

# SHELTER PROJECTS

# 2013-2014



International Federation  
of Red Cross and Red Crescent Societies



## **Shelter Projects 2013–2014**

Published 2014

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## Foreword

Shelter Projects 2013-2014 is the fifth edition in the series which began in 2008. This book adds 27 new shelter case studies and overviews, bringing the total number of project articles to over 150. This valuable repository of project examples and response overviews represents a significant body of experience offering unique reference material for shelter and settlement practitioners worldwide.

To quote Albert Einstein, “anyone who has never made a mistake has never tried anything new”, and the objective of this publication has always been to encourage the sharing of lessons learned, both good and bad, and to advocate the following of best practices. Such knowledge sharing helps practitioners to be more accountable to crisis affected communities by implementing effective shelter responses and to show impact to donors by ensuring adequacy in our settlement and shelter interventions.

Shelter programming should operate in accordance with recognized shelter best practice while enabling those displaced to return to their homes or equivalent living space in a timely manner encouraging community recovery and building resilience to possible future shocks. Participation and promoting a sense of ownership is the key to achieving successful projects.

The introduction section of this publication provides an overview of the emergencies which have continued to require large-scale settlement and shelter responses since the last edition. The on-going and widening conflict in Syria, vast destruction left in the wake of tropical storms Sandy in the Americas and Haiyan (Yolanda) in the Philippines and recurring flooding in Pakistan prompted this edition to include four overview pieces to complement the geographic spread of the selected case studies.

The international humanitarian community is dealing with unprecedented levels of displacement and scale of natural disaster. This implies a requirement for increased shelter needs, larger mobilization of resources and projects requiring improved models of delivery as well as innovative, cost-effective solutions which incorporate best practice as well as positioning the persons of concern at the forefront of response interventions.

The topics of the opinion pieces in Section B were decided on through discussion with a technical advisory group. The pieces are written by experts with specific interests and experiences and we are extremely grateful for their invaluable contribution. The topics include the importance of assessment in shelter, evaluating cash-for-rent subsidies, security of tenure and humanitarian shelter, supporting host families as shelter options and urban settings, all of significant current relevance and interest in the settlement and shelter domain.

These new case studies remind us of the similarities yet uniqueness every crisis presents. It is important not to ‘re-invent the wheel’ with every emergency and this publication acts as a tool for building on and improving on the successes of completed shelter projects. The case studies address common issues emerging in shelter response, outline different approaches to addressing shelter needs and assist in evaluating the impact on affected communities. They provide an excellent resource against which to gauge proposed shelter interventions and possible outcomes.

The Shelter Projects website - [www.sheltercasestudies.org](http://www.sheltercasestudies.org) - has been updated with the latest edition and provides an easy way to search the repository of case studies, overviews and project updates.

We are once again indebted to everyone who contributed case studies and to the technical advisory group for their valuable time and expert input.

We trust that the reader will find this edition of ‘Shelter projects’ relevant and thought-provoking, leading to improved settlement and shelter solutions for affected communities.

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- International Federation of Red Cross and Red Crescent Societies (IFRC)
- International Organisation of Migration (IOM)
- Norwegian Refugee Council (NRC)
- Oxfam
- Première Urgence - Aide Médicale Internationale (PU-AMI)
- Red Cross Colombia
- Red Cross Cuba
- Red Cross Dominican Republic
- Red Cross Haiti
- Samaritans Purse
- Save the Children (UK)
- United Nations High Commissioner for Refugees (UNHCR)

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We would also like to thank those who contributed to previous editions of Shelter Projects; those who made suggestions for case studies that were not included in this edition and the many hundreds of people who have implemented the projects that are contained in this book, but who have not been individually credited.

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## Introduction

### About the book

Section A of Shelter Projects 2013-2014 contains summaries of shelter and settlements projects that have been implemented in response to conflicts, complex emergencies, and natural disasters, including one historical study. Section B contains five “opinion” pieces on shelter-related issues.

The case studies are summaries of significant issues in humanitarian shelter provision, written by shelter practitioners with specific interests and experiences. As many larger disasters have occurred on a regional or international scale in 2013 and 2014, Section A also contains a number of overviews, contextualising the group of case studies for each of those regional crises.

A full list of case studies, organised by country, including those from previous editions (*Shelter Projects 2008*, *Shelter Projects 2009*, *Shelter Projects 2010* and *Shelter Projects 2011-2012*) can be found in Section C, along with a list of useful resources.

The case studies in this book were implemented by many different organisations, a full list of which can be found in the acknowledgements section (p.iv). In order to allow strengths and weaknesses of projects to be openly shared, the case studies are not directly attributed to individual organisations. Host government projects are not included, although a notable trend in this edition of Shelter Projects is the number of case studies where, following established best practice, host governments have been partners in implementation with humanitarian organisations.

As a result of the projects being implemented in diverse and often challenging conditions, they illustrate both good and bad practices. From every case study there are lessons that can be learned, and aspects that may be repeated or avoided. The objective of this publication has always been to encourage the lessons learned process and to advocate for following good practices.



Syrian refugees in Lebanon, 2013. During 2013 and 2014 the response to the displacement caused by conflict in Syria and Iraq has meant many interventions are conducted in complicated, urban settings. Photo: Shawn Baldwin/UNHCR

### Warning

Any shelter project should take into consideration the local context and needs of the affected population, which will differ in every case. Projects should not be directly replicated without proper consideration of the specific context or there will inevitably be programmatic weaknesses and failures.

### Selection of case studies

The case studies were selected using the following criteria:

- The shelter project must have been wholly completed, or solid conclusions gained, from the project implementation by late 2014. For this edition, with the lengthening crisis in Syria, and the recovery from Typhoon Haiyan/Yolanda in the Philippines still in the early stages, a number of case studies fall into this latter category.

- Given the scale of emergency shelter need every year, case studies must have had large-scale impacts. Discontinued trials or design concepts were not included.

- The majority of the project must be implemented within the first two years following a natural disaster. For conflict-affected populations, chronic emergencies and returns processes, longer time scales are considered. In cases such as Pakistan, where there has been annual flooding for each of the last four years, the case studies refer to responses over the last two years, but with significant lessons learned from previous cycles of response.

- Accurate project information is available from staff involved in the project implementation.

- The case studies should illustrate a diversity of approaches to meet shelter and settlements needs. Providing shelter is more than simply designing architecturally impressive structures, and

**Including a case study in this book does not necessarily mean that it represents best practice...**

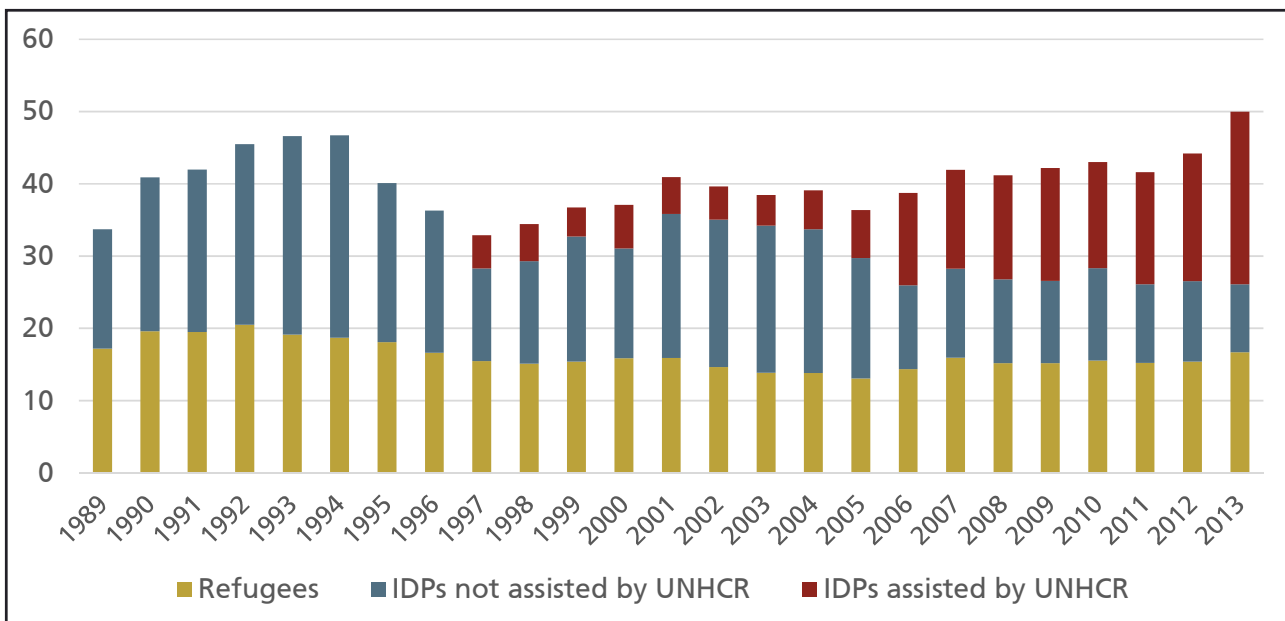


Figure 1: Refugee and IDP numbers over time (millions).

Source: Adapted from [www.internal-displacement.org/global-figures](http://www.internal-displacement.org/global-figures) [IDP data: IDMC, USCR, Refugee data: UNHCR, UNRWA]

looks beyond the construction of individual houses.

Included in this edition of *Shelter Projects* is a case study of the relocation of an entire community in Doña Ana, Colombia (A.2) in response to chronic, rather than catastrophic flooding. The issues tackled in the opinion pieces section include regulatory barriers, and the role of assessments as part of humanitarian shelter programming, and demonstrate the breadth of ways in which disaster-affected communities can be supported in their recovery, beyond the supply of construction materials.

## Global shelter need

Figure 1 shows the change in the number of IDPs and refugees over the last 25 years. In 2013, the total number of refugees and IDPs was higher than any other year in the reporting period, with a total of approximately 50 million displaced people around the world.

It is not known how many of that total have been reliant upon humanitarian shelter assistance, although the vast majority of shelter needs worldwide are met by the disaster-affected households' and communities' own efforts. The data includes those who have been displaced for significant amounts of time, as well

as those newly displaced. There are no known numbers for those who have suffered multiple displacements.

## Natural disasters 2013/2014

In 2013, there were 337 reported natural disasters, affecting almost 100 million people<sup>1</sup>. Figure 2 shows the breakdown by region. Whilst this is the lowest total of the decade, far below the high levels of 2007 to 2011 and half the average for the decade<sup>2</sup>, the overwhelming scale and international scope of the largest disasters give much cause for concern. Furthermore, as is shown in the case studies in this book from Colombia and the Caribbean smaller, 'silent' disasters, which do not make the front pages of the international media, and the chronic effects of climate change and severe weather, account for much of the affected populations globally. As has been shown with Typhoon Haiyan (Yolanda) in the Philippines, the numbers of people affected in the largest disasters in the world, even in countries which have invested much in disaster preparedness, continue to trend upwards. Figures 2 and 3 show clearly that Asian countries are the worst affected.

Tropical storms (Sandy and Haiyan) are the subject of multiple case studies in this book, due to their

regional nature. Other major natural disasters include a fourth consecutive year of flooding in Pakistan. Statistically, floods were the most common type of reported natural disaster in 2013 (149 out of the total of 337<sup>3</sup>), with the largest in China, and a number of sub-Saharan African countries (Niger, Chad, Sudan, South Sudan and Mozambique<sup>4</sup>). This was followed by windstorms (106 out of the total, of which the largest by far was Haiyan).

However, in terms of greatest damage done, windstorms affected a much larger population (49 million people) than floods (32 million<sup>5</sup>), whilst both floods and windstorms accounted for the majority of damage in dollar terms (US\$ 53 billion and US\$52 billion, respectively) out of a total of US\$ 119 billion worldwide in 2013<sup>6</sup>.

## Conflicts in 2013/2014

Media coverage of the conflict in the Syrian region, Iraq and Ukraine has predominated in 2014, although conflict has started, or has continued in a number of north- and sub-Saharan African countries, including Libya, Sudan, South Sudan, Central African Republic, and Nigeria. In many of these areas, heightened insecurity and the targeting of aid workers by militia has meant that relatively little

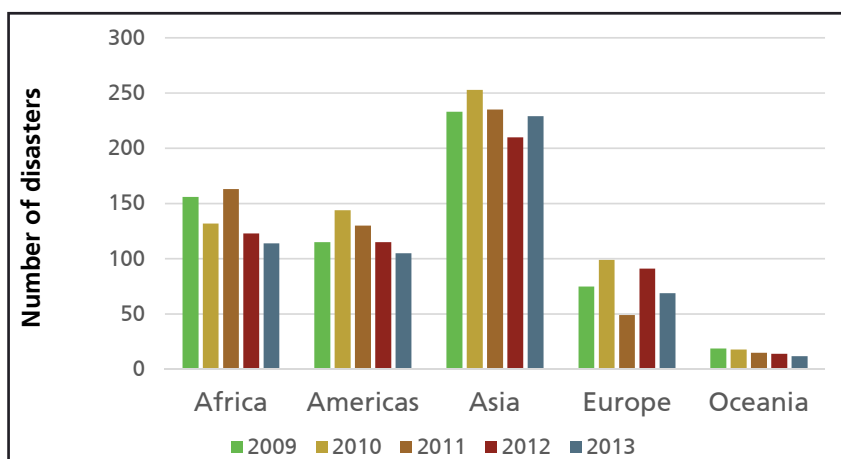


Figure 2: Number of disasters by region over time.  
Source: Adapted from Table 1, World Disasters Report 2014.

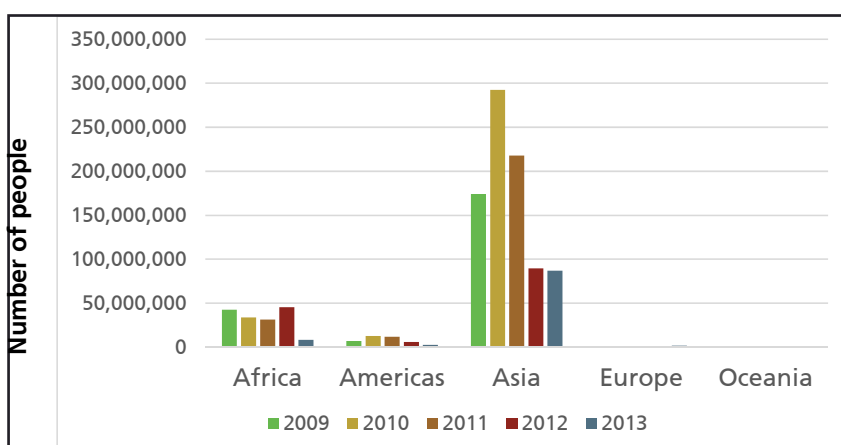


Figure 3: Number of people affected by disasters by region over time.  
Source: Adapted from Table 3, World Disasters Report 2014.

aid has reached certain populations within the conflict zones, and that the majority of the humanitarian organisations' efforts have been focused upon supporting populations who have been displaced further afield, often in camps, unplanned settlements, or individually, in urban or peri-urban areas.

In total, 51.2 million people<sup>7</sup> were forcibly displaced in 2013, although many others, trapped in cities under siege, had severe humanitarian needs but were not able to find adequate, safe solutions. By the end of 2013, the estimated total of refugees was 16.7 million people, with 33 million IDPs<sup>8</sup>. The 2013 levels of displacement was the highest on record, with UNHCR noting that if all those displaced were a nation, they would be the 26<sup>th</sup> most populous nation in the world<sup>9</sup>.

There were 10.7 million newly displaced people just within 2013<sup>10</sup>.

Syria accounted for the most new refugees in 2013 (a cumulative 2.47 million people<sup>11</sup>, but not including those displaced within Syria), with other significantly large newly displaced populations originating in Central African Republic (800 000 people) and Mali (58 000 people)<sup>12</sup>.

A total of 6.3 million refugees were in protracted situations, lacking durable shelter solutions for at least five years<sup>13</sup>. At the same time, there were an estimated 414,600 people who undertook voluntary repatriation in 2013<sup>14</sup>.

Despite much concern in some media outlets in the global north concerning the raised numbers of refugees or asylum seekers entering those countries, it remains true that 86% of all refugees are hosted by developing countries, up from 70% ten years ago<sup>15</sup>.

## Recurring themes

### Regional crises

Whilst the major crises discussed in previous editions of *Shelter Projects* may have included some of the largest disaster- or conflict-affected populations, this edition includes case studies of disasters and conflicts which have spread over entire regions, either as a natural disaster (Hurricane Sandy), or as an ever-widening conflict (Syria and the surrounding region). These disasters pose unique challenges in terms of overall strategy, equitability of distribution of resources, protection to populations displaced across borders, and advocacy messages to a variety of governments. *Shelter Projects* has sought to capture this, through overview pieces for some of these larger crises (Hurricane Sandy – A.3, Syria conflict – A.8, Pakistan floods – A.18 and Typhoon Haiyan in the Philippines – A.23).

### Disasters and conflicts affecting urban areas

As much of the world's most rapid urbanisation is occurring in countries at high risk of disaster or conflict and with fragile governance, it is perhaps inevitable that many of the greatest numbers of populations in need of shelter are to be found in urban areas. Responding to shelter needs in urban areas often means complexities in identifying and assessing the needs of the population.

The case studies in *Shelter Projects 2013-2014* describe palettes of implementation methodologies. These methodologies embrace local markets and involve many actors, not least the host families and host communities who offer the majority of shelter support in the first instance in some countries.

In urban contexts, some case studies show how the supply of shelter can be improved and increased when the shelter in question is an unfinished or substandard, but nevertheless 'permanent', house in the middle of a city.

### Scale and cost

The regional and urban aspects of many of the crises described in this book have meant that there is a pressure of resources and a pressure of costs, not just because of the absolute numbers of population affected, but also because of the populations seeking adequate shelter in built-up areas of large cities – often in larger buildings, or in collective shelters created from unfinished buildings with little or no infrastructure. Case studies from Lebanon (A.15) and Kurdistan (A.9) show how engagement with these challenges can start as an incremental process.

### Partnership with governments

In a number of case studies, national or local governments have been key partners or, in the case of Cuba, taken a lead role in coordination (A.4). In Myanmar, partnership with government was the only way that scaling-up of assistance could be achieved (A.16). For Fiji and Philippines (A.7 and A.25), the theme of negotiation over assistance in “no build zones” was undertaken with engaged government counterparts. The case studies from Colombia and Cuba (A.2 and A.4) show how partnerships might lead to a more sustainable future, whilst those from the Syria region give insight into the concerns for stability and for the well-being for the host populations which are key considerations for all governmental partnerships.

### Non-material forms of assistance

*Shelter Projects 2013-2014* includes a greater number of case studies where the main activities were led by non-material forms of assistance, whether they were technical training, advocacy for locations for shelter, or engagement with local actors to resolve issues arising from regulatory barriers and disputes over land and other resources. These include assistance with tenure for refugees in the Syria region (A.11), as well as an in-depth discussion of that approach in the ‘Regulatory Barriers’ opinion piece (B.3), and advocacy for

changes in ‘no build zones in Fiji (A.7) or the Philippines (A.25).

It is striking in this edition of *Shelter Projects*, that the majority of case studies for post-disaster shelter support have somehow ‘mainstreamed’ DRR and ‘build back safer’ messaging and training. In many cases, humanitarian organisations have chosen to use cash or vouchers as a shelter ‘tool’ (Kurdistan, A.9, Dominican Republic, A.5). The case studies help to demonstrate both the benefits and limits of cash-based programming and under which circumstances cash for shelter is considered most effective.

### Terminology

There has been a lot of academic and practical debate surrounding terminology used in the shelter sector. Additional confusions have been added by language translation issues.

Issues of the definition of words have been particularly great surrounding the language used for different phases of assistance. As an example the terms “transitional shelter”, “T-shelter”, “temporary shelter”, “semi-permanent shelter”, and “incremental shelter” have all been used in responses to define both the types of shelters and the processes used.

In this book we use the terms used in-country for each response and these may vary from country to country. In some cases, flexibility in terminology has helped projects to take place sooner.

### Acronyms

A number of acronyms are used in the case studies which are assumed to be familiar to those working in the shelter sector. For clarification, the most commonly used ones are:

- BBS - Build Back Safer
- CGI sheeting – Corrugated Galvanised Iron sheeting
- DDR - Disaster Risk Reduction
- IDP – Internally Displaced Person
- INGO - International Non-Governmental Organisation

- NFI - Non-food item
- NGO - Non-Governmental Organisation
- WASH - Water, Sanitation and Hygiene

### Interpret and contribute

In reading this book, or browsing relevant case studies, it is hoped that readers will be able to draw their own lessons and identify useful techniques and approaches.

Readers are encouraged to spread the word and share this publication widely, and contribute their own project case studies for future editions. In this way, the humanitarian community can compile good and bad practices and hopefully implement increasingly effective shelter projects in the future.

**Contribute at:**  
[www.ShelterCaseStudies.org](http://www.ShelterCaseStudies.org)

### Sources and endnotes

IFRC (2014) World Disasters Report 2014 [WDR 2014]. [www.ifrc.org](http://www.ifrc.org)

IDMC (2014) At A Glance: Global Estimates 2014: people displaced by disaster. [www.internal-displacement.org](http://www.internal-displacement.org)

UNHCR (2014) UNHCR Global Trends 2013 [UNHCR GT 2013]. [www.unhcr.org/](http://www.unhcr.org/)

- 1) WDR 2014. Table 1, p. 220. This excludes industrial and transport disasters, which are also featured in the WDR statistics.
- 2) WDR 2014. Table 1, p. 220.
- 3) WDR 2014. Table 5, p.224
- 4) IDMC At A Glance. p. 1.
- 5) WDR 2014 2014. Table 7, p. 228.
- 6) WDR 2014 2014. Table 8, p.230.
- 7) UNHCR GT 2013. p. 2.
- 8) UNHCR GT 2013. p. 2.
- 9) UNHCR GT 2013. p. 2.
- 10) UNHCR GT 2013. p. 2.
- 11) UNHCR GT 2013. p. 2, 11.
- 12) UNHCR GT 2013. p. 12.
- 13) UNHCR GT 2013. p. 12.
- 14) UNHCR GT 2013. p. 20.
- 15) UNHCR GT 2013. p. 2.



## Case study keyword tables

**Table of case study settlement options**

Publication title	Non-displaced / returns	Dispersed self-settlement	Short-term land, house or apartment tenant	Unplanned camps	Collective centres	Hosting	Planned and managed camps / relocation sites	Resettlement	Urban neighbourhoods
A.1 - Central African Rep. - 2013	X				X				
A.2 - Colombia - 2011								X	
A.3 - Hurricane Sandy - 2012 - Overview									
A.4 - Cuba - 2012	X								
A.5 - Dominican Rep. - 2012	X								
A.6 - Haiti - 2012	X								
A.7 - Fiji - 2012	X								
A.8 - Syria conflict - 2011 - Overview									
A.9 - Iraq (KR-I) - 2013		X							X
A.10 - Jordan - 2013							X		
A.11 - Jordan - 2013			X			X			X
A.12 - Jordan - 2014							X		
A.13 - Lebanon - 2012		X							
A.14 - Lebanon - 2012		X							X
A.15 - Lebanon - 2013					X				
A.16 - Myanmar - 2012							X		
A.17 - Nigeria - 2012	X								
A.18 - Pakistan - 2010-2014 - Overview									
A.19 - Pakistan - 2012	X								
A.20 - Pakistan - 2012	X								
A.21 - Pakistan - 2012	X								
A.22 - Philippines - 2012	X							X	
A.23 - Philippines - 2013 - Overview									
A.24 - Philippines - 2013	X								X
A.25 - Philippines - 2013	X							X	X
A.26 - South Sudan - 2012							X		
A.27 - Portugal - 1755	X	X						X	X

**Table of case study response types**

Case study / overview	Household items	Construction materials	Tools	Emergency shelter	Transitional shelter / T-shelter	Support for host families	Rental support	Core housing / progressive shelter	Housing repair and retrofitting	Cash / vouchers	Loans	Advocacy / legal	Site planning	Infrastructure	Training	Structural assessment	Guidelines / materials /mass communications
A.1 - Central African Rep. - 2013				X													
A.2 - Colombia - 2011								X				X	X	X	X		
A.3 - Hurricane Sandy - 2012 - Overview																	
A.4 - Cuba - 2012	X	X	X			X			X						X		X
A.5 - Dominican Rep. - 2012	X	X							X	X					X	X	
A.6 - Haiti - 2012									X	X					X	X	
A.7 - Fiji - 2012					X							X			X		
A.8 - Syria conflict - 2011 - Overview																	
A.9 - Iraq (KR-I) - 2013										X							
A.10 - Jordan - 2013				X	X								X				
A.11 - Jordan - 2013						X		X	X			X					
A.12 - Jordan - 2014				X													
A.13 - Lebanon - 2012		X	X	X													
A.14 - Lebanon - 2012	X	X		X		X		X	X				X				
A.15 - Lebanon - 2013				X				X									
A.16 - Myanmar - 2012				X									X	X			
A.17 - Nigeria - 2012	X						X								X		
A.18 - Pakistan - 2010-2014 - Overview																	
A.19 - Pakistan - 2012					X					X			X		X		
A.20 - Pakistan - 2012								X		X					X		
A.21 - Pakistan - 2012								X		X					X		
A.22 - Philippines - 2012	X				X										X		
A.23 - Philippines - 2013 - Overview																	
A.24 - Philippines - 2013	X	X			X										X		
A.25 - Philippines - 2013										X		X			X		
A.26 - South Sudan - 2012					X												
A.27 - Portugal - 1755				X	X			X					X	X			X

**Explanation of columns:**

- Household items - tents / blankets and other non-food items.
- Construction materials - provided for construction/repair.
- Emergency shelter / Transitional shelter, T-shelter, Temporary shelter, semi-permanent shelter, core housing / progressive shelter. Terminology is used according to the wording used in the response.

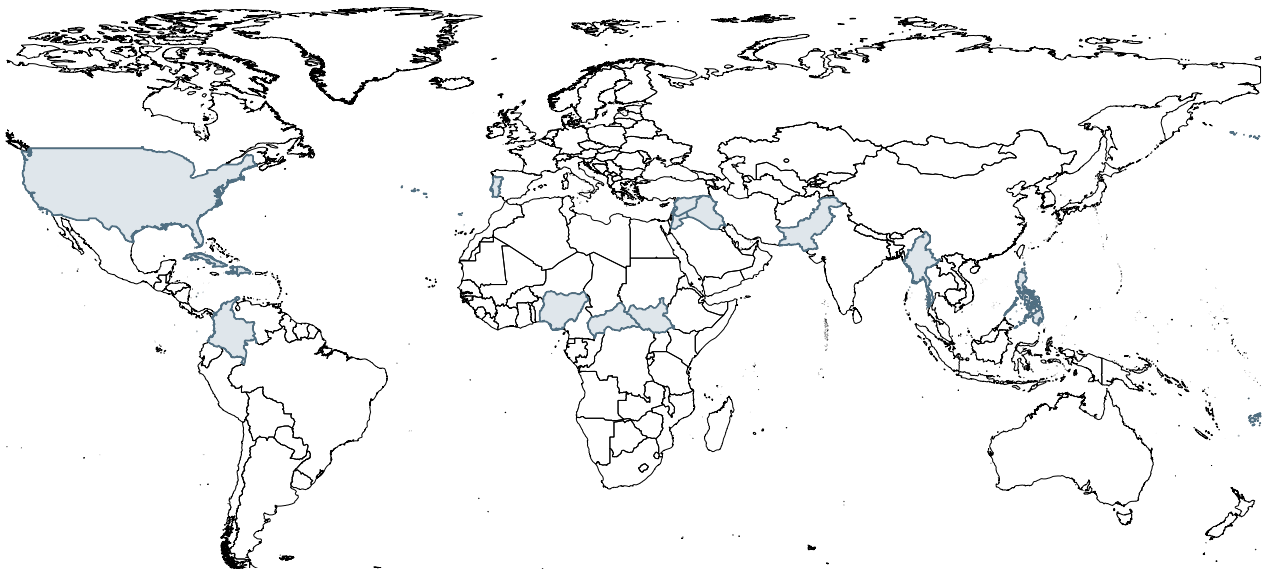


# SECTION A - Case Studies

*This section contains case studies of projects from both conflicts and natural disasters. See "Index of case studies by country" in section C for a full list of case studies from both this book and previous editions.*

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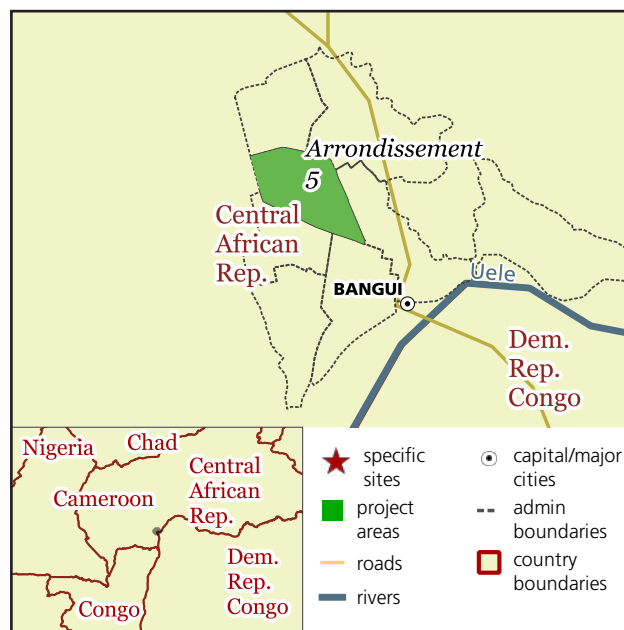




# A.1 Central African Rep. – 2013 – Conflict

**Case study** Keywords: Emergency shelter.

- Emergency:** Internal conflict, Central African Republic (CAR).
- Date:** December 2013 onwards.
- Damage:** 17,000 houses heavily damaged (January 2014).
- People affected:** Peak of 922,000 displaced in January 2014. 554,800 by May 2014.
- Project location:** Bangui City, 5<sup>th</sup> Arrondissement (District).
- Beneficiaries:** Capacity of 1,050 people per night.
- Outputs:** 31 communal shelters; 44 latrines; 15 shower areas; NFI distribution.
- Usage rate:** Average of 2,700 people per night March-April 2014 (peak of 4,000). 550 per night in May 2014.
- Shelter size:** Communal night shelters = 70m<sup>2</sup>, designed for 2m<sup>2</sup> covered space per person.
- Cost:** Approximately US\$ 500-700 per shelter, US\$ 15-20 per sleeping place



**Project description:**

In response to security issues for returning IDPs, a women’s training centre was converted into “Ben-Zvi Night Shelter” – a secure site with communal shelter for people worried about night-time security. The facility was open from 6pm to 6am in an area where security was maintained by the presence of international peacekeeping troops.

**Emergency timeline:**

[a] Dec. 2013: Increased conflict in CAR. Insecurity ongoing as of September 2014, though project area secure.

**Project timeline (number of months):**

- [1] Project planning phase.
- [2] Construction of communal shelters and WASH facilities inside compound by implementing INGO. Management handover to local NGO.
- [3-8] Shelters in use.
- [9] Planned project end.



**Strengths**

- ✓ The target population remained safe from armed groups and looters.
- ✓ Good hygiene standards.
- ✓ Population live in their home community during the day, rather than becoming IDPs, and therefore require less assistance.
- ✓ Beneficiaries keep their jobs, houses and businesses making economic recovery less of an issue.
- ✓ Feedback from beneficiaries suggested that night shelter was sufficient, very few requested 24-hour shelter provision.

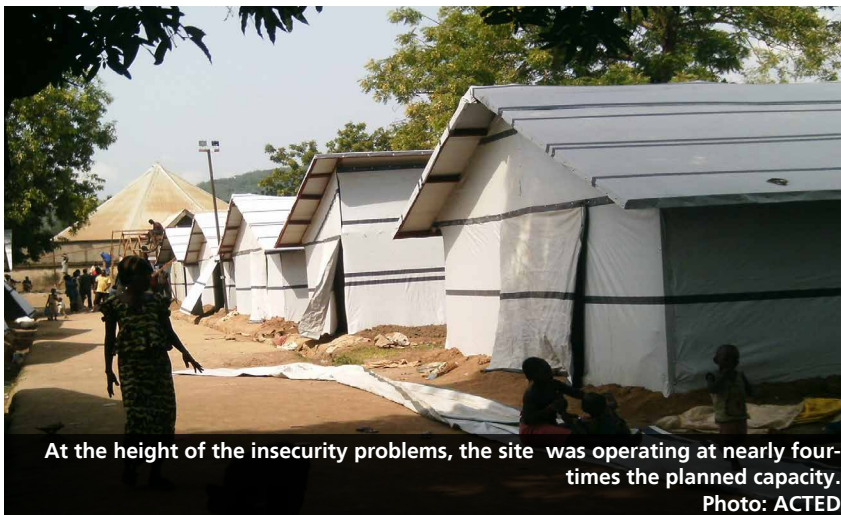
**Weaknesses**

- ✗ Due to security concerns it was hard for the agency to verify the numbers reported by the local partner.
- ✗ No services, such as primary healthcare, at the site.
- ✗ Young women’s physical safety was an issue at the

- site, compounded by lack of lighting. The issue of lighting was solved at a later stage.
- ✗ The site had problems with drinking water supply.
- ✗ The planned capacity was exceeded at the start of the project, and during periods of high insecurity. Hygiene risks linked to overcrowding were mitigated by shelters only being used at night.

**Observations**

- The project was combined with an economic recovery program in the 5th District.
- Night shelters have high costs and may be used irregularly or have short lifespans. Maintenance budgets for such sites are hard to plan as it is hard to predict their usage.



At the height of the insecurity problems, the site was operating at nearly four-times the planned capacity. Photo: ACTED

### Situation before the conflict

The target population had been living in a residential neighbourhood in Bangui (5th District), made up of a mix of religious groups.

A Bangui-wide survey was organised by an INGO in September and October 2013. This assessment showed that the average size of households had increased rapidly due to a massive inflow of people caused by the high level of insecurity outside Bangui. This increase in households' size was already causing stress on host families' livelihoods.

### Situation during the conflict

Following the violence in December 2013 in Bangui, around half a million people moved to makeshift sites within the capital. In some cases, people moved just a few hundred metres from their homes, taking refuge in buildings such as churches or schools.

Others fled to improvised IDP camps, often at a considerable distance from their homes. The ability of displaced people to return to their home communities was hampered by poor security, particularly at night. During the night people were more likely to be victims of armed robbery or abduction.

As reliable information on the security situation was very limited, many rumours circulated in the city, making the fear of violence just as important to those affected as the actual risk of an attack.

In the project area of the 5th District it appeared that most of the residents had fled during the beginning of the insecurity, though some remained. Most Muslims took refuge in the community of the 3rd district whereas others fled in large numbers to the IDP camp at M'Poko airport.

### Shelter strategy

In response to the huge displacement of people within Bangui, as well as in the provinces, the Shelter Cluster set the goal of ensuring that displaced populations were protected from the physical elements and could live in dignified conditions, without threats to their personal security. A two-fold strategy was developed:

- Distribution of NFI kits, including emergency shelter items such as tarpaulins. These were aimed mostly at populations in dispersed settlements; and
- Construction of community shelters, aimed at grouped settlements in the urban area of Bangui.

**The Mayor called the night shelter "Sanctuaire de l'espoir" (sanctuary of hope).**

### Project implementation

The project was a pilot project as part of a return strategy, and a livelihoods project ran in parallel in the district to try and help returnees re-establish themselves. The project was not replicated immediately due to security issues reducing access and a difficulty in finding other suitable sites.

The mayor of the 5th District made the original proposal to the main organisation to set up a night shelter for returning IDPs.

A disused women's training centre was identified as the site that would be converted into a communal night shelter site. The centre was made up of three buildings and a yard surrounded by a high wall on three sides, with a fence at the front. This protected area made it a good candidate for providing a secure compound.

The project was planned by the main organisation, while the structures were built by an international NGO as implementing partner. The project was part of a general programme of emergency shelter and water and sanitation. The main organisation provided funding for the day-to-day management, responsibility for which was handed over to a local NGO. The main organisation also provided funds for improved lighting.

To provide night shelter for a target population of 1,050 people, 31 communal shelters, 59 latrines and 15 showers were constructed inside the compound.

At the start of the project, the people who used the refuge came from neighbourhoods in the immediate vicinity. As tensions increased in Bangui, the profile of the night shelter population changed.

Each community shelter was named after the original neighbourhood area of the occupants, and people usually slept with their families and neighbours.

During the early stages of the project, an agreement was made with the international protection force that they would include the compound as part of their patrol, but remain outside of the compound. This was particularly important as

the INGO implementing partner was highly visible within the site. Once the site management was handed over to a local NGO, soldiers from the Support Mission to the Central African Republic (MISCA) were based inside the camp.

