

D.3 Nicaragua - 1973 - Earthquake

Case study: Small camp

Project type:

Shelters in community-grouped camp

Disaster:

Earthquake in the capital city of Managua

No. houses damaged:

50,000 destroyed; 24,000 damaged

Project target population:

180 families initially, then 360 families in tents

Later, 310 families in polyurethane igloos

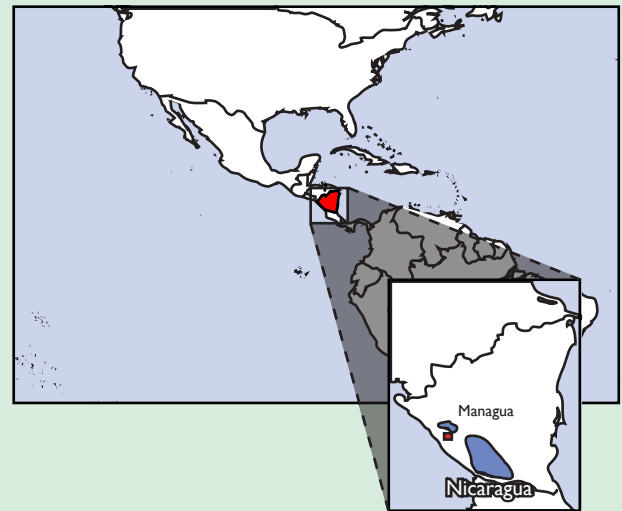
Occupancy rate on handover:

60% of tents; 45% of replacement igloos

Shelter size

Tent: 12m² (approximate size)

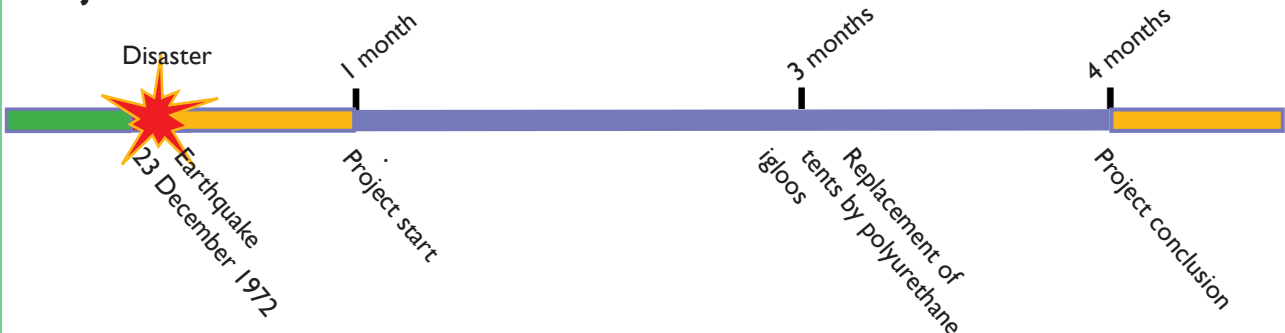
Igloo: 20m² (approximate size)



Summary

Working with displaced families, the NGO created a camp layout in Masaya, which, for the first time, grouped families into group clusters and supported community networks. This resulted in a camp with a much higher occupancy rate than any other camp built in response to the disaster, and at much lower costs.

Project timeline



Strengthsandweaknesses

- X Group clustering of tents allowed displaced families to give mutual social support.
- X Adequate space was provided in the camp for public amenities, which were easily accessible by all.
 - Lighting, water and sanitation were provided, through cooperation with the national government.
 - The camp was easily accessible for logistics, but not for occupant livelihood opportunities.

- W Full occupancy was never achieved, because of family preference for host-family situations where possible.
- W Prefabricated polyurethane shelters were delivered too late and were inappropriate in design in terms of beneficiary acceptance, cost per unit, potential for expansion or maintenance and fire hazard.
- W There was no potential for the support of early reconstruction on families' customary land.

Before the earthquake

Large-scale urban migration during the 1960s had increased the population of Managua from 170,000 to 430,000 in the decade before the earthquake. This left a deficit of 80,000 houses, with many additional people in substandard housing. More than 25% of the national population were living in the capital city area.

