and materials were provided and managed by the implementing organisations, while families had to provide the labour. Most families were able to provide the labour, but in the case of the most vulnerable households, some support was required.

The implementing organisations both provided a site engineer to lead the project and a site foreman to manage the teams of carpenters and masons in the camp. Both organisations required significant logistics support.

In the project plans, a carpenter and a mason, working with families would be able to build ten shelters in fifteen days. In practice, only half the number of shelters could be built. This was due to an underestimation of the training required by those constructing the shelters, and an underestimation



Timber and bamboo frames shelters were built with thatched roofs as a more durable shelter solution than tents. It proved challenging to source mud to plaster the walls as originally intended.
Photos: Left: UNHCR, Right: Demissew Bizuwerk / IOM Ethiopia.

of the number of households who would require additional assistance.

Selection of beneficiaries

Refugees were brought to Bambasi camp from the transit site near the border at Ad-Damazin. The refugee population had continued to rise while the camp was being built, and many refugees had settled near the border.

Shelters were allocated according to family size. Each family was allocated a 10m x 15m plot. For families with seven or more people, two plots were allocated.

Logistics

All of the shelters were built using locally available materials: bamboo, grass (for a 15cm thick roof), rope and mud. This approach was much cheaper than sourcing materials in the capital, also cutting transportation costs.

Each shelter required significant volumes of grass for thatching the roof and for strengthening the mud walls. The grass could only be harvested seasonally with the main harvest being in March. This did not coincide with the construction, which needed to continue all year round to meet the needs.

The sourcing of sufficient quantities of mud also proved more challenging than anticipated. Initially mud came from digging the latrine pits but this was insufficient for the initial shelter needs, and for re-mudding after the rains. By the end of 2012, the organisation was still trying to identify sources for mud and to organise sufficient trucking for the large volumes required.

The camp water supply was sufficient to cope with the volume needed to mix with the soil.

Situation at the end of 2012

By the end of 2012, there were over 86,000 Sudanese refugees living in Ethiopia.

Approximately 3,700 refugees formerly registered in Ad-Damazin still remain in the local community after opting out of the formal relocation process to Bambasi camp in June and July 2012. A few dozen refugees moved spontaneously to Bambasi in September. In October 2012, 2,000 refugees were relocated to the camp by local officials and were accompanied by around 8,000 livestock.

Materials list

Below is a materials list for different shelter sizes.

Material	Quantity / shelter size		
	10m ²	14m ²	21m ²
Shelter (small)	10m ²	14m ²	21m ²
Eucalyptus poles 5m x 10cm	10	11	14
Eucalyptus/ bamboo 5m x <8cm	27	33	40
Eucalyptus pole 5.8 m x 12cm	1	1	1
Bamboo 5m length	37	39	90
Mud with grass (m ³)	2.45	4.37	4.89
Bamboo (roof) 20cm	57	66	80
Bamboo reeds 50cm	25	45	50
Grass (bunch)	15	22	30
Rope and strings	100m	150m	200m
Door with frame, hinges and lock	1	1	1
Window 0.6m x 0.6m	1	1	1
Nails 2. 5" (kg)	0.5	0.5	1
Nails 4" (kg)	1	1	2
Used motor oil	3litres	3litres	5litres
CIS Nails	0.25	2.5	0.25
Fence			
Eucalyptus 5m x 10cm	5		
Bamboo (1m spacing)	80		
Tools			
Claw Hammer	1		
Bow saw	1		
Shovel	1		
Meter rule	1		
Pick axe	1		
Axe	1		



A carpenter and a mason worked with each family to build shelter.
Photo: Demissew Bizuwerk / IOM Ethiopia.

4 / A.4 Kenya - 2007-2008- Election violence

Transitional shelter kits

Project type:

Pilot project providing transitional shelter kits
 Technical support for building
 Full construction for vulnerable households

Emergency:

Kenyan election crisis, 2007-2008

No. of people displaced:

125,000 - 250,000 IDPs found shelter in camps and similar settlements during the violence. An estimated 300,000 moved in with relatives or friends and around 12,000 fled to Uganda.

Project target population:

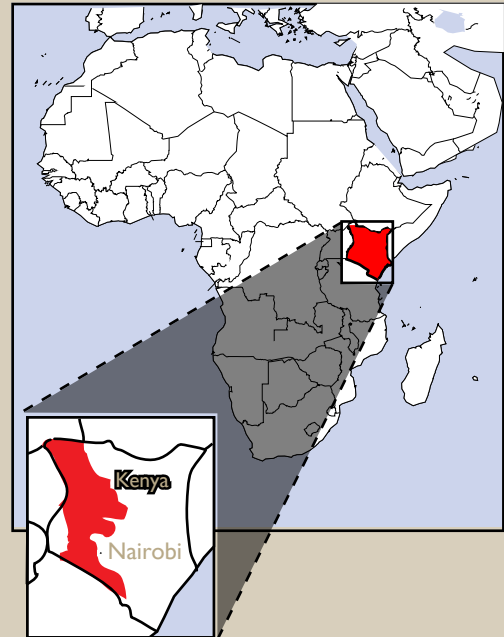
481 transitional shelter kits provided as a pilot project (226 erected by the agency, 255 self-built)

Occupancy rate on handover:

86% - Those not occupying shelters wanted to wait until the shelter had been upgraded with stronger walls or until other family members returned. Both reasons related to ongoing feelings of insecurity.

Shelter size

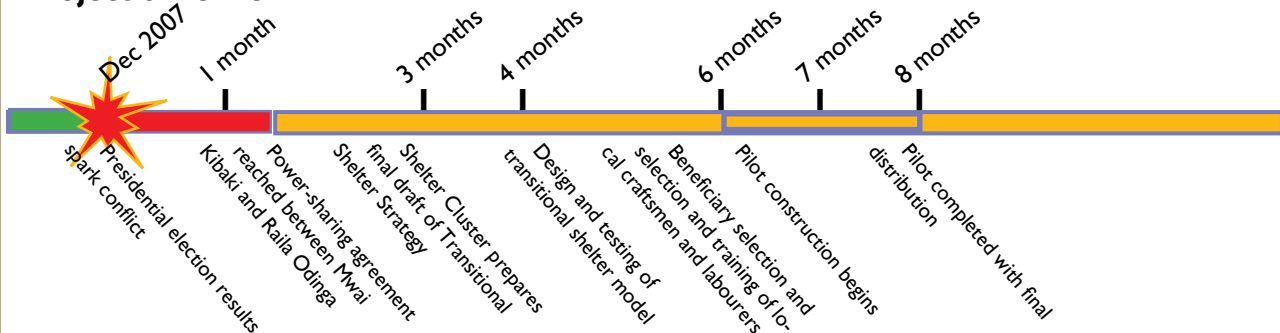
18 m² (extendable, modular construction)



Summary

Provision of transitional shelter kits as a pilot project in the Rift Valley of Kenya, before upscaling to a national response. Shelters were designed to be adapted by beneficiaries into permanent homes and, except in the case of vulnerable households, were erected by the beneficiaries themselves.

Project timeline



Strengths and weaknesses

X Only viable project sites were selected, based on the security guarantees of the local administration, existence of peacebuilding initiatives and willingness of IDPs to return.
 X Because it used local building technologies and local craftsmen's knowledge, the design was readily accepted by the beneficiaries and easily built.
 X Having construction teams of mixed ethnicity contributed to the peacebuilding process in an unplanned but positive way.

X Consideration was given to how the shelters could be upgraded in the future to permanent homes. This maximised the impact of the financial investment.
 X Use of robust building components meant the shelters could be relocated. Some beneficiaries used plastic spacers when nailing the roof to make disassembly easier.
 X Close involvement of the community and local administration in beneficiary selection meant that distributions ran smoothly and disputes were resolved.
 X Linking the project with livelihoods interventions

Strengths and weaknesses (continued)

promoted sustainable return.

W Occupancy was not as high as hoped for, with some IDPs not ready to move back.

W Not all of the materials are available locally in sufficient quantities. Sourcing of materials needs to be reconsidered before the project can be upscaled.

W Only those whose houses had been completely destroyed received the kit. Further attention needs to be given to those whose houses are partly damaged, as many

roofs and doors had been looted.

W The kit included spare sheets and plastic sheeting for the construction of latrines. These materials were often used to extend the roof instead.

W Some beneficiaries stated that they would have preferred to have been given the cash value of the plastic so that they could buy local materials themselves to build the walls (cash grants are being considered for the post-pilot phase).



Transitional shelter built on the family's own land

Situation before emergency

A number of the tensions related to the ethnic nature of political affiliation in Kenya, unresolved land issues, inequality of wealth distribution, high unemployment and conflict over natural resources led to violence following the December 2007 election.

The majority of those displaced from the Rift Valley province had lived in small timber pole-framed houses with timber or adobe wall cladding, thatch or iron-sheet roofs and compacted soil floors, strengthened with dung or cement.

After the emergency

The election crisis was compounded in April by food security problems, flooding in some areas and drought in the north. The pattern of displacement was complex. People were displaced from many different parts of the country as one ethnic group escaped the threat of violence from another.

Around half of IDPs found shelter in camps. The rest sought refuge with friends or relatives and some moved back to their 'ancestral' land where support services were limited.

A response plan was developed through the Cluster System, which would provide non-food items and tents to meet the need for emergency shelter while a transitional shelter design was developed to bridge the emergency and permanent shelter phases.

Selection of beneficiaries

The Shelter Cluster agreed that 481 transitional shelter kits would be distributed as a pilot project to test the design of the shelter and the response of beneficiaries.

It was important that the site chosen should be one where security was good, IDPs were willing to return to and the community they were returning to was ready to accept them. Mtaragon, in the Kipkelion District, fit the requirements.

The local administration had a record of all IDPs. Their assessment of the impact of the violence, correlated with the agency's own assessment, showed that around 500 houses had been completely destroyed.

The following criteria were used to decide which of the 500 households who had no shelter to return to would be chosen to receive a kit. The selected beneficiaries:

- were registered as an IDP by the local administration;
- were willing and ready to return;
- had proof of land ownership.

Proof of land ownership was only required for this pilot project. It was anticipated that an appropriate response would later be developed by the Shelter Cluster to deal with those without formal titles to their property or whose houses were only partially damaged.

An ad hoc beneficiary selection committee was established by the local administration, with appropriate representation of women and IDPs, to select the final beneficiaries. This committee was monitored by the implementing agency.

The degree of vulnerability of the households was also assessed and was intended to be used as another filter in beneficiary selection. But as the number of shelters to be provided almost matched the number of houses completely destroyed, vulnerability criteria was used to determine the level of construction assistance a household required, rather than to select the beneficiaries themselves.

To qualify for construction assistance, the household had to be headed by a single parent or a child or have members who were elderly, disabled or had special health requirements.

The criteria for the upscaled project was modified from the Shelter Cluster's Transitional Shelter Strategy developed in March 2008, following feedback from the pilot project.

Implementation

A prototype of the shelter was tested for structural quality and reviewed by IDPs for its suitability. At the same time as the final selection of beneficiaries was being made, a second prototype was built in a prominent

location in Mtaragon to sensitize beneficiaries as to what was being provided and to get feedback on the design.

Local craftsmen and unskilled labourers were recruited into ten teams and trained. Although not planned, the teams were a 50-50 mix from the ethnic group that had fled and the ethnic group that they felt threatened by. This side effect of the project had a positive impact on peacebuilding. The donor organisation directly procured the materials within Kenya and delivered them to the implementing agency's warehouse in Nakuru.

The implementing agency then distributed the materials at three locations. Beneficiaries collected them and took them to their plots up to three kilometres away, using their own transportation (either by hand, by donkey, or by tractor and trailer).

The kits also included the basic tools necessary to build the shelter.

'I'm over 60 and unable to get the materials to build on my own. Despite what happened, I have to continue staying here. Being my land I cannot run away. If everybody can be assisted in the way I was, that would be great. Plastic sheeting is OK, but I would have preferred timber, as it's stronger and can't be blown away'. - Beneficiary

Guidance was given by the local craftsmen on how to put the shelter together. The beneficiaries provided the labour themselves and the houses were normally completed within one or two days.

Over 45% of the beneficiaries met the vulnerability criteria and qualified to have their houses built by the construction teams.

Technical solutions

The structure had a covered space of 18m² (6m x 3m), was split into two rooms, and had good clearance above head height.

The frame was made up of 10cm diameter cedar poles, dug into the

ground at a depth of around 60cm. The poles supported a timber ring beam, which in turn supported the timber rafters onto which an iron sheet was nailed.

Walls were clad in plastic sheeting and floors were compressed earth. The doors were flaps in the plastic sheeting and weighted with timber battens.

The design was based on the vernacular housing typically lived in by IDPs prior to their displacement. This enabled IDPs to upgrade their shelters incrementally using materials and methods that they were already familiar with. The walls could be clad with timber, adobe or even brick and cement. Cement could be used to increase the durability of the floor.

The use of plastic sheeting allowed shelters to be built and occupied very quickly, though some beneficiaries replaced the plastic sheeting walls immediately with adobe or reclaimed building parts, such as doors or timber. The plastic sheeting could then be sold or used for temporary house extensions, and provided waterproof storage for seeds and fertilisers.

The use of regular frame and roof sections made the construction modular – it could be easily extended or adapted. The choice of materials meant that there was no part of the building that could not be fixed or replaced locally.

Most beneficiaries erected their shelters on exactly the same site as their previous homes had been, so little site clearance or ground levelling was required.

Logistics and materials

Materials were sourced in Kenya, and chosen for their familiarity, durability and low cost. Timber was supplied by private forestries who were only considered if they had government-approved replanting projects in place. Plastic sheeting was made from recycled plastic. The total cost of materials and labour for one transitional shelter was US\$ 350, not including transport and agency administrative costs.

Materials	Quantity
Walls	
Cedar posts 9", 4" diameter	14 units
Walling-polythene sheeting- 1000g	45 m ²
Cypres timber 2x3", 6 x 2m, 3 x 2m	20 m
Ordinary nails 4"	2 kg
Roof	
Cypess timber 2x3", 2 x 10m, 3 x 3m, 1 x 8m	40 m
Cypes timber 2x2" 6.5 x 6m	41 m
CGI ridge covers-30g -1.5 m	4 units
CGI sheets-30g 2 x 0.9m	20 units
Ordinary nails, 2kg 4", 2kg 3", ½kg 2"	4.5 kg
Roofing nails	4 kg
Iron hoop	1 kg
Tools	
Stanely claw hammer	1 unit
Stanley woodcutting saw	1 unit
Panga knife	1 unit
Hoe and handle	1 unit
Manaila thread 30m (roll)	1 unit
Measuring tape	1 unit

'The prototypes built by local craftsmen in each project location enabled structures to be tested and important feedback from builders and beneficiaries to be incorporated into the final design.' – Engineering coordinator



Transportation

5 / A.3 Kenya - 2007- Flooding

Shelter and disaster mitigation

Project type:

Construction of self-build new shelters for refugees
Community mobilisation, disaster mitigation

Disaster:

Ifo refugee camp flood response, Dadaab, Kenya, 2007

No. of people displaced:

Approximately 6,000 households displaced, mostly from the Ifo camp

Project target population:

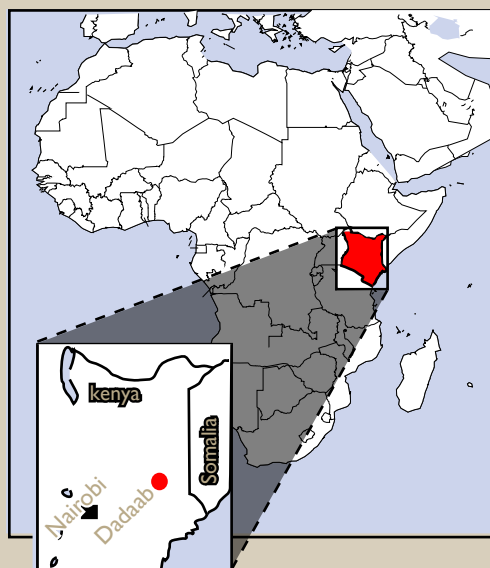
500 households in the Ifo camp

Occupancy rate on handover:

100% (based on visual assessment)

Shelter size

18m² (6m x 3m)



Summary

Through a combination of upgrading and emergency response funding, 500 families were assisted in making bricks and building shelters through a community-based construction programme following flooding in a large refugee camp.

Project timeline



Strengths and weaknesses

X Strong community participation through the training of beneficiaries to construct their own shelters meant project costs were low and construction standards were high.
X A sense of ownership and pride in their shelters was demonstrated by the wide variety of self-implemented modifications, raising living conditions.
X Mud brick production has become a major income-generating activity even though the project has finished.
X Deforestation in the Dadaab area was reduced by replacing stick walls with mud bricks.
X The use of a thick foundation and lower wall reduces the possibility of collapse in heavy rains.
X Broken bricks were recycled to demarcate plots, build furniture or were remixed with water to be remoulded.
W Soil quality was variable outside of the camp, so many used soil from their own plots. This created hazardous holes that may create mosquito breeding grounds. Sourcing

soil from outside the camp required negotiations with the host community to avoid conflict.

W Water consumption was high. Water meant for domestic consumption was used in brick production. Rainwater catchment systems will help to avoid this in the future.

W Though foundations increase the structure's strength, they can still degrade through contact with water. Stabilising the soil with cement will help to make them stronger.

W The inclusion of people from minority groups, such as the disabled, was not fully realised.

- The agency needs to use the refugee initiatives that emerged from this project to help redesign its strategy. Supporting livelihood activities may accelerate the construction pace and decrease costs.

