

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



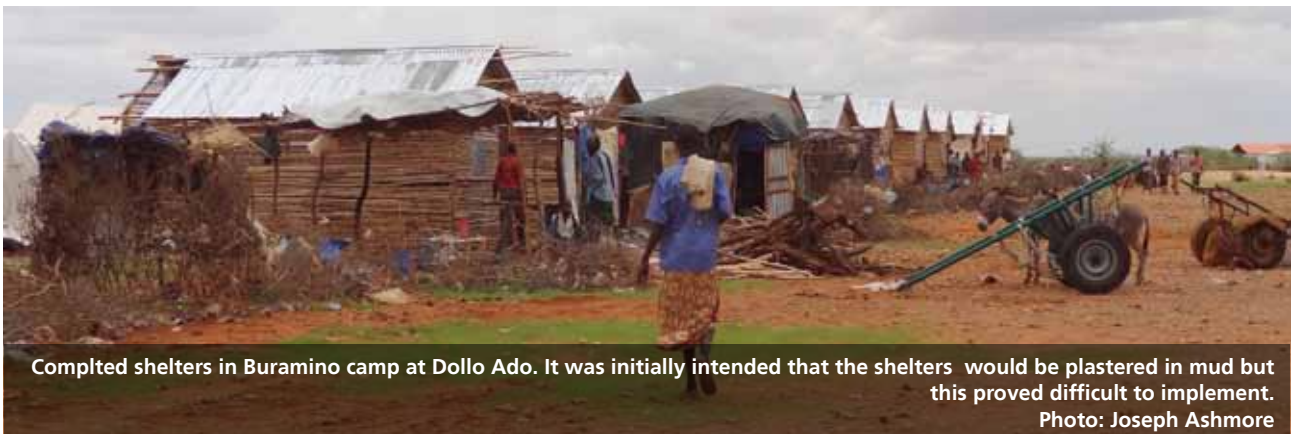
Project description

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.



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

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 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 sheets 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