One case of gender-based violence was reported on the site. The victim was referred to the Protection Cluster for support, and lighting on the site was improved to reduce the risk of further incidents.

Security issues prevented the main organisation from visiting the site once management had been handed over to the local NGO, and it was not always possible to get clear reports from the site managers.

As the situation in the area becomes more secure, the centre will be able to resume its normal activities. Currently, the international implementing partner is providing maintenance of WASH infrastructure and has a budget for rehabilitating the site once the project is finished. One positive bonus of the project is that the site now has an improved electrical installation and better lighting, which will be of benefit when the site is rehabilitated.

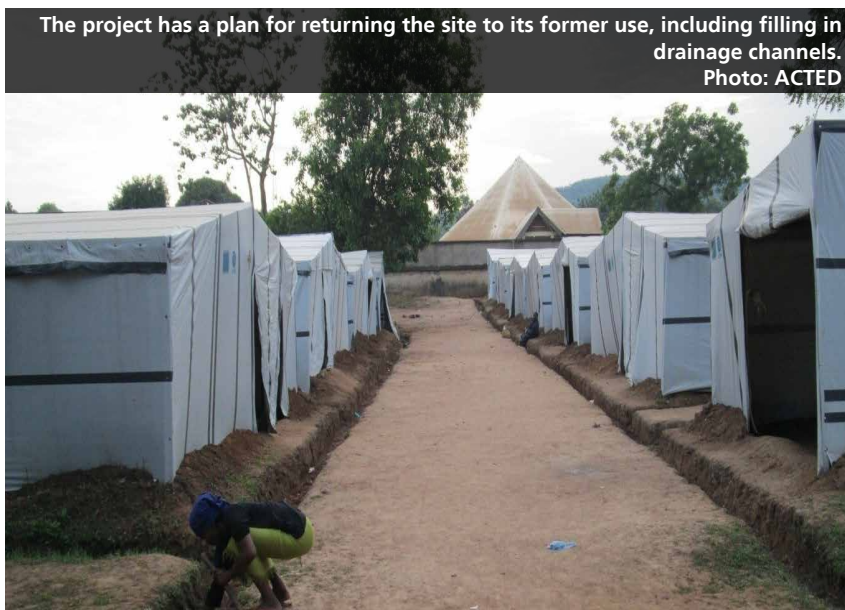
### Beneficiary selection

There was no official selection process – all those who wanted to stay in the night shelter compound were accepted. However, the intended capacity of the site was exceeded during periods of heavy violence, leading to overcrowding and many beneficiaries sleeping outside on the ground, exposed to the elements.

### Coordination

Coordination with the military, both the French mission and MISCA, was an extremely important factor in the refuge being able to provide a secure shelter option.

Steps were taken, however, to emphasise the independent agenda of humanitarian organisations, even if weekly coordination meetings between international organisations, local authorities, and armed forces were necessary. Coordination meetings were organised away from the project area. The demarcation



was less clear once the INGO left the project site.

Coordination with other humanitarian agencies was enhanced as the night shelter site provided a focal point for other agencies to conduct projects, for example, child protection. Attempts to secure extra funding for clean drinking water transportation failed, and this unfortunately meant that potable water was not always available.

### Design and materials

Plastic sheeting and toilet slabs were supplied by the donor; timber was locally sourced.

Although the shelter design allowed for partitioning the shelters with internal curtains, this was not implemented.

Separate male and female shower and latrine areas ensured privacy for the users.

### Wider project impacts

Increased security at night, with people's personal security guaranteed and the ability to bring in portable valuables, minimised the human and

economic cost of the conflict in the area, since people could return to their neighbourhoods during the day.

Surveys in IDP sites showed that the proximity of a night dwelling site to their daytime activity area was a key factor in the selection of a night shelter, including spontaneous sites. Secure sites that were suggested to IDPs but were located far away from their neighbourhoods, were rejected.

Later attempts to identify additional transitional night shelters, such as the one described in this case project, failed for different reasons, including a lack of government approval, or lack of security.

The deployment of the European Union Force (EUFOR) in the 3rd District of Bangui, and the development of a stabilisation strategy, means that the experience gained through this pilot project will be useful for developing future return strategies.

Night shelters need to be accompanied by support for rebuilding economic activities if they are to work as part of a return strategy, as economic recovery has been identified as the second most important factor (after security) in deciding whether to return.

**"The protection of the population is improved and we can reach people with other projects such as hygiene promotion."  
Local partner**



## A.2 Colombia – 2011 – Floods

### Case study

**Keywords:** Core housing / progressive shelter; Advocacy / legal; Site planning; Infrastructure; Training.

**Emergency:** Flooding, Colombia.

**Date:** Recurrent floods over many years.

**People affected:** Community of 148 families (1,054 people).

**Project location:** Doña Ana, San Benito Abad Municipality, Department of Sucre.

**Beneficiaries:** Entire community.

**Outputs:** 148 housing units, settlement infrastructure (water, sewage, energy and school construction).

**Occupancy rate:** 100%.

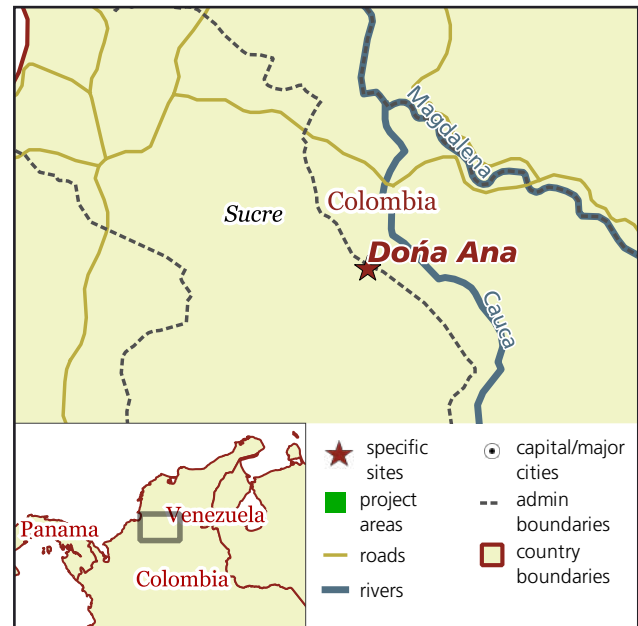
**Shelter size:** 49.75m<sup>2</sup> (including kitchen, bathroom and 2 bedrooms).

**Cost:** Materials and labour: US\$ 11,100 per household. Total cost including administration and connection to utilities: US\$ 21,300 per household.

### Project description:

This project supported the entire community of Doña Ana to voluntarily resettle to a new location, due to severe annual flooding. The project was implemented by a consortium which included a private foundation, public bodies and aid organisations.

The project involved community-led planning and settlement design and construction, in order to reinforce the community's resilience and capacity to develop sustainable living solutions in their new village. In total, 148 families were supported with new houses and infrastructure. Furthermore, the project may serve as a model for similar future interventions.



### Emergency timeline:

**[a]** Annual, seasonal floods in original area of Doña Ana.

### Project timeline (number of months):

**[1-16]** Phase 1 (Jan 2011-April 2012). Land selection and construction of 53 houses.

**[10-20]** Phase 2 (Oct 2011-Aug 2012). Collective fundraising and construction training. **[19-35]** Phase 3 (July 2012-Nov 2013). Community buildings plus 73 houses completed.

**[36-46]** Phase 4 (Dec. 2013-Oct. 2014). Community school construction.

**[46]** Oct. 2014: Planned project end.

Emergency	a		//																								
Years	2011		//		2012					2013					2014												
Project (months)	1	2	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46

### Strengths

- ✓ Strong engagement of national authorities in both project planning and resolution of land-tenure issues.
- ✓ Social and community mobilisation established a sense of belonging as well as facilitating construction.
- ✓ Environmentally-friendly development: introduction of new ecological water treatment plant.
- ✓ A holistic approach to the project included socio-economic support, psycho-social support, capacity-building of woman's groups along with infrastructure and education components.

### Weaknesses

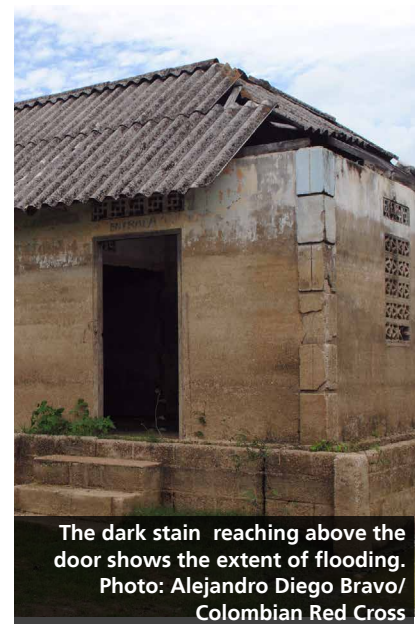
- ✗ The community is reliant on fishing but the industry itself is in decline. New, sustainable income generation activities are hard to establish.
- ✗ Ventilation of the houses was limited, requiring adaptations to doors and patio to better adjust to

heat and humidity.

- ✗ Additional psycho-social support is necessary to help the elderly overcome the loss of the old village and increase collective ownership of the new village.
- ✗ Additional training on water and solid waste management has been required to ensure sustainability of the water treatment plants and environmental education efforts.

### Observations

- The resettlement process goes beyond the project's lifetime, with a continuous effort required by all parties to ensure a successful transition.
- It is important to consider links and interactions between the new settlement and neighbouring areas to maximise integration and development.



### Living conditions in the old village

The community of the 'old' village of Doña Ana, located within a lagoon system, was increasingly affected by seasonal, protracted, 2-metre-high floods, which lasted several months. The floods damaged houses and assets, reducing incomes and livelihoods, and ultimately made living conditions very difficult.

During flood periods, people built timber mezzanines inside their homes to elevate the floor, but this meant people could not stand up in their own homes. Sometimes water levels reached roof-level, collapsing some of the weaker structures, with the church and the school inaccessible for long periods.

### Living conditions in the new village

Although the 'old' and 'new' Doña Ana settlements are located only half an hour from each other by boat, the change in living conditions is dramatic in terms of house typology, settlement density, access, livelihood development and general lifestyle pattern.

Children and younger people easily and happily adjusted to the new circumstances, especially given that they were forced to live confined inside their houses during several days or weeks when floods hit in the old settlement.

The elderly population found it more difficult to overcome the feeling of loss that they had, mourning the end of the old village. Feasibility studies are being carried out, as part of an environmental education and DRR project in the lagoon, to create a sort of 'memorial park' in the old (and often under-water) village, to ensure that people can return to honour the dead, who remain buried in the cemetery in the old village.

Currently the community envisages various collective projects, fundraising for new places of worship and creating new cooperatives in order to generate income and ties with the surrounding villages.

### Beneficiary selection

The decision to move the entire community of Doña Ana to a new settlement with no risk of flooding was taken following an assessment of the winter floods by the National Authority for Disaster Management.

### Project implementation

The project was completed in four phases, described below.

**"The entire community needs to take responsibility and respect one another working hand in hand."**  
Villager

### Phase 1

The first phase involved the establishment of the mechanisms for coordinating and managing the project, with the implementing organisation partnering with the National Unit for Risk Management (UNGRD). The management committee was made up of representatives from the municipality, the implementing organisation, private foundations, and the UNGRD.

Together with the community, the local authorities, and the technical support of the hydro-geologic department at Sucre University, a new location was identified. The privately-owned land was surveyed by the authorities as a contribution to the project.

The community took part in mobilisation activities and participatory planning workshops.

### Phase 2

More stakeholders entered the programme, with local authorities, non-governmental organisations and private foundations joining together to collectively fundraise and share financial, human and technical capacities. A further 22 families received construction training and built their new houses, assisted in terms of the supply and quality control of materials as well as technical assistance from the implementing organisation.



The community not only contributed to the building of their homes but also provided the labour for shared facilities such as the community centre. The emphasis on working together for a new future motivated most community members, though the elderly had more difficulty in adjusting to the move. Photo: Alejandro Diego Bravo/Colombian Red Cross

A new water system was set up and the community established a development plan.

### Phase 3

During this phase a further 73 houses were built and a number of infrastructure milestones were reached, including the construction of community buildings, the development of a sewage system and connection to the power grid. Small-scale livelihood projects began during this phase, such as kitchen gardens and poultry farming, with the government Department for Social Prosperity also providing livelihood support.

### Phase 4

In the final phase, the construction of the school for 130 pupils will be completed, with intensive involvement of the community in the building process and associated themes of participation, accountability and maintenance of educational facilities. Further work on the development of community organisations will also be carried out.

### Construction process

The community participated in all steps of the construction. The construction materials were purchased by the organisation, with the village leaders and committee kept informed of prices and progress. The organisation provided training for unskilled community labour for

the construction process, and hired qualified building professionals from outside for more specialised tasks.

### Coordination

The most important element in the coordination of the project was the input of the community itself and the trust developed between the community and the implementing organisation and its government counterparts. Community participation was crucial since initially the community was divided over whether to move or not. Without a collective decision the project would have been unsuccessful.

The consortium of different organisations was initiated by Colombian civil society groups, who turned to the main organisation for assistance in identifying a long-term development project into which they could channel their resources.

The consortium led the engagement with the local community, and the implementation itself. The local authority was particularly active in the first phases, especially in terms of site selection and legal considerations. The organisation started a livelihood project of home-based

gardens, during which alliances were established with other institutions to ensure future technical assistance.

### Disaster Risk Reduction (DRR)

There were three phases of DRR:

- Risk awareness raising and knowledge development through risk-mapping workshops and other exercises.
- Risk management through disaster management training and the creating of a brigade that assisted in the phase-by-phase move from the old to the new village.
- Recovery and risk-reduction through environmental awareness-raising and education, and initiatives to create a risk-informed community. While construction works were carried out in the resettlement site, regular monitoring of the old site took place to ensure that nobody was re-occupying the empty houses.

### Technical solutions

Technical aspects of the project included:

- Land surveys to ensure a safe relocation site.

**“Doña Ana is the proof that it is possible to save a community at risk, to build a better future for society.”**  
Project staff member





The layout of the new village.  
Photo: Alejandro Diego Bravo/Colombian Red Cross

- The design and construction of durable housing, based on minimum space standards and disaster-resistant features.
- Water pumping with filtering beds to clean waste-water before it returned to the lagoon.
- Rainwater harvesting.

### Materials

The majority of materials were purchased from local suppliers, following a tendering process. The materials were brought to Porto Franco, the closest town, and then transported by canoe to the project site.

When housing construction was underway in Phase 1, a road was built, which improved access for Phases 2 and 3.

### Wider impacts

The project is unique in Colombia in its combination of funding from private foundations and civil society, and implementation by a well-established national humanitarian organisation, with the support of the community and local government.

The funding requirements of this multi-phased project may be difficult for other communities to replicate, but the modalities and mechanisms of implementation of this programme demonstrate a model that could be

replicated in other areas of Colombia or other parts of the world.

This project is an example of a success story for a community struggling with the adverse effects of flooding, a situation many remote communities around the world find themselves in. The story of the project has been disseminated at a number of high-level conferences including the World Urban Forum in Medellín.

### Example of construction costs (Phase 3)

Item	Cost (US\$)	% of total
72 houses (US\$ 11,100 each)	799,200	49%
Preparation works	7,500	0.5%
Plot clearing & site planning	50,000	3%
Sanitation and electrics	330,000	20.5%
Roads and other infrastructure	439,000	27%
<b>TOTAL</b>	<b>1,625,700</b>	<b>100%</b>

## A.3 Hurricane Sandy – 2012 - Overview

### Overview

#### Summary of emergency:

Hurricane Sandy, one of the largest Atlantic hurricanes on record, passed through the Bahamas, Cuba, the Dominican Republic, Haiti and Jamaica in October 2012, before making its final landfall on the eastern seaboard of the United States.

#### Table summarising impacts of Sandy

Region	Fatalities	Damage (USD)	Houses damaged/destroyed
Cuba	11	\$2 billion	220,000 damaged and 22,600 destroyed
Dominican Republic	3	\$30 million	24,559 damaged, 200 houses destroyed
Haiti	54 (50)	\$750 million	24,348 damaged, 6,666 destroyed and 9,352 flooded
United States	73 (87)	\$65 billion (estimated)	Over 650,000 damaged/destroyed
Jamaica	1	\$100 million	(no information)
The Bahamas	2	\$700 million	(no information)
Totals:	148 (138)	≥\$68 billion (estimated)	

*Note: Numbers in parentheses indicate indirect deaths. Because of differing sources, totals may not match. Adapted from: [wikipedia.org/wiki/Hurricane\\_Sandy](http://wikipedia.org/wiki/Hurricane_Sandy)*



### Media attention and Silent Disasters

Many of the projects detailed in *Shelter Projects 2013-2014* have been undertaken in some of the world's highest-profile disasters, but for each disaster which grabs the world's attention, there are many more which remain 'silent', with limited or no international media coverage. This may have significant effects upon the amounts of funding afforded to the response, how well a comprehensive national response strategy is developed, and the level of participation of international humanitarian actors.

Hurricane Sandy provides a clear example of how a catastrophe can achieve blanket news coverage across the world, and yet for some countries be a 'silent' disaster.

Research commissioned by the International Federation of the Red Cross and Red Crescent Societies (IFRC) found that stories relating to

the impact of Sandy specifically in the USA accounted for almost 90% of the media coverage of twelve selected disasters. Next was the passage of the storm through the Caribbean, which attracted 6.76% of the coverage, and then 11 other ongoing disasters around the world, which accounted for 3.83%.

While the fundraising efforts for the response to the disaster in New York exceeded US\$ 40 million within a few days, according to UNOCHA's Financial Tracking Service ([fts.unocha.org](http://fts.unocha.org)) the request by international organisations for US\$ 10 million to respond specifically to shelter needs in the whole of the Caribbean only reached 40% of its target over a year later.

Some adjustment should be made for the relative differences in both damage caused and cost of living, but the overall response has been unequal. For example, although the USA experienced three times as many

damaged homes as Cuba, it received more than ten times as much media attention.

### Country strategies

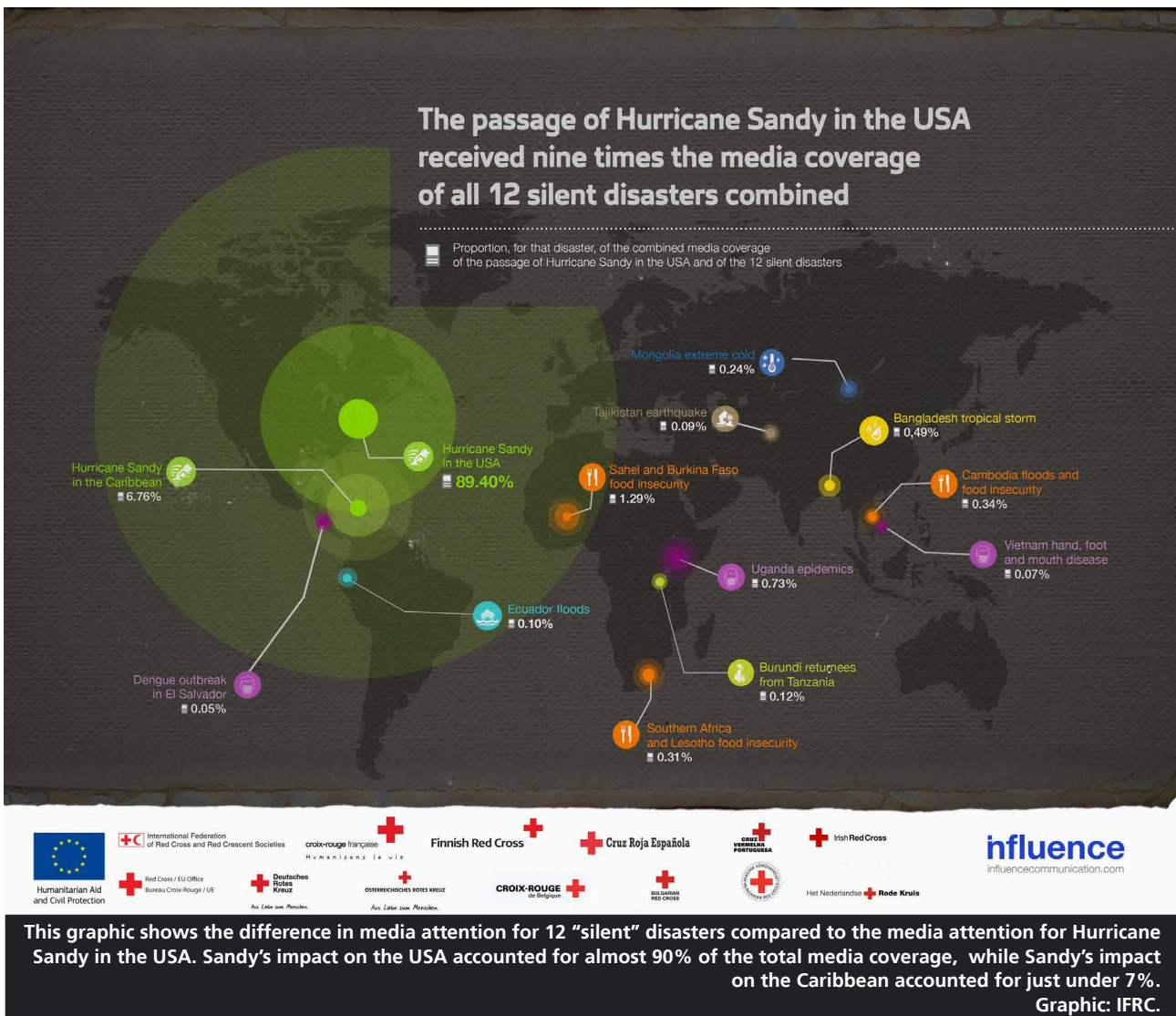
Both the USA and Cuba have clear government-led strategies when responding to a natural disaster like Hurricane Sandy, even if the two countries have very different levels of resources available to mobilise.

The other countries affected had a much less structured approach to their responses.

#### USA

The response in the USA was led by the national government, with support from civil society, international humanitarian actors, private sector initiatives, and significant donations from private individuals.

The USA has a National Response Framework (NRF) led by its Federal Emergency Management Agency (FEMA) that establishes an



overarching structure for managing response capabilities to save lives, protect property and meet basic needs during an emergency.

A significant reform of the USA's emergency management following the 2005 hurricanes, has been the introduction of a National Disaster Recovery Framework (NDRF) to enable a flexible approach for local, state and federal government agencies to help communities recover from disasters. The NDRF works as a companion to the NRF.

The US NRF has noted that the United States has a "bottom-up" approach to both managing and providing assistance during a disaster. The responsibility for responding to disasters begins at the local level with survivors, elected officials, and emergency service personnel. If local government and

local non-governmental resources are overwhelmed, the state governments can supplement the response with additional resources, and can then call for federal assistance if there proves to be overwhelming need.

NGOs were involved in a wide range of activities including: providing meals for volunteers and survivors; providing temporary shelter;

removing debris and cleaning up damaged areas; making repairs and providing reconstruction assistance; and providing legal assistance and advocacy.

This US approach to disaster response and management can result in a fragmented decision-making process across an area as large and diverse as the region hit by Sandy. Control of the post-disaster process increases over time for local government leaders, especially if they are eligible to receive Community Development Block Grants to implement a wide range of activities.

Disaster-impacted communities in the US also typically have to deal with new federal regulations on development. In the case of Sandy, many residents have been apprehensive about rebuilding their homes, due to changes in the federal flood insurance

**One US organisation measured the impact of part of its response to Sandy in "overnight stays". Every night a person stays in a shelter counts as one overnight stay. A family of four staying in a shelter for three nights counts as 12 overnight stays.**



programme, which is connected to updated flood zone maps and elevation requirements in their areas.

At the federal level, the housing recovery aspect falls not just on FEMA but also on the Department of Housing and Urban Development (HUD) and other agencies. Ultimately these agencies are only able to provide technical assistance (and funding to a certain extent) to drive community recovery. In December of 2012 President Barack Obama established a Hurricane Sandy Rebuilding Task Force (led by HUD) "to provide appropriate resources to support affected state, local, and tribal communities to improve the region's resilience, health, and prosperity by building for the future."

A year later, the Task Force had noted progress on some of the 69 recommendations it stated in its initial report, but it remains to be seen how successful the overall recovery effort has been as many survivors (particularly in New York City) have experienced delays and setbacks in their ability to recover.

### **Cuba**

Emergency response in Cuba is coordinated by the Government through Civil Defence Committees and the military. International NGOs, donors and UN agencies can only act with approval from the government.

The national shelter strategy, which informed the work of the Cluster, has two stages:

- Immediate emergency response: evacuation and provision of temporary shelter solutions while basic services are restored at the same time (led by the Cuban Government).
- Recovery: risk and vulnerability are to be reduced through support for sustainable housing recovery and improved capacity for planning and risk-management (led by the Cuban Government with support from the international community).

No Shelter Cluster was initiated and the few coordination meetings that did occur took place in Havana and not in the affected region.

Common messaging on DRR capacity-building and Building Back Safer messages was developed amongst the organisations, for use in Information, Education and Communications (IEC) materials which were then disseminated by NGOs and international organisations.

### **Haiti**

In Haiti, the area worst hit was Grand'Anse Department, a part of Haiti that had not been significantly affected by the 2010 earthquake. Consequently, most organisations were not operative in the area and few intervened after Sandy hit. The disaster attracted a limited response from donors.

No coordination strategy was officially activated, and the Shelter and CCCM Cluster in Haiti did not dedicate a working group to the Sandy response.

### **Dominican Republic**

There was no national government shelter strategy. The government concentrated its response on repairing infrastructure such as roads and providing health-care services to those affected.

### **Preparedness**

In the US the conversation around Hurricane Sandy has helped usher in an increased focus on resilience in communities. This includes not just the built environment, but also focusing on adding capacity to the residents and their social or organisational networks as well. HUD has announced a \$1 billion National Disaster Resilience Competition to fund innovative resilience projects in a large number of communities.

Local and federal government have tried innovative tactics to address the immediate shelter concerns of a dense area, and these are likely to be adapted again in future large-scale disasters. The opportunity still remains to better integrate emergency assistance placed quickly in the hands of survivors, with HUD assistance, to ensure that survivors and communities can effectively use these resources to recover.

Across the other countries affected by Sandy, for every failure

to attract international attention for a post-disaster response, there is the associated risk that any efforts to prepare for any future disaster, through disaster-preparedness programmes, or through the incorporation of resilience into reconstruction techniques, will also be 'silently' forgotten, or under-resourced, thus setting that country at risk for a further cycle of being caught in yet another emergency, sometime in the future.

A common strategy taken by international organisations responding to the needs of those affected by Sandy in the Caribbean was to try to motivate the communities themselves to take as many cost-effective measures themselves to increase their disaster preparedness in the future.

The success of this often relies on the social and political situation context, with international organisations able to plug-in to, and build on, well-organised response mechanisms in Cuba but finding it much harder to work against a culture of aid-dependency in some Haitian communities.

More information on silent disasters can be found here:  
[www.ifrc.org/silentdisasters](http://www.ifrc.org/silentdisasters).

## A.4 Cuba – 2012 – Hurricane Sandy

### Case study

**Keywords:** Household items; Construction materials; Tools; Support for host families; Housing repair and retrofitting; Training; Guidelines / materials / mass communications.

<b>Emergency:</b>	Hurricane Sandy, Cuba.
<b>Date:</b>	25-26 October 2012.
<b>Damage:</b>	220,000 homes damaged and 22,600 destroyed.
<b>People affected:</b>	3,000,000 affected (27% of Cuba's population).
<b>Project location:</b>	Org. A: Holguín province. Org. B: Holguín, Guantánamo and Santiago provinces.
<b>Beneficiaries:</b>	Org. A: 7,952 people. Org. B: 10,967 families.
<b>Outputs:</b>	Org. A: 320 roofing kits, 400 toolkits, 1390 family NFI kits. Org. B: 4,949 shelter kits.
<b>Occupancy rate:</b>	Org. A: 100%. Org. B: 95% due to some families choosing other options.
<b>Shelter size:</b>	Repaired houses averaged 70m <sup>2</sup> .
<b>Cost per shelter / household:</b>	Org. A: US\$ 1,650 (US\$ 1,100 for materials plus training and technical assistance costs). Org. B: US\$ 815 per shelter kit.

### Project description:

Two organisations delivered a standardised roofing kit to families whose homes had been damaged.

The organisations, in partnership with the government, provided materials tailored to the needs of each household. Organisation A provided technical assistance, trainings on DRR and a WASH component, whilst Organisation B implemented a Participatory Approach for Safe Shelter Awareness which included construction workshops.



### Emergency timeline:

[a] October 2012: Hurricane Sandy hits.

### Project timeline (number of months):

- [1] Nov. 2013: Planning phase begins.
- [4] Organisation B detailed assessment. Organisation A distributes all hygiene kits. [5] Government and community meetings, sensitisation. [6] Organisation B begins implementation.
- [7] Organisation A finishes NFI distribution, roofing kit installation begins. [8] Organisation B begins PASSA training. [10] Organisation A capacity-building training.
- [13] Organisation B handover.
- [14] Organisation A handover.

Emergency

Years

2012

a

2013

2014

Project (months)

1 2 3 4 5 6 7 8 9 10 11 12 13 14

### Strengths

- ✓ As many houses were smaller than the average of 70m<sup>2</sup>, providing tailored, rather than standard, kits meant that more households could be assisted.
- ✓ The two projects complemented the government response by providing materials that were not available in-country.
- ✓ Organisation A's tailored technical assistance meant safe repairs and correct installation of most roofs.
- ✓ Organisation B's community-led DRR approach has built communities' capacities to cope with disaster.
- ✓ Organisation A found that 94.5% of respondents to an evaluation survey were fully or extremely satisfied with the technical assistance and materials received.

### Weaknesses

- ✗ Import regulations meant materials arrived slowly, delaying the implementation of the projects.
- ✗ Not all structures were strong enough to support a roofing kit. In these cases some families received government support, though the waiting list was long as destroyed houses were prioritised first.
- ✗ The total number of beneficiaries reached by the international community was only a small proportion of those in need, something beneficiaries themselves raised as an issue.

### Observations

- Houses with 45-degree roof inclinations had to be modified to 30 degrees. Salvaged wood was used for some of the extra purlins due to timber shortages.

Organisation B introduced the new technology of Hurricane straps to Cuba. The straps were not always folded down correctly so training and site inspections were organised to reduce incorrect application. Photos: Santiago Luengo/IFRC



### Situation before the disaster

Cuba is unusual as the vast majority of houses are state-owned. Many of these buildings, and related infrastructure, are in decay.

Urban areas, such as the cities of Santiago and Holguín, have building codes, but in rural areas houses are self-built and codes are rarely enforced.

Houses are built with wood and/or cement with thatched or, more commonly, corrugated iron sheet roofs. As local construction techniques do not involve the secure fastening of roofs, many were blown away by the hurricane.

### Situation after the disaster

During the storm itself, most of the population was evacuated to safer areas (either collective centres or hosted by relatives with durable houses). Affected families were then divided into two groups:

#### *Group 1 – Complete housing collapse*

After the initial evacuation, some of the families in this group continued living with host families (often relatives), creating additional pressure on the hosts, who struggled with their own recovery.

Some families built makeshift shelters on the sites of their destroyed homes, using salvaged materials.

These families faced very poor hygiene conditions, had no access to drinking water, and were unable to protect themselves from the heavy rains that followed Sandy. Both agencies distributed NFIs, including to host families in order to relieve some of the pressure of hosting.

#### *Group 2 – Partial collapse or roof damage*

Most of these families remained living in their homes, making repairs from salvaged materials. They also faced very poor housing and hygiene conditions.

### Shelter strategy

Emergency response in Cuba is coordinated by the Government through Civil Defence Committees and the military. International NGOs, donors and UN agencies can only act with approval from the government.

The national shelter strategy had two stages:

Immediate emergency response: evacuation and the provision of temporary shelter solutions, whilst basic services were restored (led by the Cuban Government).

Recovery: risk and vulnerability were reduced through support for sustainable housing recovery and improved capacity for planning and risk-management (led by the Cuban Government with support from the international community).

All houses were repaired on their original plots and no households were relocated as part of the project.

### Project implementation

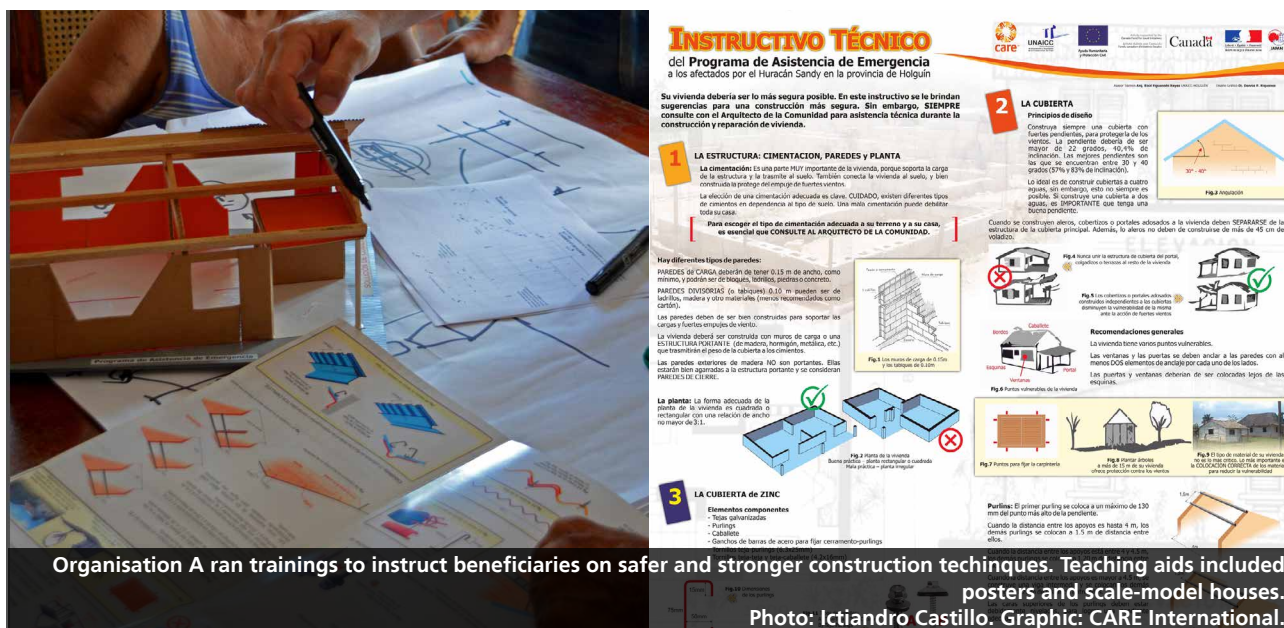
Organisation A implemented its project as a consortium of Cuban and international agencies – including the Cuban Civil Defence Committee, municipal governments, the National Housing Institute (Instituto Nacional de la Vivienda - INV) and its municipal offices (UMIV - Unidad Municipal de Inversion de la Vivienda), the National Association of Architects and Engineers (UNAICC) and an international NGO. Organisation B implemented as a single organisation, coordinating with relevant partners.

The two organisations had slightly different approaches to implementation. Organisation A provided direct technical support to families and supported the government's DRR messaging. Organisation B, which has a permanent presence in the country and a large network of volunteers, chose to focus on applying its Participatory Approach for Safe Shelter Awareness (PASSA - see *Shelter Projects 2011-12*, A.13) at the community level.

Moving into the recovery phase, each home was assessed for damage by UNAICC and UMIV. Following the technical surveys, individual repair plans were drafted for each home.

The local government provided subsidies for families to purchase





Organisation A ran trainings to instruct beneficiaries on safer and stronger construction techniques. Teaching aids included posters and scale-model houses. Photo: Ictiandro Castillo. Graphic: CARE International.

construction materials at reduced prices, and to be able to repair their homes with the receipt of the roofing kit.

Both organisations trained community brigades, masons, carpenters and volunteers on safe roof installation. Community brigades were made up of groups of between 2-10 people with construction skills, who supported the community as volunteers. They worked with close supervision and support from specialists in roof installation from UNAICC and UMIV. Monitoring visits were conducted, as well as satisfaction surveys and evaluations.

### Beneficiary selection

Organisation A's area of intervention was selected in coordination with government and other agencies, with Baguano and Cueto municipalities in Holguín province chosen on the basis that they were two of the most severely affected areas.

Organisation B's area of intervention was selected after the initial emergency assessment. Organisation A's caseload was mostly rural while Organisation B's beneficiaries were more likely to be in urban areas.