- Opportunities for income-generation activities and broad environmental concerns require joint agency solutions. This kind of shelter project requires coordination among agencies working in different sectors.



Photo: Joana Carneira

Village constructed through community-based project



Photo: Joana Carneira

Brick production

Situation before emergency

Three refugee camps (Ifo, Hagadera and Dagahaley) sheltering mainly Somali refugees were established close to the town of Dadaab, in Northern Kenya, in 1991 and 1992. By 2007 they had a population of around 173,000 people.

Dadaab is an area with little vegetation and refugees' access to natural resources (including building materials) is limited. The government of Kenya does not encourage activities that are 'permanent', so refugees rely on aid agency support rather than self-sufficiency through agriculture or other livelihoods.

The camps are highly congested, creating sanitation problems and fire safety issues. The majority of shelters in the camp are of two types, both employing highly flammable roofing materials: traditional tukuls – 3.5m diameter dome structures made of wooden sticks, covered in fabric; and adobe huts – 6m x 3m shelters using a large number of sticks for walls with a roof made of local vegetation.

After the emergency

The severe flooding in the Ifo camp destroyed over 2,000 shelters and left more than 10,000 people homeless. This meant that many refugees had to move to a new camp neighbourhood, 'Section N'.

Section N was not a popular choice for many refugees. Although the ground was higher and less affected by floods, the site was further away from the market and its lack of trees meant little natural shade.

Selection of beneficiaries

Beneficiaries had been preselected by a UN agency, following standard vulnerability criteria that was verified through door-to-door checks.

Implementation

The agency faced two main challenges: convincing refugees that Section N could become a nice place to live and that improved mud-brick constructions would be stronger than the previous buildings that the refugees had seen washed away.

It was decided that the agency would follow the idea of previous shelter programmes in building mud-brick houses, but would improve the durability of the design, increase the involvement of the communities and reduce the need to pay beneficiaries for construction.

The aims of the programme and the implementation of the strategy were explained to camp leaders who disseminated the information. As well, community mobilisers (agency staff who were based in the blocks for eight hours per day) ensured that the right information was reaching everybody.

A public demonstration of 'brick throwing' to test the strength of bricks made from different soils ignited the interest of potential beneficiaries and addressed the fears of mud-brick houses being weak. The agency constructed some prototype shelters that were then used as classrooms for the construction trainees.

The agency then provided a 'training of trainers' to a small group of refugees on construction techniques and brick-making. Efforts were made to ensure

that training teams included women and the elderly. Each trainer supervised around four families per month, assisting them with layout, foundations, walling and plastering. Carpenters were deployed to give technical support on roof and latrine construction.

'It was my first job! It allowed me to support my family'. – Female refugee construction trainer

Soil-sourcing sites, both within and outside of the camp, were identified by the agency, which also supplied brick moulds, pangas (knives), wheelbarrows and plastic sheeting to cover completed bricks during the rain. Tools were shared among the community groups and returned to the agency when not in use. Water storage was provided near the soil-sourcing sites.

Agency staff maintained quality-control checks on all the constructions to ensure the safety of the houses, particularly as previous mud brick failures had been mostly due to poor construction rather than design.

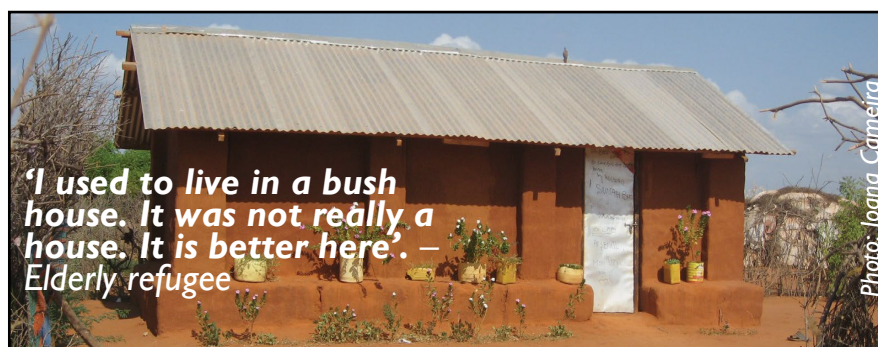
Upon completion of the mud-brick structures, the agency supplied the construction materials that the beneficiaries could not produce or purchase themselves, such as roofing sheets and doors.

The combination of a team of trainers able to transfer skills to the community and beneficiaries willing to participate in the construction of their own shelter at no cost led to full engagement of the community and guaranteed that people would maintain their properties themselves.

Technical solutions

The 6m x 3m houses required 1,700 bricks, considerably more than previous designs implemented in the camp. While disaster mitigation was primarily achieved by relocating refugees to the higher ground of Section N, extra bricks were necessary to build a thick foundation and lower wall to improve the structure's performance in heavy rains.

Eight pillars provided support for the walls and roof trusses, increasing the stability of the roof itself. Mud-brick walls were plastered with



mortar or cow dung and the roof was covered with iron sheeting. Improvements were made to ventilation to decrease the high internal temperature of previous designs.

A change in the position of the house on the plot improved sanitation. Latrines were moved to the front of the plot next to the street and the house was positioned at the back of the plot. This left space for more construction inside the plot and prevented the problems of a dirty backyard blocked by wastewater runoff.

Beneficiary modifications

Beneficiaries made a number of modifications to the new structures. These included:

- Aesthetic: Painting and decorating.
- Windows: The size was adjusted. Sometimes they were partially closed with other bricks or sticks to increase security and reduce sunlight but maintain ventilation.
- Furniture: Some families constructed beds and tables out of the mud bricks, which helped to demarcate the internal living space.
- Plot boundary: Small walls to define the extent of a plot were often built with spare or broken bricks.
- Plastering: Some families plastered their house with cement mix, making the walls impermeable.
- Gutters were made out of waste tin sheet and tin cans.
- Livelihoods: Market stalls were built as extensions onto or between houses, increasing the income of the families and providing more options for other residents to shop locally.

About 30% of the beneficiaries employed other refugees at some stage of the construction. This increased the income generated in the housing industry in the camp. Such initiatives inspired the agency to look into the

next stages of the implementation strategy, to increase the supply at lower costs and in a shorter timeframe.

Logistics and materials

Families originally used soil from planned and unplanned areas within the camp. A project to dig new garbage pits outside the camp presented an opportunity for a new soil source.

To reduce the water consumption necessary for brick production, 'spilled water' from tap stands was collected. The rest of the water was supplied by truck and stored in oil drums distributed around Section N or in water tanks if the bricks were being produced outside the camp.

Roofing and door materials were procured in the capital with support from a UN agency, while other materials were procured in the nearest large town.

The total cost of materials, including transport, was around US\$ 440 if the soil was sourced within the camp, rising to US\$ 480 if soil was sourced outside the camp. Labour costs for each shelter were around US\$ 30.

Quantity	Unit
Iron sheets (2.5m length)	20 pieces
Timber - cypress (2mx2m)	120 m
Plain sheet (2.4m x 1.2m)	1 piece
Nails 4"	4 kg
Nails 3"	1 kg
Nails 1"	0.5 kg
Roofing nails	5 kg
Butt hinges 4"	3 pieces
Padbolt 6"	1 piece
Tower bolt	1 piece
GI Ridges (1.8m length)	4 pieces
Binding wire	5 kg
Wood preservative	8 l

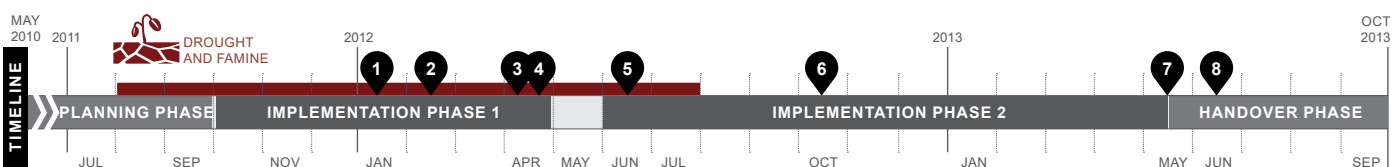
CASE STUDY 6 / A.22 SOMALIA 2011-2013 / DROUGHT + CONFLICT

KEYWORDS: Permanent housing, Resettlement, Advocacy, Infrastructure, Community participation, Land tenure

CRISIS	Complex: Drought (July 2011 - June 2012) and armed conflict. The project started at the peak of the drought in the Horn of Africa.			
TOTAL PEOPLE AFFECTED	3.7 million people affected by drought and famine crisis (Source: OCHA, 2011). 1.4 million internally displaced people (ibid.).			
PROJECT LOCATIONS	Garowe and Burtinle, Punland region, Somalia.			
BENEFICIARIES	1,200 households (8,400 individuals).			
PROJECT OUTPUTS	1,200 permanent shelters built 1,800 individuals benefitting from cash for work (masons, unskilled labourers and carpenters). Other outputs include: access road, one health centre and one borehole in Garowe, water systems in both sites, child-friendly space, public area and police post in Garowe, 14 sex segregated toilet blocks.			
SHELTER SIZE	16m² (4x4m) one room shelters (10x10m plot).			
SHELTER DENSITY	2.7m² / person (average household size of 5.9 persons).			
MATERIALS COST PER SHELTER	USD 1,693 including labour.	PROJECT COST PER HOUSEHOLD		USD 3,493 including site works, WASH facilities and organizational overheads.
OUTCOME INDICATORS	100% occupancy rate of shelters in both sites. Secure land tenure obtained in both sites.			

PROJECT SUMMARY

This was a two-year, multidonor, multisectoral, project aimed at providing a sustainable shelter solution by building 1,200 permanent houses for IDP households in two relocation sites. The shelter programme was linked to Livelihoods, WASH, Health, and Education. The project adopted holistic settlement as well as community-led construction approaches. The organization managed to secure the land and receive additional funding for complementary activities, including infrastructure, facilities and common spaces.



- 1 Jan 2012: Beneficiary selection and verification.
- 2 Feb 2012: Recruitment of staff completed.
- 3 Apr 2012: Typology design agreed and start of land titles negotiations.
- 4 Apr 2012: 45 pilot houses completed in Burtinle.
- 5 Jun 2012: Land acquisition granted from local administration and Ministry of Interior.
- 6 Oct 2012: 80 pilot houses completed in Garowe (delayed by resolving land issues).
- 7 May 2013: All 1,200 shelters and related facilities constructed, land titles processing completed.
- 8 Jun 2013: Commissioning of settlements and start of handover of houses and land titles.

STRENGTHS

- + Achievement of tenure security and establishment of durable sites.
- + Continuous engagement of all stakeholders.
- + The selection criteria were established and agreed upon by all.
- + Owner-driven approach, transparent and accountable systems.
- + Settlement approach, linkages with vocational training and savings groups.

WEAKNESSES

- Staff turnover and lack of flexibility of internal systems.
- Limited female participation and lack of gender analysis.
- The project provided only one-room shelters, that were too small to meet cultural needs.
- Beneficiaries had to be incentivized to participate in the construction.



The project built 1,200 permanent houses with accompanying infrastructure across two new sites (here, the site in Garowe).

CONTEXT

Food security in Somalia had been deteriorating since 2010, with almost all southern regions being affected; famine was declared in the Bay region, for a total of 6.4 million affected people (more than half of the Somali population). Due to this, and the instability and fighting within the country, the number of IDPs in Somalia was estimated to be 1.4 million¹. The project areas were hosting the majority of IDPs in the Puntland region, which is primarily inhabited by people from the Somali ethnic group (and of Muslim faith). Despite its relative stability, the region had also endured armed conflict.

SITUATION DURING THE CRISIS

In the wake of a severe drought and the resulting famine in 2011, the population density in Puntland further swelled, due to the influx of IDPs who were fleeing violence in South-Central Somalia, concentrating around Garowe and Burtinle, and some of the long-term IDPs who had settled in Garowe. Displaced people were searching for life-saving assistance, due to limited access to water, food, health care services, and adequate shelter. **The influx of IDPs led to increased tensions between the host community and the new arrivals**, as they competed for limited employment, access to state services and scarce resources. In Garowe, there was insufficient or substandard shelter to meet their needs¹. Additionally, **the IDP settlements were unplanned and congested**, due to the influx caused by the ongoing drought. In Burtinle, all respondents from a rapid assessment (conducted in two IDP camps) reported that the shelters were inadequate to protect from the weather. The houses were primarily *buuls* (huts made from sticks, cardboard, old rugs and tents), offering little security.

SHELTER CLUSTER STRATEGY

The Cluster response strategy in 2012 contained three pillars: 1) Emergency response, 2) Transitional shelter, and 3) Durable solutions. For the emergency response, the Cluster designed

¹ Humanitarian gaps assessment coordinated by OCHA, 2011

a minimum kit, that would be locally procured and stockpiled by Cluster partners in strategic points in Somalia and Kenya. Transitional shelter was provided to stabilized IDP settlements (in Puntland and Somaliland). Interventions ranged from shelter kits, to houses with corrugated iron roof sheets. The third pillar supported voluntary relocation, or return to the place of origin. Due to the presence of returnees from Yemen and Kenya, **the Cluster adopted an equality approach**, wherein IDPs, returnees and urban poor groups could be integrated. Although this project was initially conceived to fit under the second pillar, it ended up providing permanent shelters with secured land tenure, due to its longer engagement process.

PROJECT IMPLEMENTATION

The project was implemented by a contracted team (Finance officer, Accountability officer, Supply chain officer, Project engineers) and with additional staff, brought in on a need basis, including shelter engineers and humanitarian accountability facilitators. A **community-based construction approach** was adopted, whereby beneficiaries received construction materials and technical support to build their houses. They were likewise responsible for identifying the skilled labour and providing the unskilled labour. Each shelter unit was constructed by an average of five labourers (two masons and three unskilled workers).

BENEFICIARY SELECTION

The project aimed to provide shelter to people displaced from their homes due to conflict and drought, as well as the urban homeless from host communities. **The organization engaged all stakeholders** (regional government, elders, religious leaders, community members) **in the selection of beneficiaries**. The Accountability Officer invited committee representatives from more than 15 IDP settlements in Garowe, explaining the shelter and vulnerability criteria, as well as the selection process. The local authorities were tasked to work with settlement leaders in identifying the most vulnerable residents, based on agreed-upon criteria. Leaflets and posters were distributed in



The project established two relocation sites (here Jilab Village, Garowe).

the settlement, wherever possible, to inform the inhabitants on these criteria, which included:

- People displaced by the insurgency within the target areas.
- Drought-affected people who had lost their livestock and had no shelter.
- Rural self-settled: those outside the urban or peri-urban areas and those settled individually in small family groups on unoccupied land.
- Households hosting and supporting displaced people with housing challenges.

On top of these, the **vulnerability criteria included** age, disabilities, homeless widows, female-headed households, large families, diseases, and no access to livelihoods.

The organization carried out an **independent verification** exercise once the beneficiary lists were submitted. Although most beneficiaries were accepted, a few cases had to be changed in order to include the most vulnerable households. The verified families were issued with a beneficiary ID card, containing the information about their households.

COORDINATION AND PARTICIPATION OF DIFFERENT STAKEHOLDERS

The organization held a series of meetings with all stakeholders, to explain the implementation process. Firstly, awareness meetings were conducted with government officials. **A design workshop** was then initiated to share information with government officials from the Ministry of Interior, Regional Governor and Local Districts, IDP representatives, landowners and clan elders. Different shelter design options were presented, advantages and disadvantages were analysed, and the groups were requested to make recommendations to improve each design. **The coordination throughout the project avoided unnecessary conflicts** with the communities and other stakeholders, such as clan elders, local authorities, and NGOs.

The coordination with cluster members contributed to ensure that basic standards were maintained, based on cluster guidelines. Effective coordination and information sharing with other sectors, particularly the WASH Cluster, enabled the organization to learn from partners' experiences and achieve project goals successfully.



Settlement planning included public spaces.

BENEFICIARY ENGAGEMENT

During construction, **the beneficiaries were responsible** for ensuring that the houses were built according to their expectations, as well as for receiving and taking care of the construction materials. The community was also able to **provide feedback through suggestion boxes** in each site. **Regular monthly meetings** were held with the government and beneficiaries to discuss project progress, achievements, challenges, areas of improvement, as well as follow on the feedback received.

LAND TENURE SECURITY

The organization advocated from the beginning of the project to secure land tenure for IDPs, as a precondition for building the shelters. One of the challenges was that the beneficiaries in most cases were from different clans than the land owners. It was decided that these households should be protected and have access to secure land tenure. Government officials agreed to provide titles, as long as the organization would cover the registration costs. The organization publicized the contents of land documents to all stakeholders and further worked with the media to create **public awareness**, that the shelter units provided under this project were not for rent or sale. The Ministry of Interior reposed any shelter unit that was being sold or rented and re-allocated them to other people still living in the IDP camp. This aimed at discouraging people from infiltrating the system with the aim of making profit.

However, the process to obtain tenure security was lengthy and delayed the project, especially in Garowe. Therefore, the team decided to separate the issues of Burtinle and Garowe, in order to not delay the whole project.

In Garowe, **the government was forced to stop the construction** of houses after the organization indicated that permanent houses could not be implemented on land with insecure tenure. The government was then requested to secure freehold land for the IDPs, if these houses were to be implemented as per the agreed design. **A meeting was held and broadcast on television**, with different sectors of the government, humanitarians, elders, and influential businessmen in the town, during which the government pleaded to allocate special land for the resettlement of IDPs. This resulted into a piece of land meas-



Households received construction materials and technical support, had to identify skilled labour and provide unskilled labour themselves.

uring 1,000m by 150m being allocated to the organization for the shelter project, which was further subdivided into plots of 10m by 10m for each household.

