

B.15 Myanmar - 2008 - Cyclone

Case study:

Shelter construction

Full case study

Country:

Myanmar

Disaster:

Cyclone Nargis

Disaster date:

May 2008

No. of houses damaged:

Over 450,000 households affected in 36 townships. Over 350,000 households seriously affected.

Project target population:

115,792 households received two tarpaulins each
Up to 250,000 households benefitted from 50,461 shelter tool kits (one kit for five households).

Shelter size:

Two 4m x 6m tarpaulins per family

Occupancy rate:

High

Materials Cost per shelter:

30 USD per tool kit.
30 USD for two plastic tarpaulins.
Excluding transport and operational costs.



Project timeline

6 months -

– 50,461 tool kits distributed

2 months-

– 32,366 tool kits

– 92,513 tarpaulins
– 15,276 tool kits distributed

1 month-

– 48,216 tarpaulins
14,283 tool kits distributed

2 May 2008-



Cyclone Nargis

Summary

The relief phase of this programme was a large-scale distribution programme of plastic sheeting and tool kits. Two plastic sheets were given to each family, and each tool kit was shared by five families. It was followed by programmes to support smaller numbers of families to build their shelters and build cyclone-resistant community buildings.

Strengths and weaknesses

- ✓ Distribution allowed a large number of beneficiaries to be supported rapidly. By focussing on distribution, the shelter programmes were easier to manage.
- ✓ By distributing the tool kits to share between five households, the project reached five times as many people.
- ✓ Shelter kits and tarpaulins were particularly adapted to the warm wet environment. They were used not only for roofs but also for walls. They also made good tanks for water collection. Tents were generally disliked and not used.
- ✓ By establishing frame agreements with suppliers in advance of the disaster, the shelter kits contained good quality materials.
- ✗ The project was run as a distribution with limited shelter-specific inputs.
- ✗ There were some duplications with other

organisations distributing to the same locations.

- ✗ Some of the emergency kits were delivered five or six months after the event. Many people had built shelters before the shelter kits arrived.
- ✗ Pressures to deliver large volumes of materials quickly may have reduced the support received by the most vulnerable individuals.
- ✗ Management structures suffered under the pressures of the emergency, and insufficient human resources were allocated to programme planning.
 - It is very expensive to airfreight kits. Shipping also has associated costs. It may have been more effective to order fewer kits and use the rest of the money for early recovery activities.
 - Beyond this individual programme, the needs of a significant number of families were not been met by the response to the cyclone



Plastic sheeting fixed to shelters by owners
Photo: Steve Barton

Before the disaster

There were very few organisations working in the area prior to the cyclone, and very little available knowledge of the specific disaster resistance or vulnerability of shelters.

After the disaster

Cyclone Nargis struck Myanmar on 2 and 3 May 2008. Collective assessment data from the authorities and international communities indicated that 115 townships were significantly affected by the cyclone. According to official figures, 84,500 people were killed and 53,800 missing. In larger villages and urban areas where there were more permanent structures, the mortality rate was lower. The United Nations estimated that 2.4 million people were affected.

The cyclone created wind, water and storm surge damage. The storm surge was reportedly 3.5 metres high in many areas and up to 7 metres at its worst.

The hardest hit areas included smaller rural farming and fishing villages of less than 100 households. In some cases these were completely destroyed, resulting in many lives lost. Housing in these areas is largely of simple timber, bamboo and thatch construction. Along the Irrawady river delta in the southern part of the country more than 95 percent of the houses were destroyed.

In the following three months, the majority of families recovered on their own although to a lesser standard than before the cyclone, leaving them more vulnerable to future cyclones. Damage in urban areas was less severe and rough building repairs were largely completed in the first three months after the cyclone.

Selection of beneficiaries

Distributions were targeted at all families who had lost their house

The most vulnerable groups of people were migrants, casual workers and 'landless' people who were disadvantaged before Nargis. The issues these groups faced after the cyclone increased due to the limited livelihood opportunities after the cyclone. In some cases, these people are not able to receive support because they are 'landless'.

Implementation

Distributions focused on the townships that were most seriously affected. As community participation was essential to the recovery process, 147 village tract recovery committees were established in all 11 townships where full recovery programming were planned.