Organisation A's list of beneficiaries was provided by the Cuban Civil Defence Committee and municipal governments, with the organisation double-checking that beneficiaries met the following criteria:

- Social vulnerability – priority was given to female-headed households, single mothers, the elderly, and the disabled.
- Economic vulnerability – those facing severe economic difficulties received government subsidies (bonds) to purchase construction materials.
- House collapsed – prioritised for NFI and hygiene kit distribution.
- House partially collapsed and roof lost – prioritized for roof replacement and home repair (if the house structure could support the roof).

Organisation B used similar criteria but selection was made together with the community through neighbourhood meetings.

### Coordination

The government took the lead in the response. No Shelter Cluster was

**“We learned that a joint voice and message is more powerful, and that national and international organisations can work together towards common goals.”**  
**Technical specialist from Cuban partner organisation**

initiated and the few coordination meetings that did occur took place in Havana and not in the affected region. Both agencies implemented a standard roofing kit designed and approved by the INV.

Common messaging on DRR capacity building and Building Back Safer messages was developed amongst the agencies for Information, Education and Communications (IEC) materials which were then disseminated by NGOs and international agencies.

Organisation A's messaging included hygiene promotion, safe and correct use of NFIs (including mosquito nets) and Build Back Safer techniques and safe roof installation.

### Technical solutions

By tailoring technical assistance to the needs of each individual household, the risk of inappropriate construction was minimised.

Organisation B implemented hurricane strapping, and this was the first time the straps had been used in Cuba. The organisation used examples from intervention in Haiti to advocate for government acceptance of their usage.

Organisation B found that house typologies varied greatly and consequently the straps had to be adapted to different constructions. This led to delays, but also improved understanding of the technique.

El primer paso para la instalación de techos reforzados contra huracanes consiste en instalar cintas de refuerzo mecánicas en las estructuras o armazones de madera de las casas.

A continuación presentamos algunos ejemplos de la instalación de estas cintas.



Para reducir los efectos de succión y desprendimiento cuando hay fuertes vientos, trate de construir su techo con un mínimo de 30 grados de inclinación y un máximo de 40 grados.

**Organisation B developed training material that included messages such as how to improve joining and the optimum slope for roofs.**  
Graphics: IFRC/Cruz Roja Cubana

## Disaster Risk Reduction (DRR)

High winds and tropical storms are significant hazards in Cuba and roofs are frequently lost during storms.

Given that only a small quantity of iron sheets are produced in Cuba, the loss of a CGI sheet roof is an extremely expensive one. It is important that investment in CGI sheeting is long-term and that roofs are secure so that investment in costly CGI sheeting is not wasted.

Advice on safer home repair and roof installation included:

- Roof slopes of 30-40 degrees;
- Veranda roofs should be separate from main roofs;
- CGI sheets must overlap by at least 1.5 ridges
- Purlins every 1.2 m, fixed to the structure;
- Purlins should be installed with the widest dimension of the section extending away from the roof-frame (the opposite is a common mistake in Cuba).

Organisation A provided DRR messaging at different project stages. When the individual repair plan for each household was developed by UNAICC and UMIV, Organisation A's poster on safe reconstruction was used as the basis for discussions with each household.

Training workshops with brigades were conducted by UNAICC and UMIV on how to safely install roofing

kits, using posters and scale models to illustrate the techniques.

Once the training was complete, UMIV and UNAICC organised practical sessions where brigades installed an actual roof kit, which then became a "model home" example in each community.

Organisation B used its PASSA to reinforce messages within the community. Members of the local authorities participated in the training to gain ownership of the tool and eventually apply this Shelter DRR tool in other areas as well, though unfortunately it was not possible to complete the implementation during the project's emergency response phase.

## Materials

Most materials, including all CGI roofing materials, had to be imported, and import regulations lengthened the delivery process. Only timber was available in sufficient quantities to be sourced locally, although in some instances salvaged timber was used by Organisation B in place of more expensive purlins to make it easier to implement the hurricane strapping.

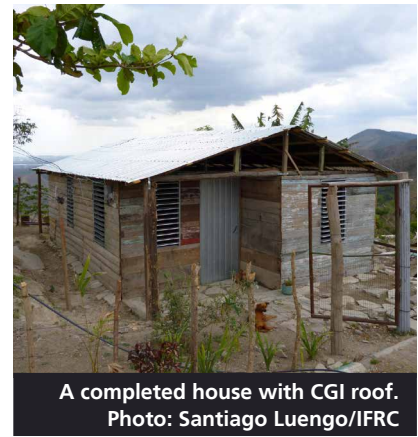
Once the roofing materials had been cleared by the authorities, they were transported to the project site by the government.

The two shelter kits differed in materials cost. Organisation A used 0.55mm thick CGI, the painting of which added to the final cost, making it slightly more expensive per shelter than Organisation B. Organisation B also benefitted from economies of scale.

## Wider project impacts

The introduction of hurricane roofing straps by Organisation B was a significant improvement to construction techniques in Cuba. The straps were not available on the local market.

The official roof kit design developed and validated by the INV was for gable roofs, rather than the hip-roofs found locally in rural areas, particularly Bagunos and Cueto. As a lesson learned, Organisation A and UNAICC jointly advocated for the adoption of a new technical specification for houses with four-sided



**A completed house with CGI roof.**  
Photo: Santiago Luengo/IFRC

hip-roofs, and this is currently being considered by INV and a new design should be developed in time for the next emergency response.

Cuban authorities are considering building on the approach of using local resources for technical assistance. UNAICC, for example, is present in all provinces and could be mobilised to provide technical assistance in times of emergency.

Both organisations raised their profiles as credible counterparts of the government in both emergency response and capacity building.

## Organisation A's roof kit

Item	Quantity
CGI roofing Gauge 26, 1.07m x 3.70m, anti-siphon.	20 sheets
Galvanised steel purlin,	
3" x 2" x 7m	12 pcs
Roof ridging 45cm x 183cm x 26m	6 pcs
Galvanised screws (4.2mm x 16mm)	220 pcs
Galvanised screws (6.3mm x 25mm)	320 pcs
Electric drill (750W)	1 pc



## A.5 Dominican Rep. – 2012 – Hurricane Sandy

### Case study

**Keywords:** Household items; Construction materials; Housing repair and retrofitting; Cash / vouchers; Training; Structural assessment.

**Emergency:** Hurricane Sandy, Dominican Republic.

**Date:** 24-26 October 2012.

**Damage:** 24,559 houses damaged, 200 houses destroyed.

**People affected:** 122,795 people.

**Project location:** Azua, Barahona, Monte Plata, San José de Ocoa.

**Beneficiaries:** 5,041 people.

**Outputs:** 949 households supported. 581 received NFIs, 368 received construction materials. Six collective centres were reinforced.

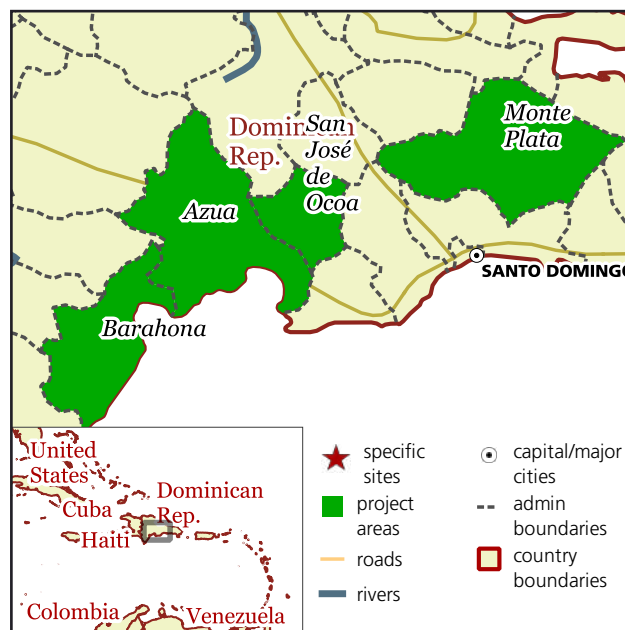
**Occupancy rate:** 95%.

**Shelter size:** 26.49m<sup>2</sup>, about 40% of the size of the average home.

**Cost per shelter /**

**household:** NFIs: US\$ 116. Materials: average US\$ 205.

Total cost per shelter including project costs: US\$ 360.



### Emergency timeline:

**[a]** October 2012: Hurricane Sandy hits.

### Project timeline (number of months):

**[1]** March 2013: NFI distribution.

**[2]** Planning.

**[4]** Beneficiaries identified.

**[8]** Detailed damage assessments conducted and individual house plans developed.

**[10]** Safe shelter trainings for carpenters and masons.

**[11]** Final classification of aid package for each family.

**[12]** Distribution of materials.

**[14]** Project handover.

### Project description:

An integrated early recovery project which combined a shelter response with WASH assistance and risk-reduction components. With the objective of assisting the most vulnerable families, NFIs and tailored shelter-repair kits were distributed through vouchers redeemed at local suppliers.

Technical assistance and training was provided to communities and local craftsmen to improve disaster-resistant construction techniques.

Emergency

**a**

Years

2012

2013

2014

Project (months)

1 2 3 4 5 6 7 8 9 10 11 12 13 14

### Strengths

- ✓ Beneficiaries and construction workers became more aware of the value of safe construction techniques.
- ✓ There was an effective introduction of new elements, such as hurricane strapping, into traditional construction methods.
- ✓ The project employed lessons learned from interventions in other countries in the Caribbean, and the project contributed to the organisation's wider "Safe Shelter" programme in the country.
- ✓ Growth of local businesses was stimulated.

### Weaknesses

- ✗ Using first-time local suppliers caused delays in the organisation's internal administrative procedures for procurement of materials and goods.
- ✗ Software used in the evaluation was not made

available during assessment, complicating analysis.

- ✗ Some homes could not be reinforced, lowering the benchmark of the project. To compensate, collective centres were reinforced to provide safe places for everyone to go to during an emergency.
- ✗ Transportation costs were not completely accounted for, and some families had to reduce their expenditure on materials in order to pay for transport.

### Observations

- Communities which the organisation had not previously worked with were less organised and slower to understand the aims of the project. They were also less receptive to projects with a risk reduction component.
- Local institutions were weak, reducing the ability to work jointly with them.



Hurricane straps were introduced to the Dominican Republic for the first time as part of the project. Other improved construction techniques included improved foundations. Photos: Sandra D'Urzo/IFRC

## Situation before the disaster

Before the disaster the level of knowledge of safe construction amongst communities was limited. Many vulnerable families were living in low-standard shelters and the risk of flooding was the most frequent threat.

Roofs were not usually reinforced and often unsafe, with families using concrete blocks and tyres as counterweights to keep them in place during storms.

Roofs were typically covered in corrugated zinc sheets, with the frame and wall structures made from wood. Some walls were built out of a combination of mortar, wood and blocks and few were strong enough to resist damage by storms or earthquakes.

## Situation after the disaster

Hurricane Sandy exacerbated this situation, with an estimated 24,559 homes affected, and 200 destroyed, in 215 communities across the Dominican Republic.

In mid-December 2012, the organisation confirmed that national rebuilding efforts had not reached half of the destroyed houses and around 500 houses were still partially damaged. Approximately 1,500 homes had received no aid to help

replace items which they had lost in the hurricane.

## Shelter strategy

There was no specific strategy at government level for the shelter and housing sector. A more general response was undertaken in terms of road and infrastructure repairs and health-related measures.

In the four municipalities where the project intervened local authorities made efforts related to housing reconstruction. However, these construction works did not employ reinforcement technology such as diagonal bracing or hurricane straps.

The organisation's own strategy was divided into two phases: emergency and recovery. The emergency phase included the assessment of shelter needs and the distribution of NFIs.

Initially it was planned that the recovery phase would include the reconstruction of destroyed houses. However, due to lack of funding it was only possible to support work on partially-damaged structures that were structurally sound enough to be repaired.

The recovery phase consisted of distributing shelter kits and providing training on the use of hurricane straps, as well as a WASH response.

## Project implementation

The project had a limited budget which could not cover full reconstruction or new housing. Instead, the focus was on reinforcement of shelters that were partially damaged. The project did not have the resources to rebuild destroyed homes or reinforce homes with severe structural damage.

To make sure that those families whose shelters could not be reinforced still had access to safe shelter in an emergency, the organisation also reinforced wooden collective centres using the same techniques employed for reinforcing houses.

The organisation met with the communities several times to explain the selection process and the aims of the project.

After the selection of beneficiaries was completed, the shelter component was articulated in various steps by sensitising the communities on:

- Risks related to unsafe shelter.
- Actions and construction techniques that could serve to mitigate those risk and reinforce houses.
- Care and maintenance of housing units.





The project included both practical construction training and the PASSA approach to Disaster Risk Reduction. Photos: Dominican Red Cross

A detailed house damage assessment of 1,182 houses was conducted by the organisation and 949 were deemed eligible for assistance. Individual shelter-repair kits for each house were developed to ensure tailored assistance based on the levels of damage, typology and construction materials.

Materials provided included the following, (not all were supplied in every case):

- Timber elements
- CGI sheets
- Hurricane straps
- Nails

Demonstration sessions on safe shelter as part of three-day trainings were conducted by the organisation's shelter specialists to inform communities and construction workers. Sensitisation was carried out before distributing the vouchers for firstly NFIs and then secondly construction materials.

Construction materials were prioritised for those whose homes were partially or completely destroyed, but some repair kits were also given to families whose wooden homes were intact but needed reinforcing.

The community was in charge of managing the repair process,

providing the labour and implementing the new construction techniques. They were guided by both the organisation's staff and the construction workers who had received training from the organisation. The quality of repairs and reinforcements was monitored.

A voucher system was used for the NFI part of the response. A voucher worth US\$ 116 was given to each beneficiary family and this could be redeemed at a supplier identified by the community itself.

The construction materials were also distributed through a voucher system, with each family receiving a specific voucher based on the individually-assessed costs and Bill of Quantities (BOQ) for repairing their homes.

Receipt of the voucher was subject to the presentation of a record of participation at one of the small community training sessions on safe shelter. The voucher also had an expiry date printed on it.

Beneficiaries were expected to cover the costs of transportation, though in some cases the organisation provided vehicles to transport the items if a deal could not be negotiated with suppliers.

However, in some communities the costs of transporting materials were high and the organisation was not able to support these communities, resulting in them having to

spend a smaller proportion of their voucher on materials in order to cover the transport costs.

### Beneficiary selection

Beneficiaries were selected through a two-stage process. First, a "Community Census" was conducted amongst all those directly affected by Sandy. This information was then analysed using statistical software in order to prioritise beneficiaries.

Households had to meet the following selection criteria, defined by the organisation in collaboration with community leaders:

- Their situation had been directly affected by Sandy.
- They were unable to rebuild their home or regain basic living standards alone.
- One or more family members had a physical or mental disability or was a member of a discriminated group (e.g. Haitian immigrants).
- Families with specific conditions of vulnerability such as female-headed households.

Once the families who met these criteria were identified, beneficiary lists were hung in the organisation's offices and other visible places.

Following selection, each family's home was surveyed by an engineer, in order to develop a plan of works for the necessary materials and repairs.

Families whose homes were too weak or badly built to benefit from reinforcement received a package of household items instead.

### Coordination

Coordination mechanisms were put in place between the organisation, community leaders and grass-roots organisations to ensure a transparent and equitable beneficiary selection process, with a two-way flow of information, joint monitoring and accountability.

Several joint public initiatives were launched, such as public exhibitions, debates and participative workshops.

### Technical solutions

Hurricane strapping is a new technology for house construction in the Dominican Republic. Since the community members themselves were in charge of managing the repair process, the organisation trained construction workers in how to employ the new technique. These workers either implemented the new technique or demonstrated so that community members could implement it themselves.

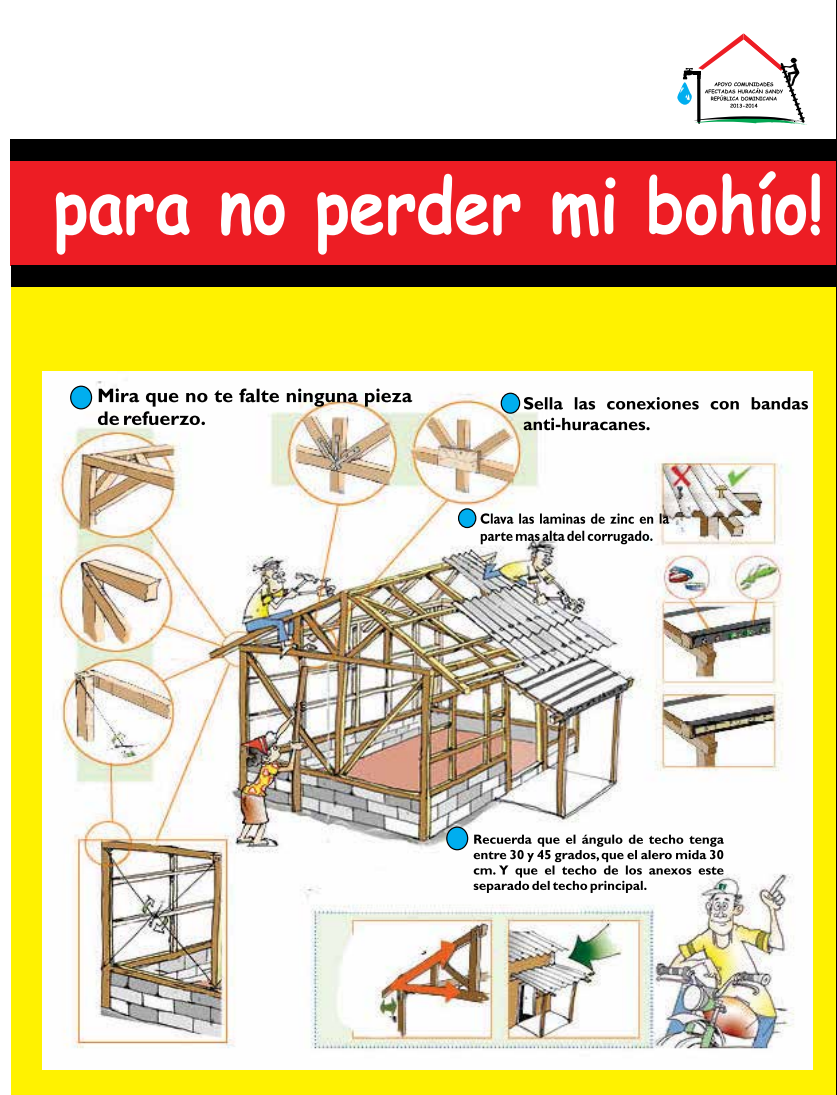
The repair kits were designed in Santo Domingo and transported to the provinces, and then on to the communities.

### Disaster Risk Reduction (DRR)

In three of the four provinces participating in the project, Participatory Approach for Safe Shelter Awareness (PASSA) groups were organised.

PASSA is a method of DRR, with the objective of developing local skills to reduce vulnerabilities related to housing and settlements. These groups were responsible for developing the eight PASSA methodology activities, which are a series of steps that take up to two months and result in creating action plans to minimise the vulnerability of shelter and settlements. (see *Shelter Projects 2011-12*, A.13).

In the community of Rosario, the plan of action included roof



Safe construction techniques were communicated through a construction manual, posters and leaflets.  
Graphic: Cruz Roja Española

strengthening, resettlement of at-risk houses and improving the foundations of timber houses with brick construction. In the long-term, the community's capacity to analyse and mitigate risks was expanded, enabling them to make demands on local authorities.

### Materials

Since hurricane straps were not previously used in the country, the organisation had to supply them.

Other materials were available from local suppliers.

### Wider project impacts

Some of the beneficiaries used the assistance to improve their homes beyond simple reinforcement.

The communities that implemented the Participatory Approach for Safe Shelter Awareness (PASSA) broadened the house reinforcement programme to include other houses that were not matching the programme criteria, but were included through participatory budgets from their local authorities.

## A.6 Haiti – 2012 – Hurricane Sandy

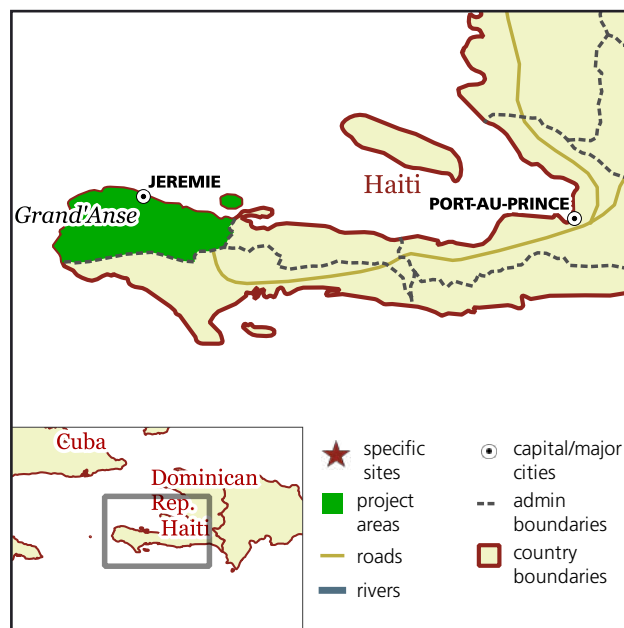
### Case study

**Keywords:** Housing repair and retrofitting; Cash / vouchers; Training; Structural assessment.

- Emergency:** Hurricane Sandy, Haiti.  
**Date:** 23-26 October 2012.  
**Damage:** 6,666 houses destroyed, 24,348 damaged, and 9,352 flooded.  
**People affected:** 195,300 affected, 20,000 evacuated, 2,298 homeless.  
**Project location:** Grand'Anse Department.  
**Beneficiaries:** 1,700 households (8,500 people).  
**Outputs:** 100 new houses, 414 houses repaired. Over 1,000 households received cash for NFIs and DRR training. Around 84% were completed within the project timeframe.  
**Occupancy rate:** 89% of completed new houses and 100% of completed repaired houses.  
**Shelter size:** Varied: model houses = 20-30m<sup>2</sup>, beneficiary houses = 16-40m<sup>2</sup>.  
**Cost:** US\$ 2,050 cash grant for new construction, or US\$ 750 for repair. Beneficiaries also made their own contributions.

### Project description:

Following an initial emergency response, the project distributed conditional cash grants and technical supervision to support beneficiaries in the construction or repair of houses. Builders were trained in Improved Vernacular Construction (IVC) techniques, using local materials.



### Emergency timeline:

**[a]** October 2012: Hurricane Sandy hits.

### Project timeline (number of months):

- [1-2]** November 2012: First phase planning.
- [2-4]** First implementation phase (emergency distribution).
- [4-18]** Second phase planning and implementation.
- [9]** Vernacular construction training begins.
- [10]** First model house completed.
- [11]** First cash instalment.
- [14]** Second cash instalment.
- [15]** First repaired house completed.
- [16]** First new house completed.
- [19]** May 2014: Project ends, some repairs not complete.



### Strengths

- ✓ Existing local knowledge on safer construction was improved, with the new techniques replicated by non-beneficiaries.
- ✓ Multiple model houses were adapted to the different environmental and cultural contexts in the area, reflecting the materials locally available.
- ✓ Beneficiaries were empowered to take ownership of the project by managing the construction process themselves.
- ✓ The project integrated DRR, Shelter and WASH programming.

### Weaknesses

- ✗ Limited availability of qualified technical project staff made for a lengthy recruitment process.
- ✗ The integration between Shelter and WASH teams could have been improved, with joint-planning and

joint training to enable both teams to better supervise the beneficiaries' work.

- ✗ The close work with the community required investment of staff numbers beyond the means of the project budget.
- ✗ A complete market assessment was not carried out at the beginning of the project and subsequent shortages of materials caused some delays.
- ✗ Although transport costs were factored in to the grants, some beneficiaries preferred to buy lower quality, locally available materials which did not need to be transported.

### Observations

- Some of the beneficiaries in the repair category managed to build a new house, salvaging materials from the old one.





Left: Beneficiaries chose the materials they were most familiar with for walling. Centre and Right: Model houses from Anse D'Hainault and Corail. The houses were designed to reflect the traditional architecture of the local area. Photos: Blanca Sancho Moreno

## Situation before the disaster

People were living in rural areas and the majority of houses in the affected areas were poorly constructed with low-quality materials, reflecting both the level of poverty and lack of technical knowledge.

The location of many of these houses in areas prone to strong winds and flooding magnified the risks posed by the sub-standard housing construction.

## Situation after the disaster

In the aftermath of the disaster some households were hosted by family or friends, some were evacuated to emergency shelters and some stayed in their damaged houses. Many families had lost their livelihoods.

## Shelter strategy

Following the 2010 earthquake in Haiti, there was plenty of good practice to draw from in project planning. However, as Grand'Anse Department had not really been affected by the earthquake, most agencies were not operative in the area and few intervened after Sandy hit. The disaster attracted a limited response from donors.

No coordination strategy was officially activated and the Shelter and CCM Cluster in Haiti did not dedicate a working group to the Sandy response.

Guidelines for response did exist in the form of a best-practice manual published by the Unité de Construction de Logements et de Bâtiments Publics in 2010, but these rarely

referred to local building technologies or vernacular materials.

## Project implementation

### Emergency phase

Any family whose house had been completely destroyed or severely damaged was given an unconditional cash grant of US\$ 100, paid through a money transfer company. This intervention was completed within four months of the disaster and involved 761 families.

The households mainly used the money to buy food and non-food items or to replace household livelihood assets as well as paying school fees for their children or buying materials to rebuild their houses.

### Recovery phase

After the initial beneficiary registration, verification visits were conducted to the families to assess the damage to the house.

Three categories of assistance were provided:

- Category 1: House destroyed. Conditional cash grant of US\$2,050 to rebuild the house and latrine (100 households).
- Category 2: House damaged, vulnerable household. Conditional cash grant of US\$750 to rebuild the house and latrine (414 households).
- Category 3: House damaged, household does not meet vulnerability criteria. Unconditional cash grant of US\$ 100 (1,186 households).

The third category was added to the project plan based on the findings of the assessment.

Some of the beneficiaries claimed that the grant was too small, but most completed their houses with the grants.

A training programme for masons and carpenters was established, whilst beneficiaries received key sensitisation messages.

### Construction

Beneficiaries were given the responsibility for managing the construction process, with technical support from the organisation through the lifetime of the project. This method was difficult for some beneficiaries to accept initially, since a great deal of humanitarian assistance in Haiti has been implemented directly by aid organisations.

Motivating beneficiaries was one of the biggest challenges, as it required a great deal of staff input and energy, and breaking a long-term culture of dependency was not always possible.

After ten months, the training of carpenters and masons was complete, and beneficiaries were encouraged, but not obliged, to hire a builder from the approved list. The design of the house was up to the family, but they had to observe the implementation of improved construction techniques.

Cash was paid in two instalments. The first instalment (approximately 40%) was paid upon signing the agreement. The second instalment was paid upon verification of the first phase of works by the project's technical team. For Category 1 this meant completing the foundation

and structure, while Category 2 repair phases were defined on a case-by-case basis.

Cash was transferred through a money transfer company. The beneficiary list with mobile phone contact numbers was given to the company who sent an SMS with a code to the beneficiary which was then used to collect the money from an authorised distributor. In areas where there was no network, or a beneficiary did not have access to a phone, community mobilisers gave the code directly to the beneficiary.

### Beneficiary selection

Two assessments were made. The emergency assessment identified 761 households with damaged or destroyed houses who needed immediate support.

A second, more detailed assessment resulted in 1,700 households being allocated to the three different categories of assistance. Households were selected against vulnerability criteria with an emphasis on female-headed households, physically handicapped persons, and elderly persons living alone.

In order to participate in the project, beneficiaries had to provide the organisation with proof of property and land ownership, and sign an agreement with the organisation detailing the conditions of how the grant was to be used.

A small number of beneficiaries were unable to produce ID cards, but this was mostly resolved on a case-by-case basis with the local authorities and other family members. In cases where no solution could be found and the agreement could not be signed, the Category 3 US\$ 100 was awarded instead.

Some beneficiaries were unable to find a plot of land in a safe area and others did not wish to move. The organisation conducted a significant amount of advocacy to explain the dangers of staying in high-risk areas, but ultimately the beneficiary had the final decision.

### Coordination

The project benefitted from a Memorandum of Understanding between the implementing



organisation, and a technical partner organisation which provided both technical expertise and training.

### Technical solutions

Improved construction techniques were based on existing local traditional techniques with new disaster-resistant features.

Traditional local houses were built on wooden posts dug directly into the ground, which quickly rotted, weakening the structure. The new design introduced a proper foundation of cement and stones and added cross-bracing to the walls.

Diverse ways to strengthen the joints between the different structural elements were also introduced, or adapted from current local best practices.

To resist high winds, houses were built with four roof slopes, using corrugated iron sheets or straw.

### Disaster Risk Reduction (DRR)

DRR was integrated into the project through the plot selection process, and through training and sensitisation on safe construction.

The technical partner provided the first Improved Vernacular

Construction (IVC) training, based on a detailed assessment of local construction techniques and included topics such as the selection of safe sites, basic architectural and construction principles, and the properties of local materials.

Ten carpenters and masons were trained as facilitators, who in turn trained 130 builders (five of them women). The training involved the building of twelve different model houses, all of which were adapted to the specific contexts of the area they were built in.

In order to reach the wider population and other NGOs, a one-day practical workshop in IVC techniques was facilitated by the technical partner.

The DRR sensitisation received by Category 1 and 2 families was more detailed than for Category 3 households, as the first two groups received a greater number of direct visits from community mobilisers.

Some Category 2 repairs were of poor quality, mostly due to a lack of motivation on the part of the beneficiaries.

### Wider project impacts

Some families that did not receive direct assistance have begun to replicate the construction techniques used in the project. Some of the carpenters and masons trained by the project, advocate for their customers to implement the IVC techniques.

**"I did not understand why I had to buy the materials and hire the masons or why the organization was not building the house for me. But when I finished the house by myself, I knew that I was able to do things that I never thought I could."**  
Beneficiary

## A.7 Fiji – 2012 – Tropical Cyclone Evan

### Case study

**Keywords:** Transitional shelter / T-shelter; Advocacy / legal; Training.

**Emergency:** Tropical Cyclone Evan, Fiji.

**Date:** 17-19 December 2012.

**Damage:** 8,500 houses damaged in the “formal” sector, 177 houses destroyed in the “informal” sector.

**People affected:** Over 40,000 people affected in the formal sector and over 800 displaced in the informal sector.

**Project location:** Coastal areas of Western Division.

**Beneficiaries:** 254 households (approximately 1,250 people).

**Outputs:** Phase 1: 120 T-shelters, Phase 2: 134 T-shelters (70 complete as of Sept. 2014, 66 for emergency stockpile)

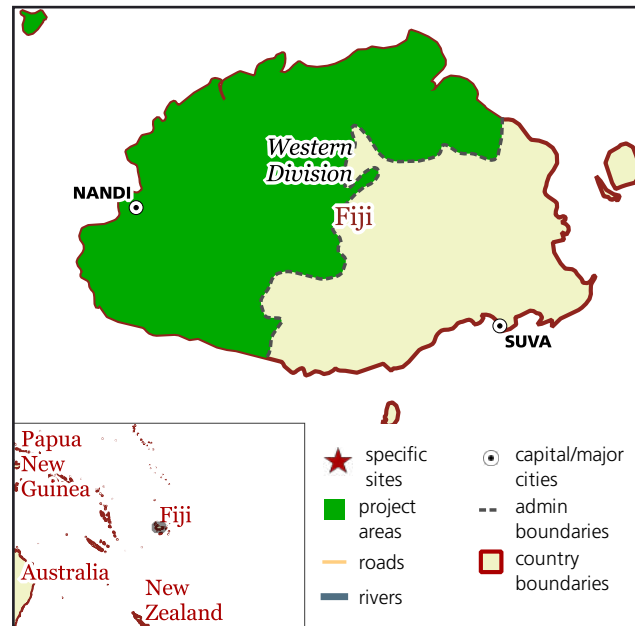
**Occupancy rate:** 100% in Phase 1.

**Shelter size:** 21m<sup>2</sup> (6m x 3.5m).

**Cost:** Materials and labour per shelter: 3,200 Fijian dollars (FJD) (US\$ 1,800); total project cost per shelter: 5,300 FJD (US\$ 2,900).

### Project description:

Provision of T-shelters for families living in informal settlements whose shelters had been completely destroyed by the cyclone. Beneficiaries were trained in construction techniques and provided labour. T-shelters had to conform to government specifications as permanent housing in informal settlements is illegal, though the construction work opened the door to discussions on housing rights for the poor.



### Emergency timeline:

[a] 17-19 December 2012: cyclone hits Fiji.

### Project timeline (number of months):

- [1] March 2013: MoU signed with government.
- [1-4] Beneficiary selection, local procurement.
- [5] Import application.
- [6-7] Beneficiary confirmation.
- [7] Prefabrication.
- [8-10] Construction for Phase 1 complete.
- [11] Jan 2014: Funding for Phase 2 secured.
- [12-13] Local procurement.
- [14-15] Beneficiary confirmation.
- [16-19] Prefabrication and construction.
- [20] Project completion.



### Strengths

- ✓ The organisation negotiated for official construction in informal settlements, leading to long-term improvements for the inhabitants.
- ✓ The project had a gender-equality component, since married homeowners signed an agreement for equal ownership.
- ✓ Family members were trained in basic construction skills, improving local knowledge on safe building practices.
- ✓ Panels, stairs, doors and windows were prefabricated in a makeshift depot on site, significantly speeding up the construction process itself.

- ✓ The successful completion of Phase 1 persuaded the donor to provide another round of funding for Phase 2, increasing the number of households supported.

### Weaknesses

- ✗ The plan did not allow for the delays caused by difficulties in sourcing timber locally and the extra time required to import materials.
- ✗ In one case, beneficiaries expected a complete, permanent house to be built, which demonstrated more work needed to be done on communications.



## Situation before the disaster

As construction in informal settlements was illegal, homes were built without any regulation. Compounded by the poverty of the inhabitants, the homes were constructed to a very low standard and were extremely vulnerable to natural disasters.

## Situation after the disaster

Immediately after the disaster many families moved in with neighbours or family members whose homes had not been destroyed. The Fiji government census does not cover informal settlements, and since not all the informal settlements in the affected area were surveyed, the true number of people affected was not clear. Some of those people excluded from the post-disaster surveys had lost everything.

Those that stayed on the site of their destroyed homes pieced together shelters that were even more poorly built than their previous homes. Many continued to live under leaking tarpaulins and rusty sheets of roofing iron for up to a year after the cyclone hit.

## Shelter strategy

The Shelter Cluster was established in Fiji in January 2013 as a direct response to Tropical Cyclone Evan. A national strategy was agreed whereby the government would address the needs of the 8,500 houses damaged in the formal sector (homes built on land officially classified as residential and following building code regulations) while the Cluster would address needs in the informal sector (homes built illegally, without access to utilities).

A consortium of NGOs documented 177 homes completely damaged in 41 informal settlements in the most affected areas.

Though the government was supportive of interventions to assist those in informal settlements, it did not want to be seen to condone or approve the settlements. Supporting the Shelter Cluster strategy was the first time in Fiji that the government has taken any action regarding shelter in informal settlements.

As construction in informal settlements was illegal, several NGOs signed a Memorandum of Understanding (MoU) with the Fiji Government in March 2013 to allow construction in informal settlements for five months, specifying that structures had to be non-permanent.

The Cluster's advocacy for supporting people in informal settlements was effective, with the Housing Ministry supporting an extension of the MoU for a second round of construction after seeing the positive impacts of the first phase.

## Project implementation

In the first month, a survey was conducted by the Cluster, to identify affected families. During the assessment, landowners had to provide consent for the erection of the non-permanent shelters on their land, while potential beneficiaries had to confirm that they had previously lived on the site.

In some cases, where the site itself posed a number of risks, T-shelters could be built in new locations instead.

The organisation was responsible for procurement and construction, with families contributing in terms of labour. Once selected, beneficiaries become "home partners" in the project. This involved beneficiaries agreeing to contribute to the building of the shelter ("sweat equity") and undergoing basic construction training. Family members become part of the construction crew from start to finish.

Four teams made up of four technical staff each were formed, and the shelters were built in batches of three or four at a time, with each structure taking three days to complete.

On-site, a makeshift depot was set-up using materials that would later be used for the last T-shelters. Two teams worked in the depot, producing seven sets of wall frames per day. The other two teams laid foundations as beneficiaries were identified. When the foundations had cured, the two depot-based teams erected the frames.



An example of the poor quality shelters characteristic of the "informal" sector.  
Photo: Habitat for Humanity Fiji.

The rest of the structure was completed with labour assistance from the families.

## Beneficiary selection

Damage from the cyclone was clearly visible and identifying affected families was straightforward. The informal settlements themselves were easily identified against the registry of formal communities managed by government.

Though the beneficiaries had to confirm during the initial assessment that they had previously had a house before the cyclone hit, a check was conducted just prior to construction, in order to confirm that the applicants were still at the shelter location. This involved the triangulation of information from the government district office, photographs taken immediately after the cyclone, the original survey data and information from neighbours.