In Burtinle, the process was smoother, as the organization was permitted to build on three existing sites that were identified for the upgrading of makeshift shelters into permanent houses.

Ultimately, the project's ambitious goal was achieved in both locations, with **land allocated without time limitations and relevant legal titles**, signed by the Ministry of Interior and issued to each beneficiary, as part of the handover process. In particular, the titles were legal documents recognized by the society and the sharia courts, and MoUs were signed with the organization. Notably, the project also included women as household title holders.

MAIN CHALLENGES

Apart from general **security and access constraints** for international staff, **one of the major challenges was related to staffing**, as it was hard to recruit local engineers. The organization therefore suggested to hire engineers from Somaliland, but faced stiff oppositions from the Ministry of Labour. This delayed the employment process, though ultimately local engineers were identified.

Another challenge was to **uphold humanitarian accountability principles**, given that the government tended to assume they would take the lead in communicating with the communities, instead of the organization. More advocacy on the importance of accountability to all stakeholders should have been factored in from the start.

MATERIALS AND SUPPLY

All the construction materials were procured locally. The suppliers were provided with information on the beneficiaries, including the resettlement site and plot number. The materials were then distributed to and received directly by the beneficiaries, using supplier's vehicles.

While the local market in Garowe was able to accommodate the higher demand, the project in Burtinle was partially delayed due to **lack of materials**. The project team held meetings with suppliers and government officials, in order to have the neighbouring businesses to assist, even though this was initially objected.

Due to the high demand, **the price of materials rose**. Meetings were held with the settlement leaders and the government officials, to explain that the project budget was fixed by the donor, thus higher prices would mean less beneficiaries. Additionally, in order to reduce the costs, the organization suggested to **order goods directly from manufacturers**. In the end, both suppliers and government officials agreed to keep the prices stable, unless it was demonstrated that the increase was due to external factors.

WIDER IMPACTS OF THE PROJECT

The long-term engagement with the regional government served not only to build the capacity of the government but also to legitimize its efforts and the goals of the overall project, particularly on land tenure issues. The organization helped to establish the government as a credible voice and partner in the well-being of Puntland residents. Reciprocally, the government formally recognized the site in Garowe as "Jillab Village".

One of the most striking discoveries in the impact evaluation was the **dramatic reduction of crime from the IDP camps to the resettlement sites**. In both sites, village elders reported only a handful of petty crimes within memory. Women, men and youth unanimously reported feeling safe in all parts of the compounds. Additionally, the evaluation indicated a **reduction in gender-based violence**, according to the elders and settlement leaders, to which they credited lockable windows and doors in the new shelters.

Finally, the lessons **learned from this project were applied** in another shelter project that the organization started in Dolow.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

MATERIALS LIST FOR ONE HOUSE (ESTIMATED BEFORE COMPLETION)

Description	Unit	Quantity	Rate (USD)	Tot. Cost (USD)
Stones	m ³	4.4	6.25	27.50
Aggregates for concrete (gravel)	m ³	0.5	10.50	5.25
Sand	m ³	1.3	6.25	8.13
Portland cement (50kg)	Bags	16	8.00	128.00
Blocks (40x15x20cm) made from 1:7 mix cement-sand	No	700	0.65	455.00
Stirrups, 6mm mild steel diameter, 6m long	No	8	2.50	20.00
Steel reinforcement 10mm diameter, 12m long	No	6	12.00	72.00
Roofing Nails	Kgs	3	2.50	7.50
Wire nails - assorted	Kgs	6	2.20	13.20
Galvanized iron sheets, 2.4m long of 28 gauge thickness	No	18	9.00	162.00
Galvanized iron ridge caps of 30 gauge thickness	No	1	9.00	9.00
Roofing timber, 2"x2", 3.9m long	No	9	5.00	45.00
Roofing timber, 2"x3", 3.9m long	No	15	6.00	90.00
Formwork timber, 1"x6", 3.9m long	No	8	6.50	52.00
Steel door complete with frame, hinges, locking system – 1x2.2m	No	1	60.00	60.00
Steel window complete with frame, hinges, locking system - 0.85x1m	No	2	30.00	60.00
Formwork timber 1"x2", 3.9m	No	2	2.50	5.00
Labour costs	Lump sum			343.00

WEAKNESSES

- **Staff turnover and lack of flexibility of internal systems** and processes impacted the project timeline. For example, the regional accountant and his deputy resigned during the implementing period and no replacement was found for long. This affected the timely processing of financial reports and delayed the procurement approval process, as some decisions had to be referred to Nairobi.

- **Limited female participation.** Gender inclusion in Somalia is bound by cultural and religious considerations, which affect the ability to engage female staff and beneficiaries to the same extent as males. **Programmatic gender analysis is necessary** and should be built into monitoring systems, in order to tease out power relations and influence biases, flag the level of women participation in the project, and inform actions to improve equitable participation.

- Although in Somalia the common practice is to build several single room shelters (tukuls) for one household, which offer privacy for parents, children, relatives and can accommodate large families, **this project provided only one-room shelters.** These could not meet these family needs, however, houses could be further expanded on the plot allocated to each family.

STRENGTHS

+ Achievement of **tenure security and establishment of a community** in the targeted areas. Positioning the Housing, Land and Property focal point to coordinate with the government contributed to the strategic engagement and capacity-building of the authorities.

+ **Continuous engagement of all stakeholders** to explain the beneficiary selection and the implementation process. This was found to have significantly contributed to managing the expectations of suppliers and local authorities, as well as reduce rumours of theft and misappropriation of project assets and materials.

+ **The selection criteria were established and agreed upon by all stakeholders.** Beneficiaries were able to understand and explain the reasons why they qualified for assistance; the same was true for those who were not selected. This shows how effectively the information was shared amongst the community, and how transparent the system was.

+ **Continued engagement of beneficiaries** and owner-driven approach to construction. This included **the transparent and accountable systems** that were established for the beneficiaries, to be in control of the materials received and accepted. For instance, beneficiaries refused to accept the supply of blocks when these did not meet the agreed upon standards.

LEARNINGS

- **Beneficiaries had to be incentivized to participate in owner-driven construction.** This required a good understanding of the local context and skilled community motivators. As the interest in participating in manual construction work was low, the project team advised beneficiaries that they would be given priority if they provided labour.
- **Being clear and consistent from the beginning** on the mandate of the project, and sharing the objectives with relevant authorities, forced them to identify a suitable piece of land.
- **The settlement-based approach allowed the team to consider the root causes of vulnerability in this region** and to avoid the “bandaid after bandaid after bandaid” situation. The organization has embedded disaster risk reduction and resilience building into its development and humanitarian practice, ever since.
- **Linking the programme to vocational training and saving groups helped people to build new skills and earn money.** Offering options is important, as it allows community members an **opportunity to exercise choice**, helping to ensure that they are more than passive actors in the process and can thus find solutions tailored to their needs.

7 / A.28 Somalia – 2011 – Famine / Conflict

Update:

Keywords: Urban neighbourhoods, Household NFIs, Construction materials, Transitional shelter, Site planning, Infrastructure, Coordination.

Country:

Somalia

Project location:

Mogadishu

Conflict / disaster:

July 2011 Famine and Continuing conflict

Number of people displaced:

200,000 IDPs in Mogadishu

Project target population:

Approximately 36,000

Project outputs:

3,645 housing units complete
WASH and health facilities

Occupancy rate on handover:

100 per cent - November 2012

Shelter size:

15.8m² (3.6m x 4.4m)

Materials cost per household:

US\$ 420



Project timeline



Project description

The Tri-Cluster project is a coordinated group of 16 projects implemented by 14 partners across the sectors of shelter, WASH and health. Zona K in Mogadishu was chosen as the target area as it had the densest concentration of IDPs and was the least likely IDP settlement to be evicted once Mogadishu stabilised and developed. The project goal was to improve the protection for displaced people living in Zona K through improved settlement planning and the provision of integrated services from multiple sectors.

Strengths and weaknesses

- + Regular coordination meetings achieved a common understanding of aims and objectives amongst all partners.
- + By integrating services the project was able to act more efficiently to provide shelter, access to water and sanitation and basic health services.
- + Settlement planning has enabled organisations to have better access and the beneficiaries have an enhanced sense of community. Displaced people were involved in the development of context-specific planning standards which helped manage expectations.
- Underestimation of the impact of other projects funded through other sources active in the same project area.
- Although eviction is unlikely in the short-term, there is no clear ownership of land and so displaced people are vulnerable to the Somali 'gatekeepers'.

- A weak community structure combined with the fact that many people were already settled within the settlement meant that it was not always possible to follow site plans and meet minimum standards.
- Communal spaces have been eroded by an increase in the numbers of people living in Zona K.
- As the sectors work at different levels (shelter with households, WASH with groups of five families per latrine and health with the whole community) synchronising activities required complex work plans.
- Mapping all the stakeholders in the process was difficult, and their influence changed over time.
- The project had a high profile, putting implementing partners under pressure to produce results quickly, compromising planning and construction quality.
- The Tri-Cluster coordinator took on many of the camp management and camp coordination duties.



An urban area of Mogadishu was re-planned and many organisations worked together working in three sectors of intervention. These shelters have been upgraded by inhabitants who have built their own external shaded and cooking areas.

Photo: Richard Evans

Before the displacement

Mogadishu has hosted displaced people from conflicts since 1991. However, as drought worsened in late 2010 and famine approached in early 2011, more and more Somalis were driven away from rural areas to Mogadishu looking for assistance and safety.

Displacement was compounded by the ongoing conflict in Somalia.

After the displacement

Upon arrival in Mogadishu, the Internally Displaced Persons (IDPs) settled on any unoccupied land. This process of self-settlement meant that there was no site planning. Services such as water and sanitation, and access to the 100 or so settlements were sporadic. As the number of sites closer to the centre of town reduced and as Al-Shabaab's influence lessened, many IDPs settled into the area which became known as Zona K.

Zona K's mixed ownership, between the government, the university and some private individuals, meant that it was one of the least likely sites to be evicted. By the end of 2012, the site covered an area of over 3km²

with an estimated 70,000 IDPs living in make-shift shelters called buuls (traditional Somali thatched shelter). These were constructed by the IDPs themselves from scavenged materials and items received from humanitarian organisations.

Any attempt to coordinate settlements in Mogadishu would have directly interfered with the economic relationship between the host population and the IDPs. As a result, no formal camp coordination mechanism was established.

As a response to the influx of IDPs into Mogadishu, a three-phase strategy was developed in July 2011:

- Provide all displaced people with a non-food item packages
- Provide transitional shelter solutions
- Provide site planning to improve living conditions and access to other basic services such as WASH and health.

The shelter coordination did not advocate the creation of new settlements for the IDPs. This strategy was attempted in Puntland (see A.8 in *Shelter Projects 2008*) but was not

very successful. Instead, the Cluster advocated that organisations should provide humanitarian assistance to the locations where IDPs had self-settled. This has been the approach in Somaliland and Puntland where the conditions and access are more favourable.

The mechanics that control the creation of new camps were deemed too complex and unpredictable to encourage new sites.

Implementation

Under the umbrella of the Tri-Cluster there were five shelter projects, with a total value of US\$ 4 million.

The first project focused on mapping the existing settlement, producing settlement plans, and creating access roads and storm drainage.

This mapping was followed by consultations with the beneficiary community and landowners to ensure that people would not be evicted once work was completed.

One organisation chose to work through long-standing partner organisations while the

other contracted the work to local construction companies.

Where possible the implementing organisations followed the site plans, but they were often forced to deviate from them. Reasons for this included the need to accommodate new demands from stakeholders, the construction of new permanent structures that had been built after the initial mapping, and the need to accommodate a larger population.

Once the shelters were completed, two local organisations provided non-food items, including blankets, kitchen sets, jerrycans and fuel-efficient stoves. Beneficiary lists were provided by the main shelter partners, and distributions were undertaken once the shelters were handed over.

Selection of beneficiaries

The whole area was sub-divided into 25 zones, and settlement planning was based on the displaced population at the time of mapping. The two main organisations started in different zones and completed all the construction before moving on to the next. Every IDP that was registered received a shelter and non-food item kits. The other Tri-Cluster partners provided sanitation and water points in the locations identified during the planning process.

Coordination

Effective coordination was crucial for success, as there were 16 projects operating in a very concentrated area. In addition, there were many actors who were already working in Zona K. Therefore, a dedicated Tri-Cluster coordinator was brought in to act as a focal point for the 16 projects.

Initially there was reluctance from some of the implementing partners to work under the same umbrella. The WASH and health partners did not want to wait for the mapping process to be completed, and wanted to implement projects immediately, regardless of the output from the planning phase.

Over a series of meetings, the importance of coordinating activities was emphasised and a plan was developed where some activities



The project integrated shelter WASH, health and site planning. Photo: Richard Evans

could be carried out at the same time as the mapping.

Coordination and communication was needed with the local authorities ensured that they were aware of the project and its implications, and that they approved the temporary development plans. As the final shelter solution was semi-permanent (5 to 10 year lifespan), the urban planning undertaken as part of the Tri-Cluster, will influence the development of this part of the city. Access roads created now, will be the main roads for years to come.

Technical solutions

The shelter actors worked with the main partners to identify a unified shelter typology. Initially, US\$ 80 shelter kits were planned as the land tenure was not known. Later, a 'hybrid' between plastic sheeting and corrugated galvanised iron (CGI) was adopted during the planning stage. This provided a better quality shelter while also keeping a light footprint. The design was developed further just before the construction phase into a full corrugated iron model, partly due to donors and partly due to protection concerns.

Future

The Tri-Cluster project was expanded for 2013 to include education and protection focused projects. It was planned for an additional shelter agency to join the

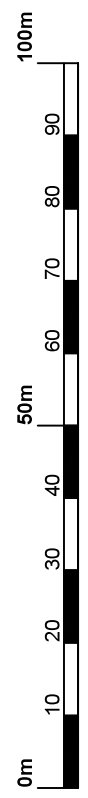
existing two partners, and 3,000-4,000 more shelters were planned.

Once the framework and common understanding on coordination was created, it became feasible to add additional sectors and projects.

The Tri-Cluster approach came about because the Humanitarian Coordinator considered that shelter, WASH and health were the most pressing needs for the IDPs. At the time there was surprise that other sectors were not also included in a multi-sectorial approach. However, the coordination of just three sectors was difficult enough, and in retrospect the presence of additional partners and targets may have reduced the effectiveness of the entire intervention.

Generally, once an organisation secured funding, the focus was immediately on implementing as quickly as possible in order to meet project targets. To combat this "tunnel vision" amongst organisations, the successful multi-agency approach invested heavily in communication and consultation. This always takes time.

Starting with just 3 sectors enabled a culture of coordination to be ingrained. Only once the coordination was working with a few key partners was it possible to expand to the full array of humanitarian services.



Sector 3.2	
Planning Population:	1248
No. of Shelter:	192
No. of Latrine:	11 (block unit of 3)
No. of Water Point:	2 (6 taps unit)
No. of Garbage Point:	1
Area of Health Center:	240 m ²
Area of School Space:	0 m ²
Area of Open Space:	630 m ²
Area of Communal Space:	290 m ²

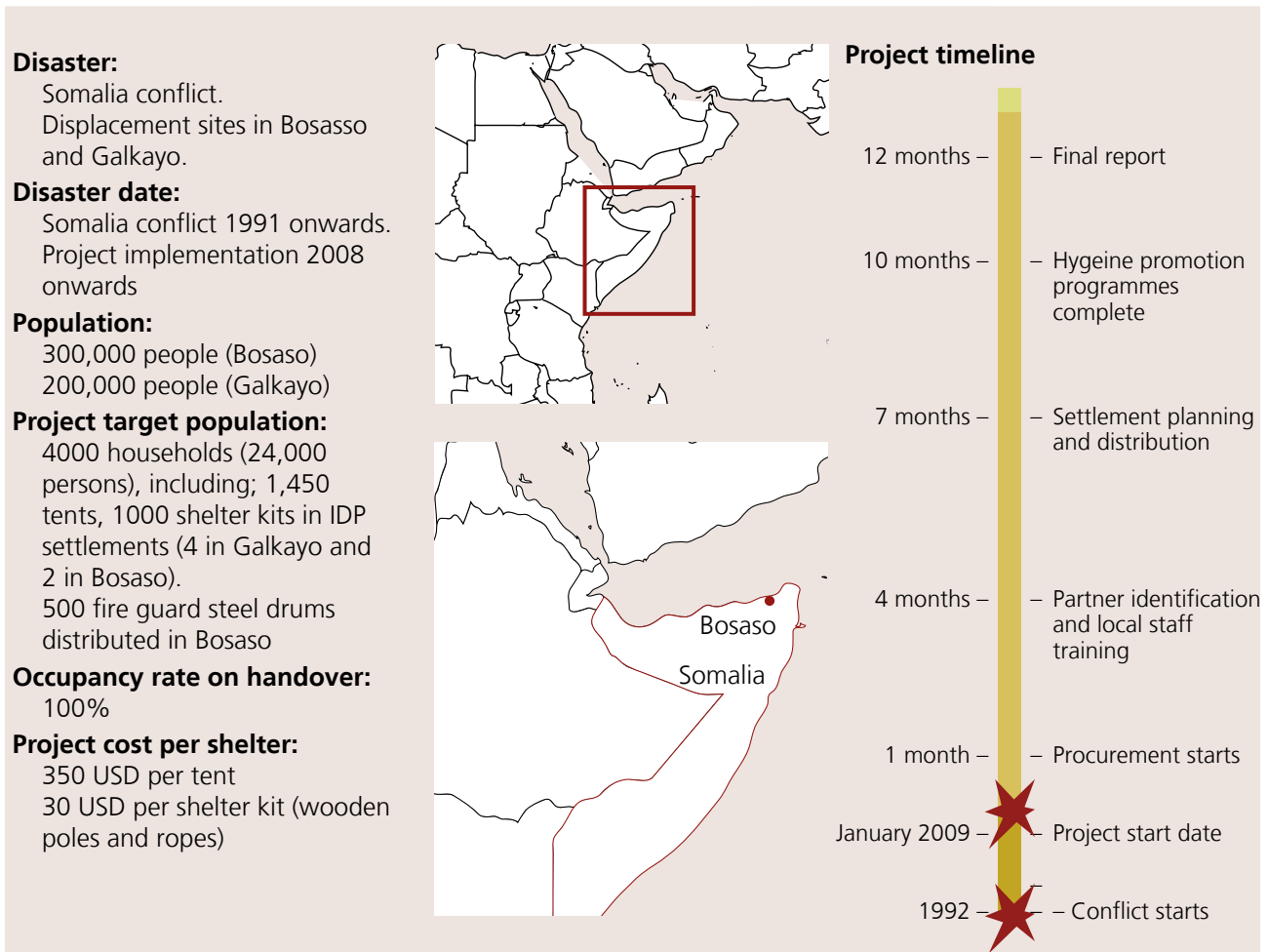
- ### Important Notes
- Proposed New plots for Shelter:** Community mobilization for Demarcation of plots 5.1m x 6.9m per Household prior the implementation of shelter.
 - Proposed Communal Latrines:** The shown (newly proposed) communal latrines (L) are a preliminary design. Latrines are combined with wash rooms and separated by gender. Septic tank oriented to access road. The WASH Cluster will define a unified final design.
 - Measurements:** Distances are indicated from from shelter wall to center line of an existing road/access path.
 - New Water Points:** Technical implementation planning to be done by implementing WASH agencies and in line with overall Tri-Cluster Water Infrastructure plan for zone K.
 - Spatial Reserves for social services and communal space (CS)** around open spaces, existing schools, creation of new open space etc.
 - New Health care facility spaces (H)** are additional spatial reserves along main access roads.