Technical solutions

It was decided to distribute shelter tool kits and plastic sheeting for the emergency response. The reasons for this are listed below:

The shelter kits provide tools and materials to help people rebuild. Disaster-affected households could combine the kit with existing materials either salvaged, locally harvested or purchased with available resources. The materials provided can be reused if the households need to relocate or construct more permanent homes, and the tools will remain of use as the households upgrade or maintain the houses.

The shelter kits allowed for large numbers of people to be supported with limited funds. The price of a shelter kit is approximately 60 US dollars, whilst a standard one-family tent to internationally agreed standards can cost up to four times as much. The use of Shelter Kits provides the opportunity for maximising the shelter assistance that can be provided with available financial resources.

Existing stockpiles allowed for rapid distribution.

The shelter kits did not require specialist handling. In the field, individual Shelter Kits can be transported by recipients by hand if required.

To help meet the large-scale shelter needs, it was decided to split shelter kits to provide two tarpaulins to each target household & 1 tool kit to five households

88.7% of the total amount of tarpaulin was used for shelter and 11.3% of the tarpaulins were used for rain water harvesting, covering the harvested paddy and other purposes.

Half of the households who received tarpaulins received the tarpaulins two months after Nargis. Only 3.4% of the households received them within a month and 21% received them one month after Nargis.

Although 23% of the households received the tarpaulin 3



A basic delta shelter and a shelter repaired with plastic sheet
Photo: Steve Barton

months after Nargis, 77 percent of the households received the tarpaulin in just the right season (basically before the rains came in hard)

18 percent of the total households had already rebuilt the new shelter by using tarpaulin, community tool kits and locally available raw materials. The household tarpaulin kit and community tool kit were not only useful for building an emergency shelter but also for rebuilding the new shelters.

Emergency shelter was made of recovered wood (45.3%) and locally available traditional sources of building materials such as bamboo (32%) and areca palm (22.7%). They also used the recovered bamboo (46.8%) and areca palm (53.2%) for the floor. Tarpaulin was mostly used for the roof (83.9%). In some cases, it was also used for the walls (25.8%).

The majority of houses were built by disaster affected families. A small number received support from volunteers and community members. 88.3% of households surveyed could not improve their shelter due to lack of money.

The distribution of the toolkits supported people to recover when the people receiving them had good access to materials, had disposable incomes or were living within or in close proximity to urban areas. Otherwise the amount of support that they provided was limited.

“The extent and speed of relief activities from the international sector was limited and slow (at least at the beginning of the operation). This was primarily due to the restrictions on access for the international relief workers to the most affected areas in the Delta.”
Programme review



Plastic sheet and tools distributions
 Photo: Steve Barton

Logistics and materials

The shelter kits and plastic sheeting were internationally procured. The first relief flight to Yangon was within days of the cyclone, and lasted for four hours. It contained 300 kits and plastic sheeting. After the initial emergency phase, kits and tarpaulins were shipped to Yangon port.

For a tool kit with two tarpaulins, the airfreight cost was 120 USD per kit. For the same kit by sea, the shipping cost 2.25 USD.

Nine logistics hubs were established so that materials could be warehoused locally.

Information on shelter kit distribution was provided to the village leaders so that they could share this information with the community before distribution. In a few cases local staff informed the community members about the shelter kit distribution directly.

30% of the families received instruction on the use of the kit. Instructions were provided to village leaders as well as at some distribution points.

In the case of the community tool kit, there were two types of distribution methods: splitting the kit into separate elements which then were distributed to individual households, and distributing the whole kit to a group of five households to share the kit.

The vast majority of families surveyed afterwards said that the tools were useful and of good quality

40% of families said that the roofing nails were not useful as they were of a different type to those used locally.

Materials lists

Materials distributed per family

Item	Quantity
Tarpaulins	2
Rope	30m
10-litre jerry can	1
Blankets	2
Kitchen set	1
Double impregnated mosquito net	2
Family hygiene kit	1

Toolkit, shared between five families

Item	Quantity
Hoe	1
Machete	1
Tin snips	1
Hand saw	1
Roofing nails	500g
Shovel	1
Nails	500g
Tie wire	500g
Claw hammer	1
Woven sack	1



Classroom built with plastic sheeting
 Photo: Steve Barton



Plastic sheet used to collect rainwater
 Photo: Steve Barton