The project only had funding for a limited number of shelters but the technical team assessed each damaged house and spoke directly with homeowners to discuss whether their house was still structurally sound, or needed certain repairs. Many families who did not qualify for assistance from the project remain in poorly built homes and it is likely that many of their houses will not survive the next severe storm.

While waiting for the T-shelters to be built some beneficiaries repaired their homes to a very basic level while others continued to live with neighbours or family.

## Coordination

The organisation was the main actor in meeting shelter needs in informal settlements and, once the

MoU had been signed, was able to work independently in the areas of operation. Some community organisations provided materials that could be used to build one small room, but these were provided without any technical support and there was no formal cooperation with these organisations.

### Technical solutions

The erection of structures that were approved by the Ministry of Local Government, Urban Development, Housing and Environment in informal areas was itself a technical milestone in construction practices in informal settlements.

Though the structure was initially designed with rigid wall and floor lining, the government said that the use of permanent wall and floor lining would constitute a permanent dwelling and banned the use of those components in the early part of the design stage.

Tarpaulin walls were used instead, and floors were designed to be made of raised compacted earth. It was understood amongst Cluster members that homeowners would opt to use permanent wall lining as soon as they could afford it, so the structural frame was designed to withstand severe cyclonic wind loads in anticipation of the eventual replacement of the tarpaulin with a rigid material.

Many families opted not to have the tarpaulin lining because they preferred to use roofing iron they had salvaged from their damaged homes as a more permanent wall lining solution.

### Disaster Risk Reduction (DRR)

While the structures could not be classified as providing a completely safe refuge, the T-shelters were designed to withstand the wind load of a Category Four cyclone (175 km/hour winds), with all bottom plates strapped to bearers and all rafters strapped to top plates. CGI roofing was secured with cyclone twisted nails with neoprene washers on every crest. Each shelter was raised 300mm from the ground on a rammed-earth



This family used savings to build a proper floor, despite contravening government regulations. Photo: Habitat for Humanity Fiji



No rigid wall linings were permitted, so plastic sheeting was used instead. Photo: Habitat for Humanity Fiji

base with treated pine pole foundations.

The most important factor in determining whether the T-shelter design could be used in the emergency or recovery phase of a disaster was the availability of materials, particularly in a remote location like Fiji. In the second phase, in addition to additional shelters for families, 66 T-shelter kits will be prepositioned for later disaster response. This project is probably only one of a few worldwide to preposition shelters with such a high level of structural integrity.

### Materials

CGI sheets, posts, and strapping were purchased locally but timber was in such short supply in the aftermath of the disaster that sixteen containers of timber had to be imported, resulting in delays to the project.

### Wider project impacts

The T-shelters were designed to be portable and could be dismantled with very basic tools in less than a day. Only the pine posts that were embedded in concrete could not be moved. This meant that beneficiaries who might be forced to move out of informal areas will be able to take their homes with them.

The project opened up a dialogue with the government about shelter conditions in informal settlements. The organisation's relationship with the government was strengthened and the government's approval of the project has been a major step towards realising the right to adequate housing. The organisation is also being considered as a preferred implementer of government-funded projects, giving it an even stronger

voice to speak up for vulnerable families.

Unprecedented in informal settlements in Fiji is the right to reside and the right to homeownership. These were secured through signed agreements with landowners. In support of women's rights to adequate housing, co-ownership agreements had to be signed between a husband and wife before construction could commence.

### Framing components and instructions

Member	Remarks
Pine Post (1m x 15cm diameter)	Embed 60cm in ground, fill with concrete.
Bearers (15cm x 5cm)	Nail & strap to post.
Bottom plate (10cm x 5cm)	Nail to top of bearer.
Wall studs (10cm x 5cm)	Nail & strap to top & bottom plate
Noggins (10cm x 5cm)	
Top plate (10cm x 5cm)	Strap to stud
Rafter (15cm x 5cm)	Strap to top plate
Purlin (7.5cm x 5cm)	Strap to top plate
Facia (20cm x 2.5cm)	Attach to gutter end only
Strapping	
CGI sheet	Nail to purlins with galv. twisted roofing nails
Canvas/tarp wall lining (2m x 17m)	All edges fixed with 2.5x1cm battens and roofing nails
Flashing, gutter & downpipe (7.5cm diameter)	





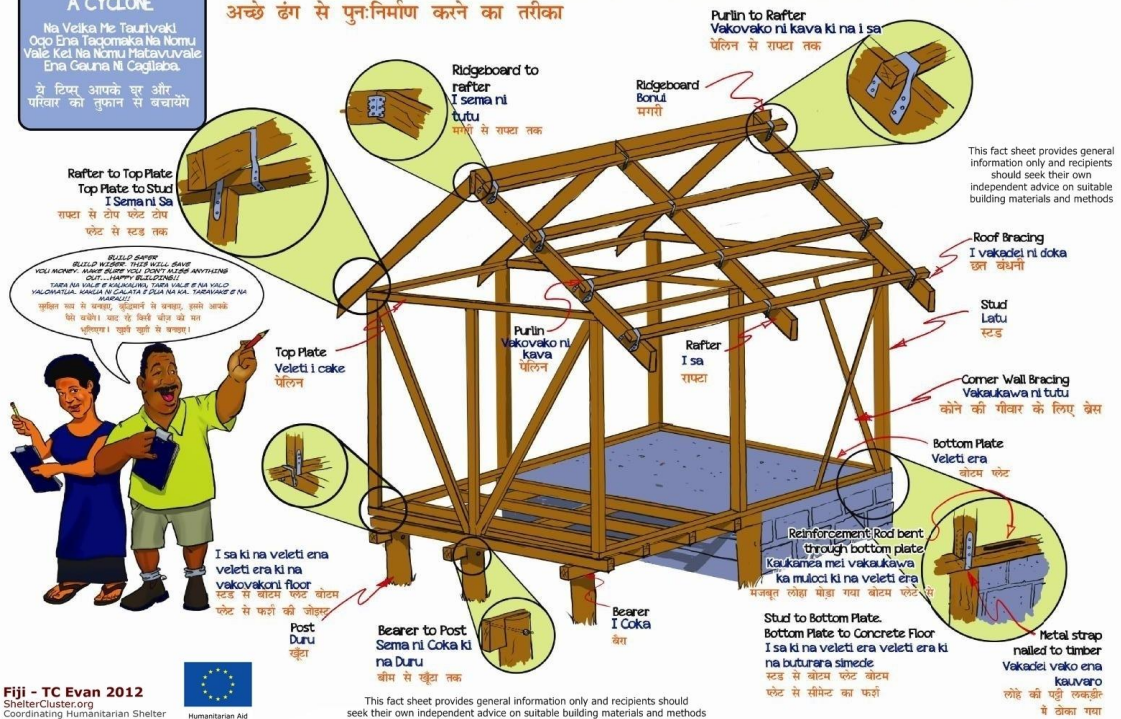
AusAID supports Disaster Risk Reduction in the Pacific through its professional partners

**THESE TIPS WILL PROTECT YOUR HOUSE AND YOUR FAMILY IN A CYCLONE**

Na Veika Me Taurivaki Opo Eria Taconaka Na Nemu Vale Kel Na Nomu Matavuvale Eria Gauna Ni Cagilaba.  
ये डिस्क आपके घर और परिवार को तूफान से बचायेगे

# Tips to Build Back Safer

Na veika me taurivaki e na kena tara vou tale vakamatau e dua na vale  
अच्छे ढंग से पुनःनिर्माण करने का तरीका



**Fiji - TC Evan 2012**  
ShelterCluster.org  
Coordinating Humanitarian Shelter



This fact sheet provides general information only and recipients should seek their own independent advice on suitable building materials and methods

Part of the project's Disaster Risk Reduction strategy was communicating the Shelter Cluster messages on how to "Build Back Safer".  
Graphic: Shelter Cluster Fiji.

Public Information Website:  
<https://www.sheltercluster.org/Asia/Pacific/TC-Evan2012/Pages/default.aspx>

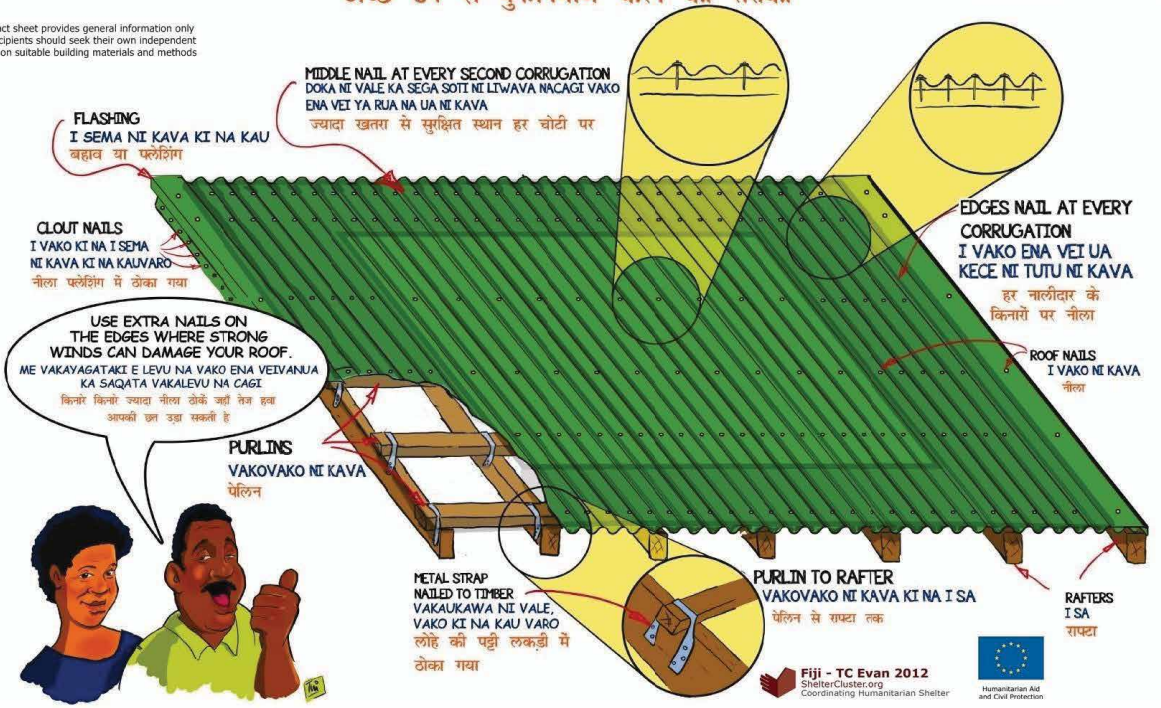
# Tips to Build Back Safer

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**Fiji - TC Evan 2012**  
ShelterCluster.org  
Coordinating Humanitarian Shelter



# A.8 Syria conflict – 2011 onwards - Overview

## Overview

### Summary of emergency:

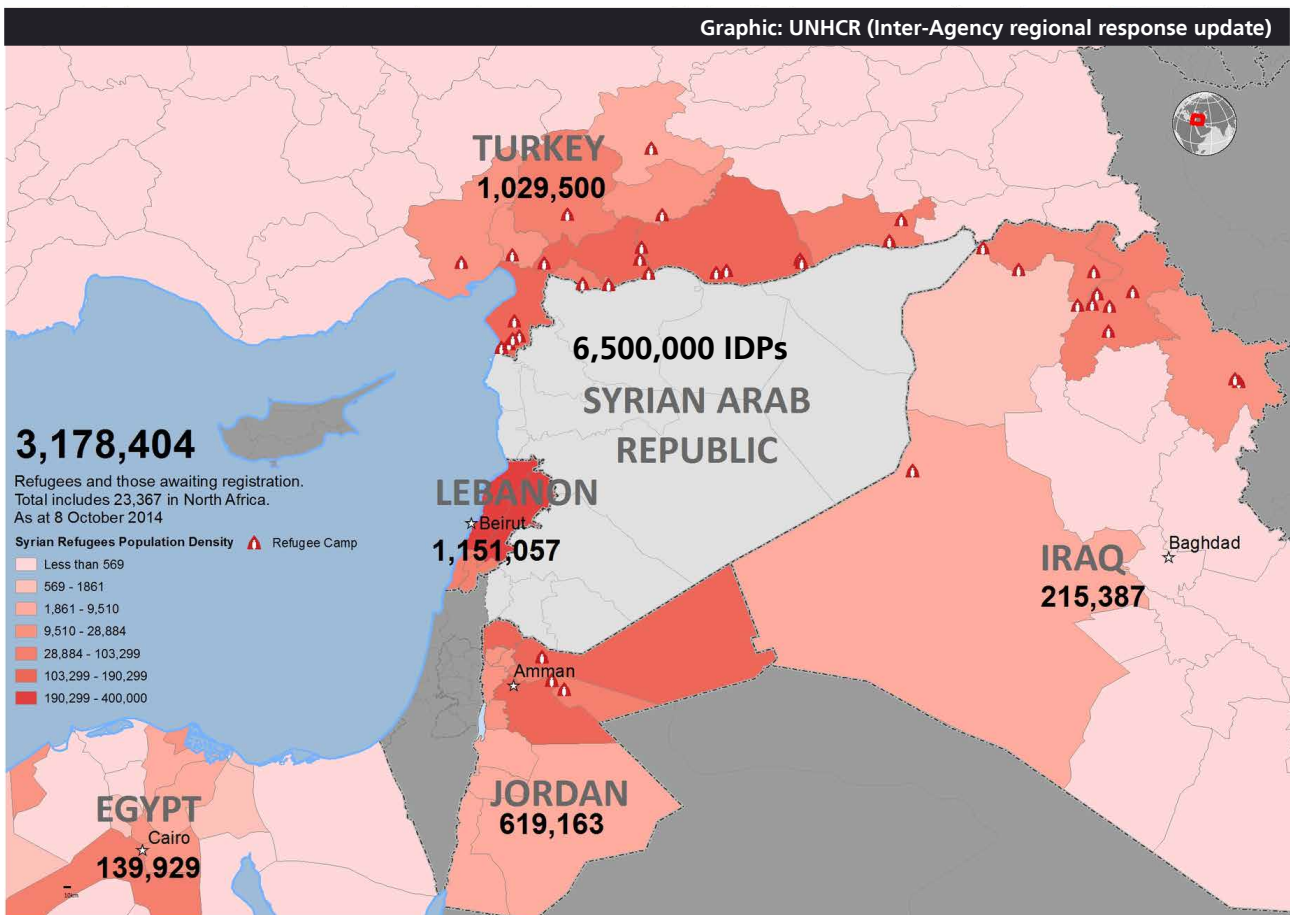
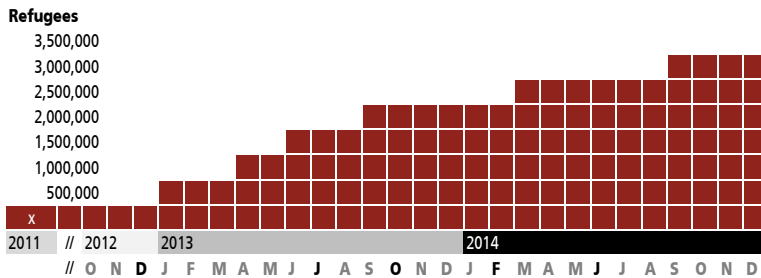
Ongoing conflict in Syria since March 2011, and in Iraq since June 2014, has led to rising displacement of Syrians and Iraqis. Many people have been displaced more than once as the pattern of conflict has changed. Currently there are 6.5 million people displaced internally in Syria, 1.8 million people displaced internally in Iraq, and 3 million refugees spread primarily across Lebanon, Jordan, Iraq, Egypt and Turkey with smaller numbers in North Africa, the Gulf states and Europe (figures as of October 2014).

The conflict is extremely complex, with a number of different armed groups involved and the emergence of Islamic State (also known as ISIS or ISIL) provoking an international military response.

The numbers of people affected make the IDP and refugee crisis the biggest in UNHCR's history and the pressure on neighbouring countries with relatively small populations is considerable.

### Timeline:

- March 2011: Crisis begins after suppression of protests.
- May 2011: First camps for refugees open in Turkey.
- March 2012: Regional Refugee Coordinator for Syrian Refugees appointed by UNHCR.
- July 2012: Zaatari Refugee Camp opens in Jordan.
- Dec. 2012: 500,000 refugees. UNHCR and partners launch US\$ 1 billion Regional Response Plan.
- July 2013: UN estimates over 100,000 conflict deaths. Regional Response Plan updated to US\$ 4.4 billion.
- Aug. 2013: Spike in arrivals of Syrian Kurd refugees in northern Iraq.
- June 2014: Conflict spreads in northern Iraq as Islamic State seizes significant territory.



The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations



## Situation and response

A regional funding plan to respond to the crisis was first launched in December 2012 and later updated in July 2013 and December 2013. Shelter strategies have been developed at country levels in response to the very different contexts.

The majority of refugees and IDPs are living in non-camp situations, which include both formal renting and informal settlements.

The case studies in *Shelter Projects 2013-2014* explore a number of the different responses taken in different countries including:

- T-shelters in camps.
- Increasing housing supply outside of camps by support the completion of unfinished buildings.
- Vouchers for purchasing materials for shelter improvements.
- Shelter kit distributions.

## Syria

### Situation

Internal displacement in Syria has occurred mostly within cities and within governorates, with families moving from directly affected neighbourhoods to less affected neighbourhoods. Shelter assessments indicate that many neighbourhoods have doubled or even tripled their population, placing great strain on basic infrastructure and services in those areas and causing water shortages.

No detailed national shelter assessment has been made, but reports indicate that most displaced people are sheltering in private, multi-storey housing through host arrangements or rental contracts.

Many families have lost their livelihoods and have reduced incomes to meet the rising costs of living, with rental costs roughly doubling since 2011.

Extensive damage to buildings means that many of those who have

returned to, or remained in their homes also have shelter needs.

Unfinished buildings, providing for a significant percentage of the displaced population, are often available for free or at minimal cost, but require initial investment to make them habitable. Other forms of shelter include occupation of non-residential buildings, either as individual or as collective shelters.

### Response

Due to extreme insecurity and difficulties in obtaining permission from the Syrian government, few international humanitarian organisations are operational within Syria in the Shelter sector. Those that are present are often reliant upon local partners to engage with beneficiaries and to carry out distributions of materials. Typical interventions include NFI distributions and providing sealing-off kits for unfinished or damaged buildings.

## Lebanon

### Situation

The large influx of Syrian refugees into Lebanon (rising six-fold during 2013 and now reaching over a million, making up around 25% of Lebanon's population) has resulted in further pressure on the rental market, inflating prices. Prior to the conflict, Lebanon had a very limited stock of affordable housing.

Recent assessments by international organisations note that the lack of an adequate and safe supply of shelter has pushed many of the poorest Syrian and Lebanese families into sub-standard shelters, with the situation worsening. Whilst most refugees are living in apartments or houses, 25% are living in unfinished houses or non-residential buildings, 15% live in informal settlements of tents and makeshift shelters, and less than 3% live in collective centres.

### Strategy and response

The Government of Lebanon has not sanctioned the development of refugee camps. Consequently, increasing the supply of rental accommodation remains a priority intervention in the absence of other solutions. This is achieved through the

rehabilitation of houses or completion of unfinished buildings and the establishment of collective shelters

## Jordan

### Situation

While more than 100,000 refugees are sheltered in camps, over 80% of families live in other forms of shelter. At least 30% of refugees are living in urban settings with host communities and are extremely vulnerable, inhabiting inadequate shelters or even in informal tented settlements.

Syrian families tend to pay higher rents than Jordanians, and contracts are typically insecure. High rents and limited employment opportunities often result in the sharing of already crowded shelter space, movement to other shelter locations and increasing debt. Movement potentially take people further away from access to basic services.

The general pressure on rental accommodation also means that Jordanian families are being affected by increases in the cost of renting.

### Strategy and response

The humanitarian shelter response is coordinated through the Humanitarian Shelter Working Group, under the leadership of UNHCR, and guided by a shelter strategy which divides its work into two broad response objectives:

- Response to shelter needs in camp settings. This includes development and upgrading of camp settings, combined with emergency and transitional shelter support, basic service and infrastructure development, care and maintenance, integrated planning, and extension of shared community facilities such as sewage plants, feeder roads etc.
- Response to shelter needs in urban settings, increasing the number of adequate shelter solutions for most vulnerable families, including needs assessment, winterisation (shelter kit distributions), minor

upgrading of sub-standard shelters, completion of unfinished shelter structures, conditional cash support, legal advice on tenure rights, and coordination with government and donor agencies on solutions for mitigating the impact of refugees on the urban housing market.

## Turkey

### *Situation*

In Turkey over 200,000 refugees live in 21 camps (29% of the total), provided and staffed by the Turkish government. 71% of Syrian refugees in Turkey live outside camps, concentrated in three provinces.

### *Strategy and response*

Much of the support for refugees in Turkey is undertaken by the Turkish government and the Turkish Red Crescent Society. Some international organisations are active in Turkey, but a larger number have offices inside Turkey to facilitate cross-border programming within Syria.

## Iraq

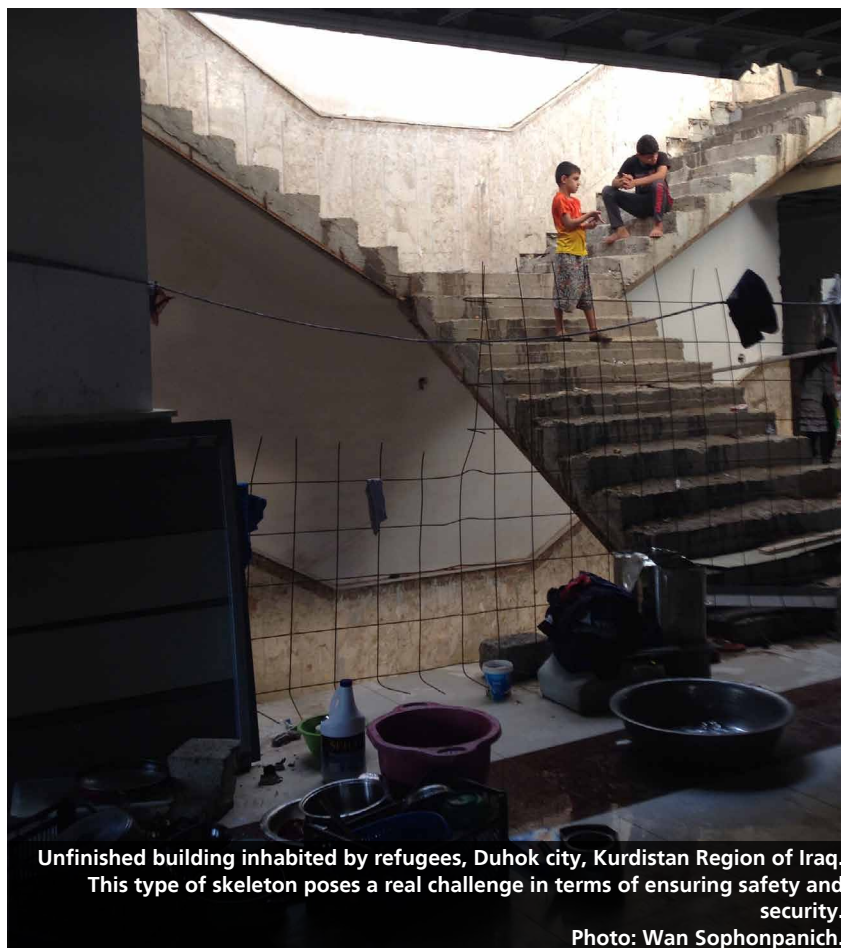
### *Situation*

The highest number of refugees are in the Kurdistan region, and the majority of refugees live outside of camps. In a number of camps, tents are being replaced with more permanent structures. The newest camps, including those accommodating the 2014 internal displacement, are more appropriately designed as urban communities, as a result of the insistence by the local governorates.

Since the escalation of conflict in Iraq in 2014, a total of 1.8 million Iraqis have become displaced, with more than 850 000 people seeking sanctuary in the Kurdistan Region of Iraq, adding to the total caseload.

### *Strategy and response*

In the Kurdistan Region of Iraq, the local authorities have established camps for the most vulnerable refugees and IDPs, whilst a coordinated approach is also emerging towards improving inadequate



**Unfinished building inhabited by refugees, Duhok city, Kurdistan Region of Iraq. This type of skeleton poses a real challenge in terms of ensuring safety and security.**

Photo: Wan Sophonpanich.

shelter for refugees and IDPs living in rental accommodation or collective centres in urban or peri-urban areas.

### **Lessons learned**

Strategic discourse is shifting from humanitarian assistance, characterised by direct action to support IDPs and refugees as outlined in the following case studies, to a resilience-based approach, supporting local and national capacities to absorb refugees and strengthen livelihoods of refugees and host communities.

Early examples of this approach include one UN agency's support of unions of municipalities in Lebanon to provide integrated WASH and Shelter support, and the initiative in Jordan to encourage private investors to build affordable rental housing for refugees and host populations on low incomes through enabling investment guarantees through private banks.

### **Future challenges**

Responses in all countries face a shortage of resources for assisting those affected by the conflict. Host

families are running out of resources; displaced families are running out of money to pay rent or are already severely in debt; funding targets have not been met by donors, and regional instability is worsening the situation.

The complexity of the conflict itself is also driving donor money to northern Iraq, where displaced populations can be clearly identified and interventions more easily accounted for. Donors have been less willing or able to support the affected populations in Syria where the political situation is much less straight-forward.

With a large number of refugees in rented accommodation, attempts have been made to mitigate eviction threats through integrating tenure rights considerations into shelter support modalities.





Left: Loading materials on a truck after redeeming vouchers.  
Right: Materials used for roofing and a new water tank in place.  
Photos: Neil Brighton/NRC

### Situation before the crisis

In general, Syrian refugees in the Kurdistan Region came from both urban and rural locations in Syria with large Kurdish populations. Many of the refugees living outside of the camps were later arrivals and more likely to have fewer resources.

### Situation after the crisis began

The majority of refugees in non-camp settings had secured rental accommodation in urban areas, though some lived rent-free. Only a few households lived with Iraqi host-families.

Conditions varied from finished apartments, with written or verbal leases, to crude structures that were poorly built, or erected quickly to either lay claim to a piece of land, or to demonstrate that a claim was in process. The latter structures were very poor, including limited or no WASH facilities, lack of windows and/or doors, poor connections to utilities, and damaged roofs.

### Shelter strategy

When the project started there was no consolidated, holistic strategy for supporting the urban caseload in Kurdistan Region of Iraq (KR-I), with the Kurdistan Regional Government (KRG) preferring to support refugees in camps. This was despite the fact that an estimated majority of refugees (60%) lived in urban areas outside of camps.

The national strategy was drafted in the context of Central and Southern Iraq, and did not account for the specific context in KR-I. The

strategy consisted of three combinable approaches:

- Rental subsidies (though these were not seen as viable unless all refugee households benefitted).
- Building low cost shelters on land allocated by the government.
- Subsidies to host families to build additional rooms and/or make renovations.
- Many rudimentary structures were on government land which meant the local authorities had full control over its official usage.
- In the case of structures built on private land, much of the land ownership was in dispute, so no official applications for building permits could be made.

The KRG's reluctance to support non-camp populations was based on a concern that it would a 'pull factor' by exceeding the level of services in camps. Interventions had to be seen as emergency, life-saving responses, which meant that construction or robust rehabilitation of shelters were not viable options for humanitarian actors.

However, much decision-making power was devolved to the individual governorates and some authorities were more open to supporting the urban caseload than others.

### Project implementation

The organisation initially planned to facilitate robust housing repairs for those most in need. However, obtaining local authority approval was not possible for a number of reasons:

- The strategy of the local authorities was to avoid incentivising movement out of camps.

Given this constraint, the organisation decided to implement a project providing vouchers for some repair and maintenance activities which did not require building permits. Repairs would use light-weight materials and be used to replace parts of the house, rather than adding or extending structures.

This level of intervention required only the permission of the landowner, and each beneficiary was required to provide testimony of the landowner's agreement, prior to implementing the project.

As this was a pilot-project, the team had to be careful when dealing with sensitive issues such as roofing in order to avoid repairs being re-categorised as requiring building permits. For example, replacing plastic sheets only required the permission of the owner, whereas adding roofing materials to a structure required an application to the municipality. Conversations with one local municipality in the planning stage indicated that any project involving distribution of CGI sheets would not be allowed and the item was dropped from the potential list of approved materials.

During the voucher distribution, beneficiaries were asked if they required technical or physical support





The project has been adapted by other humanitarian partners and replicated in Erbil governorate.  
Photo: Jake Zarins/NRC

to make the improvements. The small minority that did require assistance were visited by one of two Repair and Maintenance Technicians. However, all of these households had already found other support before the technicians visited the shelter.

Each refugee household was given US\$ 500 in vouchers redeemable at pre-selected suppliers.

Beneficiaries were free to redeem the vouchers as they saw fit; however organisation staff on-site at the suppliers would question, for example, the intentions of a household purchasing only cement with their vouchers. The organisation placed no restrictions on beneficiaries paying with their own money for additional materials not on the approved list, though it was made clear that the organisation distanced itself from these actions.

Some potential beneficiaries were excluded as their landlords would not permit them to make improvements.

The amount of US\$ 500 was sufficient for the needs assessed, and was standardised across all beneficiaries to avoid disputes. Households that required additional support were referred to another organisation's cash-assistance project.

### Beneficiary selection

A variety of criteria were used to select beneficiary households, including: house condition, economic vulnerability, social vulnerability, and/or physical vulnerability. In all cases beneficiary households had to meet two of the criteria, with one always being that of poor housing.

The project team visited close to 1,000 households during a 3-month

project assessment, and from that list identified 500 beneficiary households, based on social and economic vulnerability criteria.

Families that had built their own shelter had to be excluded from support since self-built shelters were seen to constitute a pull-factor away from camps. These families were put in contact with another organisation's cash-assistance programme.

### Coordination

Six months after the project started, the Urban Working Group for shelter, in Duhok, was launched.

Before the creation of the group, the focus had almost exclusively been on supporting the camp population. Any coordination for non-camp interventions that did take place was largely done bilaterally between interested organisations. These bilateral discussions gave encouragement to other organisations to explore the possibilities of initiating projects outside of the camps, and the experiences of this project formed key discussions during the establishment of the Urban Working Group.

After the project had been running for a few months, more organisations initiated non-camp projects in a variety of sectors, as acceptance of such interventions grew.

### Materials

The standardised list of permitted materials was finalised through focus-group consultations with the beneficiaries to ensure that the materials were appropriate.

Materials were sourced by the suppliers and collected by the beneficiaries at the point of sale. The project team was present at each of the suppliers to support households and ensure that the materials exchanged for vouchers were restricted to the permitted list.

In communities located far away from suppliers, each household was permitted to use US\$ 20 from the vouchers as a contribution towards transportation. While this amount was not enough for an individual household to transport all materials, the problem was solved by households pooling their money to rent larger trucks.

Identifying suppliers with both the capacity and interest to take part in the voucher distribution was challenging. Of the 12 suppliers approached for the tender process, only two participated. For a distribution of 500 households, two suppliers was sufficient; however additional suppliers would have offered households more choice, and potentially more competitive prices, as many beneficiaries reported that the prices being charged were higher than prevailing market prices.

Following the pilot, the project model was replicated but this time with engagement with the local Chamber of Commerce, and a comprehensive survey of nearly 80 shops in the local retail market was undertaken in order to widen the number of potential suppliers.

### Wider project impacts

This project was one of the first shelter interventions in the urban areas of Duhok Governorate.

The ongoing lessons learned from this project form part of the KR-I-level discussions on approaches to sustainable support for Syrian refugees, particularly in light of the increasingly protracted nature of the conflict.

List of approved materials
Water tanks, pumps and pipes
Cement for flooring
Wall fixing materials
Plastic doors and windows
Plastic flooring /covering
Tool box
Metal bar for roofing
Fuel tank
Plastic sheeting
Window glass (installation included)
Water heater

## A.10 Jordan – 2013 – Syria conflict

### Case study

**Keywords:** Emergency shelter; Transitional shelter / T-shelter; Site planning.

**Emergency:** Syria crisis, refugees in Jordan.

**Date:** Conflict begins: March 2011 (ongoing). Refugee numbers increase: December 2011 onwards.

**People affected:** Over 3.1 million refugees from Syria. Around 620,000 in Jordan (October 2014).

**Project location:** Azraq camp, Az Zarqa Governorate.

**Beneficiaries:** Up to 67,000.

**Outputs:** 13,500 T-Shelter units. Over 7,000 completed as of September 2014.

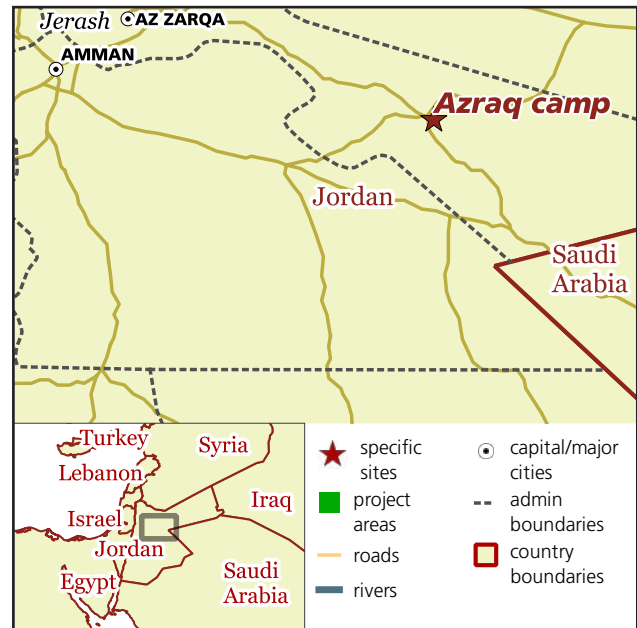
**Camp occupancy rate:** Capacity: 67,000 people. Population September 2014: approx. 13,000.

**Shelter size:** 24m<sup>2</sup>

**Cost:** Materials per shelter: 900-1,000 Jordanian dinars (US\$ 1,270-1,410). Total cost per shelter (including contractor and indirect costs): 1,650 Jordanian dinars (US\$ 2,330).

### Project description:

Azraq camp was constructed with 13,500 T-shelter units to accommodate 67,000 refugees in response to protracted displacement. T-shelters are interlocking steel structures, designed to maximise privacy and protect against severe weather conditions. They can be disassembled, transported and reassembled.

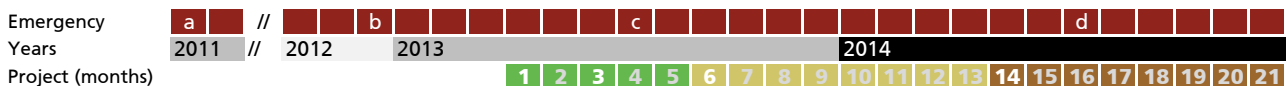


### Emergency timeline:

**[a]** March 2011: Civil war in Syria. **[b]** December 2012: Refugees reach 100,000 in Jordan. **[c]** July 2013: 500,000 refugees. **[d]** July 2014: 600,000 refugees.

### Project timeline (number of months):

**[1]** April 2013: Surveying of camp site begins.  
**[3]** Multi-agency T-shelter prototype construction and evaluation.  
**[6-10]** Implementation trial phase (1,000 units).  
**[14]** Camp officially opened with 4,200 units completed.  
**[24]** Planned handing over of 13,500 completed T-shelter Units by February 2015.



### Strengths

- ✓ The production, manufacture and assembly of the T-shelters is less technically complicated than previous prefab solutions, meaning more contractors are able to produce the units faster and cheaper.
- ✓ T-shelters can be dismantled and re-used, making re-siting possible and can potentially be part of a return package.
- ✓ Kits can be stored as contingency stock.
- ✓ Positive impact on local labour market, with contractors employing more than 400 labourers.
- ✓ Though government policy originally opposed semi-permanent solutions, close collaboration on the design and contractor tendering process meant that the T-shelter solution was accepted.

### Weaknesses

- ✗ Despite relatively fast production time, tents are still potentially necessary for response to population spikes until production meets demand.
- ✗ Inverted Box Rib (IBR) corrugated sheet, one of few roofing materials available, was hard to seal off against dust, wind and rain and had to be painted white to reduce heat gain.
- ✗ Due to time and cost reasons, the construction of a porch had to be cancelled, which caused beneficiaries to complain, particularly in relation to reduced privacy.

### Observations

- Prefab caravan units have been used in other camps, but have been found to be expensive solutions due to high transport and production costs.



Contractors produced and erected the shelters according to specifications developed by the main organisation. Photo: Werner Schellenberg/UNHCR

### Situation before the crisis

The majority of Syrian refugees lived in urban settings in Syria, particularly in areas such as Daraa and Homs, with a range of different income levels and housing standards.