- ### Legend
- Existing structures & facilities:**
Based on GPS survey Aug-Sep 2012
- Water Point / Water Point non-func.
 - Water Tank / Water Tank non-func.
 - Water Borehole
 - School
 - Health Facility
 - CGI structures
 - Trees / Bushes
- Proposed New Shelter and Facilities:**
- Shelter new 4.4m x 3.6m (Design by NRC/DRC)
 - Block of 3 Latrines & 1 Shower new (Design by WASH Cluster)
 - Water Point (6 taps) new
 - Reserve for Garbage Collection 4m x 4m (Container or Enclosed Collection Point)
 - Reserve for Health Post
 - Reserve for commercial use (min. 10m x 5m with assistance)
 - Reserve for IDP school (min. 10m x 5m with assistance)
 - Reserve for multi-purpose use (central kitchen/massage/police post, etc.)
 - Open Spaces new (playgrounds, sports field, etc.)

Site planning for the urban areas of Mogadishu. Different potential plans were shared with focal groups. In the end, row planning was chosen because people could understand it better and could clearly mark the extent of their 'land'. This would make it easier for people to know what belonged to them and help to avoid conflicts.

8 / A.15 Somalia - 2009 - Puntland, Bosaso

Case study: Urban shelter upgrade

[Full case study](#)


Summary

To meet the shelter needs of displaced people living in urban temporary settlements in the cities of Galkayo and Bosasso in Somalia, multiple approaches to shelter were used. To reduce risk of fire, fire breaks were made, sites were cleaned up, safe cooking areas were established and stoves were distributed. To meet shelter needs tents were designed and distributed. Additional support was provided in sanitation, hygiene promotion, and the construction of latrines.

Strengths and weaknesses

- ✓ Flexible approaches to shelter were adopted to meet local needs.
- ✓ Installing fire-breaks or re-planning sites, supporting communities to clear refuse in urban settlements, and providing oil drums for cooking in urban settlements proved to be the most effective way securing shelters against fire.
- ✓ Programmes were closely coordinated with other organisations operating in the cities.
- ✓ Shelter programmes were closely integrated with site layout and water and sanitation programmes.
- ✗ Long term maintenance and support is required to ensure that fire breaks remain and sites remain clear of flammable debris.
- ✗ Solutions and activities in displacement sites remain temporary fixes.
- ✗ Sanitation remained a significant concern after the programmes.
- Limited funding availability and challenging security made project implementation challenging.



A congested site in Bosaso
Photo: Øyvind Nordlie



Aftermath of a shelter fire in Bosaso
Photo: Jama Yasin Ibrahim

Puntland context

The major populations of displaced people in the Puntland region of Somalia are centred in dense urban settlements in the city of Galkaiyo and in the port city of Bosaso. Outside these settlements, many people have also settled in the compounds or on the land of host families dispersed across the city. The number of displaced people had been increasing over previous years and the capacity of agencies to provide adequate social services is stretched. Humanitarian access is hindered by insecurity.

In Bosaso, the climate is exceptionally hot and dry (with annual rainfall under 100mm), and there are strong winds. Galkaiyo is less windy but still hot and dry. Climate combined with overcrowding, poor sanitation and social tensions means that large groups of shelters were frequently destroyed by fire.

Most of the settlements were controlled by gatekeepers who insist that the assistance is first provided to them, promising that they will then undertake the activities themselves. There were also issues with people taking control of assets once services were provided.

There was a lack of garbage disposal systems. Vector controls, dustbins, garbage collection points and landfills are almost nonexistent in Bosaso and Galkaiyo.

Technical solutions

Tents, plastic sheeting and traditional shelters are not fireproof; there were insufficient funds to build more solid shelters on a large scale, so multiple activities were required to reduce fire risk. These activities included:

- clearing sites of flammable refuse,
- establishing fire breaks within sites, and improving planning,
- removing the most flammable of shelters and replacing them with tents,
- establishing fire points,
- distributing stoves and cooking shields to reduce the risk of fire spreading,
- when shelters had been burned, emergency shelter kits containing sticks, ropes and plastic sheeting were distributed in emergencies

A stock of shelter kits was built as an immediately available response to fire outbreaks and

other emergencies in Bosaso and Galkaiyo. Stocks were released after a joint assessment by organisations working on shelter programmes.

Settlement Selection

Criteria for selecting which community to work in were:

- settlements that had received no assistance before the project,
- in Galkaiyo, items were distributed to newly displaced families receiving shelter.

Sanitation activities focussed on:

- settlements with little or no sanitation facilities,
- settlements where protection violations had taken place due to lack of sanitation facilities,
- settlements where land was available for the construction of latrines at a safe distance from water sources,
- settlements where the community was willing to participate in the construction and maintenance of latrines.

Water scarcity in the settlements posed a challenge for improving hygiene in the targeted communities. Through the shelter cluster, the organisation advocated though

the WASH Cluster in Nairobi for the provision of water for IDP settlements in Galkaiyo.

Consulting and involving IDP committees from the onset was prioritized to improve participation. Although this resulted in delays, experience and understanding were gained that sped up the implementation as a whole.

Protection concerns were included in all of the stages of planning and the implementation of the project. 93% of beneficiaries were female-headed households. In total, of the 830 people who benefited from training, 41% were female.

Selection of beneficiaries

Host communities living within the IDP settlements in the same living conditions were included in the programme. Vested interests from the local and federal authorities proved to be challenging as a result of the huge need of the population compared to available resources.

Both displaced people and host family members were included in the projects. The project targeted:

- disadvantaged and marginalised displaced people
- newly arrived displaced people (from 2006 and beyond),
- people who had been displaced many times within the temporary settlements,
- families whose homes are badly or totally destroyed,
- vulnerable members of the local host community living in the periphery of the IDP settlements.

Implementation

Seven shelter staff were engaged to implement the project and to provide technical support to local partners.

There were regular meetings with agencies in Puntland to discuss



interventions and jointly share information. Lists of targeted beneficiaries and locations were discussed to ensure that duplication was avoided and the maximum number of people were reached.

Local partners were funded to erect tents and construct latrines.

Logistics and materials

The organisation directly procured community cleaning kits and distributed them during cleaning and hygiene promotion campaigns.

Kits of household items and tents were procured through internationally advertised tenders, as there were limited stocks available in local and regional markets.

A combination of very poor quality materials and strong winds meant that previous tents had very short lifetime. For this reason a frame tent was carefully developed with suppliers. During the process of this tent development, two batches of samples were requested, and the final model was signed off during a final visit to the manufacturers in China. The final detailed specification was subsequently shared with other organisations.

Delays in procurement and delivery of the tents was a major challenge.

During the programme, a conflict broke out between the two administrations in Galkaiyo in December resulting in suspension of activities.



Left: Shelter materials distribution. Right: cleaning up a shelter site
Photos: Jama Yasin Ibrahim

All materials for the erection of the latrines (cement, timber and iron sheets for the walling and roofing, used oil drums, paints and plastic pipes) were procured locally in Bosaso and Galkaiyo by the local cooperating partners. They were instructed to use procurement procedures, approved by the international organisation that was funding the project.

Shelter kit - Galkaiyo

Kit for reinforcing existing shelters:

Material	Quantity
Plastic sheeting 4m x 5m	1
Timber poles (different sizes)	10
Rope	50m

Shelter kit - Bosaso

For families whose shelters have recently been destroyed by fire.

Material	Quantity
Wooden poles	32 (3- 3.5m long each)
Rope	100m
Plastic sheet (5m x 4m)	2
Sleeping mat	1
Household items kit	1

Community cleaning kit

Each kit for 10 households, 175 distributed in total.

Materials	Quantity
Rake	1
Wheelbarrow	1
Spade	1
Garbage disposal drums	1
Bill boards for public information	as required

9 / A.8 Somalia - 2007 - Civil Conflict

Resettlement

Project type:

- Resettlement project
- Support to local authorities in sourcing private land
- Security of tenure to IDPs and urban poor
- Provision of extendable one-room shelter
- Service provision to family plots

Emergency:

Somalia civil conflict – 1991 onwards (chronic emergency)

No. of people displaced:

400,000 IDPs in Somalia before 2007; 1 million in 2008
25,000 IDPs estimated to be in Bossaso

Project target population:

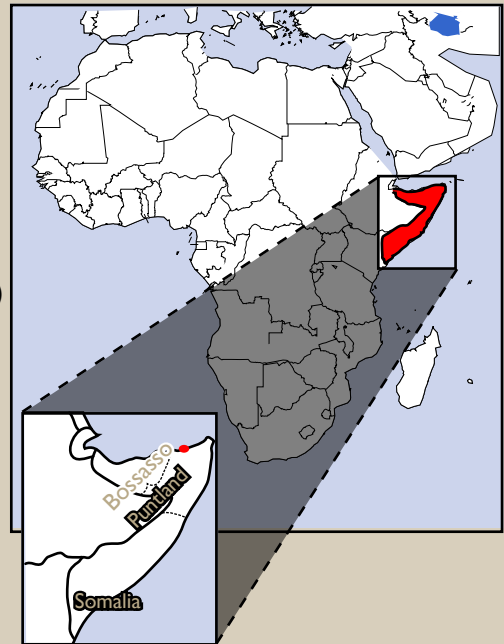
140 families; 80% IDPs and 20% urban poor

Occupancy rate on handover:

100% of resettled IDPs (112 families);
25% of urban poor (7 of 28 families)

Shelter size

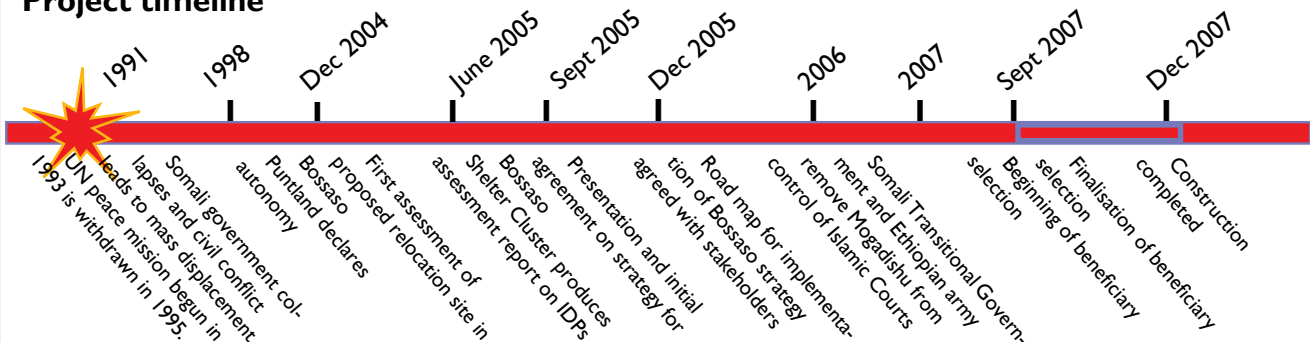
13.5m² extendable shelter on a 7.5m x 15m plot (including shower and toilet)



Summary

A resettlement project in Puntland, Somalia, preceded by in-depth discussions on the concepts of access to land for IDPs and related negotiations on land rights. A consortium of agencies built a serviced community settlement supporting beneficiaries in the construction of extendable single-room houses and providing them with temporary shelters on their new plot.

Project timeline



Strengths and weaknesses

X Beneficiary involvement in construction increased a sense of ownership and sometimes meant a higher quality of workmanship at lower cost compared to contractors. Contractors were necessary for some of the infrastructure works.

X Announcing the outcomes of meetings publicly was one way of avoiding a breakdown of communication with local authorities and ensuring transparency.

- In a place without clear land policies, laws or record systems, land issues were complicated and sensitive and required careful investigations, localised responses and public awareness-raising through mass media and meetings.
- Joint planning and implementation by agencies through

a coordinated system was necessary to limit manipulation of the process by powerful groups.

- Although slow, the beneficiary selection process used simple and verifiable criteria that ensured that the target group was assisted.

- Donated land does not always guarantee sufficient quantity or quality of land. As a result, an integrated urban development plan can be hard to develop. Assessment of land suitability and direct discussions with private landlords to clarify donation conditions are necessary before land is formally donated to the municipality.

W Working with the municipality was difficult, due to its low capacity, high turnover of staff and overlapping responsibilities with the clan system. Documenting

Strengths and weaknesses (continued)

decisions and agreements made was of little help due to literacy issues.

W Selection of beneficiaries took much longer than expected, so some construction work began before knowing who the final beneficiaries would be. This limited participation.

W At times not all the humanitarian agencies involved communicated the same messages. This meant that agreements sometimes had to be renegotiated.



Photos: Ombretta Tempira

Sites and services: the project focused on negotiating land and providing access, secure compound walls, water and sanitation.

Background

Bossaso is a coastal town in the Puntland region of northern Somalia. Puntland, with 2.8 million mostly nomadic/pastoralist inhabitants, has been semi-autonomous since 1998. Due to its relative stability, it has become an attractive area for IDPs fleeing conflict in South Central Somalia.

Bossaso has a significant population of IDPs, many of whom had been present for over ten years. The livelihood opportunities created by the fast-developing port of Bossaso is a strong pull factor, along with some IDPs' clan connections in the area.

There is no land administration and there are few documentary records, so customary law, secular law and sharia law all overlap.

Aim of the project

The idea of the permanent resettlement project was to substantially improve IDP protection, security of tenure, access to basic services and infrastructure (especially water and sanitation), and to provide a solid base for income-generating activities (renting out rooms, space for shops or productive activities), in addition to the provision of a better shelter.

Freeing IDPs from paying rent for inadequate shelter meant that they could use resources for basic services, such as education and health. Construction training would provide beneficiaries with new skills.

The project indirectly tackled governance-related issues relating to land, and broader urban development and city planning issues. Approaching these issues directly, without a clearly visible project, would have been difficult.

Implementation

Negotiations with authorities for accepting the permanent resettlement of IDPs within Bossaso, and the relative provision of suitable land, began in 2004. These negotiations were linked to a joint UN strategy for IDPs in Somalia published in 2005.

Once a strategy for Bossaso had been agreed upon between humanitarian agencies and Bossaso authorities, the project began in 2006. It was implemented by a consortium of agencies, all of whom were represented in the newly established Somalia Shelter Cluster.

Construction was completed by the end of 2007. The duration of the project was longer than initially envisaged, due to difficulties in obtaining land, a long beneficiary selection process and the challenges of maintaining consensus with a relatively unstable and inexperienced local government system.

Land issues

The original site proposed by the local authorities was rejected on the grounds that it was too far from the town and limited economic integration of the IDPs with the host community. This was a key requirement by the

agency to improve livelihood opportunities for beneficiaries and promote peace between the IDPs and the host population.

A committee was established to identify land within the current urban growth areas. During Ramadan, calls were made for land donations. Five of the offered sites were selected and officially handed over to the municipality. The land transfer was endorsed by the sharia court in December 2005.

With no clear legal framework in Puntland, customised 'letters of allotment' had to be developed to substitute for an 'ownership title'. Beneficiaries received the right of occupation, use and inheritance for the first 15 years. After this, each family would also acquire the right of disposal (selling the property for profit). For the document to provide the strongest protection for IDP tenure, it was signed by the beneficiary, the mayor, the minister of local government and the magistrate of the sharia court.