During the last months of 1972 Nicaragua had been experiencing a drought. As a result, some aid organisations were already present in the country at the time of the disaster.

Before the earthquake, the site for the camp had been the grounds for the Nicaraguan Boy Scouts, who retained formal ownership of the site during its use for displaced families. The land was already cleared for use and there were some facilities in place, such as a number of permanent latrines, before the first arrivals of earthquake-affected families.

After the earthquake

With more than 250,000 people homeless, the national government made the decision to move many of the homeless to tent camps near the city or in the outskirts. However, 130,000 affected people chose instead to stay with extended family members.

All other camps were laid out along strict military lines. However, one camp, the one at Coyotepe, Masaya, was designed by the NGO consultant Fred Cuny to be laid out in square 'clusters' of 16 shelters each, with the explicit intention of providing the physical structures for community self-support. This was the first time that such a layout concept had ever been implemented and it has provided the basic template for all other cluster-based designs since. The design also took into account firebreaks, security lighting and adequate public spaces for recreation and community activities. Meanwhile, many of the other camps experienced much lower occupancy rates and early abandonment of shelters.

By the end of 1973, the vast majority of camp residents had left the camp, mostly to return to Managua.

Selection of beneficiaries (and assessment)

The beneficiary group appear to have been self-selected, having moved to Masaya in the first few days after the earthquake.

Land rights / ownership

The site was designated as a camp by the government, who also provided support with sanitation and other services. The government decided to rebuild Managua on its original site and plan, in theory permitting families to return to their customary locations within the city. By the summer of 1974, the Nicaraguan Boy Scouts, who owned the site, were planning to bulldoze the remaining shelters and evict the last few families.

Technical solutions

Tents were provided by the US Army within four weeks of the disaster. However, these were seen as inadequate to last through the rainy season.

After four months, polyurethane igloos (previously used in Peru in 1970) were constructed for the beneficiaries by international staff using specialised machines.

Although the internal shelter space of the igloos was larger than that of the tents, the igloos had much lower occupancy rates. This was in part due to the lateness of the delivery, but also because the design was not one that related to standard housing shapes for the beneficiaries. The igloos were not easily extendable or maintainable, although there were reports of parts of the igloos being broken off to make materials for other shelters. The igloos were also criticised for being flammable.

Camp layout

The camp was laid out using square clusters of 16 shelters, with a central space for administrative buildings and social/recreation areas. The clusters were placed so that the camp could be expanded after the initial construction phase. This would allow the camp to have the capacity for up to 3,500 people (700 shelters). The layout was designed to accommodate either community or individual cooking and

washing facilities. The latrines were placed outside of all of the shelter clusters along the side of the camp.

The design also took into account the possibility that the camp would exist into the longer term or would be upgraded into a permanent settlement. Space was provided for the installation of standard drainage and semi-permanent water and sewage facilities.

Implementation

The tents were erected by the occupants of the camp, the US Army, and the Nicaraguan Boy Scouts, who also worked together to install basic drainage.

The extra space needed for the construction and deployment of the igloos also caused some displacement of shelters from the original cluster design.

One NGO provided camp management support in the form of a reception committee to assess the medical and social needs of or new arrivals. Information was distributed via notice boards and a camp newspaper.

There was no initial plan for the delivery or upgrading of some facilities, so the NGOs had to negotiate with the government (not always with success) to extend water lines into each cluster, build shower units and construct a septic tank. However, the question of waste incinerators was left unresolved.

Logistics and materials

Delivery of both the tents and the igloos came at a relatively late stage. Permanent toilets previously constructed on the site were used, but other permanent buildings were not. In terms of the support and maintenance of the camp, the site was located along a main road 3km away from the town of Masaya and 20km from the nearest airfield. The camp remained reliant on the delivery of food and water and removal of waste solids by truck.

Materials	Quantity
Phase I – Sears Co. high-wall chalet tents	360
Phase II – Bayer Co. polyurethane igloos	310
Latrines, water facilities, lighting, also supplied	No data