### Situation after the crisis began

Flows of refugees from Syria to other countries began to increase in late 2011. Azraq was chosen as the site for a new camp as it was owned by the state and had previously been developed as a camp for Iraqi refugees in the 1990s (though it was never inhabited). The site was already linked by road to the towns of Azraq and Zara and had previously undergone some drainage work.

### Shelter strategy

The Shelter Working Group (SWG) was set-up in October 2012 and co-chaired by a UN agency and an INGO. By December regular meetings were taking place and a shelter strategy began to be developed.

The finalised shelter strategic guidelines were endorsed in September 2013 (updated a year later). A brief summary of the two main strategic objectives is as follows:

- Settlement: Enable refugee communities to access settlements which provide access to services, transportation and economic opportunities.
- Shelter: Increase the availability of adequate shelter solutions.

With the majority of refugees (80%) finding shelter in urban

settings, mostly by renting, there has been considerable strain on the affordable housing market, affecting housing costs for both refugees and for vulnerable Jordanians.

This has led the government to pursue a policy of developing camps, particularly to provide shelter for those who are priced out of the rental market.

The Ministry of Public Works and Housing (MoPWH) was involved in the planning of shelter solutions for Azraq camp. Despite an original reluctance on the part of the government to permit semi-permanent shelters, the agency advocated for the use of T-shelters in place of tents, emphasizing the kit-nature and the easy disassembling of the structures.

### Project implementation

The development of the Azraq camp site was officially approved at the end of March 2013 and opened in April 2014.

The site plan paid careful attention to storm-water flows, and divided the space into "villages" of between 10-15,000 people. At the lowest level, family plots of 12 shelters share four WASH units.

The project was executed by the main organisation along with two implementing partner organisations: an INGO and the MoPWH.

The T-shelter design phase involved multiple stakeholders, including refugee representatives, who gave feedback on proposed designs from different organisations. The winning T-shelter design was endorsed by the SWG and MoPWH.

Once the design had been selected, the partner INGO and MoPWH were then responsible

for the tendering process and awarding contracts to contractors, who produced the T-shelter kits to a technical specification provided by the main organisation. The involvement of a government ministry in the process helped.

Contractors produced the kits, which were made up of steel structural pieces manufactured in a factory off-site, aluminum coated foam insulation, IBR metal sheet cladding, steel windows and doors, ventilation pieces, plastic sheeting for roof ceiling works, and steel wires and turnbuckles for temporary room partitioning.

Multiple contractors worked on-site at the same time, constructing the shelters. A team of four people could complete a T-shelter in 12 to 16 hours. With 20 to 50 teams operating at any one time, an average of 60 T-Shelters could be completed in two working days, including the excavation and levelling of foundation trenches.

The T-shelter construction was monitored by two civil engineers on a daily basis.

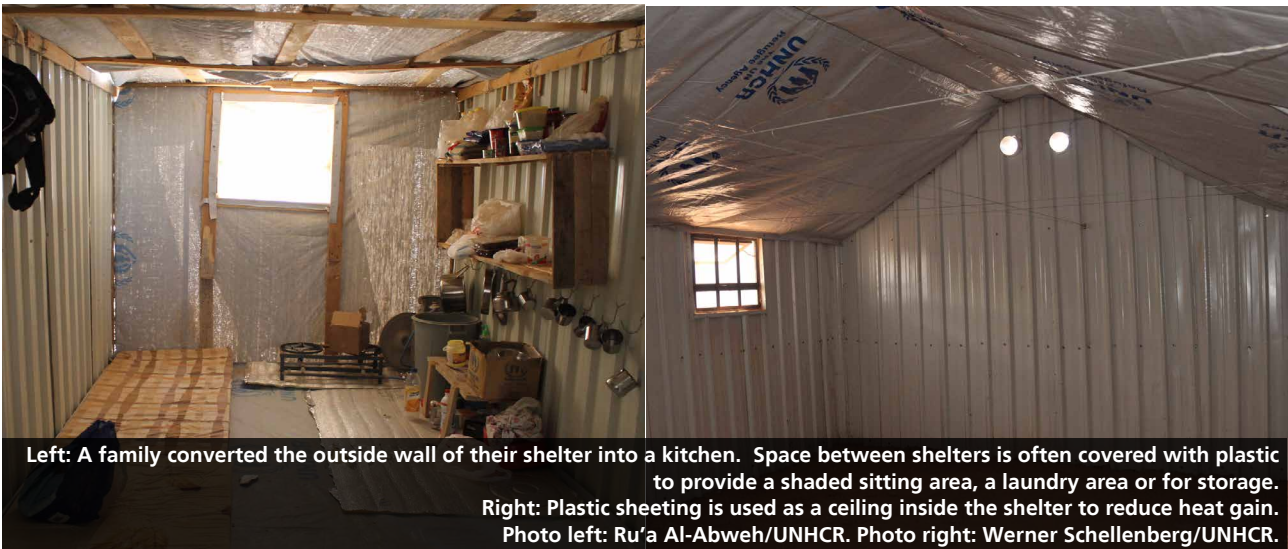
### Beneficiary selection

The camp has a total capacity for 67,000 people and is expected to reach full capacity by February 2015. Space has been identified to potentially increase the total population to 130,000 people.

All families arriving in Azraq are allocated a T-Shelter, with families of more than six members receiving two units. Vulnerable families (female-headed households and households with disabled family members) are sited nearest to camp services.

At time of writing, half the camp population of nearly 13,000 is from





Daraa and Aleppo, with 50% of the population being children and female-headed households accounting for 40% of families.

### Coordination

The design was developed within the Shelter Sector Working Group in Jordan, in coordination with other sectors. Design features included:

- Steel wires to allow for partitioning, helping to meet protection/gender privacy concerns.
- The entrance and door were designed in collaboration with disability experts.
- T-shelters can be adapted in the future to include WaSH facilities, with water and waste pipes.

The agency worked closely with the Government of Jordan, which had to approve the T-shelter design. The involvement of the MoPWH in tendering ensured a fast contract-awarding process.

### Disaster Risk Reduction (DRR)

The T-shelters provide protection against the strong winds, dust, and extreme changes in climate.

The site itself has some steep slopes and is in a seismic risk area. The T-shelter mitigates against structural weakness by anchoring it to the ground with long re-bar bolts

connected to each vertical frame pole.

### Design, production and construction

The development of steel-frame T-shelters was in part a reaction to issues with the prefab 'caravans' used in Zataari camp. Problems with the caravans included:

- Sandwich-panel manufacture required specialist machinery, making caravans costly and limiting the number of producers.
- Slow production rates meant that it was difficult to scale-up.
- There were environmental issues surrounding disposal.
- Caravans were costly to transport, requiring a crane for loading/unloading, and placing heavy stress on roads from large trucks.
- The plywood floors were not durable, and there were water leakages in winter.

The T-shelter design, in contrast, was flexible and simple to produce using local materials. Features include:

- A gable roof, providing better ventilation than a flat roof.

- The kit format means that the shelter is easy to transport, store, and extend or modify.

- The ability to easily dismantle and re-erect means that it could be made part of a return package.

- Leg extenders facilitate the erection of shelters on slopes or uneven land (prefab caravans needed stilts or level foundations, in order to prevent sandwich-panels from twisting and failing).

- More spacious living area.

The first shelters included a porch (side entrance) to increase privacy, as the door does not then open directly onto the living space. This was in direct response to feedback from beneficiaries, who appreciated the modified design. However, the porch was dropped from the design for a number of different reasons, to the dissatisfaction of the refugees.

Some project team members also felt that this was a mistake as porch construction would not have made a significant difference to the construction timetable but would have made a considerable difference to beneficiaries' sense of privacy.

Competition amongst contractors means that production capacities and efficiencies have increased. Construction contractors developed their own scaffolding methods to increase the





Left : A private pathway between two T-shelters is created using plastic sheets and wooden beams. Right: Some refugees also privatise the space between the last shelter on the plot and the latrines to increase privacy. Photo: Ru'a Al-Abweh/UNHCR

rate of construction. There is now local, specialist knowledge in the production, construction and dismantling of the T-shelters.

Contractors have ten days after the awarding of the contract to produce the T-Shelter components and mobilize for commencement of work on-site.

Construction involves:

- Shelter positioning on-site with steel pegs and strings.
- Excavation and levelling of foundation trenches.
- Assembling the frame-kit components with interlocking self-drilling screws.
- Fixing windows, door and insulation.
- Covering the frame with external and internal metal cladding, and fixing the ventilation.
- Fixing plastic sheeting to the internal ceiling and adding partition wires.
- Compacting and adding the base course for the reinforced concrete floor.

### Wider impacts

Alternative uses for the design are being looked at, and market stalls have been built in the camp based on the same inter-locking design of the T-shelter.

The design assumes ad-hoc extensions/adaptations will be made by beneficiaries and aims to facilitate these additions.

Items for a single unit	Quantity
<b>Steel structure</b>	
Steel tubes for walls, rafters, purlins (6cm diam., various lengths 1-3 m)	77 pcs
Rafter tie beam	8 pcs
Steel joints	132 pcs
Supporting steel angle at the gable	6 pcs
Foundation base plate	1 pcs
Welded steel tube leg (30 cm long)	14 pcs
Steel anchor pegs	28 pcs
<b>Walls and roof</b>	
Insulation (15 mm aluminum foam)	70m <sup>2</sup>
Cladding (0.35 mm IBR sheeting)	131m <sup>2</sup>
Steel flashing for gable, ridge etc.	15 pcs
<b>Ceiling and partitioning</b>	
Turnbuckles and angle holders for fixing steel wires	9 pcs
Galvanized wires for fixing plastic sheeting / partitioning	34m
Plastic sheeting (4m x 5m) for ceiling cladding	2 pcs
PVC ventilation pipes	4 pcs
<b>Floor and other</b>	
Cement for reinforced floor (covers 24m <sup>2</sup> )	625 kg
Steel for reinforced floor	40 kg
Steel door	1 pcs
Steel window	1 pcs
Self-drilling screws: (6.3mm x 30mm)	600 pcs

# A.11 Jordan – 2013 – Syria conflict

## Case study

**Keywords:** Rental support; Housing repair and retrofitting; Cash / vouchers; Advocacy / legal.

- Emergency:** Syria crisis, refugees in Jordan
- Date:** Conflict begins: March 2011 (ongoing).
- People affected:** Over 3.1 million refugees from Syria. Around 620,000 in Jordan, 10% of population (October 2014).
- Project location:** Irbid and Jerash Governorates.
- Beneficiaries:** Approximately 12,250 Syrian refugees.
- Outputs:** 4,000 housing units. 2,000 completed (August 2014).
- Occupancy rate:** Around 97%.
- Shelter size:** Units vary in size, but meet *Sphere* standards.
- Cost:** Grant depends on period of rent waived by landlord e.g. 12 months = 1,000 Jordanian dinars (US\$ 1,400). Total costs per unit = US\$ 2,500.



### Project description:

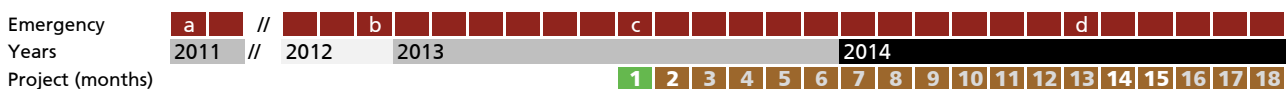
The upgrading programme is made up of several projects, financed by different donors, aiming to increase the number of rental properties available to refugees by supporting landlords to complete unfinished housing units. Landlords are given a conditional cash grant to pay for the construction, paid in advance, which covers a rental period for 12-18 months for a refugee family.

### Emergency timeline:

- [a]** March 2011: Civil war in Syria. **[b]** December 2012: Refugees reach 100,000 in Jordan. **[c]** July 2013: 500,000 refugees. **[d]** July 2014: 600,000 refugees.

### Project timeline (number of months):

- [1]** July 2013: project planning.
- [2]** Implementation begins. Turn-around time from identification of property to beneficiary family moving in is around 3 months.
- [14]** 2,000 properties completed, 1,000 under construction.
- [15-ongoing]** Project has funding to continue to July 2015.



### Strengths

- ✓ Shelter was identified as the highest priority need.
- ✓ Unlike a simple cash-for-rent intervention, the project created additional housing units, contributing to a more sustainable solution.
- ✓ Easing the pressure on the rental market should benefit both the refugee and host community, though the scale is currently too small to have a major impact.
- ✓ The project created income-generation opportunities.
- ✓ The organisation’s legal staff are able to monitor evictions, and mediate disputes between beneficiary tenants and their landlords.

### Weaknesses

- ✗ The implementation is labour-intensive and difficult to scale-up in order to significantly contribute to the control of inflation of rents. Interventions in sectors of

the market such as access to mortgages for refugees, might have a greater impact.

- ✗ A small number of landlords have cancelled their involvement after receiving their payment(s) towards the construction work.

### Observations

- It is essential to monitor for signs or threats of eviction.
- It is important to ensure that landlords understand their contractual obligations, and to develop a mechanism for resolving disputes with the organisation or tenants.
- Transparency regarding criteria for both beneficiary and property selection is extremely important, given the fact that the waiting list is so long and frustration levels are high.



Regular inspections of the progress of construction works are made:  
Photo: Rawan Baybars/NRC

### Situation before the crisis

In the seven years before the Syrian refugee crisis, the Jordanian housing market faced an annual shortfall of around 3,400 housing units per year.

The shortage of affordable housing has been compounded by the rising number of Syrian refugees, which has increased significantly from December 2012 onwards.

### Situation after the crisis began

According to an INGO assessment, shelter was the single most pressing need for refugees.

The conflict in Syria has resulted in a need for an additional 120,000 housing units to accommodate an estimated 600,000 Syrian refugees. While more than 100,000 refugees are sheltered in camps, around 80% of families have found shelter in rental accommodation.

It has been estimated that more than 75% of the refugees living in host communities are extremely vulnerable, living in rudimentary shelters or tents, abandoned or partially constructed buildings, or in flats that are often overcrowded and poorly maintained.

Syrian families tend to pay higher rents than Jordanians and contracts are typically insecure, with many families worried about eviction. High rents and limited employment opportunities mean many families find themselves in increasing debt and are unable to access basic services.

A recent report looking at community tensions found that 83% of Jordanians and 77% of Syrians

identified access to housing as a cause of tension.

### Shelter strategy

The Government of Jordan's National Resilience Plan 2014-2016 reports that the Syrian crisis has exacerbated the shortage of affordable housing in Jordan, raised rental prices, increased social tension, and strained urban infrastructure.

The report recommends bringing new residential units onto the market and implementing a large-scale affordable housing programme to assist refugees and low-income Jordanian families.

In Jordan the humanitarian shelter response is coordinated through a Shelter Working Group, rather than a Cluster, which divides its work into two broad objectives:

- Strategic objective in camps: Enable access to settlements with access to services and transport networks, aiming to reduce the underlying causes of socio-economic vulnerabilities.
- Strategic objective in non-camp areas: Increase the number of adequate shelter solutions available to families (through construction and rehabilitation).

**"I am very pleased with the project; it's an ideal solution as everyone benefits. For me, the best part of the project is that local labourers can find work."**  
Participating landlord

Reduce the rent burden (cash-for-rent), enhance security of tenure, and reduce tensions with host communities.

The Working Group has provided guidelines to set a ceiling for payments to upgrade or convert housing units, with specifications provided on what conditions should be placed on landlords (e.g. a guaranteed period of secure tenure).

### Project implementation

The programme is funded by five different donors, each with their own project start and end dates, and the timeline is ongoing.

The programme staff number around 60 (not including support departments). Teams of engineers assess properties and monitor implementation. Project support staff control the contract and payment process. Outreach teams with legal knowledge identify beneficiaries and monitor their security of tenure once they move in.

Identifying unfinished housing units is done through a communications strategy which includes disseminating leaflets, conducting meetings with local communities and local authorities and through word-of-mouth. Interested property owners then get in touch with the organisation. The properties must be within a reasonable distance of basic services in order to be selected.

An initial assessment is made by the technical team which leads to a Bill of Quantities (BoQ) to provide a Sphere-standards housing unit for a single family. This BoQ becomes part of the contract between the organisation and the landlord.

The contract specifies that once the property has been completed to the agreed standards, the refugee family will be allowed to live in the unit rent-free for a specified period. The landlord receives a conditional grant to make the repairs, the value of which depends on the agreed period of waived rent. For example, 12 months of waived rent corresponds to a grant value of 1,000 JOD (US\$ 1,400); 18 months corresponds to 1,400 JOD (US\$ 1,960).





A family move in having just signed a secure, rent-free lease for 18 months. Photo: Annika Hampson/NRC

Each beneficiary family receives a one-off resettlement grant of 100 JOD (US\$ 140).

The construction contracts and rental leases are witnessed and signed-off by community-based organisations and local authorities, in order to reinforce the compliance and accountability of all parties. Property owners contract their own labourers and procure their own materials

Regular site visits (around ten in total) are made by engineers from the organisation, to monitor and advise on construction works. Payments are made against construction progress.

The first instalment of 35% of the grant is paid in advance; the next 30% of the grant is made once 60% of the works are complete, and the balance is paid once the works are completed and the keys have been given to the beneficiary family.

Rehabilitation works often exceed the anticipated duration of 6 weeks, lasting up to 8-10 weeks. The organisation conducted a survey to identify the reasons for the delays, and the most common were labour shortages, financial problems, and delays in connecting water and electricity. Consequently the organisation revised the payment plan from an advance of 25% to an advance of 35%, and is providing support to identify labourers and is also working with the utility companies.

In a limited number of cases it has not been possible to enforce the contract between landlords and the organisation, and in one instance a

property owner took the first instalment without completing the project or returning the funding. The organisation relies on the goodwill of the community to ensure contracts are honoured, as it is reluctant to take these cases to court.

Another sensitive issue is the suitability of property owners to act as landlords for refugees. Applications by landlords are rejected if it is felt that they are hostile to refugees or are known to be aggressive or dangerous.

### Beneficiary selection

The organisation's vulnerability criteria are based on UN standard operating procedures for cash assistance. However, a new Vulnerability Assessment Framework (VAF) is being finalised by the Inter-Sector Working Group.

The vulnerability criteria for beneficiary selection includes prioritising families who are homeless, living in overcrowded and substandard accommodation, or facing imminent eviction due to an inability to pay arrears.

Other priority families are female-headed households, families of more than ten members, and/or families with disabled or severely ill family members.

Beneficiaries are finally selected following a home visit by an outreach team. The beneficiary assessments are completed using a mobile phone application (which can be used on basic handsets as well as smartphones), with the data later downloaded to a database. Outreach teams work with CBOs for lists of refugees, through word-of-mouth and, most recently, through a new organisational drop-in centre in Irbid, which is visited by up to 100 refugees daily.

**"It's good for Jordanians as it's difficult and expensive to secure loans to build our houses. ... I have another project for upstairs and with another grant, I can welcome another Syrian family here."**  
Participating landlord



The project was modified after investigating the cause of delays. Photo: Annika Hampson/NRC

### Coordination

The organisation is the only organisation currently implementing this shelter methodology in Jordan, but the hope is that other organisations will copy the model.

The project approach is in line with recommendations from the Syria Crisis Regional Response Plan (RRP6), the ECHO Humanitarian Implementation Plan (HIP) 2014 and the government's National Resilience Plan 2014-2016.

### Wider project impacts

A survey of participating landlords found that the majority would not have developed their properties for another 15-20 months without the organisation's financing. Around two-thirds had planned for the housing developments to be for their personal housing, the other third had planned to let the units for rent.

Landlords contributed on average 29% of the total costs of construction with the organisation providing the rest.

In terms of impact, landlords considered the scheme to be overwhelmingly positive in terms of investment in the local community. All but one of the 61 landlords interviewed said that they would recommend participation in the project to others.

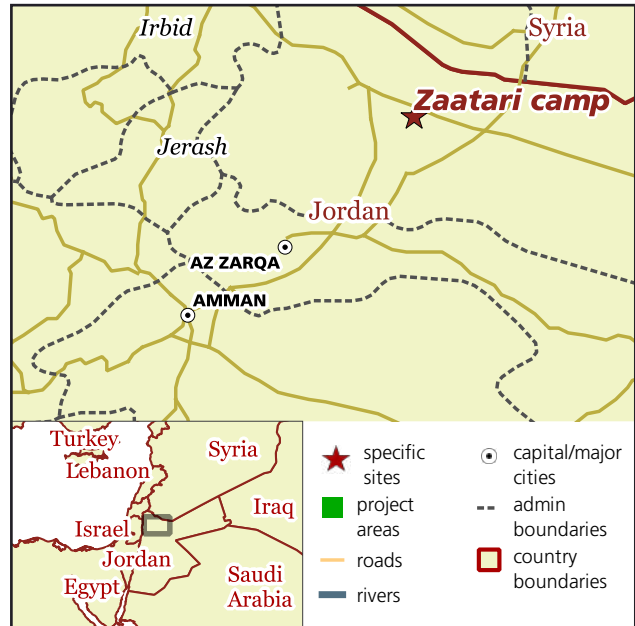


# A.12 Jordan – 2014 – Syria conflict

## Case study

**Keywords:** Emergency shelter.

**Emergency:** Syria crisis, refugees in Jordan.  
**Date:** March 2011: conflict begins (ongoing). Refugee numbers increase from December 2011 onwards. Zaatari camp opens July 2012.  
**People affected:** Over 3.1 million refugees from Syria. Around 620,000 in Jordan (October 2014).  
**Project location:** Zaatari camp, Mafraq Governorate.  
**Beneficiaries:** 20,000  
**Outputs:** 5,000 recycled tents, repackaged and redistributed to new arrivals  
**Shelter size:** Standard humanitarian family tents (23m<sup>2</sup>)  
**Cost:** 2.1 Jordanian dinars (US\$ 2.94) per tent, including collection from camp, assessing the tent, repair materials, mending, and repacking.



### Project description:

When families in Zaatari refugee camp started to receive pre-fabricated container shelters, a stockpile of used tents began to build up. A tent-recycling project was developed to repair and repackage used tents for new arrivals. Recycling, instead of destroying or giving away the used tents, generated an estimated saving of around US\$ 3,000,000 (US\$ 600 per tent). Tent components that are too damaged to be re-used for shelters have been used for other purposes.

### Emergency timeline:

**[a]** July 28th 2012: Zaatari camp opens in response to increasing numbers of Syrian refugees in Jordan. Crisis ongoing.

### Project timeline (number of months):

**[1]** Used tent collection begins at the start of April 2014, with the first repaired tents distributed by end of that month.  
**[2-ongoing]** Project likely to continue to end of 2014.



### Strengths

- ✓ Around 90% of the materials used by the project came from the used tents themselves.
- ✓ The project required only basic skills and could be set-up easily, moving from planning to implementation phase in less than a month.
- ✓ Low implementation costs have resulted in large financial savings.

### Weaknesses

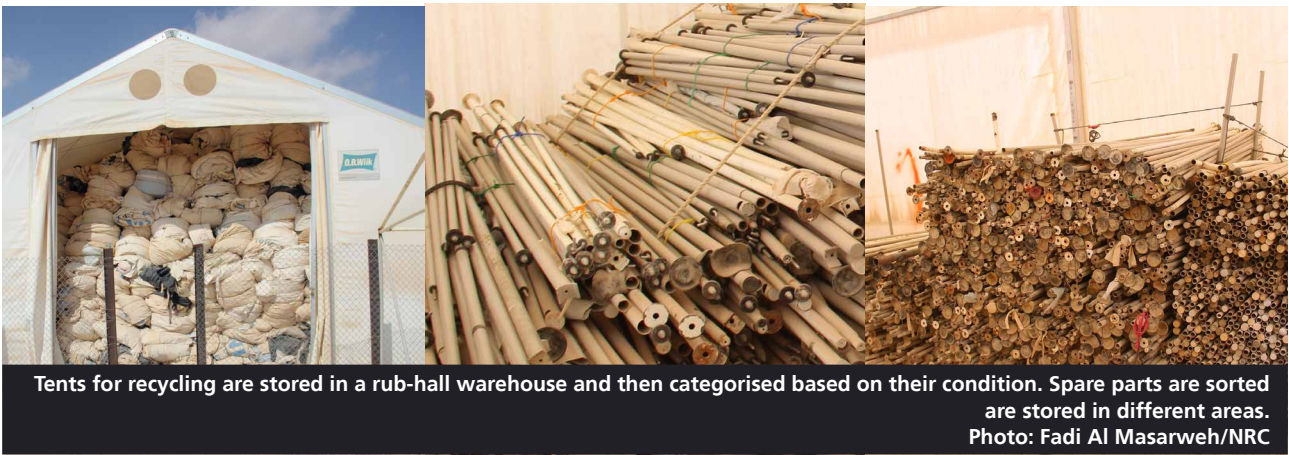
- ✗ Considerable storage and dry warehousing areas are required.

### Observations

- The success of the project depended on the specific context where tents were replaced by containers whilst they were still functional. Replicating the project would rely on similar circumstances.



Project staff carrying tents to the rub halls to begin the recycling process.  
 Photo: Fadi Al Masarweh/NRC



## Project implementation

Zaatari refugee camp opened in July 2012, with family tents distributed to all new arrivals. Around eight months later, pre-fabricated containers were rolled out as a new shelter solution to replace the tents, providing better protection from the weather, and greater privacy and dignity for the refugees. The containers are standard 20-foot (6-metre) sandwich-panel containers, similar to those used as offices across humanitarian operations.

As the families moved into the new shelters, tents were collected and stockpiled by the organisation. The organisation quickly found itself with thousands of used tents, many of which were still in good condition.

Given the donor logo on the tent canvas, only limited options were available for reusing the tents. It was therefore decided that all efforts would be made to recycle tents wherever possible, reuse whatever other material remained for non-shelter projects, and send the rest for disposal.

After a very short planning period in April 2014, the recycling project was rolled out in the same month. The project consisted of three phases:

### Phase 1 – tent collection

Tents vacated by families moving in to the new shelter were collected and taken to the warehouse for first assessment.

### Phase 2 – validity check

A visual check was made to make sure that all tent components were in good condition. The spare parts

(tent pegs, poles, ropes etc.) were sorted in a separate warehouse. The tents themselves were allocated to different warehouses following their categorisation through a visual assessment:

- Useful category – tent canvases were moved to a separate Rub-hall where they have been repackaged with all other needed items (poles, pegs, ropes etc.), before being re-distributed to new arrivals.
- Damaged category – tent materials were used for spare parts. Some parts, such as damaged canvas, were used as additional roofing protection for container shelters, or as patches for tents needing repair. Other damaged spare parts were recycled for use as non-shelter items.
- Repairable category – these tents were in reasonable condition but required patches or the repair of holes. Repairs were made with sewing equipment or glue, using salvaged canvas for patches.

### Phase 3 – distribution

Re-usable and repaired tents were sent back to the camp set-up area for distribution to new arrivals.

Some missing parts, such as pegs and poles, were fabricated in a local workshop and then purchased by the organisation to complete tent sets that were missing certain items.

A dedicated team repaired pegs and poles on-site as many of them only required basic work such as re-straightening.

The recycling rate for the project has depended upon the number of prefab containers arriving each day and the number of tents collected (between 20 and 200 per day). To date, from more than 11,000 tents collected, the organisation has been able to recover and re-distribute 40% of them – around 4,500 tents.

## Non-shelter uses for salvaged materials

Metal poles have been re-used to build frames for beds or other furniture items and even umbrellas.

Other than as an additional roofing material, damaged canvas can be re-used in many different ways, such as a fencing material or for making bags, clothes or children's toys.

The organisation's Youth programme is using the cleaned, left-over canvas as textile material for vocational training courses offered in the camp. Students are trained to make various items from the canvas and the sewing course has expanded into an independent workshop.

The items are made as part of the Youth course and are not for resale. However, they have proved very popular with donors as souvenirs of the project.

The children's play equipment that has been made from left-over tent parts are used in the children's play areas in the camp.





Examples of furniture, play equipment, and disability aids made out of left-over materials from the tent recycling project. Photo: Fadi Al Masarweh/NRC

## A.13 Lebanon – 2012 – Syria conflict

### Case study

**Keywords:** Construction materials; Tools; Emergency shelter.

**Emergency:** Syria crisis, refugees in Lebanon.

**Date:** Conflict begins: March 2011 (ongoing). December 2012: over 100,000 Syrian refugees in Lebanon.

**People affected:** Total: over 3.1 million refugees. Lebanon: over 1.1 million (Oct. 2014)

**Project location:** Saida and Chouf districts (Mt Lebanon Governorate) and Akkar district (North Governorate).

**Beneficiaries:** 38,000.

**Outputs:** 4,000 Sealing-off Kits (SOK) for unfinished buildings (SOK1) and self-made shelters/tents (SOK2).

**Occupancy rate:** 100%

**Shelter size:** Self-made shelters (tents) ranged from 15m<sup>2</sup> to 20m<sup>2</sup>. Unfinished buildings (either single shelters or rooms in buildings) ranged from 25m<sup>2</sup> to 35m<sup>2</sup>.

**Cost:** Materials: SOK1: US\$ 245. SOK2: US\$ 345. Transport costs per kit: US\$ 15. Project costs per kit: US\$ 100.

### Project description:

After carrying out minor rehabilitation activities in 2012, the organisation decided to respond to a huge increase in shelter needs, by developing a Sealing-off Kit (SOK) for distribution.

The kits enabled beneficiaries to make rapid, emergency improvements to their shelters, such as adding missing doors and windows, whilst waiting for more substantial assistance. The organisation distributed up to 500 kits (for 3,000 people) per week.



### Emergency timeline:

**[a]** March 2011, Syria conflict begins. **[b]** 100,000 refugees. **[c]** 500,000 refugees. **[d]** 1 million refugees.

### Project timeline (number of months):

**[1]** October 2012: Design of SOK1.

**[2-3]** Distribution of 500 SOK1.

**[5]** Share design and methodology of kit with other humanitarian organisations.

**[7]** Design of SOK2.

**[8]** Distribution by other organisations begins. Distributions are on-going.



### Strengths

- ✓ Large number of shelters can be upgraded in a short period of time. The majority of beneficiaries reported using the kit in full within 72 hours of distribution.
- ✓ Beneficiaries can choose how to use the materials to best improve their shelters, with a high satisfaction rate amongst beneficiaries.
- ✓ The unit cost is relatively low (around US\$ 50 per person). Unlike projects that use contractors to install kits, there are no labour costs. Unlike some voucher-based projects, there are cost benefits due to the economies of sale of centralised purchasing.
- ✓ Contingency stock allows organisations to scale-up response quickly.
- ✓ The SOK's composition is flexible, made up of the most commonly required materials, and can be easily modified to adapt to changing needs.

### Weaknesses

- ✗ The SOK has to be delivered at the shelter but sometimes larger trucks were unable to access remote areas. The organisation modified the transport fleet accordingly or, in a few cases, had to use centralised distributions.
- ✗ The availability of large quantities of materials wasn't always guaranteed, and to avoid delays the organisation had to plan procurement well before distributions.
- ✗ The SOK could only support emergency or temporary repairs.

### Observations

- The project requires very good logistics for transportation, storage and distribution (each SOK weighs around 170kg).





Some families used the materials to build partitions in their shelter.  
Photo: Edouard Elias/PU-AMI

## Situation before the crisis

Syrian refugees in Lebanon have a mix of backgrounds. Some come from urban areas with experience of living in good quality accommodation, others from rural areas or from areas with poor-quality housing.

## Situation after the crisis began

Most Syrian refugees in Lebanon rent rooms or shelters, with rents increasing dramatically since the Syrian crisis began. A shortage of affordable housing in Lebanon before the conflict has been exacerbated by the arrival of hundreds of thousands of refugees, and people are prepared to take any shelter available, even if it is sub-standard.

## Shelter strategy

The national shelter strategy of the Shelter Sector Working Group is to provide an adequate shelter (according to *Sphere* standards) to the most vulnerable Syrian refugees in Lebanon, while avoiding using camps as a solution. Activities are divided into three main groups:

- Providing a SOK in order to repair the most urgent shelter needs (missing windows, doors, walls).
- Minor rehabilitation in small shelter units or collective shelter, including sanitation facilities.

- Cash-for-rent assistance.

## Project implementation

By selecting a methodology where kits were distributed to beneficiaries in order for them to make their own repairs, it was possible to meet the most urgent needs very quickly in comparison to the organisation running its own repair project. Speed of response was a priority as the winter had already arrived before the first distribution.

A needs assessment showed that many shelters lacked doors, windows and partitions for toilets. To meet these needs, a SOK for unfinished buildings was designed, using materials to be found in local markets that beneficiaries were familiar with.

The organisation's long experience in the area enabled it to make rapid decisions regarding the contents of the SOK, and it then approached suppliers who could provide the items packaged and ready to be distributed.

Two suppliers delivered the kits, one providing timber and the other providing plastic sheet and fixings, to the organisation's warehouse in preparation for distribution by the project teams.

A distribution plan was made once a group of between 20 and 80 beneficiary families had been identified for support.

The SOKs were loaded on to small trucks and delivered to the beneficiaries' shelters by staff of the

organisation. The beneficiaries then signed for receipt of the materials.

The project undertook post-distribution monitoring, which involved interviewing households, and focussing upon the use of the kit rather than the quality of construction. This information was then fed back into revisions of the contents of the SOK.

Before the start of the project, the main risk identified was that beneficiaries would either sell the kits or make poor-quality repairs. However, following an evaluation of 100 households following the distribution of the first 500 kits, the results were much better than expected. More than 90% of beneficiaries reported significant improvement of living conditions due to provision of the kit, and the majority of beneficiaries had used all the items for repair or upgrading of their shelters.

In terms of speed of implementation, around three quarters of the beneficiaries participating in one evaluation reported that they had used the entire contents of the kit within three days of receiving it.

## Beneficiary selection

Beneficiaries were selected following house-to-house assessments made by project teams made up of around six people.

The criteria to receive a SOK, developed by the organisation and based on *Sphere* standards, were that the shelter was *without* one or more of the following:

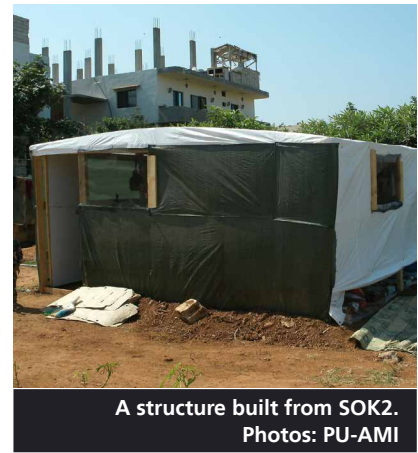
- external doors and windows,
- internal walls,
- partition between the toilet and living area,
- partition in collective rooms, occupied by two or more families.

## Coordination

The organisation presented the SOK project to the Shelter Sector Working Group in Lebanon in February 2013 (five months after the project started). Following this,



A distribution of Sealing-off Kits.  
Photo: Edouard Elias/PU-AMI



A structure built from SOK2.  
Photos: PU-AMI

several other humanitarian organisations have implemented similar distributions of SOKs.

### Technical solutions

As the SOK does not contain any building material facilitating permanent construction, there were no problems gaining approval from local authorities regarding its distribution.

The kit was designed to be as flexible as possible, allowing beneficiaries to use the materials in a way that would best improve their shelters. The kit contained 22 different items. Plastic sheets, tarpaulin and plywood could be used for multiple purposes such as improving walls, ceilings or door panels, or for sealing windows and holes, while timber could be used for walls, doors, and window frames.

The SOK1 is designed for a small shelter unit such as an unfinished house, garage or shop. It included items such as foam filler, which is very useful for blocking small holes or gaps between the roof and walls and is much cheaper and easier to use than mortar.

The SOK2 is designed for self-made shelters built by the beneficiaries, and contains more timber and plastic sheeting, in order to reinforce the structure.

### Materials

All the kit items were well known to beneficiaries as construction materials, and have been available locally in both Lebanon and Syria.

Requests to suppliers were made several weeks before distributions, to

prevent bottlenecks or shortages in the local market.

### Use and adaptations

Some beneficiaries built entirely new extensions to their shelters with the kits.

Wooden and plastic partitions were used for separating sanitation facilities or providing privacy, with plywood, tarpaulin or plastic sheets sometimes employed as false ceilings. Internal and external doors were built from different wood components.

Plastic sheeting was often used to seal windows, but was also used for walling or for protecting brick walls from the weather during construction.

Left-over sections from timber and plywood were used for building furniture – everything from shelves and cupboards to bed frames.

Post-distribution monitoring surveys showed that around 13% of the beneficiaries sold some of the SOK contents, overwhelmingly in order to pay rent. Around 6% of households swapped and shared items in order to meet their specific needs.