Selection of beneficiaries

Beneficiary selection took longer than planned. Some 80% of plots were to be allocated to IDPs and 20% to poor families from the host community. This approach limited the interest of powerful members of the host community from exerting too much influence in the selection of IDP beneficiaries. Post-occupancy assessments found that few of the urban poor beneficiaries in the project



Many of the sites initially offered were rejected because they were far from Bossaso and possible livelihoods. The five selected sites were donated following requests for land made during Ramadan.

occupied their site, preferring instead to rent out the new accommodation or leave the house empty, while the occupancy rate on project completion from IDP families was 100%.

The selection process, managed by the multi-representative Bossaso selection committee, began in September 2006. IDP beneficiaries were selected by April 2007, but agreement on urban poor beneficiaries was not reached until November 2007.

Before selecting individual families, the IDP settlements with the worst shelter conditions were identified. Selection committees were formed in each of these settlements and were tasked with putting forward individual households who had lived in Bossaso for more than six years, with no fixed assets and at least three children. More detailed 'vulnerability' criteria were rejected due to the complexity of Somali family structure and the lack of identification documents.

Selection lists were made public to allow time for complaints to be investigated (one of the settlements produced a list that excluded an ethnic minority). The final selection of the 112 IDP families was made through a lottery broadcast on local TV and radio, which was deemed a fair method by beneficiaries.

'Compared to the shelter I had before, I can now say that my life has improved 100 percent. The resettlement programme was completely transparent and well done'.

Technical solutions

This project provided the infrastructure for a serviced community settlement, well integrated with the host population, and support to IDPs for the building of individual dwellings within the settlement.

Contractors were used to trace roads for the new settlement and connect it to the municipal water supply. This also benefited those living along the route of the new water pipes. An ongoing solar-powered street lighting project was also started towards the end of the project.

A plot was provided within the settlement for each family to construct their own house, with support from the consortium.

Two different agencies implemented the construction of the 140 housing units in two phases using contractors. The first phase took five months and involved the construction of foundations, boundary walls, sanitation (shower, toilets and septic pits) and a 4.5m x 3m floor slab. Phase I cost US\$ 1,850 per housing unit.

The second phase began after beneficiary selection was complete and took three months, finishing in December 2007. The beneficiary families moved onto their plot, living in a temporary tent-like shelter provided by another agency until the work was completed. The temporary shelters were later used as additional rooms or for storage.

Food for work for a maximum of 30 days was provided to beneficiaries for the construction period, along with US\$ 30 to hire a mason (families sometimes did masonry work themselves, with technical support, and kept the money). The main agency provided technical support in the form of cash for skilled labour and employment of a foreman for supervision.

Giving the families the opportunity to select their own mason (rather than following the wishes of the local authorities who wanted the whole construction process contracted out) meant that they had greater quality control over the work done and allowed the agency to avoid the problems of a tendering process.

The cost for the second phase was US\$ 580 per housing unit. This excluded agency staff costs and food-for-work contributions but included all other logistics, administrative and material costs.

Logistics and materials

Materials were procured locally, with contractors responsible for their own procurement.

Bill of quantities

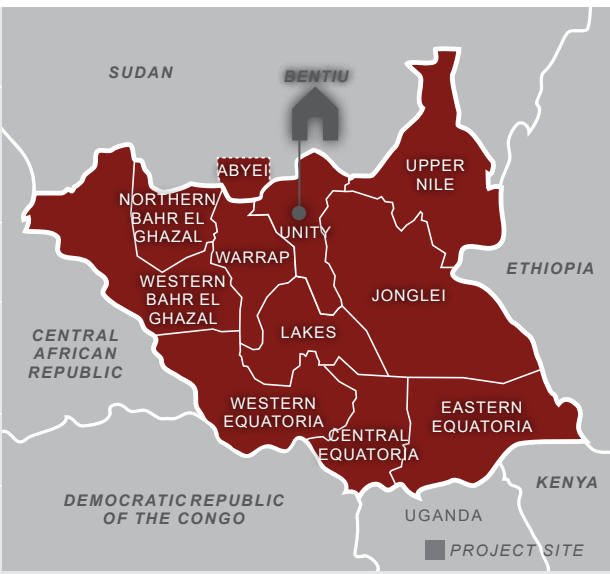
The following table shows the bill of quantities for Phase 2 of the project, averaged for a single unit (some units were corner units rather than free-standing).

Materials	Quantity
Hollow concrete blocks (150 mm x 390 mm x 180 mm)	281 pieces
Cement for mortar and concrete ring beam	5 bags
Sand for mortar and concrete ring beam	1 tonne
Aggregate / ballast for ring beam concrete	0 tonnes
Y8 bars (12m long) for ring beam	4 pieces
R6 rings (6m long) for ring beam	2 pieces
6x1 white wood for form work	12 metres
28-gauge galvanised corrugated iron sheets	14 pieces
Structural grade 150 x 50 (6' x 2') timber roof rafters	18 m
Structural Grade 75 x 50 (3' x 2') timber roof purlins	27 m
Roofing nails	1 kg
Ordinary wire nails	1 kg
Steel single doors (0.8m x 2m)	1 set
Double leaf-steel window (1m x 1m)	1 set
White wash	4 bags
Brushes for whitewashing	2
Bamboo/rope for ceiling mats	As required

CASE STUDY 10 / A.25 SOUTH SUDAN 2014-2016 / COMPLEX

KEYWORDS: Emergency shelter, Site planning, Phased construction, Infrastructure, Planned camps

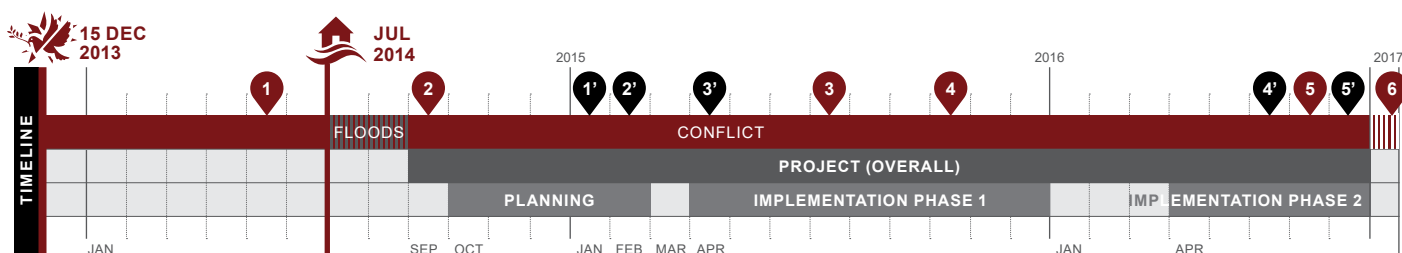
CRISIS	South Sudan Civil War, Dec 2013 - ongoing. Complex crisis
TOTAL PEOPLE AFFECTED	6.1 million in need of humanitarian assistance and 1.66 million internally displaced, as of December 2015 ¹ . For more updated figures, see overview A.23.
PROJECT LOCATIONS	Bentiu, Protection of Civilians (PoC) site, Unity State.
BENEFICIARIES	105,786 people (47% male; 53% female; with 47% under five years old), relocated across communal shelters, at 45 people per shelter.
PROJECT OUTPUTS	11,778 robust shelters.
SHELTER SIZE	84m² (4.5x21m communal shelters, with partitions to accommodate between 35 and 55 people in groups of 7 to 11 individuals).
SHELTER DENSITY	1.5m² at peak. Shelter occupancy has been variable due to space constraints, with huge influx in PoC caused by repeated insecurity.
MATERIALS COST PER SHELTER	USD 837 (Materials: USD 687, Labour: USD 150 approx.).



PROJECT SUMMARY

The project constructed 11,778 shelters in the Protection of Civilians site in Bentiu. The project was closely linked with the phasing of a broader USD 18 million project of site works, which converted a camp that seasonably flooded into a habitable site.

¹ South Sudan Humanitarian Needs Overview 2016, <http://bit.ly/2d3Y2tB>.



- 1 May 2014: Population in Bentiu PoC: 8,000 individuals.
- 2 Sep 2014: Population in Bentiu PoC: 46,000 individuals.
- 3 Jul 2015: Population in Bentiu PoC: 87,000 individuals.
- 4 Oct 2015: Population in Bentiu PoC reaches 120,000 individuals.
- 5 Jul 2016: Population in Bentiu PoC: 102,000 individuals.
- 6 Dec 2016: Population in Bentiu PoC: 120,000 individuals.
- 1['] Jan 2015: Robust emergency shelter design agreed upon, and approved by the community.
- 2['] Feb 2015: Site redevelopment begins to reduce overcrowding and provide adequate drainage, addressing the flooding risk.
- 3['] Apr 2015: Implementation phase begins with a two-months delay (due to negotiations with UNMISS regarding usage of the space), and as a result of community resistance to being relocated to the new site within the PoC.
- 4['] Jun 2016: Site development gradually completed in a phased approach, with sectors/blocks handed over to the partner NGO as the site works ended.
- 5['] Aug 2016: Phase 2 of shelter construction completed (though ongoing, as new arrivals continue and reinforcement is done).

STRENGTHS

- + Provided shelter secure from violence and localized flooding.
- + Effective coordination between all actors.
- + Strong forward-planning for procurement and implementation.
- + Use of local materials where possible.
- + Enhanced cladding with grass to improve comfort and durability.

WEAKNESSES

- Delays due to logistics and weather constraints.
- Assistance was provided only within the site, causing disparities with the populations outside.
- Overcrowding in shelters.
- Issues in timber procurement and poor market analysis.
- Lack of partitions in the initial design.



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Although it is widely recognized that camps are an option of last resort, for tens of thousands of residents in Bentiu PoC, conflict meant that there was no other option. However, the site was too small and would flood every year. This required massive expansion and infrastructural works.

BACKGROUND

For more information on the context and the shelter-NFI response in South Sudan, see overview A.23.

Before the outbreak of conflict in 2013, the bases of peacekeeping forces – United Nations Mission in South Sudan (UNMISS) – had hosted small populations seeking protection for short periods, with limited humanitarian response. Following the outbreak of conflict, tens of thousands of people fled to – and stayed in – Protection of Civilians (PoC) sites far longer than expected.

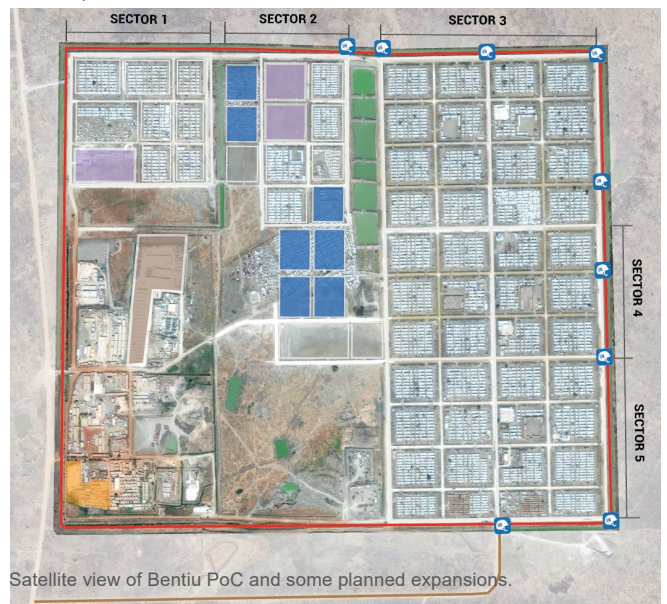
Over the course of the conflict, multiple waves of violence affected the town of Bentiu, leading to 120,000 people seeking shelter in the PoC site. Bentiu is extremely hard to access, with a small airstrip of limited capacity, and is inaccessible by road during the rainy season. During the dry season, it is regularly cut off, due to poor security. As a result, all logistics and supplies had to be planned in advance of the wet season, and plans needed to be flexible, to allow for this variable security context.

Humanitarians arrived in Bentiu in January 2014, to provide essential, life-saving, services to the population residing there. In March 2014, the PoC site in Bentiu hosted 11,000 IDPs, with the population rapidly rising to 43,718 by December 2014 as a result of escalated conflict in Unity State. The huge influxes created overcrowding and difficulties in service provision.

In the rainy season of 2014 the **site flooded for several months**, leaving the camp population trapped, with many parts of the site deep in water. By mid-2014, living space was limited to 9m² per person across the site. Overcrowding was compounded by stagnant water, which worsened living conditions and exacerbated the risk of water-borne diseases, such as cholera. The site itself remained highly insecure, with regular violence outside the PoC – and at times inside, due to ethnic conflict – leading to fatalities throughout the project.

SITE WORKS

To respond to the growing site population and address the issues of localized flooding, during 2015 and 2016, the Bentiu PoC was expanded and rehabilitated over 1.68 million m² (168 hectares). To create better living conditions for people seeking shelter in the site, **a massive drainage network was estab-**



Satellite view of Bentiu PoC and some planned expansions.

- | | | |
|-------------------------------------|-----------------------------------|----------------------------------|
| — Completed external berm and ditch | □ Contingency area | ■ Logistics base and office area |
| — Completed primary road | ■ Block with ongoing earth work | ■ Humanitarian Hub |
| — Completed access road | ■ Block with ongoing shelter work | ⊕ Observation posts |

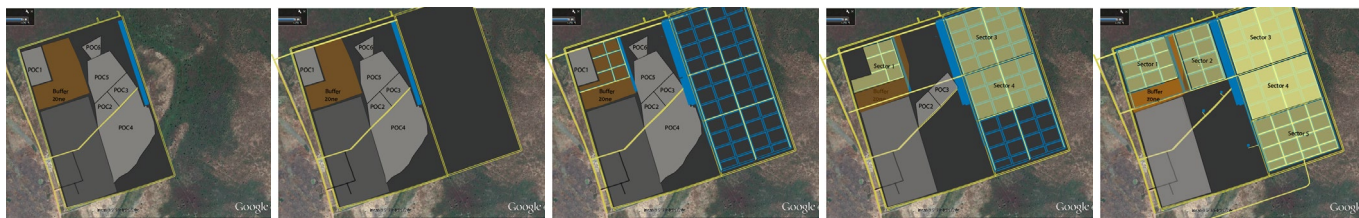
lished, based on the Dutch “polder” system. Major works (with 74 pieces of heavy machinery) led to the establishment of a 4m tall berm (mainly for security purposes) and 24m² section drainage ditch around the site. This was to prevent surface runoff from the surrounding land. Additionally, a series of drainage ditches and water retention basins were dug. These had large capacity pumps, to remove rainfall from inside the berm.

The site works were achieved through contractors and a carefully phased construction plan. This plan allowed for additional timing for contingencies and monitored the volumes of soil moved, as well as the length of drainage ditches and berms.

Beyond the major site works, the site development project included shelter construction, establishment of water, sanitation and hygiene systems, health and education facilities, alongside other services. Given that the site was already occupied, **agencies needed to work together** to ensure carefully phased relocation. Shelters, latrines and other structures could not be



The expansion plan included land that was already spontaneously occupied by camp residents. Careful phasing of major upgrading works was required, as the whole site needed to be upgraded.



Phase 0: survey and de-mining.

Phase 1: Access to site works and perimeter.

Phase 2: Internal access and drainage.

Phase 3: block development and relocations.

Phase 4: block development, relocation and completion.

erected until ground works were ready and, if they were built before people were relocated, they risked falling into disrepair, or being looted.

GROWING SITE POPULATION

The site was designed for 50,000 people with a contingency of up to 75,000 people. As the site population continued to rise, reaching over 87,000 people by July 2015, revisions to site and shelter plans were necessary. In the first phase, there was significant community resistance to the programme, as the population influx meant that the number of people per shelter had to be increased from five to eight. In 2016, this increased further to 11, as the population increased to over 120,000.

IMPLEMENTING TEAM STRUCTURE

The lead organization for the site sub-granted to a partner NGO for the shelter activities. The implementing NGO had a Shelter Programme Manager and a Shelter Advisor, and was supported by the lead organization by two deployments of Shelter Cluster rapid response officers. The project also included an implementation and management team with functions such as quality control, cross-sectoral coordination and information management. In addition to project staff, the project implementation team included around 200 camp residents, who were chosen by the community leadership and trained by the organization on shelter design and construction. The construction of shelters was phased employing six different teams (including plot demarcation, digging, erecting skeletons and spraying walls).

Technical supervisors and contractors were recruited by the partner NGO within the PoC sites, with each of the contractors further recruiting a team of labourers to build shelter frames.

COMMUNITY ENGAGEMENT

Close engagement with the community leadership was critical for maintaining the ability to operate safely in the camp. It was also essential to enable safe and phased relocations within the site, as new shelters were built.

PHASING AND COORDINATION

As people were already occupying the site, a phased relocation process allowed site works to continue, according to an overarching project plan. The site was split into sectors and each sector was moved as the ground works were finished and shelter frames erected.

Relocation could only take place once plots for families and communities had been established, shelter materials had been distributed and construction was completed. Given the limited space, some sectors had to be moved to newly renovated plots before all of the land could be worked on. This made the timing of different activities for the entire site reconstruction project **interdependent and highly time critical**.

On 21 May 2015, the camp management agency coordinated 160 humanitarian workers in a population verification exercise, recording biometric details and assigning addresses within new areas. Verification was an important first step and helped in demarcating plots and defining movement plans.

Overall, UNMISS, peacekeepers, humanitarians and the authorities had to negotiate between each other and **coordinate closely in a very complex military environment** and in incredibly harsh conditions, including shrinking humanitarian access and a protracted conflict situation.



The shelter project built communal shelters due to lack of land and nationally limited resources. These shelters allowed to maximize the use of limited space and impacted shelter strategies throughout the country.

CONSTRUCTION PROCESS

Shelter frames were built by contractors and guards were hired to protect the shelter frames from theft, until they were allocated to a household. Once households had been allocated a shelter plot by the organization (in coordination with camp management agencies), they collected a shelter kit from the implementing partner NGO to complete their shelter. Demonstration shelters were built as prototypes and the partner NGO provided technical supervision to households to ensure that the materials were used effectively. For example, care was taken to ensure that plastic sheets were attached correctly. Individuals with identified vulnerabilities, such as disabled persons, pregnant women and the elderly, were provided additional assistance. A timber workshop was set up at the logistics base in the UNMISS site with outdoor storage for 3,000m³ of timber. At the workshop, teams prepared the timber for the structures of the shelters, including treating them with anti-termite solution.

SHELTER DESIGN

The shelter design was discussed with the Technical Working Group in Bentiu and the national Shelter-NFI Cluster before being presented to communities. Local adaptations included the use of elephant grass, which could be harvested by women residing in the site. The windows and doors were also revised to be based on traditional local designs. The shelter design had an estimated life-span of one year, providing displaced households with a solution that is significantly more sustainable than standard emergency shelters built in the country by humanitarians. The design was inspired by the local summer housing solution known as *Rakuba*.

In 2016, concerns were raised by the community about security in the site and the security of shelters. As a result, the partner NGO started the process of providing doors to shelters which did not have one, starting with the most vulnerable, as identified by protection partners.

To protect from water coming in, it was initially planned to use sand to raise the floors of the shelters, but this proved impossible to procure. Households were therefore encouraged to use white soil to raise their floors instead.



Shelter frames were built by contractors.

THE SITE IN THE LONGER TERM

Relative stability in the first half of 2016 and the expansion of humanitarian services to wider Unity State led to a net reduction in the number of people in the PoC site. However, a resumption in hostilities following the July 2016 crisis led to a population increase in Bentiu PoC (as of 31 December 2016, the population was 119,853 individuals). The sustainability of this and other PoC sites has been object of debate, due to the limited resources, the protracted nature of the crisis and the need of displaced populations for long-term assistance.

WIDER IMPACTS OF THE PROJECT

Humanitarians have been running similar sets of projects in other PoC sites, such as in Malakal, where the organization has been redeveloping and rehabilitating the PoC site throughout 2015 and 2016. The shelter partner in that site has applied the communal shelter design and aimed to ensure the continued provision of essential emergency shelter services through distributing shelter kits, repairing damaged communal shelters when required and providing assistance to people with special needs to construct shelters.

The implementation of activities across the country has been in line with the Shelter-NFI Cluster objectives and humanitarian best practices, including lessons learned in Bentiu.

Through regular monitoring and technical guidance, humanitarian shelter teams have been working to help residents construct their shelters in more durable ways.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- + The project provided (relatively) **secure shelter from violence and localized flooding**.
- + **Coordination between all actors** was key to the success of such a large-scale programme, which required careful phasing within many constraints.
- + **Strong, forward-planning** regarding required supplies helped the project team mitigate extreme weather variability and the lack of transport infrastructure. This enabled over 1,000 units to be constructed per week, at the height of the relocation process.
- + **Wherever possible, local materials were used.** 84,000 bundles of elephant grass, bamboo and garang rope were procured. The local elephant grass was procured from women over a period of two weeks, through a large community-mobilization campaign.
- + **The plastic sheet cladding was enhanced with grass** to improve insulation and extend the lifespan of plastic sheets.

WEAKNESSES

- **Activities were delayed** by approximately eight weeks compared to the proposed work plan. This was primarily due to logistics and weather constraints.
- **The site became the only significant location** where assistance at scale could be provided in the state. **This caused disparities** between the assistance provided to those living in the PoC and those outside and was one of the causes of population growth of the site.
- **The site became very crowded and shelters were relatively small.** Although the reasons for the lack of space were unavoidable (both political and financial), the overall density was higher than desirable.



The site works were based on a Dutch "polder" system. They included 28m² section drainage ditches, berms, water retention basins, and large volume pumps to evacuate water.

MATERIALS LIST FOR ONE COMMUNAL SHELTER

Material	Unit	Unit cost (USD)	Quantity	Total cost (USD)
Plastic sheet (4x5)	Piece	15	8	120
Rubber binding rope	Bundle	5	20	100
Bamboo poles	Bundle of 10	5.5	10	55
Timbers 3 x 2" x 3m	Piece	4	28	112
Timbers 2 x 2 x 4m	Piece	6	10.25	61.5
Timbers 2 x 2 x 3m	Piece	4.5	12	54
Timber 4 x 2 x 5m	Piece	11	4.25	46.75
Timber 3 x 1" x 3m bracings	Piece	3.5	8	28
Nylon Rope 30m	Roll	8	5	40
Nails 4"	Kg	2	2.5	5
Nails 3"	Kg	2	5	10
Nails (roofing)	Kg	3	1.5	4.5
Anti-termite and wood borer	Piece	10	5	50

LEARNINGS

- The project demonstrated the **value of early collaboration and planning**, particularly in such a complex and challenging environment. While shelter activities in 2014 were constrained significantly as a result of a lack of dry space and logistical challenges, the convening of stakeholders and the establishment of a technical working group to plan the redevelopment project in September 2014, as well as the relatively timely procurement of materials during the dry season logistical window, ultimately ensured the success of the project.
- Shelter designs that are meant to accommodate households beyond an acute emergency phase **should take into account privacy considerations and install partitions**. The communal shelters were initially built without partitions, as the shelter approach was based on individuals-per-shelter (and not households). This was mainly a result of limited space available and the increasing population in the camp.
- For such large projects, **it is important to have a proper market analysis** and adopt a design that suits locally available materials. Not enough consideration went into the **procurement** of timber, nor its **potential environmental impact**. With a non-functional timber market, non-standardized sizes and right species available, it was difficult for the supplier to keep up the demand; compounded by its limited understanding of the requirements, as well as access to appropriate tools and workshops to provide desired sizes.

11 / A.29 Republic of South Sudan – 2011 – Conflict

Update:

Keywords: Returns, Resettlement, Construction materials, Core housing construction, Site planning, Infrastructure, Training.

Country:
Republic of South Sudan

Conflict:
Post-war reconstruction

Conflict date:
1983 to 2005

Number of people displaced:
2,000,000

Project target population:
70,000 (includes beneficiaries of quick impact projects)

Project outputs:
8,300 shelters
2,200: Compressed mud blocks
6,100: Bamboo / wattle and daub

Occupancy rate on handover:
95 per cent

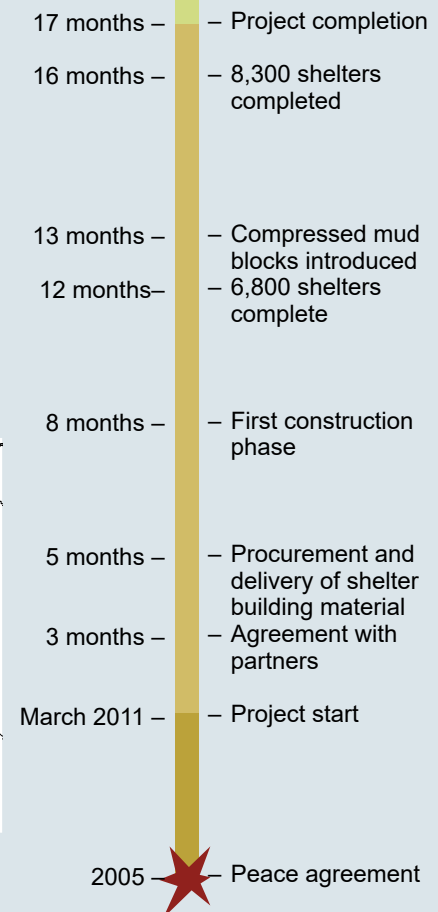
Shelter size:
16 m² - up to four people
24 m² - five people or more

Materials cost per shelter:
US\$ 400 - 600: poles and bamboo
US\$ 800 - 1100: compressed mud blocks
Labour: US\$ 260
Average: US\$ 1,100

Project cost per shelter:
US\$ 600-1,200



Project timeline



Project description

The project supported reintegration of returnees. It constructed 8,300 shelters on new land plots provided by the government. Basic urban services such as school buildings and boreholes, were constructed through parallel programmes. Two shelter designs were employed: bamboo and thatched-roof shelters (6,800) that could be built quickly to respond to large-scale returns and compressed mud block shelters with CGI sheet roofs (1,500) to provide more durable structures.

Strengths and weaknesses

- + Communities participated in the selection of vulnerable households and in designing shelters.
- + Good coordination prevented returnees from being sited in areas too far from transport or services.
- + Shelter construction was linked to projects to deliver basic services and livelihood opportunities.
- + The project was able to respond to input from authorities and change the shelter design.
- + Training of affected populations improved their construction skills.
- + Partners were required to submit phased progress reports for each household to keep the project on schedule.
- Communities demanded incentives for their involvement in the construction phase.
- The target number of shelters was reduced by 35 per cent due to rising costs and delays in block production.
- Construction using compressed mud blocks required a

highly-skilled lead builder. In some early cases, skills were lacking and build quality was poor.

- Due to unexpectedly slow block production, the number of mud block shelters was cut by 800.
- Plans to use drainage activities to supply the mud required for blocks failed due to the lack of organisation at the community level.
- The project was too big and created unsustainable demands for materials, leading to concerns over the destruction of national forests.
- Compressed mud-blocks needed to be plastered with burnt oil, sandy soil and Arabic gum.
- As the compressed mud-block technique was new to some areas, its performance over time remains untested.



Approximately 25 per cent of the shelters were built using compressed soil blocks. The technique represented a financial and environmental improvement, but was slower, requiring significant efforts to introduce as a new technology.

Photo: Fernando Murillo

Before the conflict

Sudan became independent from the Republic of the Sudan in 2011 following two civil wars (1955-1972 and 1983-2005). The Comprehensive Peace Agreement in 2005 signalled the beginning of a return process.

In 2011 Sudan, (north and south combined) had an Human Development index of 0.408 placing it in the “low human development” group. South Sudan is relatively less developed than the north and faces considerable challenges in terms of infrastructure development and poverty reduction, with many people unable to access social services or education.

After the conflict

The conflict between The Republic of Sudan and South Sudan stunted development in the South and most returnees had no shelter or land to return to.

2011 marked the peak in return as it coincided with the deadline for southern Sudanese to leave Khartoum, where the majority of IDPs had fled to during the war. There was also a significant return of the diaspora in neighbouring countries, Europe and the USA.

Implementation

The project built 8,300 shelters (6,800 in 2011 and 1,500 in 2012) and more than 42 community buildings (mostly schools) across the 10 states of South Sudan. Land was allocated by the Ministry of Housing and Physical Planning.

The project also implemented quick-impact projects and livelihood schemes.

The project was coordinated by an international agency (with two

technical and two administrative staff), and implemented by partner NGOs and community organisations. Construction teams were made up of nine people, including engineers, construction supervisors, masons and carpenters.

Materials were procured by the main agency on behalf of the partners. The materials were distributed as self-construction kits. Experienced masons and carpenters were identified to provide “on-the-job” construction training for young people from both the returnee and host communities.

Construction progress was monitored by giving each shelter one of four statuses:

- To be done: Beneficiaries not yet identified
- In progress: Beneficiaries identified and land title received
- Under construction: Structure and roofing complete
- Finished: Beneficiaries have moved in.

Selection of beneficiaries

Project areas were determined by the agency in collaboration with the Ministry of Humanitarian Affairs. The shelters were distributed according to the proportion of returnees in each county.

Individual beneficiaries were selected jointly by the implementing partner agencies and the government. Criteria included households that were headed by children or women, households with individuals with disabilities and those who had no visible means to support the construction of their own shelter. Beneficiary lists were then verified by the main agency’s field staff.

The beneficiaries came mostly from the returnee community but 10

per cent of shelters were constructed for families from the host community.

Associated projects such as borehole and school construction benefitted both groups. Land allocation was made through a government lottery process.

Households with special needs had their veranda, kitchen or oven built for them.

Coordination

Coordination was critical since so many actors were involved. The coordinating agency not only had to ensure coordination within the project in terms of working with implementing partners but also had to work closely with national and state authorities who were developing their planning and building regulations from scratch. Despite many delays the land allocation was completed in time for the shelters to be constructed.

Beneficiaries and host communities were also involved in prioritising the type of quick-impact projects to be implemented.

Hazards

There were a number of site hazards, including severe flooding, that prevented access to some areas. Introduction of significantly stronger compressed mud block foundations helped to mitigate the flood risk in shelters. Beneficiaries with technical supervision, voluntarily dug site drainage channels to reduce flooding risks.

Technical solutions

Shelters had a single slope for the roof to improve water harvesting. This design was replicated by other returnees who were not beneficiaries of the programme. A small water



New settlement, in Central Equatoria state, showing a bamboo, wattle and daub shelter (far left), and compressed mud blocks (right).

Photo: Fernando Murillo

"Return back home is easy when someone supports you to build your shelter."

Beneficiary, Central Equatoria State.

tank, that could later be upgraded by homeowners, was provided with every shelter.

The shelter could be expanded with a veranda and an external kitchen to reduce the health risks of smoke from cooking indoors.

Sample shelters were built for the community to examine and comment on. Following feedback, shelters were plastered with burnt oil, Arabic gum and sandy soil.

Different foundation designs were developed for different ground conditions. In poor soil areas, wider foundations were built on top of large stones.

Bamboo model

Initially, shelters were built using poles and bamboo wattle and daub walls. These were relatively quick to build but required significant procurement of timber and bamboo.

Bamboo-based structures required "mudding" to complete and seal the walls. In a number of cases beneficiaries used plastic sheeting for walling instead.

Shelter costs rose during construction due to rising bamboo prices and unplanned transport costs of soil and water for mudding.

Due to the local environmental impacts of using timber, and new conditions set by the government to protect timber sources, it was decided to switch away from these materials.

Compressed mud blocks

Government representatives were aware of a project in the Republic of Sudan which used stabilised soil blocks (SSB) and expressed an interest in this alternative. SSBs had been used for public buildings but

were too expensive for domestic purposes.

Using the same press, and mostly black cotton soil, it was possible to make compressed mud blocks without a cement stabiliser.

It was possible to produce 400 compressed blocks a day. While the technique is slower than traditional mud brick production (1,000 per day) it used much less water.

The government was positive and felt that the technique created a new type of industry.

Mud-blocks were less prone to attack by insects compared to bamboo, and enabled construction of strong, load-bearing walls. They were cool by day and warm by night, and did not have to be transported over long distances.

The project also demonstrated to each community how blocks could be used for energy efficient ovens.

The introduction of compressed mud-blocks in 2012 resulted in different reactions from communities.

In some areas, people already built using dried mud-blocks. In other areas the technique was new. In some cases there was resistance to the use of the blocks, as production involved considerable heavy labour. The introduction of the block presses and the realisation that mud-blocks were a relatively efficient material in terms of water use, led to a more positive view of the mud-blocks.

The holes left behind by the production of mud blocks were an issue in some areas, and more effort could have been made to combine drainage digging with mud block production to facilitate a more efficient use of both labour and soil.

In the first year of using compressed blocks, 500 fewer shelters than planned were built, and the project had to return to the bamboo design instead.

Logistics

Bamboo and compressed mud blocks were procured or produced locally. Plastic sheeting and ironmongery were imported.