### Wider project impacts

The SOK design was approved by a large number of aid agencies and donors. It has been distributed by several organisations since winter 2012.

### Simplified kit contents

Item	SOK1 (qty)	SOK2 (qty)
Transparent Sheet 20m x 2m / Plastic Film	1	1
Plastic Sheet (heavy duty Tarpaulin) 4m x 6m	1	1
Plastic Sheet (medium quality Tarpaulin) 4m x 6m	2	3
Nails for wood	1.5kg	2.5kg
Nails for concrete	3 boxes	-
Wood screws (box) and washers (1kg)	1	1
Aluminium wire mesh	4 m <sup>2</sup>	4 m <sup>2</sup>
Expanding foam filler	1kg	
Galvanised hinges and connectors	42 pcs	8 hinges
Padlock and latch	1	-
Adhesive tape	3 rolls	-
Toolkit: hammer, screw driver, saw, cutter	1	-
Plywood sheets 244cm x 122cm	5 x 4mm, 1 x 18mm	15 x 4mm
Wood various thicknesses and 3-4 metre lengths	15 pcs	33 pcs
Rope (6mm thick)	-	2kg

# A.14 Lebanon – 2012 – Syria conflict

## Case study

**Keywords:** Household items; Construction materials; Emergency shelter; Rental support; Housing repair and retrofitting; Cash / vouchers; Site planning.

**Emergency:** Syria crisis, refugees in Lebanon.

**Date:** Conflict begins: March 2011 (ongoing). December 2012: over 100,000 Syrian refugees in Lebanon.

**People affected:** Total: over 3.1 million refugees. Lebanon: over 1.1 million (Oct. 2014)

**Project location:** Parts of Bekaa (Beqaa) and North Governorates.

**Beneficiaries:** 20,000 families (over 100,000 individuals) as of September 2014.

**Outputs:** 20,000 families supported through a combination of weatherproofing kits, vouchers, cash-for-rehabilitation and site improvements.

**Occupancy rate:** 100% (inhabited shelters targeted)

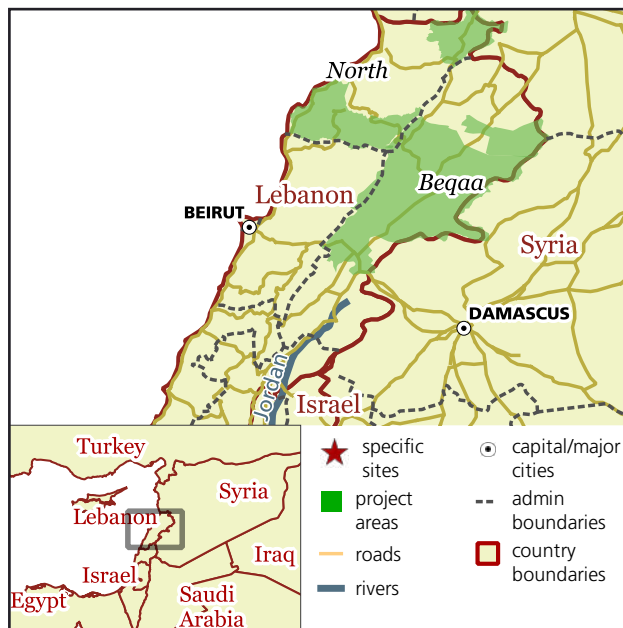
**Shelter size:** Variable.

**Cost:** Range of assistance packages e.g:

- Emergency assistance: US\$ 250 per family (US\$ 100 project costs, US\$ 150 direct assistance)
- Building rehabilitation: US\$ 2,350 per family (US\$ 850 project costs, US\$ 1,500 direct assistance)

### Project description:

Several different assistance packages made up a larger programme, aimed at improving the living conditions of the most vulnerable Syrian and Lebanese families living in poorest quality shelter. The programme was a multi-sector response, integrating WASH and Child Protection, using multiple modalities, such as NFI distribution, cash and vouchers.

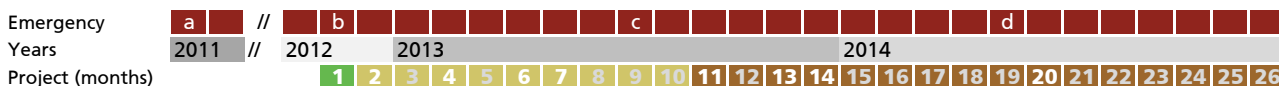


### Emergency timeline:

[a] March 2011, Syria conflict begins. [b] 100,000 refugees. [c] 500,000 refugees. [d] 1 million refugees.

### Project timeline (number of months):

[1] Nov. 2012: Staff recruited to meet escalating need. [2] First distributions in Bekaa. [4] Phase 2 begins. [6] Livelihoods component included. [7] Rehabilitation of sub-standard buildings. Inclusion of WASH component. [11] Scaling-up for winter. Strengthening of Child Protection. [13] NFI component included. [14] Programme reaches 50,000 people. [20] June 2014: Programme reaches 100,000 people and is due to continue throughout 2014 and into 2015.



### Strengths

- ✓ Successfully scaling-up in a complex, dynamic context to meet needs of the beneficiaries before winter.
- ✓ Different types of assistance were provided for different needs. Low-cost, high volume interventions ran in parallel with more complex rehabilitation.
- ✓ A door-to-door approach to assessment, technical support and multi-sector follow-up increased staff costs but enhanced impact and community trust.
- ✓ Field teams were made up of a mix of technical and outreach staff, helping to see the bigger picture and to respond to non-shelter needs.
- ✓ Rehabilitating the existing, inhabited shelters reduced dealings with complex regulations relating to new construction and the rental market.

### Weaknesses

- ✗ Security issues caused delays to direct implementation by the organisation. A shift to a mix of implementing directly and through partners increased access.
- ✗ The organisation's initial technical WASH capacity required more support. This was provided once donors saw the benefits of multi-sector intervention.
- ✗ The initial staffing structure lacked the flexibility to adjust to rapid changes in needs. Field-teams were re-structured to overcome this.

### Observations

- The concentration of refugees in dispersed urban and peri-urban rental situations complicates a humanitarian response. The context can be extremely challenging and the usual "minimum" standards may not be achievable or appropriate.





Buildings like this unfinished house in Bekaa Valley typically lack adequate protection from the elements, security, privacy and adequate access to water and sanitation. Approximately 25% of the Syrian refugee population live in these sort of conditions alongside an increasing number of Lebanese families. Photo: Ahmad Baroudi/Save the Children Lebanon

### Situation before the crisis

Lebanon is considered an upper middle income country with a highly privatised economy. The population is concentrated in Beirut and its suburbs, with the vast majority of residences being owner-occupied. Prior to the Syrian crisis, Lebanon already suffered from a lack of affordable housing, with no significant policy in place to mitigate this.

### Situation after the crisis began

The Lebanese government normally has not formally sanctioned camps. Instead, refugees are dispersed across more than 1,700 different host communities.

The large influx of Syrian refugees into Lebanon (rising six-fold during 2013 to over a million today, making up around 25% of Lebanon's population), has resulted in further pressure on the rental market, inflating prices.

Recent assessments by international organisations note that the lack of an adequate and safe supply of shelter has pushed many of the poorest Syrian and Lebanese families into sub-standard shelters, with the situation worsening. In March 2014 a shelter survey indicated that:

- 57% of Syrian refugee families live in finished apartments or houses.

- 25% live in sub-standard buildings (such as unfinished houses or non-residential buildings).
- 15% live in informal settlements (i.e. ad-hoc, self-settled camps made up of improvised temporary shelters or tents).
- Less than 3% live in collective centres.

New-arrival refugees are increasingly vulnerable, obliged to accept evermore inadequate and overcrowded accommodation.

Many refugee households have covered the cost of their rent through diminishing savings, cash assistance and increasing debt levels, as well as other forms of negative coping mechanisms such as withdrawing children from school and engaging them in work.

### Shelter strategy

With the Lebanese government generally unwilling to consider the option of camps, the vast majority of families are dispersed through hundreds of communities.

The Shelter Sector Working Group in Lebanon focuses on the following:

- Providing safe and dignified emergency shelter to

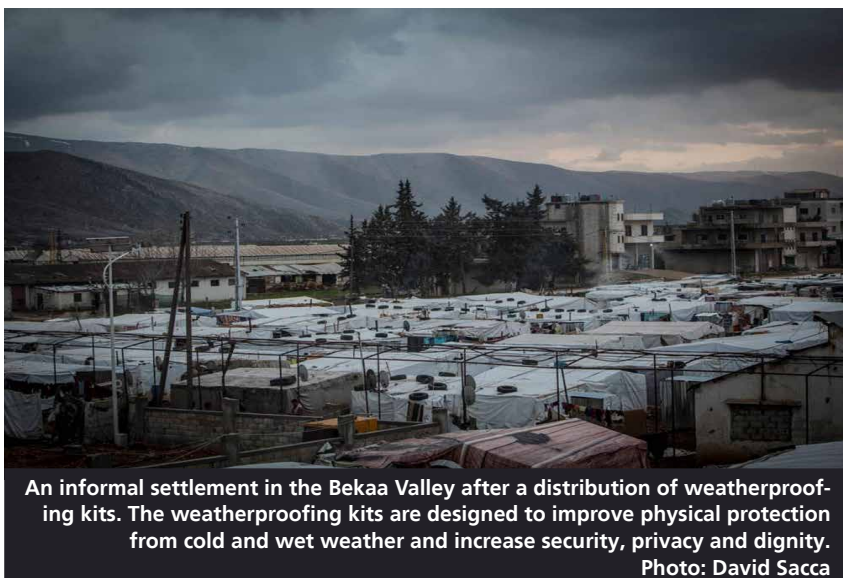
new arrivals and to the most vulnerable.

- Improving sub-standard shelters, including through the upgrading of local properties.
- Advocating for larger formal settlements.

The organisation's own strategy is built on the working group's strategy with additional areas of focus:

- Child focus: addressing the basic needs of children and their families can reduce negative coping mechanisms (such as child labour and early marriage) and increase investment in human capital such as education and healthcare.
- An integrated approach: Shelter, NFI and WASH assistance were provided together where required, with staff also trained in identifying child protection vulnerabilities and key messaging.
- Occupied shelters: the vast majority of refugees access shelter through informal market channels and the number of homeless refugees is very low. Consequently, the focus is on





upgrading existing, but sub-standard, occupied shelters.

- Community outreach: shelter programming is delivered at the household-level, which allows for direct targeting of the most at-risk families and helps to build trust in communities. Shelter and WASH field teams are an important source of referrals to the organisation's Child Protection Case Management team.
- Emergency and long-term solutions are implemented in parallel, by offering a range of Shelter and WASH assistance packages for differing levels of needs.

### Project implementation

To respond to the different living conditions of beneficiaries, the organisation developed five different interventions to be employed in order to support families living in two types of situation:

- Informal settlements: self-settled sites with families living in tents or makeshift shelters.
- Sub-standard buildings: unfinished housing or converted non-residential structures such as garages or shops.

The five types of intervention, providing different types of assistance using different modalities, were:

- A: Weatherproofing in informal settlements – following government stipulations, this assistance was provided as direct distribution of a kit of materials.
- B: Temporary Emergency Shelter – only a small caseload required a full shelter kit, but the families were some of the most vulnerable.
- C: Site improvements – informal settlements suffered from ad-hoc layouts and rapid growth, resulting in risks for flooding and fire. Improvements were made to drainage and layouts to improve living conditions. This was implemented using a casual labour initiative in order to create an income for participants.
- D: Emergency Shelter/WASH in sub-standard buildings – a rapid, relatively cheap intervention using vouchers to provide flexible solutions for the upgrading of shelters. Technical staff from the organisation were present on suppliers' premises on voucher redemption days to ensure quality control.

- E: Rehabilitation of sub-standard buildings – permanent upgrades were funded in exchange for a 12-month period of secure tenure and a rental reduction equivalent to the value of the work carried out. Money was transferred in three tranches (20%, 40% and 40%) via an ATM card which could be used in all major banks in Lebanon. The transfer of cash was conditional on technical monitoring and achieving pre-agreed work stages.

The programme was supported financially with multiple funding streams, with different donors supporting activities most relevant to their mandate. As the programme developed, a multi-sector approach was taken, integrating Shelter, WASH, NFI, Child Protection, Cash, and Livelihoods components.

Direct implementation was used for the majority of locations. Local partners were used to increase access in more insecure areas.

Household-level door-to-door distributions were more resource-intensive. However, this allowed tailored solutions, the identification of non-shelter needs, and the building of trust and relationships.

### Beneficiary selection

Geographic areas of intervention were selected based on needs and

## Table of intervention types

Intervention	A: Weather-proofing	B: Temporary Emergency Shelter	C: Site Improvements	D: Emergency Shelter and WASH	E: Rehabilitation
Shelter type	Informal settlements	Informal settlements	Informal settlements	Unfinished houses and converted garages	Unfinished houses and converted garages
Description	Families received a shelter kit (plastic sheeting, timber, tools, etc.) to repair, reinforce or extend their existing shelter.	Families with no shelter received a full kit in order to build a tent in an informal settlement.	Communities implemented semi-permanent site improvements to informal settlements, reducing health and safety risks.	Families received a voucher that could be redeemed for Shelter and WASH materials to address their individual immediate needs.	Families received a conditional cash grant for upgrading. The landlord gave a year's secure tenure and reduced rent in exchange.
WASH component	No	No	Yes	Yes	Yes
Modality	In-kind kit	In-kind kit	In-kind and casual labour	Voucher	Conditional cash grant (3 tranches)
Unit cost per household	US\$ 150 direct (US\$ 250 total)	US\$ 400 direct (US\$ 600 total)	US\$ 150 direct (US\$ 250 total)	US\$ 250 direct (US\$ 450 total)	US\$ 1,500 direct (US\$ 2,350 total)
Lifespan	6-12 months	2+ years	2+ years	2+ years	5+ years
Delivery time	3 months	3 months	3 months	3 months	5 months
Advantages	Relatively cheap and quick. No formal approval required.	Relatively cheap and quick. No formal approval required.	Relatively cheap and quick. Highly visible and significant improvements in living conditions.	Relatively cheap and quick. No formal approval required.	'Permanent' improvement in living conditions. Investment in infrastructure. Secure tenure for family. Rental reduction.
Disadvantages	'Temporary'. Not all core needs met.	'Temporary'. Not all core needs met.	'Temporary'. Not all core needs met.	'Temporary'. Not all core needs met.	Relatively expensive and slow. Formal approval required.

gaps as identified by the coordination mechanisms. Initial caseload estimates were verified through a rapid mapping assessment.

The beneficiaries were targeted based on vulnerability, rather than refugee status, which meant Lebanese families also qualified.

Detailed household-level technical and socio-economic surveys were carried out by teams of both men and women consisting of both technical shelter experts and staff with interviewing skills. The household survey data was indexed according to a vulnerability scale agreed on by several organisations.

Independent teams then conducted Post Distribution Monitoring in order to avoid conflict of interests.

Analysis of the available data showed that sub-standard shelters hosted on average larger families compared to refugees living in the formal rental market. Proportionally, there were more children in sub-standard shelters and recent evaluations concluded that assistance to cover basic needs has improved

nutrition, raised school attendance and has reduced child labour.

### Coordination

The organisation is an active member of the joint UN-/government-led Shelter Sector Working Group at both national and local level, and took the lead in several technical working groups, including those for weatherproofing and for informal settlements.

All activities were in line with the inter-organisational agreed Shelter strategy and with all relevant Standard Operating Procedures (SOPs), such as guidelines for rehabilitating sub-standard buildings or weatherproofing kit contents.

### Materials

The vast majority of materials were available locally. The one major exception to this was humanitarian plastic sheeting, which was not available in either sufficient quantity or quality. Half the required amount of plastic sheeting was imported.

The organisation's technical staff conducted regular market assessments to track labour and material

costs in order to identify if the project was inflating prices.

### Wider project impacts

A follow-up of the rehabilitation project showed that the vast majority of families remained in their accommodation for the full year. The rent reduction has enabled families to increase their human capital investment in education and healthcare.

### Future challenges

The Syria conflict has become a protracted crisis and rents are continuing to rise while the shelter situation for many vulnerable Syrian and Lebanese families deteriorates.

Forced evictions are increasingly an issue which could be mitigated by projects helping to formalise tenancy agreements.

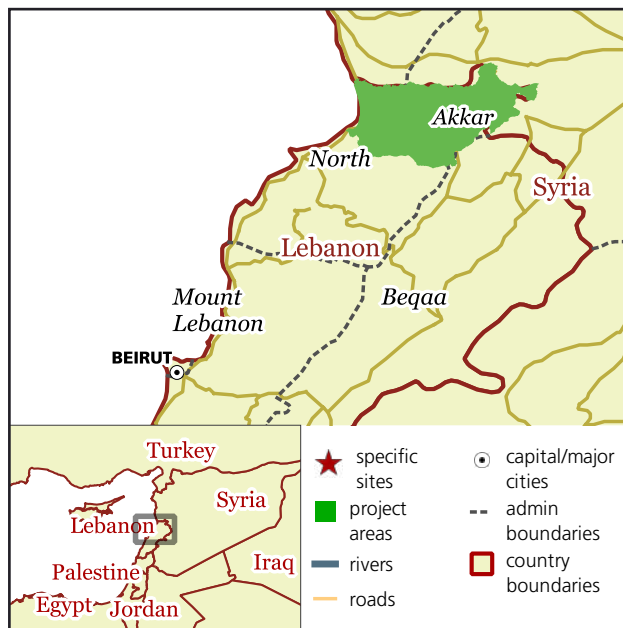
Community acceptance of such a large influx of people is critical to minimise insecurity, evictions and further displacement. The organisation has completed a research project to see how livelihood interventions can be integrated to strengthen social cohesion.

# A.15 Lebanon – 2013 – Syria conflict

## Case study

**Keywords:** Emergency shelter; Housing repair and retrofitting.

- Emergency:** Syria crisis, refugees in Lebanon.
- Date:** Conflict begins: March 2011 (ongoing). December 2012: over 100,000 Syrian refugees in Lebanon.
- People affected:** Total: over 3.1 million refugees. Lebanon: over 1.1 million (Oct. 2014)
- Project location:** Kherbet Daoud and Machha in Akkar Governorate.
- Beneficiaries:** 1,987 individuals (398 units).
- Outputs:** 10 collective centres.
- Occupancy rate:** Each centre is fully occupied.
- Shelter size:** Buildings are 1-3 storeys high and the average partitioned room varies from 20m<sup>2</sup> to 25m<sup>2</sup>. The average number of rooms per floor is 20.
- Cost:** Conversion costs between US\$ 1,500-3,000 per unit. Running costs (utilities) approx. US\$ 70 per unit/month, plus 7% organisational overheads.



### Project description:

The main organisation aimed to increase overall shelter capacity by paying for the conversion of large buildings into collective centres, some of which were already being squatted by refugee families.

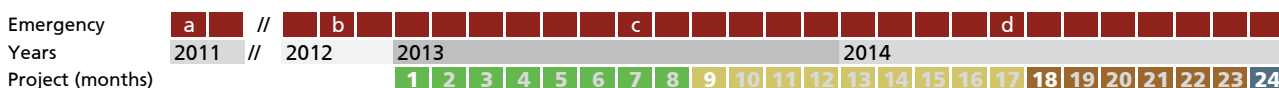
Since the buildings had been used previously as chicken farms, they had to be disinfected and re-developed to meet minimum shelter standards. Landlords waived rent to the value of the conversion costs, and contracts will be renegotiated once the period of free rent comes to an end.

### Emergency timeline:

- [a]** March 2011: Syria conflict begins. **[b]** 100,000 refugees. **[c]** 500,000 refugees. **[d]** 1 million refugees.

### Project timeline (number of months):

- [1]** January 2013: Project planning begins.
- [9]** Phase 1 - buildings identified and disinfected, beginning of conversion.
- [18]** Phase 2 - continued conversion.
- [24]** December 2014: Planned project end.



### Strengths

- ✓ An innovative approach to increasing emergency capacity when camps not an option.
- ✓ Management of rental contracts by the implementing partner ensured refugees were protected and local authorities were involved in the process.
- ✓ The project worked in parallel with an organisation developing agricultural livelihoods to benefit both host and refugee communities.
- ✓ The living conditions of families already squatting in the farm buildings were greatly improved.
- ✓ The project injected funds into the local economy.

### Weaknesses

- ✗ Beneficiaries expressed initial reluctance to live in converted chicken farm buildings, stating a preference for cash-for-rent solutions.
- ✗ There was a low risk that disinfection was not always

completely effective, though no traces of post-rehabilitation infections have been found to date.

- ✗ Rehabilitation is relatively expensive and, due to high maintenance costs, these types of collective centres are only cost-effective if they last for at least three years.
- ✗ A high-density living arrangement has potential to give rise to conflicts or disputes. The project will require strong ongoing management to deal with emerging issues.
- ✗ There have been limited livelihoods opportunities in the project locations.

### Observations

- In Kherbet Daoud, the local village population was concerned about the impact of large numbers of refugees on public services and jobs.



**A building before rehabilitation.**  
The project demonstrated that small settlements can be developed, as one of several shelter alternatives to camps.  
Photo: Nicholas Winn/Concern Worldwide Lebanon

### Situation before the crisis

Public housing in Lebanon is limited, and there have been few significant housing policies to support affordable housing for low-income groups.

Many low-income families live in the peri-urban areas of large cities, where housing quality is low and construction often involves circumventing building regulations. Buy-to-let is common, and real estate speculation is a major market.

Scarcity of land approved for building has led developers to select unregulated areas. The rental market in these areas offers little protection for tenants. Wealthy families buy supplementary water and electricity services from private operators; those relying on state services often face blackouts or shortages.

### Situation after the crisis began

By October 2014, registered Syrian refugees made up 25% of Lebanon's population. This has had a dramatic impact on the overall demand for housing in the country.

While around 80% of refugees continue to rent, the pressure on the rental market, coupled with refugees' diminishing resources, means that increasing numbers of refugees are resorting to insecure dwellings; for instance, the number of refugees living in unfinished houses and

garages increased from 29% to 40% between August 2013 and March 2014. Furthermore, the majority of Syrian refugees lack security of tenure in their housing arrangements and are facing an increased risk of forced-evictions as the crisis wears on.

### Shelter strategy

The Government of Lebanon has not normally sanctioned the development of refugee camps, partly due to the experience of refugee camps established in Lebanon following the 1948 Arab-Israeli war becoming permanent settlements.

Consequently, the rehabilitation of houses and collective shelters remains a priority intervention in the absence of other solutions.

Priority is given to shelter interventions categorized as life-saving (around 55% of the Syrian refugee population meet this criteria). Types of interventions include:

- Rehabilitating apartments and houses to raise shelter standards.
- Cash-for-rent and cash for host families to offset financial burdens on refugees.
- Weather-proofing of informal settlements and unfinished houses.

- Site improvements in informal settlements, mainly to improve drainage in flood-prone areas.

- Pending support from government and local municipalities, establishment of formal settlements of approximately 20 families.

The strategy for collective centres includes:

- Continued rehabilitation of public and private buildings. With limited availability of public buildings, greater emphasis is placed on rehabilitating privately-owned buildings.
- Collective centre management to address problems such as solid waste management and electric power consumption, as well as to intervene when conflicts or disputes arise.

Shelter interventions have been designed in consultation with beneficiaries, especially women (a quarter of refugee families are female-headed households) and should contribute to the development of the local economy.

### Project implementation

In assessing the potential for the conversion of buildings into collective centres, the agency found a number of refugees living in disused chicken farms paying around US\$ 67 per month per household.

In total, 10 empty or disused chicken farms were identified for rehabilitation. The cost of rehabilitation plus paying rent for each family for three-to-five years was found to be significantly cheaper than the current market rate offered by many landlords for normal rental accommodation.

There were several advantages to rehabilitating the farms, including:

- Accessibility from key border crossings, facilitating any influx of refugees.
- The potential for associating several buildings together to be used as a transit centre.





Rehabilitation included the provision of infrastructure such as external solar-powered lighting. Photo: Nicholas Winn / Concern Worldwide Lebanon

- Structures which allowed for an easy partitioning process.
- A good mix of private and communal space.
- Ground-floor access for the disabled.

The main organisation covered the costs of the rehabilitation. A contract was drawn up with the landlord, who agreed to waive the rent for refugees at a rate of US\$ 150 per household per month for a defined period, usually 12 months. The total value of the waived rent was equivalent to the rehabilitation costs.

For example, if the rehabilitation of a 40-unit building cost US\$ 72,000 then the landlord would agree to waive the rent for 40 families for 12 months at US\$ 150 per month ( $40 \times 12 \times 150 = 72,000$ ).

The disinfection process was executed by a Lebanese company with international experience in industrial cleaning.

Rehabilitation, including partitioning into family-sized apartments, was then executed by local entrepreneurs or the landlords themselves, under the supervision and monitoring of the implementing partners and the agency.

The project budget included the management and running costs of the collective centres for one year. After the main agency had managed the conversion process,

the implementing partners took over the day-to-day management of the centres.

Shelter management committees were formed in each of the collective centres and their membership ensured representation of women and minority groups.

Once the period of waived rent is over, a new contract can be negotiated, with several possible scenarios:

- The building is returned to the landlord and refugees are relocated.
- The landlord agrees to further improvement of the building. The agency covers the additional costs and a new period of waived-rent, equivalent to the value of the works is agreed to.
- The landlord rents directly to the refugees, and the implementing partners are no longer responsible for management or maintenance.
- A new contract is agreed between the landlord and the implementing partner. The main agency and implementing partner remain responsible for maintenance, management and subsidising rent.

### Beneficiary selection

Beneficiary selection criteria were developed by shelter organisations involved in the response. Priority was given to the most vulnerable families. A socioeconomic vulnerability assessment included assessment of living conditions, protection risks and other specific needs.

### Coordination

The main agency and the Ministry of Social Affairs (MoSA) regularly coordinated regarding shelter strategy in Lebanon and served as co-leads of the Shelter Sector Working Group.

The conversion of the chicken farm buildings required additional coordination with the Ministry of Public Health, due to the potential health risk, and this approval process took some time.

### Technical solutions

The structures of all of the chicken farms were similar, and ranged from one- to three-storeys. They were built from reinforced concrete (columns and beams) with floors of concrete blocks covered by screed. There were equal distances between the columns, and walls were made of concrete blocks without plaster, with large windows to facilitate ventilation and natural lighting. This meant that each floor could be easily partitioned into shelter units.

The disinfection required technical expertise to ensure that the buildings would meet national regulatory requirements and a specialist company with worldwide experience was identified to carry out the work. The disinfection process involves several stages:

- Dry-cleaning stage, where all organic material such as feed and manure was removed.
- Wet-cleaning stage, where pressure washers were used.
- Drying stage, where the building had to be dried quickly to prevent the growth of bacteria.
- Disinfection stage using chemicals.

Finally, for waste-water management, the project will, in the future, introduce biogas digesters in place of septic tanks.

### Materials

Materials for conversion of the buildings were sourced locally. Partition walls are made of concrete blocks plastered with cement plaster with the option of prefabricated wall panels. Each living apartment was equipped with a fuel stove.

### Wider project impacts

The project is being evaluated and there is potential for its duplication in other regions in Lebanon.

## A.16 Myanmar – 2012 – Conflict

### Case study

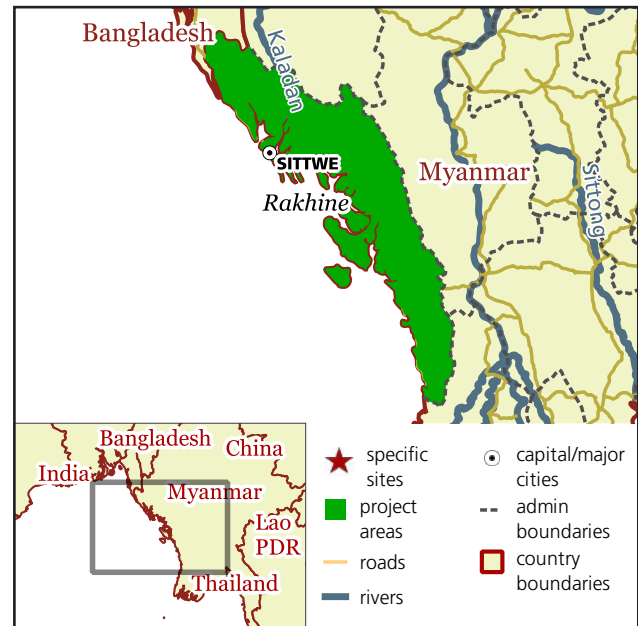
**Keywords:** Emergency shelter; Site planning; Infrastructure.

<b>Emergency:</b>	Inter-communal violence in Rakhine State, Myanmar.
<b>Date:</b>	Early June 2012 and October 2012.
<b>Damage:</b>	8,600 (plus 1,500 public buildings).
<b>People affected:</b>	140,000 displaced.
<b>Project location:</b>	Rakhine State.
<b>Beneficiaries:</b>	140,000 people.
<b>Outputs:</b>	2,843 temporary 8-unit shelters.
<b>Occupancy rate:</b>	99%.
<b>Shelter size:</b>	8-unit building: 45 ft x 30 ft [13.7m x 9.1m = 124.7 m <sup>2</sup> ]. One room: 11.25 ft x 15 ft [3.4m x 4.6m = 15.6m <sup>2</sup> ].
<b>Cost per 8-unit shelter:</b>	Labour and materials: US\$ 4,800 (US\$ 600 per room). Project administration costs: US\$ 700 (US\$ 88 per room).

### Project description:

The project provided temporary shelter to IDPs displaced by conflict until a durable solution could be reached. Shelter was provided in the form of collective shelters, each housing eight families (8-unit buildings) with associated IDP camp infrastructure.

The shelters were constructed by both the main organisation (also the Cluster Lead), its partners in the Shelter Cluster, and the government. Beyond providing temporary shelter, the Shelter Cluster continues to advocate strongly for government provision of durable housing options.



### Emergency timeline:

- [a] June 2012: first wave of violence and displacement.
- [b] October 2012: second wave of violence.

### Project timeline (number of months):

- [1-7] June 2012: First phase of construction - 525 shelters (30,000 IDPs).
- [3] First shelters handed over and inhabited.
- [8-11] Shelter Cluster established. Second phase of construction – 262 shelters (15,000 IDPs)
- [12-18] Third phase of construction by multiple agencies and government – 2,056 shelters (95,000 IDPs).
- [18] Project end.



### Strengths (✓), weaknesses (✗) and notes (-)

- ✓ Following strong advocacy from humanitarian actors and donors, the Rakhine State Government (RSG) participated in a huge scaling-up of activity prior to the rainy season, funding and constructing 45% of the multi-family shelters.
- ✓ The Government was willing to adapt, and sought to respect *Sphere* minimum standards.
- ✓ The main organisation's coordination with the three key government departments resulted in collaborative site-planning, shortening the approval processes for the construction of IDP camps.
- ✓ The project aimed to reduce tensions by supporting both groups equitably and successfully engaging Buddhist contractors to build shelters for Muslims.
- ✓ Shelters used locally available materials.

### Weaknesses

- ✗ During the scaling-up of the project in May-September 2013, bamboo was not in season and the project was forced to use lower-quality materials.
- ✗ It took some time for the RSG to trust and become familiar with the Shelter Cluster system.
- ✗ Coordination with the WASH sector was not ideal; with WASH infrastructure set-up after IDPs had occupied shelters.

### Observations

- Initially the RSG was reluctant to approve land for IDP camp use and for the first six months before the Cluster was activated, only 20% of the target temporary shelter needs were met. There were also many disputes over government compensation of landowners and in a minority of cases the construction of camp infrastructure had to be cancelled.



### Situation before the violence

Rakhine State is the least developed state in Myanmar, characterised by high population density, high malnutrition rates, low income levels, poverty, and weak infrastructure. Conditions are worsened by two cyclone seasons, with associated flash flooding and landslides during the rainy season. There are two main ethnic groups in conflict with each other in Rakhine State. The first are the Rakhine, who are Buddhist. The second call themselves "Rohingya", and are Muslim.

### Situation after the violence

Inter-community violence in parts of Rakhine State commenced in early June 2012 and flared once more in October 2012, resulting in the deaths of 167 people and injuries to 223 people. 10,100 buildings, including homes, churches and public buildings were damaged or destroyed and 140,000 people were displaced (95 per cent Muslim; 5 per cent Rakhine). There were two distinct IDP caseloads: those displaced from urban areas and those from rural areas. The IDP camps in rural Sittwe were home to 88,500 Muslim IDPs (63% of all IDPs) who fled urban areas in Sittwe where they had worked mostly as traders or as porters in Sittwe port, living in slum-like conditions.

IDPs originating from rural areas were generally displaced only a small

distance from their original villages, where the quality of shelter was sub-standard. As part of the initial emergency response, the RSG distributed tents in rural Sittwe but the stock, residual from the 2010 Cyclone Giri response, was quickly exhausted. The main organisation distributed tarpaulins, rope and approximately 5,500 tents following the second wave of displacement.

### Shelter strategy

Within a month of the first wave of the conflict in June 2012, the Union Ministry for Border Affairs published a shelter response plan targeting 7,110 households displaced from areas within urban Sittwe. The shelter response plan mirrored the emergency shelter response implemented previously in Kachin State by constructing communal shelters (30ft x 45ft), each with 10 family units. While this plan was being developed, the RSG constructed 235 temporary 10-unit shelters (37 for Rakhine IDPs and 198 for Muslims). The main organisation planned to build 300 shelters, but as construction started the RSG halted its own efforts and called on the international community for shelter assistance.

By the end of 2012, 525 temporary shelters, covering the needs of approximately 29,000 IDPs, had been constructed. In the first few months of 2013, it became clear that immediate return to place of origin was not possible on security grounds.

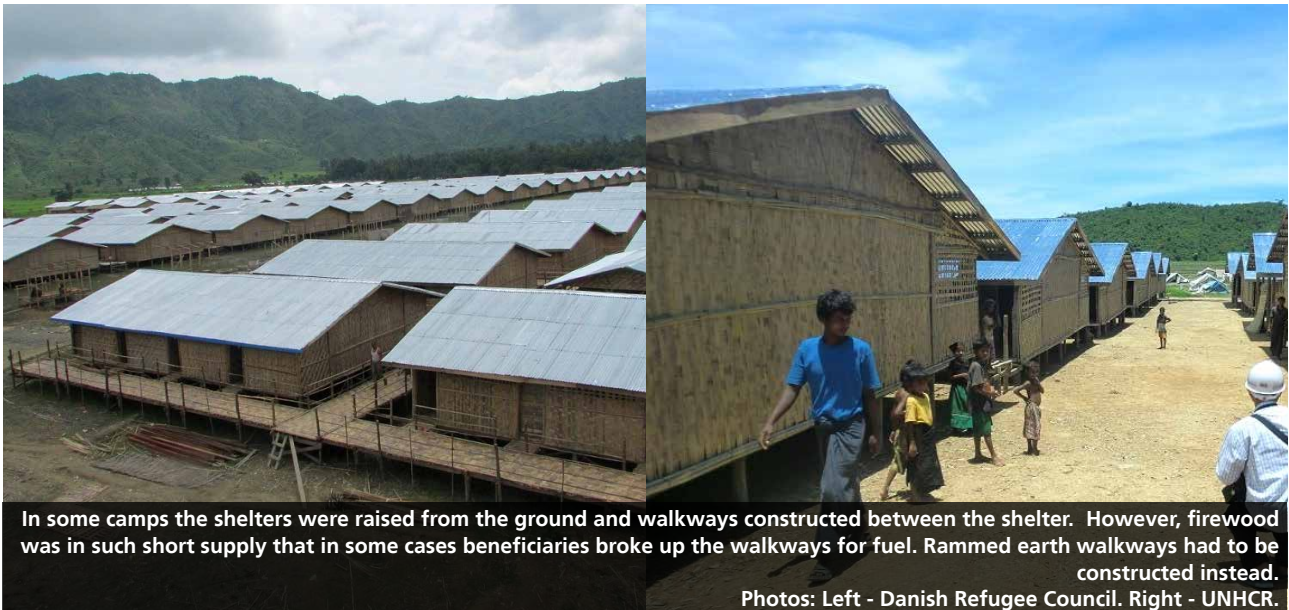
With the oncoming rainy season, and an average rainfall of three to four metres in as many months, providing improved temporary shelter to the remaining case load of tens of thousands of IDPs became urgent. The situation was chronic.

During this second phase of construction, the main organisation and its partners managed to construct just 262 additional shelters, well below the pace needed to provide temporary shelter to meet the needs of all 140,000 IDPs scattered across ten townships in Rakhine State, before the rainy season arrived.

In April 2013, the main organisation, which also led the Shelter Cluster, joined a high-level delegation to Rakhine State in April 2013, which included the ambassadors of several donor countries and national ministers. The delegation was critical in clarifying the maximum capacity of the international community and persuading the RSG to contribute to the shelter response.

Following the delegation, the decision was taken to scale-up shelter construction on a massive scale and to ensure that adequate shelter was provided for all displaced groups. The RSG achieved an extremely rapid construction pace and by November 2013, temporary shelter had been constructed for 99% of all eligible IDPs across all affected townships of Rakhine State. Of the 2,843 temporary shelters, 45% were constructed by the RSG, and 30% by





the main organisation and its implementing partner. The remaining 25% were constructed by the other eight Cluster members.

One potential donor was initially critical of the strategy of segregating the two communities, believing this would lead to a permanent divide, despite its life-saving necessity.

Noting the extreme dilemma faced on whether to build temporary shelters or not, all key discussions, decisions and by whom were systematically recorded and remain publicly available via the Cluster's website to ensure accountability and transparency.

### Project implementation

Shelters were constructed by hiring local building contractors that had been approved by the RSG. Contractors hired IDP labour (skilled and unskilled) where possible, to ensure cash injections into the fragile micro-economies evolving in the IDP camps. Workers were paid at the standard government rates. Site planning was conducted by the main organisation in collaboration with three government departments.

In the first two phases of the response, the availability of suitable land was a major restriction to progress, with many sites rejected for security reasons. Following the April 2013 delegation, land was made available with a compensation package organised for landowners.

Although the vast majority of beneficiaries were rehoused in the communal shelters by November 2013, some smaller groups refused to take up occupancy, remaining in their makeshift shelters. This was particularly true for the Kaman Muslims living in rural areas of Sittwe. Analysis suggests they used the issue to distinguish themselves from the Rohingya Muslims.

As well as the communal shelters, camp infrastructure was also built. Maintenance and repair programmes were then implemented, primarily through partners in the CCCM Cluster, a Cluster also led by the main organisation. This ensured a community-driven approach. The provision of toolkits to beneficiary families, however, was rejected by the RSG who feared that they would be used as weapons.

### Beneficiary selection

In the 2013 Shelter Cluster strategy, commitments were made to provide temporary shelter to all eligible IDPs. However, eligibility was strictly controlled by the RSG which has never produced clear criteria for entitlement, and during construction only the General Administration Department (GAD) knew which group of IDPs would move in, making planning very difficult.

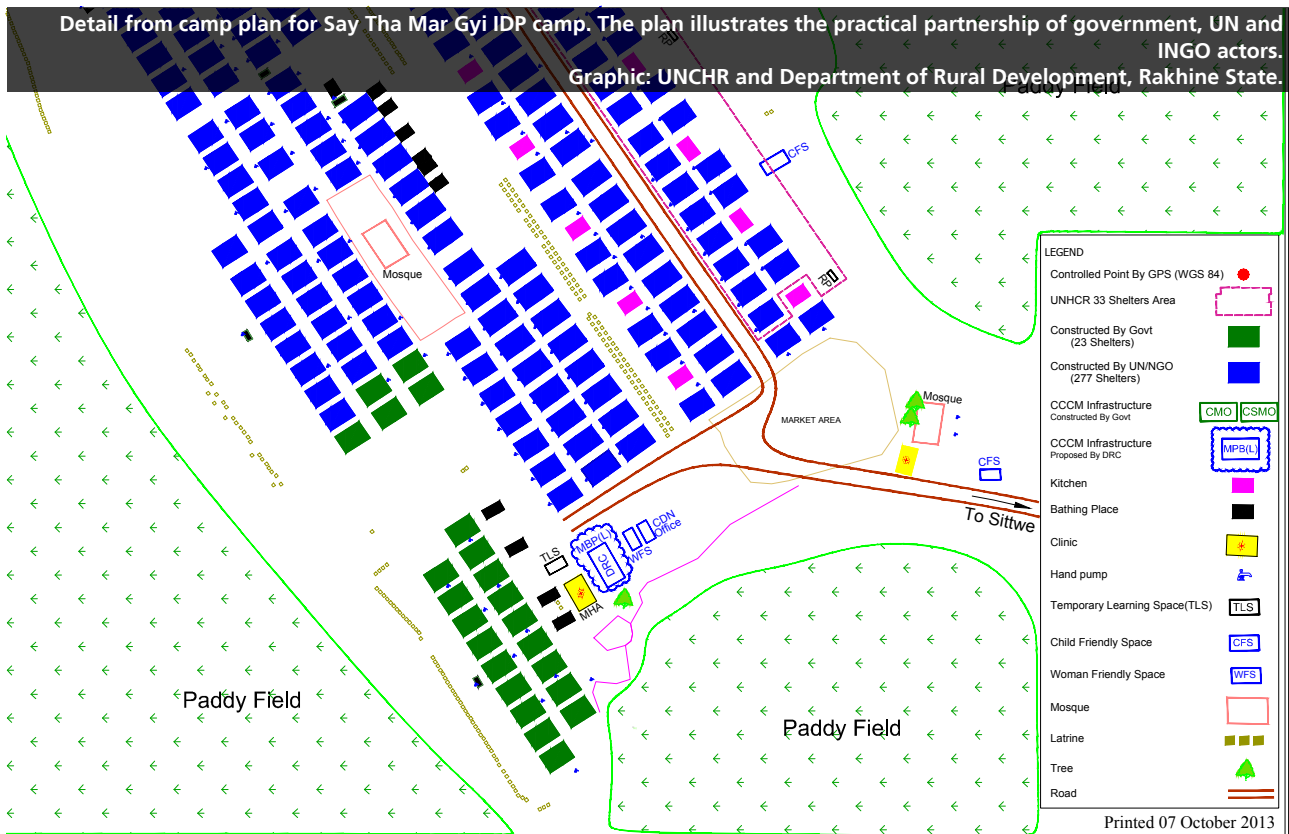
### Coordination

The Shelter and WASH Clusters were supported by an RSG State Minister and the main organisation, in its role as Shelter and CCCM Cluster leads, was able to develop strong personal and professional relationships with the key partners: the Department for Rural Development (DRD), the General Administration Department (GAD) and the Land Records Department (LRD). Joint site-planning activities created an opportunity to improve on the previously poor level of coordination between government departments and international organisations. A technical working group also provided the opportunity for all partners to contribute to the development of minimum standards.

### Design

The initial design used by the RSG was based on shelters used in an emergency response in Kachin state. These shelters were 30ft x 45ft, providing 10 family units at around 12.5 m<sup>2</sup> per unit. As the average family was around 6 people the living space was only around 2m<sup>2</sup> per person. The main organisation advocated for the shelters to meet the *Sphere Project* indicator of 3.5m<sup>2</sup> per person, by reducing the number of families in a shelter from ten to six. In the end, a compromise of eight families per shelter was reached. It was imperative that the shelters





were temporary in design and all structures, with the exception of the roof sheets, were built with local and degradable materials.

**Disaster Risk Reduction (DRR)**

The technical design drawings, estimates and specifications of the temporary shelter were shared with headquarters for clearance of its DRR components. Wooden bracings and twisted steel plates were added to the roof framing to resist high winds. Walls and floors were also reinforced with proper wooden bracings or joists. In camps located in paddy fields or low lying areas, the floor elevation of the shelters was increased by 1ft (from 2ft to 3ft) so as to mitigate against the risk of flooding.

**Materials**

The materials were mainly sourced within Rakhine State. As the best weavers of bamboo matting were to be found in the IDP population, much of the walling and floors were prefabricated in rural areas of Sittwe, and then delivered to the remote townships. The responsibility for sourcing of materials was outsourced

to the contractors, but some did not follow state guidelines for the use of legal timber. This caused conflicts, though as the responsibility for procurement was out of the main organisation’s hands, this issue remained between the RSG and the contractors themselves.

**Wider project impacts**

The constructive relationship with the RSG is considered to be a major and significant success of the project. Without the government’s input, almost half of all IDP shelter needs would not have been met before the rains arrived.

From the beneficiaries’ point of view, the temporary shelter design does not take into account the cultural need for women to bathe and cook within their shelters. This, together with congested conditions, has meant there is less sense of ownership of the structures and many have rapidly deteriorated. However, given the sensitive political situation, it was imperative that the shelters were designed to be and remain temporary, and that durable solutions are to be found in the future.

**Bill of Quantities for one 8-unit shelter**

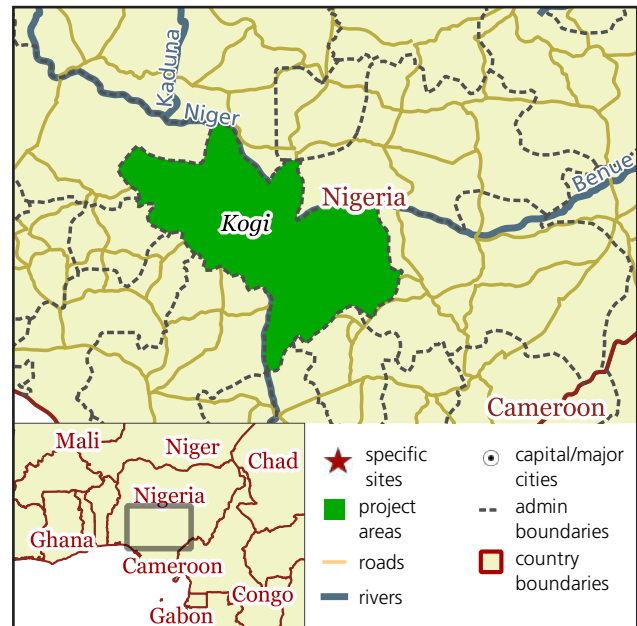
Item	Quantity
Myaw posts (4" dia.- 6" dia.)	35 pcs
Myaw posts (2" dia.- 4" dia.)	215 pcs
Timber scant (local hardwood)	1.74 tons
7' 32G CGI sheets (roof cover)	162 sheets
GI plain sheet (2' wide) for ridging	56ft
Wire nails	30 kg
Bamboo (seasoned/dry)	2,345 pcs
Dahnee/nipa	820 pcs
Roofing nails (umbrella nail)	12 kg
Nylon rope	15 coils
Plastic rope	5 coils
Twisted steel plate (min. 1/16" thick x 1" x 6") with screws	15 pcs

## A.17 Nigeria – 2012 – Floods

### Case study

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

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



### Emergency timeline:

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

### Project timeline (number of months):

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

[5] Recovery project implementation begins.

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

[8] Material procurement and construction begins in Odogwu.

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

### Project description:

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



### Strengths

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

### Weaknesses

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

## Situation before the disaster

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

## Situation after the disaster

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

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

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

## Shelter strategy

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

## Project implementation

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

The project had three main components:

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

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

promotion activities and the construction of latrines.

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

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

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

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

## Construction

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

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

## Training

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

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

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



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

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

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

## Beneficiary selection

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

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

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



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

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

### Coordination

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

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

### Shelter design

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

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

#### *Mozum Ose and Ozahi communities*

The permanent shelter design provided an 18m<sup>2</sup> covered living area, with walls to be completed by beneficiaries.

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

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

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

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

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

#### *Odogwu community*

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

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

In-between the two phases, the beneficiaries built up the walls between the columns using a frame of wooden poles and bamboo plastered with mud. The final covered living area is 27 m<sup>2</sup>.

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

### Disaster Risk Reduction (DRR)

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

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

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

The project's DRR messages needed to be communicated to



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

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

### Materials

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

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

### Wider project impacts

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

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

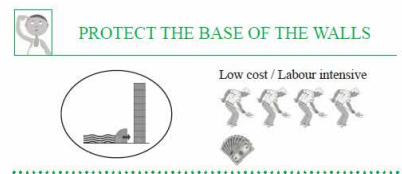
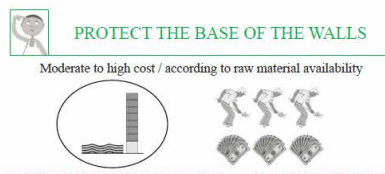
**The technical partner's recommendations for integrating local resources in shelter projects included the following:**

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

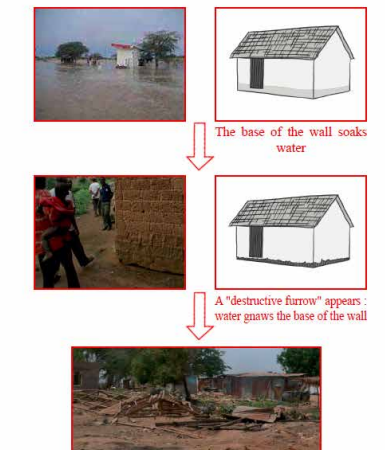
- Pay attention to economic accessibility issues, so that the greatest possible number of people can afford to duplicate the approach.
- Integrate the reinforcement of local capacities and competences by working with local training institutions to ensure a long term impact.
- Make sure that the funds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

**Bill of Quantities**

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



**1 RISK REDUCTION FOR MODERATE FLOODS**



**AVOID THE RISK OF WATER RAISING**



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

## A.18 Pakistan – 2010-2014 - Floods - Overview

### Overview

**Emergency:** Repeated flooding in Pakistan.

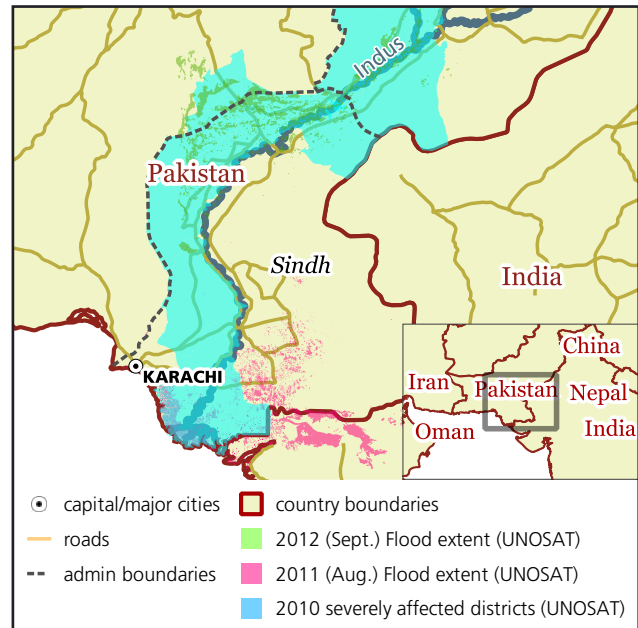
**Date:** July 2010 onwards

**Damage:** Since July 2010 over 2.5 million homes are estimated to have been damaged or destroyed.

**People affected:** Tens of millions of people have been affected since 2010.

### Summary of emergency:

Since 2010, annual monsoon rains have been extreme, unpredictable, and unprecedented in recent memory. Intensive agriculture and deforestation, together with poor building practices have greatly increased the risk of flooding and the vulnerability of millions of people.



### Emergency timeline:

- [a]** July 2010: Flooding affects 20 million people (a fifth of Pakistan's surface area is submerged) and over 500,000 houses damaged.
- [b]** September to October 2011: Flooding affects 8.9 million people. 1.5 million homes damaged.

- [c]** September 2012: Flooding affects 4.85 million people. 640,000 houses damaged. 140,000 people living in relief camps.
- [d]** August 2013: Flooding affects 1.5 million people, almost 80,000 houses damaged.
- [e]** September 2014: Flooding affects 2.5 million people and 100,000 houses damaged.



### Country background

Pakistan ranks 145 out of 187 on the 2011 Human Development Index (HDI), female literacy is among the lowest in the world (3% in some areas), whilst chronic malnutrition affects almost half of children under five years old in Pakistan.

### Emergency

In the flatter, less mountainous plains of southern Pakistan the ground water table is high. Floods usually occur during the summer rice season when fields are already saturated.

Flood waters can remain stagnant for months, damaging infrastructure and homes, preventing return and recovery, and also impacting agriculture, employment and food security.

In the first days of the emergency, people often seek shelter on raised bunds that are normally used for roads, or else in any available public building.

### Impact

People who were already physically and economically vulnerable, have been hardest hit by each flood and coping capacities have been gradually worn down as in some cases recovery is halted by a new flood.

The worst affected areas have been northern Sindh, southern Punjab and eastern Baluchistan, home to around 10 million people.

### Shelter strategy

The National Disaster Management Agency (NDMA) was the formal lead of the Cluster. The NDMA has been the government agency in charge of government disaster response and planning since 2007. Whilst challenges were recognised in planning vertically between levels from national to regional to local, at the local government level District Disaster Management Agencies (DDMAs) there was significant

cooperation and a process for the approval of works and support of partners, mirroring the de-centralisation of the Cluster coordination process itself.

The Shelter Cluster has focused upon the implementation of low-cost, timely shelter construction.

Supporting shelter reconstruction on such a large scale has been challenging in terms of coordination, quality control and collaboration with local Government. The Shelter Cluster has led with several initiatives:

#### Local "sub-district" co-ordination

Co-ordination has focused upon mapping actors at the village level. The Shelter Cluster initiated "District Focal Points" - NGOs who were given a small grant for transport and staff to constantly liaise with and monitor progress of different shelter partners. This was fed back to the Shelter Cluster but also to the district

Government offices, thus enhancing support and acceptance of this work by local authorities.

### **Temporary Settlement Support Unit teams**

These teams constantly travel around the various shelters (temporary, institutional or otherwise) and provide regular reporting on outstanding needs and return progress.

Assessment of Coping Capacities in Return Areas (ACCRA) also helps to provide a multi-sector overview of needs and gaps in return communities.

### **Technical aspects**

Following the 2010 floods, then the largest humanitarian disaster on record, the immediate priority was to deliver temporary shelters to millions of people across five provinces – an enormous logistical challenge. As this transitioned into return and recovery mode, shelter cluster members focused on a strategy for early recovery, including:

- Brick and cement-mortar foundations, continuing up to window line as the main flood-resistant design element. (This assumed reliance on specialist builders / masons).
- Dissemination of basic “how to” information on flood resistant elements to improve protection for houses
- Federal Government distribution of an unconditional cash / compensation grant of up to US\$ 800 for flood affected families to support recovery. This was by far the largest investment to date in recovery of any sector, costing almost US\$ 1bn of Government/donor funding.

By mid-2014 – and two major floods later – the overall strategy has been adapted. The leadership of the Shelter Cluster for the majority of this time has rested within one agency, and collective learning about the context of housing and livelihoods in the vulnerable communities, traditional architecture and community

resilience and the impact of energy-intensive materials on the local and global environment has all fed into the strategy.

The latest strategy now includes:

- Research in traditional and local vernacular building designs and materials, adapted and improved to achieve flood-resistance. This has also minimised negative environmental impacts where possible.
- More emphasis on community-based training for enhancing the capacity of people to rebuild their own homes, reducing reliance on external masons or builders.
- Conditional cash transfers to beneficiaries in tranches triggered when pre-agreed components of shelters had been completed to an acceptable standard; leaving much of the management and ownership of the process in the hands of the beneficiaries.

To further support the transition from emergency to recovery, emergency shelter kits have been improved:

- Materials are re-used as roofing elements in the more durable, flood-resistant house built when return has been possible.
- A versatile “roofing kit” includes up to 20 bamboo poles, one steel beam and two plastic sheets for a structure larger than a tent.
- A solar light is included to increase a sense of security and safety at night.

The combined response reached over 200,000 homes between late 2010 and mid-2014. Though this is impressive, it represents only around 10% of the total number of homes destroyed by flooding over that period. Most of the remaining 90% have rebuilt basic shelters using materials or methods that still leave

them highly vulnerable to future floods.

### **Funding considerations**

Cutting the costs of individual houses has been achievable by shifting away from fired bricks and cement towards traditional architecture, mud, clay and lime based construction. The cost of an average house construction – including agency support and overhead costs – has been reduced from around US\$ 1,200 after 2010 floods to just over US\$ 500 in the 2011 and 2012 responses. This, multiplied across the 100,000 durable homes constructed or underway equals an overall “saving” of almost US\$ 70 million. This “saving” has resulted in reaching more than twice as many people for the same investment.

### **Looking to the future**

While major cost savings and carbon reduction strategies can be applauded, the very notion of flood resilience in shelter needs some level of certification. As global climates are changing and natural disasters like floods in Pakistan are increasing in frequency and intensity; it is vital that we agree on strategies and designs for what constitutes a flood resistant shelter.

There has yet to be an independent analysis of the physical capacity of reconstructed homes to resist intense rain or prolonged immersion in water, and this is a crucial technical issue to study.

In September 2014 another flood has devastated thousands of homes across both Pakistan and India. Four years after the “mega-flood” of 2010, in the face of this predictable natural hazard, homes are still collapsing. This need not be the case, as we have learned through our shelter projects over these preceding years of flood and recovery.





An example of an emergency roofing kit which will later be used for a transitional shelter then again for the roofing elements of a permanent flood resistant shelter.  
Photo: Magnus Wolfe Murray



The second, transitional stage in the life of a roofing kit. This temporary hut, lived in for about a year, will be dismantled and the roof will be used for a permanent house. This saves around US\$ 111 from the cost of the new shelter.  
Photo: Magnus Wolfe Murray

Two different types of shelter: in the foreground, an unfinished, square, flat-roof house with compound bamboo ring beam on top of the walls. To the right, a round house (known locally known as "chulla"). This was the first time people in this village had constructed permanent shelters.  
Photo: Magnus Wolfe Murray



Sangar district, Southern Sindh, December 2013. Lime stabilised mud brick foundations and walls. Flood resistant with pitched, not flat, roof.  
Photo: Magnus Wolfe Murray

An important part of securing community confidence in new techniques: testing the durability of lime-stabilised soil blocks tunder water. These blocks had been in this bucket for about 6 months, so the community was confident that the materials would be flood-resistant.  
Photo: Magnus Wolfe Murray



## A.19 Pakistan – 2012 – Floods

### Case study

**Keywords:** Transitional shelter / T-shelter; Cash / vouchers; Site planning; Training.

**Emergency:** Monsoon floods, 2012, Pakistan.

**Date:** 7-11 September 2012

**Damage:** Approx 635,000 homes damaged or destroyed in total. Approx. 145,000 houses destroyed in Jacobabad.

**People affected:** 4.85 million people were affected by the floods, with around a fifth of those affected living in Jacobabad (940,000 people).

**Project location:** Jacobabad district, Sindh.

**Beneficiaries:** 4,970 households (31,002 people).

**Outputs:** 5,167 shelters by mid-2014 (some families received two kits). 77 villages site-planned.

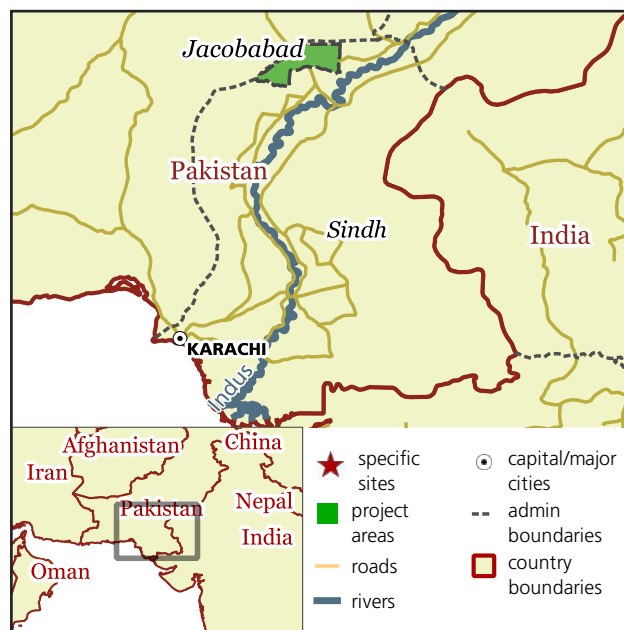
**Occupancy rate:** 100%.

**Shelter size:** 12ft x 19ft (21m<sup>2</sup>) housed a family of six to *Sphere* standards.

**Cost per shelter / household:** Materials and labour: US\$ 380. Total costs: US\$ 748.

### Project description:

Flood-affected families were supported with 5,167 transitional shelters in areas where the organisation was already present. The shelters conformed to *Sphere* standards and were built in three rounds of construction. They were quick to build and incorporated key DRR elements. Village site-planning was introduced in the third phase of the project.



### Emergency timeline:

**[a]** 7-11 September 2012: monsoon flooding.

### Project timeline (number of months):

- [1]** November 2012: Round 1.a (registration, committee formation).
- [2]** Round 1.b (materials distribution and construction).
- [3-5]** Round 1.c (grant and transport payments. 2,235 shelters complete).
- [6-8]** Round 2 (1,922 shelters).
- [12-15]** Round 3 (408 shelters). First inclusion of site planning as activity.
- [16-18]** Round 4 (602 shelters).
- [19 ongoing-]** Project ongoing until mid-2015 with plans for 2,000 additional shelters.

Emergency

Years

2012

2013

2014

Project (months)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

### Strengths

- ✓ The construction of a demonstration shelter facilitated community feedback, which resulted in improvements to the design, such as larger verandas.
- ✓ Using local knowledge and materials meant shelters were quick to build, low cost and culturally appropriate. Raised-earth plinths greatly improved flood resistance.
- ✓ Good communication and feedback mechanisms.
- ✓ Village site planning had many positive impacts, including reducing standing water, establishing an evacuation plan, and improving WASH facilities.
- ✓ The use of portable transitional shelters meant that beneficiaries knew they could take such a high-value

asset with them should they face eviction.

- ✓ Involving women in site planning was challenging due to cultural barriers. To mitigate this, all-female groups provided feedback on all-male original plans.

### Weaknesses

- ✗ Site planning could have been made a standard part of the response for all villages from the start of the project.
- ✗ Site planning activities were difficult to manage if the number of households involved was less than five or more than 15.

### Observations

- Tribal conflict is endemic in the area, which sometimes limited access.



Saeedabad village, Jacobabad before the site had been re-planned. The new plan would result in moving shelters away from electrical wires and poor drainage areas and creating better footpath access around the site.  
Photos: PO Tasleem/CRS



Community site planning involved using small models of houses and infrastructure to help design a new village layout.  
Photos: FE Altamash/CRS.

### Situation before the disaster

Before the flooding, people were mostly living in houses constructed out of mud brick, which are prone to collapse during heavy rains and/or flooding.

### Situation after the disaster

After the 2012 floods, affected communities resided in tents, emergency shelters or were living under the open sky. After repeated flooding over several years, communities were reluctant to rebuild mud houses as the investment of time and resources risked simply being washed away.

Many people were not able to afford pukka (burned brick) houses, and faced eviction by the landowners at any time. This has meant that most people had been constructing thatch houses that could easily be transported with them if they were forced to move.

### Shelter strategy

The Government of Pakistan established the National Disaster Management Authority (NDMA) in August 2007 to take the lead in the response to emergencies and disasters, with responsibility for preparedness, response and reconstruction.

The NDMA is intended to play a coordinating role, working with INGOs and NGOs, and is responsible for communicating government

policy for implementation on the ground.

The Shelter Cluster has focused upon the implementation of low-cost, timely shelter construction.

### Project implementation

The project adopted a self-help approach, and was implemented in partnership with a local organisation, with the main organisation providing technical guidance and monitoring the field activities. The project team was made up of four main organisation staff and ten local partner staff.

The intervention was carried out in small clusters of villages at the same time, with the clusters all being located within the same Deh (smallest administrative unit). The Dehs were prioritised in terms of need, with those with the greatest need receiving support in the first of three rounds of construction.

A demonstration house was built in each community as a training aid.

Communities identified individuals best suited to construction training and if no suitable person could be found a carpenter was brought in from the surrounding area to support them. A one-day training was provided for the carpenter, under the supervision of a field engineer.

The trained carpenters built the core of the structures and were paid 1,000 Pakistani Rupees (PKR) per shelter (approx. US\$ 10). The community provided the unskilled labour required to complete the shelter (mud plastering, plinth construction), with those households

who were unable to contribute any labour for their shelter given PKR 600 (US\$ 6) to pay for two days of labour.

Each household received a voucher worth US\$ 375. Suppliers were identified to provide materials that could be redeemed against the vouchers provided, and each supplier's warehouse acted as a distribution point. Beneficiary families also received PKR 600 (US\$ 6) for transporting the materials. By managing the construction of their own house, families had a strong sense of ownership of the process and tailored the design to their own specific needs,

The project also included a strong feedback mechanism, which involved a hotline, complaint boxes and verbal feedback during site visits. All feedback was transferred into a tracking sheet, and responded to appropriately.

### Site planning

Village site planning was introduced in December 2013 during the third round of construction and was eventually conducted in about 77 villages (20% of the total number).

Following initial community sensitisation about the project, each village was mapped, with key hazards and communal facilities identified. As many participants were illiterate, small models of handpumps, shelters and houses were used in the mapping process.

In some communities, due to social barriers, women in the community were excluded from the first round



Building shelters on a raised plinth is one of the most effective ways of reducing damage to shelters during flooding. Drainage ditches were dug with stone or earth curbs dug around the perimeter of shelter to divert rainwater away from the house. A small number of non-beneficiary households replicated the technique when building their own houses. Photos: FE Altamash/CRS.

of planning, where male representatives of every family made the initial settlement plan on large sheets of paper. In these cases, women's committees were established to ensure equal decision-making between men and women. Women's committees also provided a safe environment for women to freely express their opinions.

During the planning exercise the Social Mobiliser ensured that representatives of every beneficiary family were present and that any land dispute issues were raised and solved. The mobiliser also addressed issues such as security and privacy concerns, which were particularly important in villages where there were a number of different social castes living together.

### Beneficiary selection

The organisation worked on the provision of shelters in one Union Council at a time. A Union Council (UC) is a small administrative unit, often known as a village council in rural areas. Those UCs that were most flood-prone were prioritised.

Within each UC and village, vulnerable households were identified in collaboration with community committees, according to a set of vulnerability criteria. This community-led process reduced conflict and disputes over who received assistance.

The project targeted households whose homes were completely destroyed or very badly damaged, and checks were made to make sure that families were not in the receipt of shelter assistance from another

organisation. Families also had to be willing to provide labour for the construction of the plinth and plastering of the walls.

Beneficiary registration was made on portable tablet computers which sped up the registration process and facilitated quick analysis of the data.

### Coordination

The organisation was active in the Shelter Cluster and coordinated with government agencies and other NGOs in order to adjust targeting to collectively achieve blanket coverage of the area, and avoid any duplication of efforts.

### Materials

The only unfamiliar construction material introduced was the poplar pole. This was accepted by the communities without any problems.

The final bill of quantities was determined by the organisation's global shelter technical advisor, following the construction of a pilot shelter.

A market assessment based on the list of materials was conducted with local vendors in October 2012,

in order to determine if there was sufficient quality and capacity for manufacturing in Pakistan to supply all the materials.

Organisation logisticians selected vendors based on site visits to the suppliers to check the quality of the materials. Materials were mostly trucked from Punjab since local materials were of low quality and not in sufficient quantity.

A just-in-time approach to procurement was necessary to avoid having large warehouse stocks of bamboo vulnerable to water damage during the monsoon season.

### Disaster Risk Reduction (DRR)

#### *Village site planning*

The organisation introduced settlement planning to communities in order to support them to develop their villages into disaster-resilient settlements. When families had selected their shelter site individually, it had often been done haphazardly and without coordination. By leaving narrow pathways between shelters, the walls became more susceptible to rain draining off from neighbouring roofs, and people had more difficulty evacuating quickly with their livestock and assets.

Some shelters had also been built far from water sources, and some had verandas which were oriented southward, limiting their protection in the summer.

As a condition for participating in the project, families were supported

**"We constructed our shelters according to our village settlement plan and now our animals and property are more safe and secure from thieves."**

**Beneficiary**



by the organisation to identify safe plots. This included avoiding low-lying areas or areas near steep slopes with risks of landslides, sites next to busy roads, waste dumps or electrical lines, and plots too close to other buildings.

The organisation developed model shelters, hand pumps and latrines, and led settlement-planning exercises with communities to focus on disaster resilience and ensure that village planning accounted for other infrastructure (hand pumps latrines, mosque) as well as various social elements (protection, privacy, security, access).

The communities also considered drainage during flooding, rain water run-off from the roofs, and village evacuation planning. The process engaged both beneficiaries and non-beneficiaries of the shelter materials vouchers.

Wherever possible, planning sessions were attended by men and women. When this was not possible due to cultural reasons, separate feedback was sought from the female community representatives immediately after completing the exercise with the men.

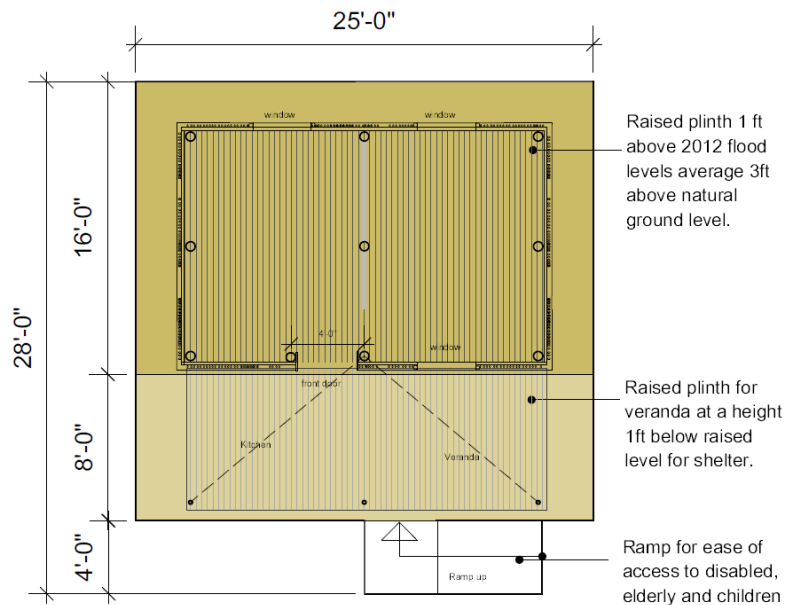
Benefits of the village planning, identified by beneficiaries included:

- Increased security through better visibility of others' plots.
- Greater village cohesion through joint planning.
- Improved communal spaces created a number of new possibilities, including providing an area for shared storage of seed or tools.
- Women, who carry out most of the cleaning duties, reported reduced time needed to keep new shelters and plots clean and tidy.

### Shelter design

DRR components in the shelter design included:

- Anchoring poplar poles for vertical support



Part of the technical shelter design document specifying details for the plinth. Graphic: CRS

elements 2ft. (60cm) below grade, with excavated pits backfilled with stones and/or well-compacted soil.

- Treating the bases of poplar poles with engine oil to protect against rot and insects.
- Vertical structural elements were strengthened by horizontal bamboo beams to create a unified structural system. Diagonal bamboo corner braces attaching the vertical structural elements to the horizontal tie-beams further improved resistance to lateral loads.
- Connections between poplar poles and the bamboo were secured with nails and reinforced with rubber straps. Critical connections were strengthened with GI wire.

### Wider project impacts

Some beneficiaries reported that they will continue to use the lessons they learned in future village developments, and any new families coming to the village will be educated in the advantages of good settlement planning.

Given land tenure issues, many communities appreciated the fact

that they could disassemble the shelter and take it with them in the event of eviction.

### Bill of Quantities

Item description	Qty
Poplars (4in. tops, various lengths)	11 pcs
Bamboos (1" to 2" diameter, various lengths for beams, purlins, rafters and wall supports, including veranda)	95 pcs
Chick Mats for walls and roof	7 pcs
P.E Tarpaulin	2 pcs
Cotton rope	4kg
Nails (various sizes)	2.5kg
G.I (Galvanized iron) wire	4kg
Limestone (20kg bag)	3 pcs
Tools: saw, claw hammer, pliers, wheelbarrow	1 kit per 5 households
Measuring Tape and water level	1 per 10 households
Needle and scissors	1 pc
Polyethene Sheeting 30ft x 16ft, (approx. 9m x 4.5m) waterproof double ply 1.5 mm	1 sheet
Hoe/'Kodder'	1 pc
Polyethene tarpaulin (4m x 6m 80 GSM)	1 pc

## A.20 Pakistan – 2012 – Floods

### Case study

**Keywords:** Core housing / progressive shelter; Cash / vouchers; Training.

**Emergency:** Monsoon floods, 2012, Pakistan.

**Date:** 7-11 September 2012.

**Damage:** Approx. 635,000 homes damaged or destroyed in total, of which over 250,000 in the four districts.

**People affected:** 4.85 million in all provinces. Jacobabad: 940,000 people. Ghotki: 342,000. Shikarpur: 250,000. Qambar Shahdadkot: 250,000.