Materials list

Materials	Quantity
CSB (mud) blocks	414
(foundation)	15m
Polythene sheet (1m wide)	1034
CSB (mud) blocks-walls/	8 pieces
columns Corrugated iron	4.2 pieces
sheets x 4m Timber 125mm x	2 pieces
50mm x 4m	4 pieces
Timber 100mm x 50mm x 4m	11 pieces
Timber 100mm x 50mm x 4m	4 pieces
Timber 75x50mm x 4m	2.5 pieces
Timber 50x50mm x 4m	20m
Galvanized drainage zinc 2m	2kg
Hoop Iron (50m roll)	2kg
Nails 4"	1kg
Nails 3"	2kg
Nails 2.5"	5+1
Galvanized spiral roofing nails	pieces
3" Hinges and bolts	1 piece
Chicken wire	2 Bags
Cement (plastering) (1/6	
cement/soil)	1m ³
Soil/sand for mortar	2 litres
Anti termite treatment	

12 / A.9 Darfur - 2004 (ongoing) - Conflict

Materials distribution

Project type:

Darfur shelter materials pipeline
Multi-agency common logistics system
Distribution of shelter materials and non-food items

Emergency:

Response to displacement caused by violent conflict in Darfur, Sudan, 2004 (ongoing)

No. of people displaced:

Over 1 million people affected (May 2004 estimates);
700,000 people internally displaced

Project target population:

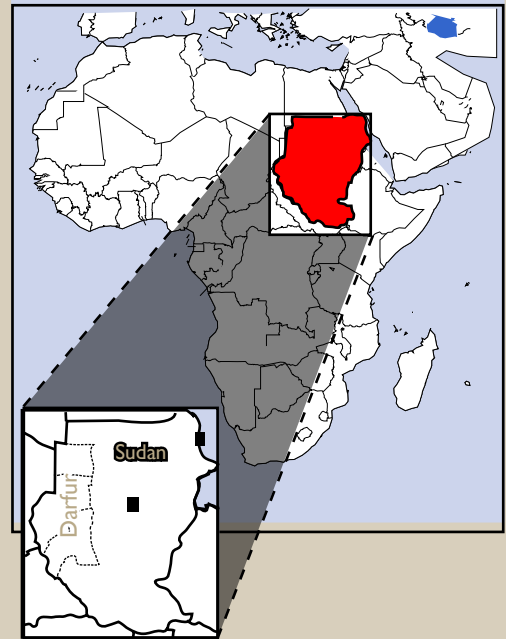
1 million people initially (167,000 families)
Increased to 1.4 million people in September 2004

Occupancy rate on handover:

80% of target population reached by December 2004
A further 8% of beneficiaries reached by those not operating within the pipeline

Shelter size

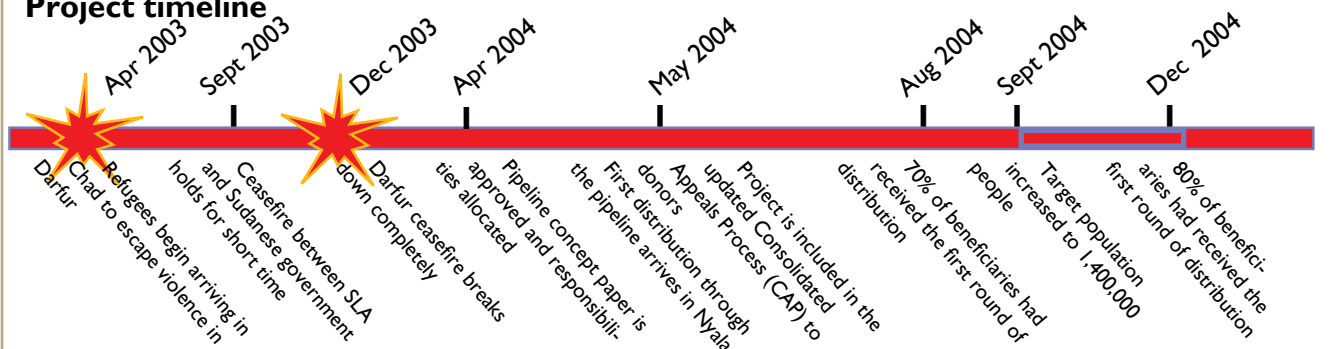
Maximum of 20m² of covered space for a family of six people, provided by a 4m x 5m plastic sheet. Actual covered space would have been less, due to the need to fix and fold the sheeting.



Summary

A joint distribution mechanism, which would later include joint procurement, was set up by a consortium of NGOs and UN agencies to standardise the procurement and distribution of basic shelter materials to those displaced by the conflict.

Project timeline



Strengths and weaknesses

- X More effective use of overall emergency funds due to economies of scale.
- X Reducing logistics overheads for individual humanitarian agencies in the field meant they could concentrate on service delivery to beneficiaries.
- X Reduced competition for transport and warehousing among agencies limited price inflation.
- X Customs clearance from the government was more

- easily obtained by the UN than NGOs, so collective purchase reduced customs obstacles.
- X Common purchasing meant greater ability to direct resources based on a broad overview of need in the region.
- X Centralising stock in a warehouse outside of the conflict area meant that goods were not tied up in warehouses in the 'wrong' areas, so interruptions to distribution by security problems were minimised.
- X Early donor commitment of funds and air cargo allowed

Strengths and weaknesses (continued)

the project to move quickly. Donor coordination meant funding went through a central channel, avoiding duplication of projects.

X Individual agencies in the field augmented the provision of shelter items with their own locally procured materials (such as poles) to provide shelter solutions.

W Roles could have been decided more quickly at the beginning, as slow-moving discussions delayed initial implementation.

W Some key items (poles and cooking fuel) were problematic to procure in bulk and the poles were not supplied.

W Without the distribution of a frame, the distribution of plastic sheeting did not constitute a complete 'shelter solution'. If not provided by an NGO working in the field, IDPs had to provide these items themselves, which carried risks in terms of collecting material from unsafe areas or having to buy local materials at high prices.

W Shelter issues were seen as being dealt with by the provision of basic materials and the project had limited technical support to help consider what other shelter issues might need to be addressed.

W Access was severely restricted due to the conflict itself and limitations set by the government.



Photo: Joseph Ashmore

Queue for distribution of materials

Situation before emergency

Before 2004, Darfur was one of the poorer areas of North Sudan. Although there are no exact figures, its mostly rural population had limited access to safe drinking water and had poor child nutrition. The region's increasingly scarce natural resources of grazing land and water were one of the factors behind the conflict.

The situation in Darfur became increasingly volatile throughout 2003, with refugee movements beginning as early as April. The crisis began to escalate at the end of the year. Response to the crisis in Darfur was hampered by the Sudanese government's restriction of access to the affected areas.

Situation at the initial response stage

At the end of 2003, humanitarian agencies were able to access less than 5% of IDPs due to travel restrictions imposed by the Government of Sudan. This made accurate needs assessment difficult. The May 2004 revision of the Consolidated Appeals Process for Sudan estimated a US\$ 22.5 million need for shelter and non-food items for the remainder of the year.

The severe lack of shelter available to IDPs was a major health threat, with exposure to heat and dust during the day and very cold temperatures at night. By May, exposure to rains led to an increase in communicable diseases.

Selection of beneficiaries

The project aimed to reach all of those displaced by fighting in Darfur, which by April 2004 was estimated to be a total of 1 million people. Beneficiaries were then divided into categories of full or partial assistance so that the most vulnerable would receive a full package of items. Those receiving a partial package were assumed to be able to supply missing materials themselves, which may not have always been the case.

By August, 70% of the beneficiaries were reached with 'first tier' NFIs, comprising plastic sheeting, blankets,

jerry cans and soap. In September the number of beneficiaries in need was raised to 1.4 million and by December 2004 around 80% of this target population had received assistance. This equated to almost half a million blankets and other material by the onset of winter. An additional estimated 8% was covered by other agencies not using the common pipeline.

Technical solutions

With the shelter materials supplied, beneficiaries were assumed to be able to construct basic shelters using poles as frames, plastic sheeting as a roof and rope for fixings.

However, procuring poles in bulk at a national level proved too difficult and these were left out of the package. This meant that no complete shelter solution was provided.

Many agencies in the field planned a shelter response where they augmented the materials received through the pipeline with items they procured locally, such as poles. However, the lack of a clear idea of how beneficiaries would use items to create shelters meant that some beneficiaries would have had to source construction materials themselves. These may have been expensive, or, in the collection of poles, have entailed the same risks to personal security that many women faced when collecting wood for fuel.



Joseph Ashmore

Unloading a lorry of relief items

The limited consideration of technical shelter issues was unsurprising considering that the programme's main focus was on the logistical challenges of mass distribution.

Implementation

Meetings to discuss the idea of a pipeline were held in March 2004, with a concept paper for funding included in the updated Consolidated Appeals Process released at the beginning of May 2004.

With such a large affected population and the government restricting both access and imports, the main aim of the pipeline was to get enough non-food items and shelter items into the hands of beneficiaries as quickly as possible to cover basic needs.

During April 2004 a structure was agreed upon for the management and

started later in the year). An NGO was responsible for the ongoing transportation and storage of these items to sub-level warehouses and the UN agency that made the original pipeline proposal was made responsible for coordinating the supply chain.

In addition, a third UN agency agreed on 19 April to act as a 'consignee' to officially receive imported goods, an extension of their role in receiving food items. This was crucial, as individual NGOs were unable to clear customs as quickly as the well-established UN agency.

On the programmatic side, coordination of needs analysis, gap identification and interaction with humanitarian partners in the field was carried out by the UN coordination agency and the agency that initiated the whole project.

The centralising of procurement and the management of an efficient and cost-effective supply chain reduced the logistics overheads for agencies on the ground, freeing them up to concentrate on direct assistance to beneficiaries.

The coordinating agencies were able to keep an up-to-date broad overview of the requirements in Darfur, which helped to direct assistance to those areas most in need and prevented a duplication of response.

Any agency wishing to receive items from the pipeline had to fill in a request form and a basic needs assessment form. The procurement agency delivered items to El Obeid and/or Nyala. From there the NGO responsible for distribution arranged for deliveries to their warehouses in the different state capitals. The individual NGOs responsible for making the initial request would then make the final distribution to beneficiaries.

Information-sharing on needs gaps, current stocks and supply chain updates was achieved through regular meetings and access to an open website.

Logistics and materials

A basket of non-food items was agreed on by participating agencies. This basket included plans for some sanitary items, clothing and kitchen sets. Initial plans for additional shelter items – poles and rope – were dropped after it proved too difficult to provide them. Plastic sheeting was mostly donated from abroad or imported. Other non-food items were purchased in Khartoum or Nyala.

Shelter items in the NFI basket

Note: Other items, such as sanitation items, were also supplied in the non-food item basket, but are not listed here.

Materials	Quantity
Blankets	2
Plastic sheet (4m x 5m)	1
Rope	20 m
Poles	6 planned, but not distributed
Sleeping mat	2



Emergency shelters

implementation of the pipeline. The process was supported by several donors and the final allocation of responsibility was undertaken by the UN Country Team. The organisation of the pipeline was split into two main parts: a supply part and a programme part.

For the supply part of the programme, one UN agency was nominated for procurement, which would be distributed as far as a centralised warehouse (though this process

'Coordination with all of the agencies was key. We held weekly meetings in Khartoum and the field and set up information-sharing systems such as a website. No one had an excuse for not knowing what was going on!' - Coordinator

13 / D.9 Sudan - 1985 - Conflict

Case study: Planned camps

Project type:

Planned camps

Disaster:

Civil war and famine in Ethiopia
(Eritrea and Tigray) 1983-1984

No. of people displaced:

Hundreds of thousands

Project target population:

232,000 across 15 camp complexes (June 1985)

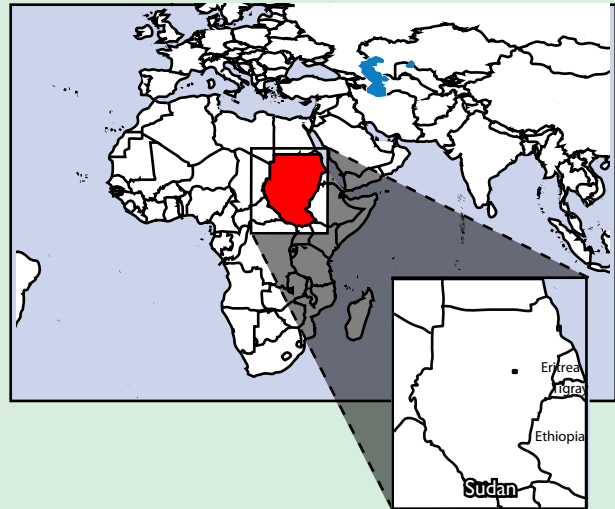
Camp capacity designed for up to 640,000

Occupancy rate on handover:

Unknown

Shelter size:

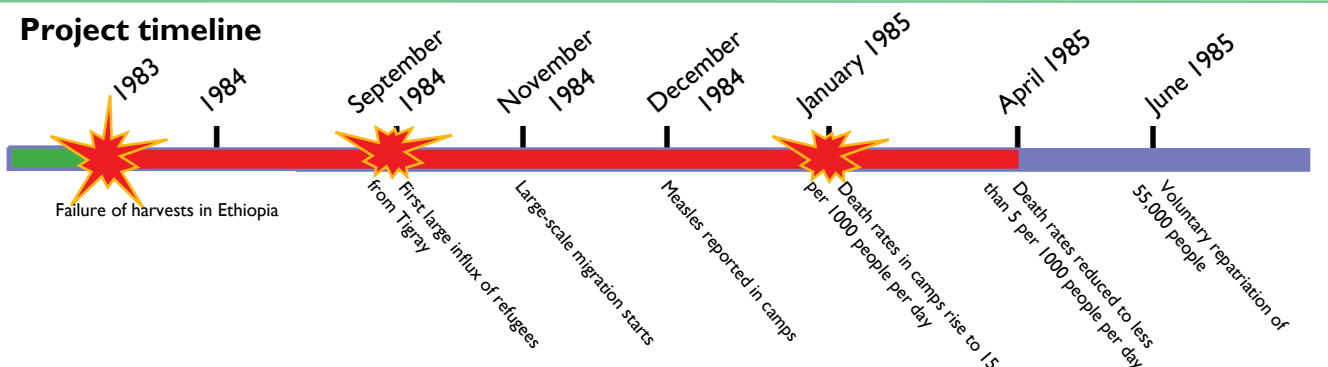
Various



Summary

Relocating refugees from smaller camps gave time to create better sites and facilities in the larger camps built as part of the second stage. Building camps using a hierarchy of shelter groupings (cluster-block-sector) helped the humanitarian actors ensure support for the cycle of repatriation.

Project timeline



Strengths and weaknesses

X Working with local relief agencies allowed camp planners to understand village and community structures, and to adapt camp layouts to those structures accordingly.

X Having clearly demarcated sections and blocks in a camp facilitated both repatriation and phased reuse of the camp for newcomers.

X Decentralisation of services in the camp allowed for easier training of village health workers in preparation for repatriation.

W Multi-sectoral guidelines on camp planning and camp management had been available for a number of years,

but were insufficiently known among many implementing organisations.

W Unplanned camps not only had problems with water supply, but some then had health-threatening problems with drainage once the rains arrived.

W Relocation to new camps, while unavoidable, had large programme costs.

W Not even advanced camp layouts can solve the grave issues of malnutrition or communicable disease.

Before the influx

There had been ongoing conflict between the Ethiopian government and rebel groups fighting for independence for the provinces of Eritrea and Tigray since the 1970s. Many refugees from the conflict moved to Sudan. During 1983-1984, the conflict combined with drought across many countries in Africa to create a major famine. There were no early warning programmes or adequate stockpiles until after September 1984.

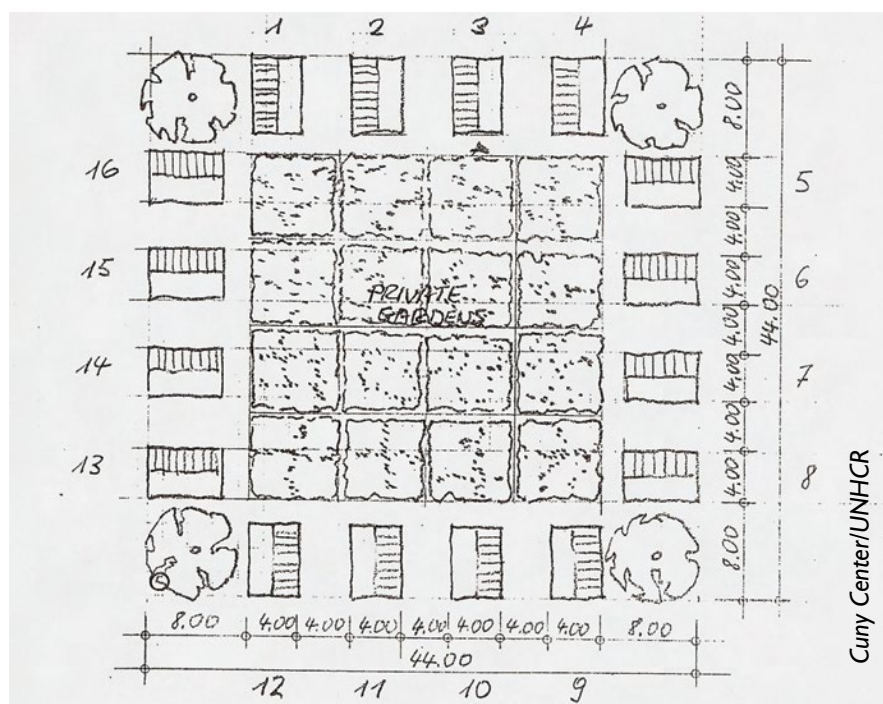
Before 1984, sufficient food had been supplied into Tigray from Sudan. By mid-1984 the Relief Society of Tigray, a national civil relief organisation, stated that the famine had reached crisis levels and that they would lead Tigrayans out of Tigray and into Sudan, where they could receive aid.

Initial camps in Sudan were sometimes located adjacent to the sites of older permanent refugee settlements. In early December 1984, it was realised that there were not enough water resources for these camps. A decision was taken to look for sites that would support larger numbers of refugees. Even then, not all camps had adequate clean water for many months. Waterborne disease, alongside measles and malnutrition in new arrivals, became the chief cause of death in the camps.

Although the Sudanese had welcomed hundreds of thousands of refugees for resettlement from Ethiopia over the previous two decades, the scale of the new influxes, and the fact that Sudan itself was suffering a drought, caused a reversal of policy in the Sudanese government. Even when this decision was overturned, the government indicated that they did not expect the refugees to remain in the long term.

After the first influx

NGOs began searching for suitable sites for new camps. Between April and June 1985, 55,000 refugees were able to return to Ethiopia. But this still left 258,000 new Ethiopian refugees in eastern Sudan, in addition to 120,000 Chadian refugees in the west of the country, 700,000 'old' Ethiopian refugees and increasing numbers of internally displaced Sudanese.



Selection of beneficiaries

There was no selection per se. As the refugees arrived in the camps in more or less intact village groups, it was possible to work with the village leaders and social structures to identify vulnerable members.

Land rights / ownership

There were no permanent land rights given to refugees. In fact, the government of Sudan insisted that new refugees would not be granted permanent residency.

Technical solutions

Once decisions had been made to transfer some of the refugees from inadequate camps, the new camps were set up following a hierarchy of blocks of buildings. This started with a cluster of shelters based on the size of each extended family. These clusters could be grouped together to form a block that would follow the size of a single village. A number of blocks would form a sector of a camp.

Importantly, the number of clusters in a block was not predetermined, but was dependent upon the number of extended families coming from each village in Tigray. To the extent possible, services such as health units and supplementary feeding centres were decentralised throughout the camps. Space was left in each block for late

arrivals from each village.

This cluster, block and sector hierarchy was derived from the *Handbook for Emergencies*, which had been made available two years before the crisis. A Sudan-specific version of the handbook specific was created.

As the main emphasis was placed on water supply, sanitation and the logistics of food and medicine, the basic shelter was often a traditional tukul tent made out of branches, although there were some distributions of other shelter materials. The government's insistence that the camps were to be short term often prevented the use of any more durable shelter materials, even if the resources had been available.

Implementation

The Relief Society of Tigray would often lead the Tigrayans into Sudan in entire village groups. In some cases, the society would also participate in the transfer of groups from one of the first camps to a second camp with better facilities.

Materials

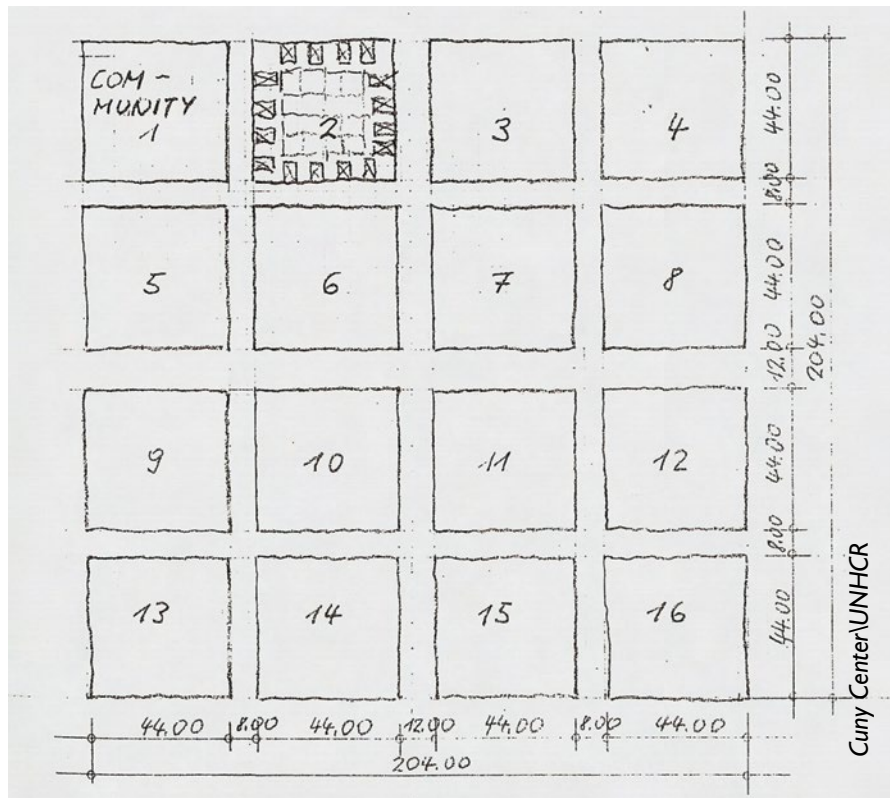
Pressure from the Government of Sudan meant that use of any 'permanent' materials was avoided. Although there were distributions of plastic sheeting, many of the refugees

lived in self-built tukul tents, made from tree branches, grass thatch and cloth.

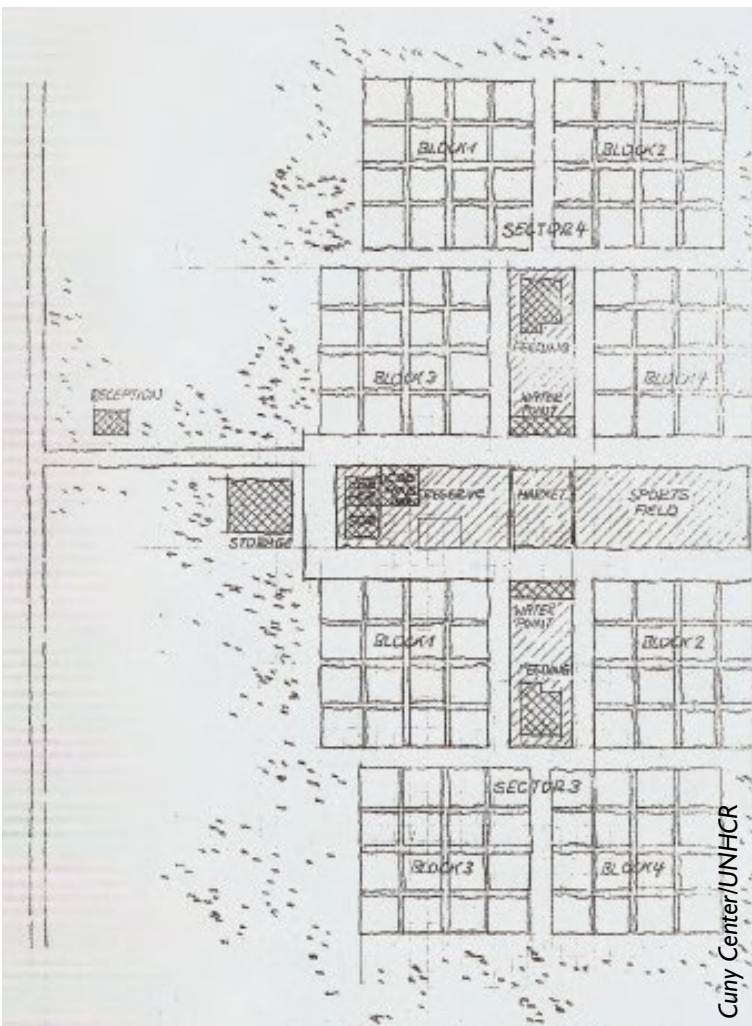
Logistics

Access to the camp helped with logistics. The most important paved highway in Sudan, connecting Port Sudan with Khartoum, ran through the camps areas. A major train line also ran adjacent to the highway for part of the time, and airports capable of handling large jets or C-130s were available at towns used as logistics hubs.

Most materials had to be imported using UN mechanisms, apart from individual shelter materials scavenged by the refugees. During the emergency, there were some severe delays in the provision of materials, but these were caused by poor pre-planning, lack of stockpiling and internal organisational issues, as much as by lack of physical infrastructure.



Sector plan



Camp plan

'[The design] had several major advantages. First, it enabled the relief agencies to train a cadre of health workers from each village. In the event that people decided to return to Tigray (which many of them did several months after arriving in the camp), the skills and training the workers had acquired would be taken back to the village with them. Second, it provided camp administrators with a simple way to reunite families. When anyone entered Sudan, they simply had to tell the relief authorities what Tigrayan village they were from; they could be transferred to the camp where the people from that village were located. Family reunification could then be handled on a self-help basis. Finally, camp administrators were presented with an intact community organization with which to work, facilitating activities which required notification or organization of the refugees.' - Fred Cuny

14 / B.25 Uganda 2007 - Slow onset floods

Case study:

Materials and public information

Full case study

Country:

Uganda - Katakwi and Amuria districts

Disaster:

Floods

Disaster date:

Between July and mid September 2007

No of houses damaged:

More than 20,000 households were severely affected

No of people displaced:

58,000 people

Project target population:

100,000 families located in 96 villages

Occupancy rate on handover:

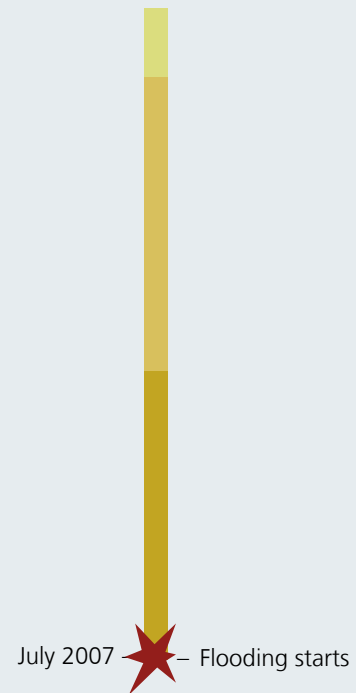
7458 shelter completed

Shelter size:

Traditional round hut 12m² with veranda



Project timeline



Summary

10,000 plastic sheets were distributed during the relief phase. These were for temporary roofing materials in the absence of grass, and were also used to prevent rain from destroying walls and moulded bricks.

To ensure that communities rebuilt more flood resistant shelters, both communal and individual tool kits were distributed. These were combined with a large scale public information program on building back safer.

As the traditional building season was three months after the floods, during the dry season, the project had components of water, sanitation and agriculture. The approach taken was to work through community mobilisation.

Strengths and Weaknesses

- ✓ The programme worked in many sectors including distribution, water and sanitation and health activities. The assessment included a multi-sectoral team
- ✓ A shelter specialist was rapidly deployed to support programmes.
- ✓ The emergency items arrived within 2-3 weeks of the floods. This was possible because there was an existing emergency stockpile in Nairobi.
- ✓ The project used large scale public information and participation to empower communities.
- ✓ A simple technical solution was used, based on simple improvements to a traditional construction.
- ✓ Different organisations operated in different geographical areas. This helped to avoid duplication.
- ✓ A combination of communal kits and individual kits helped the organisation to target more families.
- ✓ The international organisation worked with a national partner that was strong in community mobilisation.

- ✗ The recovery process was slow due to bad weather.
- ✗ The government had already started housing programs (concrete blocks and iron sheeting) which were often too expensive for the affected population.
- ✗ There was some resistance towards earth and thatch buildings.
- ✗ The national partner organisation had a lack of experience in shelter projects.



A boy walks past a flooded house
Photo: Jacob Dall



View of a village after the floods showing the traditional circular shelters.

Photo: IFRC

Before the disaster

For 20 years, Katakwi and Amuria districts of Eastern Uganda were controlled by the Lords Resistance Army and affected by Karamajong raids from the North. Although security had improved as a result of presence of the army and police forces, many people remained afraid, preferring to sleep at night in clusters in camps rather than returning to their family plots.

The traditional local shelter design is a round mud hut with a thatched roof.

The majority of the families are engaged in farming and other small businesses. The main crops are sorghum and cassava, but the crops had not been harvested before the floods struck.

After the disaster

Heavy rains in the East of Uganda caused slow-onset floods that damaged houses in the camps and destroyed crops in the fields.

Programme overview

To reduce the impact of floods in the region, the program focused on improved prevention and preparedness. It also used local building knowledge to improve the houses.

The supported shelter programmes improved awareness on how to rebuild more safely as well as providing tools and grants.

Selection of beneficiaries

Through coordination meetings, the area was split geographically between organisations.

The shelter project focused on twenty camps and promoted community awareness, participa-

tion and technical awareness. The project combined interventions in many different sectors such as camp planning and water and sanitation.

The programme paid less attention to individual needs. It focussed instead on information sharing and the distribution of communal tools. The tools could be used for shelter, road works, agriculture, and other uses.

Implementation

- 10,000 tarpaulins and 2000 communal kits were distributed
- Technical awareness posters were distributed
- Prototypes shelters were erected with the community

The project trained sixteen members of the partner organisation to support 224 community volunteers. These volunteers were active within camps.

Affected families themselves built the shelters whilst volunteers monitored the construction.

Technical solutions

In the initial emergency phase, plastic sheeting was distributed along with other materials.

A list of necessary but lacking tools was drawn up with the community. These would be required to help families to reconstruct their traditional earth dwellings.

Information, education and communication materials such as posters were produced. These

showed improved earth construction, and illustrated the following details to protect the house from flooding or termites:

- The house and foundations should be elevated.
- Foundations should be built with a large plinth beam of wattle and daub. This would need to be repaired by house owners after each small flood
- A water proof barrier should be put the foundations to protect the walls and floors which are made of adobe blocks.
- Walls made of sun dried mud blocks should be conical in shape
- Proper materials to build more resistant earth blocks should be identified. Examples are clay from termite hills, and using mud mixed with cow dung to protect against termites.
- Wood in direct contact with the earth should be treated to protect it from termites.

Material lists

The communal kit contained: a wheelbarrow, a hammer, a wood saw, a claw hammer, a machete, a hoe, an axe, a pick axe, a sharpening tool, a tape measure, a spirit level, a dumpy level and a first aid kit.

The household kit contained: a sickle, brick making moulds, damp proof membrane (polythene sheeting), anti termite treatment for wood, sisal roll, nails, a 20 litre Jerry can, a medium trowel, a window shutter, a door shutter, and wire.



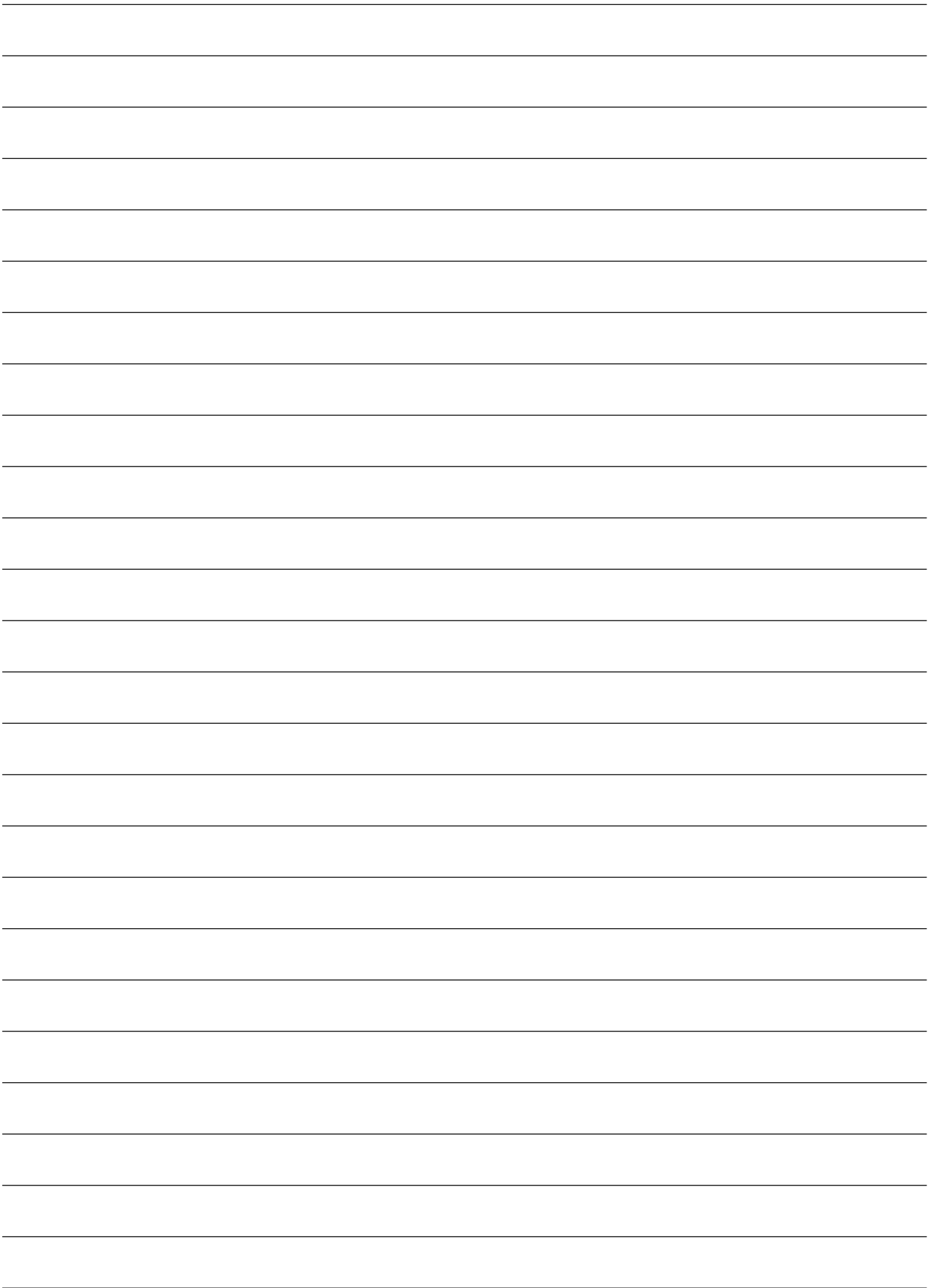
House under construction with improved plinth
Photo: IFRC



Public information images on proper site planning with space between buildings
Image credit: IFRC



Images from public information posters on building a flood resistant structure: (1) elevate the plinth and put a plastic sheet under the floor (2) fold the plastic sheet over the ground level ring beam (3) build conical walls (4) thatch the roof, render the walls with mud and elevate the area around the house to protect it from flooding
Image credit: IFRC





This booklet is a compilation of case studies of humanitarian shelter responses relevant to East Africa, compiled across the six past editions of the interagency publication Shelter Projects.

The projects described in the case studies and overviews contained in this booklet represent responses to conflict, natural disasters and complex crises, implemented by national and international organizations, as well as host governments, and demonstrating some of the implementation and response options available.

The publication is intended to support learning by highlighting the strengths, weaknesses and some of the lessons that can be learned from different projects, which try to maximize emergency funds to safeguard the health, security and dignity of affected people, whilst – wherever possible – supporting longer-term shelter needs and sustainable recovery.

The target audience is humanitarian managers and shelter programme staff from local, national and international organizations at all levels of experience. Shelter Projects is also a useful resource for advocacy purposes, showcasing the work done by the sector, as well as for research and capacity-building activities.

All case studies and overviews contained in this booklet, as well as from all editions of Shelter Projects, can be found online at:

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