**Project location:** Jacobabad, Ghotki, Shikarpur and Qambar Shahdadkot districts, Sindh province.

**Beneficiaries:** Target of 14,790 households.

**Outputs:** 5,725 shelters completed and 111,494 villagers trained to date.

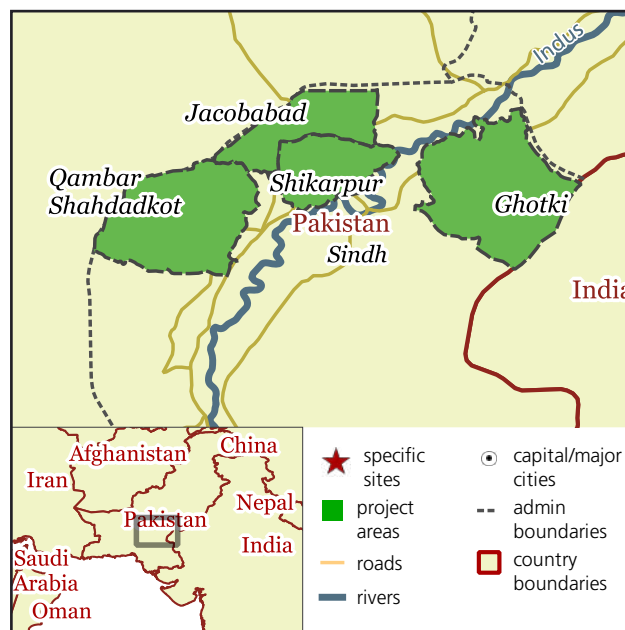
**Occupancy rate:** 100%.

**Shelter size:** 21 m<sup>2</sup> recommended.

**Cost per shelter:** Materials per shelter US\$ 300. Total project cost per shelter: US\$ 514.

### Project description:

The project was a continuation of the previous One Room Shelter (ORS) programme, responding to flooding in 2010 and 2011 (see *Shelter Projects 2010, A.24* and *Shelter Projects 2011-2012, A.22*). While the project followed a similar methodology in terms of construction and DRR training, after the 2012 floods there was a much greater emphasis placed on feedback mechanisms.



### Emergency timeline:

[a] 7-11 September 2012: monsoon flooding.

### Project timeline (number of months):

- [1] Jan. 2013: Planning, fund-raising and identifying implementing partners.
- [7-18] Phase 1 construction in response to 2012 floods. 2,090 houses completed.
- [10-22] Phase 2 construction. 3,635 completed as of September 2014.
- [18-24] Phase 3 construction ongoing.
- [24] Dec. 2014: Target completion date.

Emergency

a

Years

2012

2013

2014

Project (months)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

### Strengths

- ✓ The beneficiary feedback approach employed multiple and complementary feedback channels including a call centre, face-to-face interactions through district level field teams, and monitoring visits. Beneficiaries were updated as to the status of their complaint or enquiry.
- ✓ Feedback has been used to inform and modify project strategy decisions.
- ✓ Telephone communication allowed the project to reach some vulnerable groups when site visits were impractical. The hotline is toll-free.
- ✓ Promotion of the feedback approach has been effective in raising awareness. Posters, stickers and business-cards with key messages have all been used.
- ✓ The service is confidential, which has helped to build trust with community members.

### Weaknesses

- ✗ Some feedback could have been lost if no tangible decision or action had been made, or if it was not recorded correctly.
- ✗ Many women prefer face-to-face communication when seeking information and/or discussing ongoing problems. Despite the advantages of the hotline, usage rates by women are low due to cultural constraints and high illiteracy rates.

### Observations

- Cultural practices that involve the separation of women and men in discussions and decision-making present a challenge for the project's aim of equal participation.

The focus group discussion opened up a new way of communicating with beneficiaries and deepened the project staff's understanding of their situation, needs and ideas.  
Photo: IOM Pakistan.



### Situation before the disaster

The region affected by the floods is among the poorest in Pakistan, with development indicators, including global nutrition rates, already approaching crisis point before the 2010 floods.

After the 2010 floods, which damaged or destroyed approximately 1.8 million houses, the organisation supported affected families to build over 38,000 shelters (see *Shelter Projects 2010*, A.24).

Heavy rains caused flooding again in September and October 2011, displacing an estimated 1.2 million people throughout Sindh and Balochistan. Around 35% of the communities affected in 2011 were also affected by the 2010 floods.

### Situation after the disaster

Flooding in 2012 mostly affected districts in northern Sindh, whereas the 2011 floods affected southern Sindh. Whilst there was some overlap in the 2010 and 2012 flood-affected areas, all of the families selected for 2012 shelter recovery assistance were first-time beneficiaries.

In the aftermath of the disasters, communities had limited resources and insufficient technical capacity to reconstruct durable shelters.

### Shelter strategy

The Shelter Cluster's early-recovery strategy for the 2011 and 2012 floods advocated for the provision of low-cost shelter support to the most vulnerable families whose houses became uninhabitable after the floods, in a way that improved their resilience to future natural disasters. The Cluster strategy encouraged a beneficiary-driven approach, providing flexible shelter solutions tailored to the needs and capacities of beneficiaries.

### Beneficiary selection

The beneficiary selection process was unchanged since the 2011 response, identifying the most severely affected districts and forming village committees to identify the most vulnerable in their communities.

### Project implementation

The organisation continued with the same methodology it had used in response to the 2011 floods, working with implementing partners whose field teams worked in collaboration with village committees to distribute cash for rebuilding.

The cash was distributed in three tranches. The first was paid in advance for the construction of the floor plinth; the second was transferred on completion of the plinth, to pay for construction of the walls; the final tranche was given once the walls

were complete in order to pay for the building of the roof.

Implementing partners and project staff provided technical support throughout the project, giving trainings on safe construction practices and Disaster Risk Reduction (DRR) techniques to the beneficiaries.

### Feedback mechanisms

Recognising the growing need for active, accountable and meaningful engagement with the shelter project beneficiaries, the organisation launched a Monitoring, Evaluation, Accountability and Learning (MEAL) initiative in its 2012 flood response.

The MEAL initiative has been a three-tier approach, comprising of:

- A Humanitarian Call Centre 'hotline'.
- Household monitoring visits.
- Beneficiary feedback focus-group discussions.

The aim of MEAL has been to increase two-way communication between beneficiaries and project teams, by offering a variety of options to promote choice, opportunity and access for the beneficiaries. MEAL has facilitated the beneficiaries' ability make suggestions, complaints and comments.

The initiative streamlined and enhanced the previously established call centre and monitoring visits, and added a new element of focus group discussions.

### Humanitarian Call Centre (HCC)

The predominant mechanism for beneficiary feedback has been the HCC 'hotline'. It promotes transparency and encourages the reporting of programme irregularities by beneficiaries, implementing partners and staff, as well as providing a way to give general information.

Data collected by the HCC is integrated into the overall M&E system to ensure timely and reliable follow-up, cross verification of eligible households and beneficiaries, and documentation of responses. The feedback loop is closed by then





**In-depth beneficiary feedback can have a positive impact on the planning and execution of a project. The project increased the value of payments when beneficiaries raised the issue of high market prices which were preventing them from finishing their houses with quality materials. Photo: IOM.**

contacting the caller, if a response is required.

The HCC has received 533 calls since 2011, of which 90% were related to complaints and grievances, whilst 10% were information requests or feedback on the programme. Complaints were forwarded to the organisation's management for follow-up, and 94% have been successfully resolved to date.

### **Random household monitoring visits**

Random sampling household monitoring visits have been made to at least 5% of beneficiary households. The visits were first introduced in 2010 as part of the then flood response.

Technical, social mobilisation and monitoring teams have collected feedback through community visits and verification missions. On average, monitoring teams have conducted 640 random visits per week.

### **Focus-group discussions**

A "beneficiary feedback learning exercise" was piloted in 2013. Nine focus-group discussions were held with beneficiaries in nine union councils spread across five districts.

This innovative exercise went beyond regular monitoring processes, providing a space to listen to the views and experiences of the people who benefited from the shelter project.

Social mobilisers and technical staff conducted the discussions,

which were divided into different topics:

- The objectives of the shelter assistance project.
- Beneficiary selection methods and social mobilisation.
- The construction process for the One Room Shelter response (ORS).
- Project closure.

As a preface to the focus group exercises, project teams thoroughly briefed participants on each of the topics to be covered, ensuring common understanding of the scope and purpose of discussions in order to encourage full beneficiary engagement and effective feedback. The success of the pilot and the deepened engagement with beneficiaries led to focus-group discussions being established as a standard feedback mechanism in 2014.

## **Using feedback to improve programmes**

The MEAL approach enables the project to adapt and better tailor its assistance to beneficiary needs. This is evident through numerous adaptive measures undertaken. Feedback has also informed strategic-level discussions about shelter programming, for example reconstruction in a context constrained by land ownership and property titling. Below are three examples.

### **1) Formation of new community-based organisations**

Feedback from the focus-group discussions indicated that the village committees were not performing as hoped. In many cases, beneficiaries were not aware of who the committee members were, or what their role was.

To solve this problem, household-level community groups were formed instead. These groups were made accountable for the financial and procurement processes, and monitored the quality and delivery of construction operations. This new arrangement meant that community

members had greater decision-making power and responsibility. For example, when receiving shelter cash contributions, a group could decide to procure collectively, making savings through bulk purchases.

### **2) Modification to cash transfer procedures**

Financial procedures can be bureaucratic and time consuming, involving multiple banks, transfers and signatures. Families reported that they had to borrow money at interest because cash payments were arriving late.

As a result of the feedback, project accounts have now been opened in the same local banks that beneficiaries use, significantly streamlining the whole process.

### **3) Payment changes**

Both beneficiaries and field staff had consistently reported that the overall cash support of 26,000 rupees was not sufficient at current market prices.

The organisation conducted a market analysis which confirmed that the allocated cash amount was not sufficient to support families to 'build back better'. An additional 4,000 rupees allowed families to buy the quality of materials required to fully implement flood-resistant building techniques.

## **Shelter design and Disaster Risk Reduction (DRR)**

In August 2013, a survey of vernacular construction techniques in northern Sindh was conducted in 20 villages and five districts, to identify DRR-enhanced interventions for shelter construction. Based on the results, a low-cost shelter solution informed by vernacular 'lohkat' techniques was developed (houses are built using poles from lohkat trees, plastered with mud on the outside). The survey results also highlighted that respondents preferred mono-pitched roofs as compared to double-pitched roofs, as the former type is easier to construct and allows people to take refuge on top of it during floods.



The hotline and complaints procedure was advertised through posters. The telephone number was shared by handing out business-cards to the community. Graphic: IOM.

As part of the 2012 floods response, an effort was made to enhance the use of lime in shelter construction. A Training-of-Trainers (ToT) programme was implemented in 2014, with key technical project staff given the opportunity to test formulate different lime compositions based on soil analysis and other tests.

Once optimal compositions were identified, this information was included in technical trainings for beneficiaries to build back safer.

**Wider project impacts**

Around a quarter of those participating in technical trainings to support safer shelter construction were non-beneficiaries, raising general awareness of DRR techniques.

Some beneficiaries who have learned new masonry techniques are now being employed by non-beneficiary families to build their houses.

The training of implementing partner organisations has filled

the gap in technical capacity that existed during the response to the 2010 floods. Some organisations that previously worked as implementing partners for the project have now applied for independent funding for similar shelter-recovery activities.

**The future of feedback**

As beneficiaries are increasingly aware of their right to be included within the planning, implementation and evaluation phases of aid programmes, feedback mechanisms are taking their rightful place as a key part of any programme. Accountability is not just a moral imperative, but also an operational need.

By providing a mix of feedback mechanisms, not only can implementation be improved but a voice can be given to the marginalised.

Diverse feedback mechanisms also help to monitor and motivate implementing partners, providing an important stream of information when the main organisation has few staff on the ground.

## A.21 Pakistan – 2012 – Floods

### Case study

**Keywords:** Core housing / progressive shelter; Cash / vouchers; Site planning; Training.

**Emergency:** Monsoon floods, 2012, Pakistan.

**Date:** 7-11 September 2012.

**Damage:** Approx 635,000 homes damaged or destroyed in total. Approx. 145,000 houses destroyed in Jacobabad. Kashmore: 117,000.

**People affected:** 4.85 million people were affected by the floods. Jacobabad: 940,000 people. Kashmore: 851,830.

**Project location:** Jacobabad and Kashmore districts, Sindh province.

**Beneficiaries:** 1,000 households (7,000 individuals).

**Outputs:** 1,000 shelters, and disaster resilience training.

**Occupancy rate:** 100%.

**Shelter size:** 20.4 m<sup>2</sup>.

**Cost per shelter:** US\$ 350 for materials and labour.

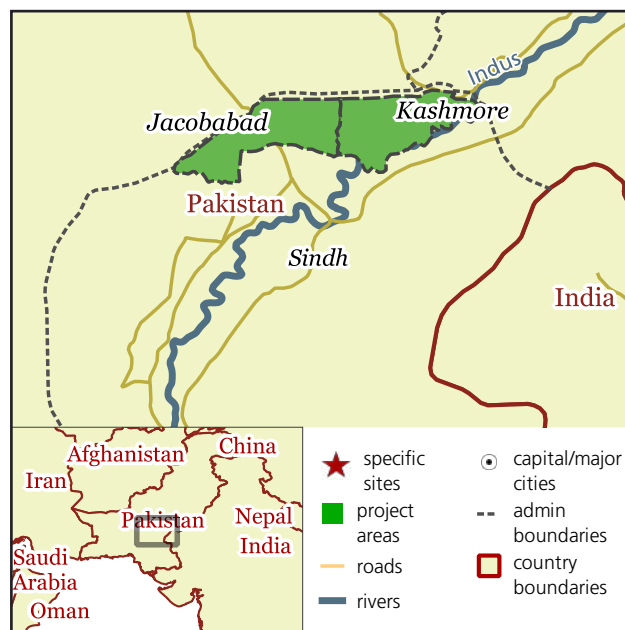
**Cost per shelter:** US\$ 443 including project costs.

### Project description:

The project provided 1,000 vulnerable families with safe, resilient and locally adaptable shelter.

The shelters were built with some materials and skilled labour provided by the organisation, and with beneficiaries providing some unskilled labour and salvaged or no-cost materials.

Community members not receiving direct shelter assistance were included in the DRR trainings for mapping hazards and improving shelter construction techniques.



### Emergency timeline:

**[a]** 7-11 September 2012: monsoon flooding.

### Project timeline (number of months):

**[1-3]** March 2013: Planning period.

**[4-9]** First phase of construction.

**[10-13]** Second phase of construction.

**[14]** April 2014: Project concluded.

Emergency

**a**

Years

2012

2013

2014

Project (months)

1 2 3 4 5 6 7 8 9 10 11 12 13 14

### Strengths

- ✓ Local ownership and leadership of the project were promoted through beneficiary-implemented reconstruction.
- ✓ Solutions to reduce flooding risks were based on traditional and cost-effective methods.
- ✓ The shelter design adopted local best practice of thick mud walls to reduce heat during the summer.
- ✓ The inclusion of non-beneficiaries in construction trainings meant that the design was replicated by other families.
- ✓ The purchase of bamboo from other provinces reduced initial logistical delays and ensured that all beneficiaries received their materials.
- ✓ As part of a multi-sectoral programme that included WASH, the project helped to accelerate a transition

from relief to recovery.

### Weaknesses

- ✗ Construction targets were delayed due to families prioritising harvesting their crops over working on their shelters. This had been predicted as part of the contingency plan, but had a greater impact than expected.
- ✗ The banking system was unreliable and delayed cash transfers. A second bank began operating towards the end of the project and the organisation was able to switch banks.
- ✗ Increases in the cost of materials, caused by bamboo shortages, were not foreseen. Fortunately the higher costs were offset by exchange rate changes.





## Situation before the disaster

Before the 2012 floods, the majority of the population in the target area lived in either mud houses called “kacha” or straw structures called “chappar”.

Kacha mud houses are built with two layers of lime-stabilized plaster, render, and cane mats (“chicks”), with wooden poles as girders.

Chappar houses use wooden poles or bamboo for the wall and roof structures, with the walls fortified with reeds, often without mud plaster.

Mud-layering and chappar structures are usually built by the families themselves, while mud-brick houses require a mason. Wealthier households lived in more permanent brick structures with cement mortar.

Jacobabad and Kashmore are districts which have been repeatedly affected by recurring floods (including the 2010 and 2012 floods), exhausting the coping mechanisms of the affected communities. As a result, development indicators were worse than the national average.

## Situation after the disaster

The organisation’s post-flood assessment of 11 worst-hit Union Councils (a local administrative division) showed that the monsoon floods damaged 75% of the houses, of which two-thirds were fully destroyed. Only 20% of the houses were undamaged, with a remaining 5% of households living in temporary shelters as a result of previous disasters.

The high rate of destruction appeared to be related to a major

gap in the knowledge and practice of disaster-resilient construction techniques. In the target areas, 63% of shelters were kacha mud houses.

At the time of the assessment, those whose housing had been damaged were living in a number of different situations: 32% of families were reportedly living in the open air, 27% were living in damaged houses, 6% with host families, 6% in temporary shelters, 5% in tents and 4% in public buildings. Shelter was ranked as the most immediate need by the majority of those affected.

## Shelter strategy

The shelter cluster strategy focussed on two areas: technical requirements for shelters, and training to improve construction techniques.

### Technical requirements

Shelter size had to meet Sphere standards, ranging from 200 to 250 sq ft. (18m<sup>2</sup> to 23m<sup>2</sup>) depending on family size. The shelters had to be safe and incorporate a number of Disaster Risk Reduction (DRR) elements, such as strengthened roof and wall structures and elevated platform foundations.

**“After the 2011 flood my family was forced to live in a straw hut with little protection or privacy. After building our new shelter, the winter has not impacted on our health. I don’t fear the rainy season anymore”.**

**Beneficiary**

Families whose house had been completely destroyed could receive material or cash support up to a limit of US\$ 375 per shelter. Beneficiaries were asked to make their own contribution through no-cost materials, e.g. mud or salvaged materials, labour, and a limited amount of cash.

The shelter design had to allow for adaptations, such as extensions, or the addition of sanitation facilities or kitchens. Vernacular construction techniques were recommended so that communities could build and reconstruct houses using familiar materials and construction processes.

## Training

In contrast to 2010, a focus was placed on transferring knowledge about DRR techniques to the community. Trainings to improve shelter safety and durability were coordinated by the Shelter Cluster. Trainings had to be practical and ‘on site’, with a standardised curriculum in local languages. They were also to be made available to those who were not receiving direct shelter assistance. The involvement of women was considered important, particularly as women are traditionally involved in plastering the walls of their homes.

## Project implementation

Following the selection of beneficiaries, the communities were trained on disaster risk-mapping exercises, to identify areas less prone to flooding as construction sites. Landlords were engaged in the process to decrease the risk of disputes over land rights.

The elevated areas identified through community mapping were always within a limited geographical range and relocation to these areas was entirely voluntary. If the beneficiary did not wish to relocate, or if there was no suitable elevated ground nearby, they were encouraged to either construct a raised platform or to raise the floor level of their dwelling.

The project team consisted of a project coordinator, a team leader, a civil engineer, eight sub-engineers and four community mobilisers. The organisation aimed for a gender balance amongst staff members,



**Demonstration of side-wall bracing.**  
Photo: ACTED.

partly to ensure the participation and inclusion of female beneficiaries.

Once beneficiaries were selected, the organisation distributed tokens which could then be redeemed for materials from the organisation's warehouses.

Beneficiaries were expected to provide unskilled labour while the organisation provided two skilled workers for around two days to lead the shelter construction.

The organisation paid the skilled workers with bank cheques, but these were problematic since many were unable to cash them due to inter-bank problems.

### Beneficiary selection

Families whose houses had been completely destroyed and who were living in emergency shelters, straw structures or severely damaged mud structures were given priority in shelter assistance. Beneficiaries were selected using a score-card method, based on a previous assessment carried out for a WASH intervention.

The WASH assessment included shelter considerations to prevent over-surveying of beneficiaries, and to save time and resources.

Priority was given to households which were more vulnerable to socio-economic deprivation. Project staff then visited each of the selected beneficiary households for final verification and confirmation.

### Coordination

The data analysed for the project was collected by the organisation's specialised assessment unit, along with cooperation from other

organisations in the area and data provided by the Sindh Provincial Disaster Management Authority (PDMA) and by the Shelter Cluster, on damages, losses, and needs.

The project was part of a more general programme of response to flooding in the Sindh area in 2010, 2011 and 2012.

The shelter design was influenced by technical discussions within the Shelter Cluster during February 2013, and project activities followed the Monsoon Humanitarian Operational Plan and Cluster strategy.

### Technical solutions

The shelter design used local practices and familiar materials with targeted improvements to make the shelters more disaster-resistant.

The structure of the shelter was built out of bamboo poles, which were pre-treated by the supplier for termite-resistance.

A prefabricated window and door were also provided, and stairs or a ramp at the door was provided to ease access for the elderly and disabled.

### Disaster Risk Reduction (DRR)

Several DRR measures were included:

Beneficiaries were encouraged to build a raised platform made of several layers of pressed soil to protect the base of the structure from flood water.

Walls were fortified with a trellis and plastered with a mix of mud and straw, both of which were beneficiary contributions.

The roof has a 1-foot-high (30cm) incline with 1-foot-long extended eaves. It was built from bamboo, plastic tarpaulin and wooden slats (called "chicks") covered with mud plaster.

The girder was made of two bamboo poles, supported by two pillars made of three bamboo poles each and a central vertical support.

The eaves protected the wall from being soaked and weakened by rain while the plastic sheet on the roof provided waterproofing protection.

The final layer of plaster on the walls as well as on the roof is

a 1-part lime to 5-parts mud mix which weather-protects the shelter and prolongs the life of the structure.

The community was mobilized to identify potential construction sites based on areas of increased resilience to disasters as part of a disaster risk-mapping exercise. The training also focussed on DRR techniques. This was a significant change in strategy compared to the 2010 response, where capacity-building was not prioritised.

### Materials

The materials for the shelter were procured in Punjab province, the primary supplier of bamboo in Pakistan. Other materials, especially sand and gravel, were sourced in Sindh province.

### Wider project impacts

Some key components of the shelter construction strategy were also adopted by the wider community, such as construction on a raised platform, and installing eaves to prevent rain from soaking and weakening the walls. The use of lime in construction also increased.

The use of tarpaulins for roofs was adapted by other villagers, who used spare plastic bags as a makeshift cover.

### Bill of Quantities

Item	Quantity
Bamboo, 2.5" diameter, anti-termite treated, various lengths 9ft – 17ft	71 pcs
Lime (10 % of Mud)	2 x 20kg bags
Chicks (Size 17ft x10ft)	2pcs
Tarpaulin sheet one piece (17ft x 20ft)	1 pc
Cotton Rope 3mm	4 pcs
Steel nails 4"	1kg
Nails 6"	1kg
Steel rivets 9"	9 pcs
Door	1 pc
Window	1 pc
Beneficiary contribution: sticks, straw and mud for plastering, clay.	-

## A.22 Philippines – 2012 – Typhoon Bopha

### Case study

**Keywords:** Household items; Transitional shelter / T-shelter; Training.

**Emergency:** Typhoon Bopha (Pablo), Philippines.

**Date:** December 4 2012.

**Damage:** 216,817 houses damaged (89,666 destroyed and 127,151 partially damaged), of which 58% in the target provinces.

**People affected:** 6.2 million affected, 973,207 displaced.

**Project location:** Compostela Valley and Davao Oriental provinces, Mindanao.

**Beneficiaries:** 20,000 people.

**Outputs:** 4,139 transitional shelters. 18,193 households received NFIs and 10,233 received emergency shelter materials.

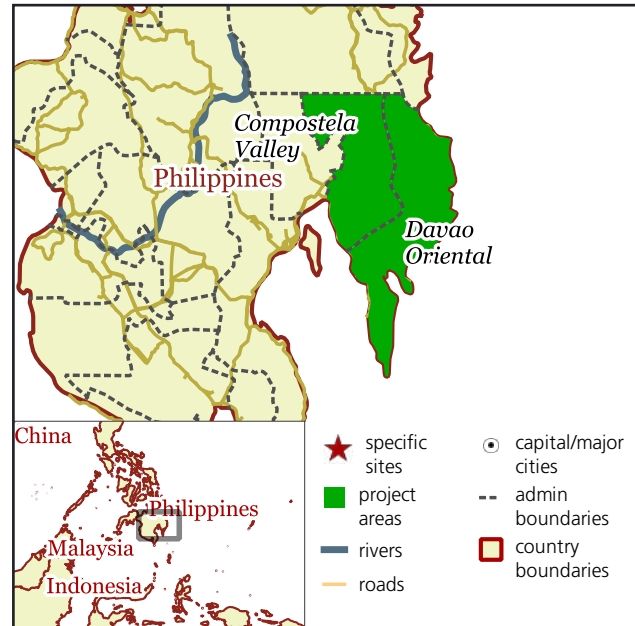
**Occupancy rate:** 100%.

**Shelter size:** 18m<sup>2</sup> for up to six people, 24m<sup>2</sup> for seven or more people.

**Cost per shelter:** Materials: US\$ 380. Project costs: US\$ 580.

### Project description:

Families were supported to rebuild shelters with materials they salvaged (mostly coco lumber) and materials provided by the organisation (roofing materials and strapping). The organisation paid carpenters to build the main structures after receiving training in safe construction techniques. A focus on community participation and low-cost materials maximised the project outputs.



### Emergency timeline:

[a] December 4 2012: Typhoon Bopha hits.

### Project timeline (number of months):

[1-3] Emergency response (NFIs, WASH and debris clearance). [2] Household interviews and assessments. [4] Construction begins in Davao Oriental province. [5] Construction begins in Compostela Valley province. [9-10] Peak construction rate of 800 shelters per month. [13] Handover completed.

Emergency

Years

2012

a

2013

2014

Project (months)

1 2 3 4 5 6 7 8 9 10 11 12 13

### Strengths

- ✓ The percentage of community members aware of DRR construction techniques rose from 9% to 98%.
- ✓ Model shelters were built to facilitate the training of carpenters and feedback from beneficiaries, resulting in a 99% satisfaction rating for the final design.
- ✓ A strong emphasis was placed on community involvement and local-level planning and execution.
- ✓ Effective feedback process during beneficiary selection and a resolution mechanism for complaints through Project Implementation Committees.
- ✓ Relatively low costs per shelter meant that a larger number of beneficiaries could be assisted.

### Weaknesses

- ✗ Availability of fallen coco lumber was based on an assessment in Davao Oriental, but no assessment was made in Compostela Valley, where salvageable materials were less available, causing delays.
- ✗ Financial coping capacity was not included in selection criteria, meaning that some households who could not afford to rebuild were not assisted.
- ✗ Tensions between beneficiaries and non-beneficiaries were reported in the early part of the project. Improved methods of communicating selection criteria might have helped to avoid this.
- ✗ Combining different project activities (NFI distribution, WASH etc.) would have streamlined community mobilisation and project monitoring.
- ✗ Humanitarian organisations were unable to coordinate when it came to competing for the scarce number of skilled carpenters and chainsaw operators.





Left: Beneficiaries are introduced to the shelter design which was developed after studying local techniques. Improvements such as bracing (right) were included in the new design. Photos: Seki Hirano/CRS.

## Situation before the disaster

After a long period of time without severe weather events, southern Mindanao was hit by Tropical Storm Washi (Sendong) in late 2011 and Typhoon Bopha (Pablo) at the end of 2012.

The lack of previous experience of such powerful storms meant that most houses were not built to withstand them.

The organisation conducted household surveys immediately after the typhoon. Families reported that, prior to the typhoon, they lived in houses constructed mainly with light materials: roofing was mainly CGI sheeting (90%); walls were constructed with plywood or amakan (weaved palm leaves or bamboo) (50%); a combination of wood and cement (30%); or cement only (20%). The damage was reported to be highest among homes with plywood or amakan walls

In focus groups, families indicated that they were not familiar with simple resilient construction techniques.

## Situation after the disaster

Shelter damage was concentrated in Compostela Valley (95,054 damaged houses, 40% of them totally damaged) and Davao Oriental

(30,245 damaged, 75% totally damaged).

The majority of those made homeless returned to the site of their original home and built makeshift shelters or slept in tents. Others stayed with host families.

These makeshift shelters were extremely vulnerable to further hazards and most people did not have the resources to rebuild basic shelters to *Sphere* standards.

## Shelter strategy

The Philippines Department of Social Welfare and Development released 160 million pesos (US\$ 3.65 million) in assistance. Half the money was for repairs (approximately US\$ 232 per household) and the other half intended for building new houses on original plots or on resettlement sites.

**“[The time after the typhoon] was very difficult. It was just one day at a time trying to meet your daily need. But now there is a feeling of confidence because we have proved to ourselves that we can overcome.”**  
Beneficiary, Compostela Valley province.

In order to complement the government response, Shelter Cluster members provided shelter recovery assistance to two broad groups of beneficiaries. Communities in designated safe areas were assisted to rebuild on their original plots, whilst families who had to move from high-risk areas to relocation sites were assisted to build new houses.

The shelter strategy promoted “building back better” construction techniques and was part of a wider integrated approach, including livelihoods and WASH assistance.

## Beneficiary selection

Once the geographical selection had been made, beneficiaries were selected based on three types of criteria:

### 1) Inclusion criteria

Beneficiaries had to be residents of the target barangay, have a totally damaged house, and not be a beneficiary of any other significant shelter project.

### 2) Vulnerability criteria

This was used for prioritising beneficiaries, and was based on whether one or more family members were pregnant or lactating, disabled, under five years of age, or elderly. Single-parent families and families with more than five members were also prioritised. Families with unstable or



Two finished shelters. Three pilot models were built to elicit beneficiary feedback. Left photo: CRS. Right photo: Seki Hirano/CRS.

very limited income were included on a case-by-case basis, but others that did not meet vulnerability criteria, but were still too poor to rebuild, were not reached by the response.

### 3) Beneficiary requirements

Before construction could begin, beneficiaries needed to prove land ownership, which could include written consent from a land-owner, and the land had to be classified as "safe". Families living in evacuation centres had to be willing to return to their original place of residence. Each family had to provide three volunteers to assist in construction and a household could not consist of multiple beneficiary families.

Project Implementation Committees (PICs), comprised of local political leaders and health workers, were formed and briefed as to their role in assisting with the resolution of beneficiary concerns and in ensuring project implementation.

The community mobilisation team conducted meetings at purok (sub-village) level, providing information about the organisation, the project and beneficiary selection criteria. During the meetings, the community nominated households that met the selection criteria.

The organisation then registered potential beneficiaries using a screening form, to validate the criteria. The beneficiary lists were validated by the PICs and then displayed publicly in the community. A hotline for feedback or disputes was open for three days, and

beneficiaries could also direct their feedback directly to staff members present in the community.

Feedback was resolved with the involvement of the PIC, to ensure a locally acceptable list of beneficiaries.

## Project implementation

### *NFI distribution and debris clearance*

In the immediate aftermath of the typhoon, 18,193 households received water-storage materials, hygiene kits, and household items, and 10,233 households received emergency shelter materials.

Nearly 1,000 people were paid for clearing debris from public spaces, providing a temporary source of income for workers.

WASH activities included water infrastructure repairs benefitting 4,472 families, and the construction of latrines. Other activities included livelihoods support for 500 farmers.

### *Recovery*

The shelter recovery project, which ultimately reached 4,139 households, was implemented through two complementary teams: a community mobilisation team and a construction team.

Once beneficiaries had been selected, land ownership established, and sites approved by organisation engineers, each family began to collect coco lumber logs to begin construction.

If a family could not prove ownership, or if the plot was on an

unsafe site, they could seek permission from another landowner or approach barangay officials for a new plot.

Construction began once beneficiary households had cleared the construction site and provided the lumber needed for the walls. Organisation engineers and foremen oversaw construction by local carpenters, who received payment after an engineer or foreman had completed a technical checklist which included disaster resilient techniques.

In cases where families were unable to provide voluntary labour, the carpenters agreed to complete the work themselves.

The hotline was active throughout the entire project. Calls were received by staff not directly involved in project implementation, and the nature of the calls as well as the resulting actions were logged. In cases of dispute, the PICs were asked to assist in resolving the issue.

The organisation carried out multiple types of assistance at the same time (NFI distribution, WASH infrastructure, livelihoods assistance and shelter) but each activity was implemented separately with its own selection criteria. Combining them may have improved the efficiency of the project.

## Coordination

The organisation was the first and primary provider of shelter assistance in the area, which meant that coordination was focussed on inter-sector

coordination. Shelter designs were shared within the Shelter Cluster.

**Technical solutions**

Affected households expressed a need for a simple, standardised design for a disaster-resilient shelter that could be built in 3-5 days. The organisation promoted a standard design of 18m<sup>2</sup> for families of six, adapted to 24m<sup>2</sup> shelters for larger families.

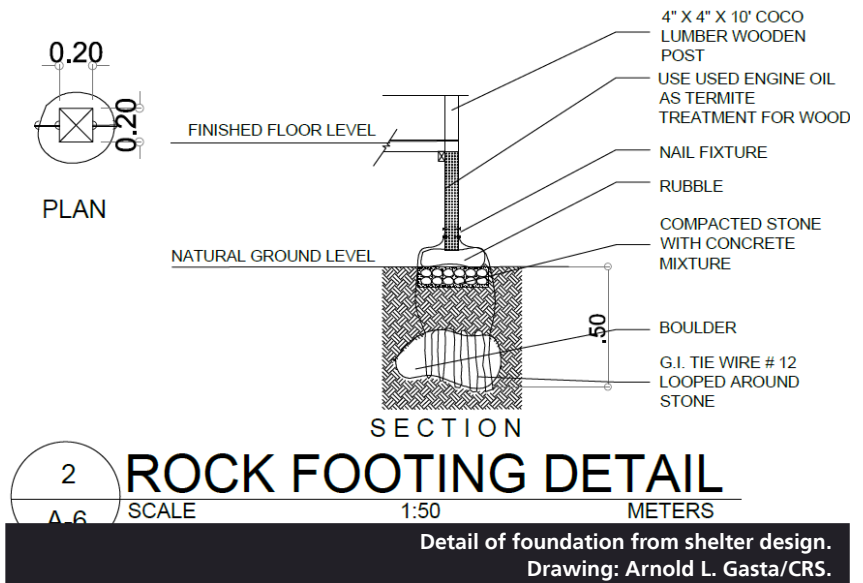
The organisation’s senior technical advisor, in collaboration with engineering staff, developed three pilot models, all of which used locally available materials, and enhanced local construction knowledge. Community feedback sessions were held to select the preferred model.

**Disaster Risk Reduction (DRR)**

Five disaster-resilient construction techniques were incorporated in the shelter design:

- Reinforcement of key structural joints: Connections between wooden pillars, beams, trusses, roof purlins, and bracing were reinforced with metal strapping.
- Lateral bracing: Cross- or corner-bracing was applied to increase the frame’s resistance to lateral forces.
- Firm anchoring of roofing sheets: Sheets were held in place using fasteners such as J-hooks or bolts.
- Raised floor: Shelters were constructed above typical flood levels.
- Foundations: Frames were built upon, and anchored to, concrete or stone foundations buried 50cm-100cm below ground, to prevent both uplift during storms and subsidence.

The organisation trained local, skilled carpenters in how to implement the techniques and paid them to apply these techniques to the shelters.



Detail of foundation from shelter design. Drawing: Arnold L. Gasta/CRS.

Although only 9% of beneficiaries reported awareness of any of these disaster-resilient techniques before the project, 98% remembered at least one technique and 83% remembered two or more techniques approximately two weeks after the construction of their home.

As some households re-built their shelters before the organisation implemented its project, it may have been more effective to have begun the DRR messaging across the whole community much earlier.

**Materials**

During initial assessments, it was determined that families could provide the walling using tarpaulins and other salvaged materials. Good-quality lumber was not available for the construction of shelter foundations and frames, but fallen coconut trees proved a good alternative.

Standard-size lumber was required to build the shelters according to the design, and initially the option of giving households cash to pay chainsaw operators for cut lumber was considered. However, chainsaw operators were in such high demand that the organisation decided to centralise the process and hire chainsaw operators directly.

**Wider project impacts**

Some non-beneficiaries applied the DRR construction techniques in the reconstruction of their own shelters. A rapid analysis suggested

that these families displayed a better understanding of the causes of typhoons and the effectiveness of mitigation measures.

Non-beneficiaries who did not adopt DRR techniques perceived the labour and materials involved to be too expensive.

**Bill of Quantities**

Description	Qty
10ft Coco Lumber posts (2" x 4" & 4" x 4")	26 boards
12ft Coco Lumber (2" x 3" purlins)	34 boards
8ft Coco lumber (2" x 4" & 4" x 4")	28 boards
10ft Coco lumber (1" x 8" floor & 2" x 2")	50 boards
Coco log	6 pcs
Common wire nails (various sizes) and roofing nails	8kg
Roofing sheets (gauge 26 Corrugated G.I plus 2 plain)	22 sheets
Vulcaseal	1 pint
Tie-wire hooks	50 pcs
2-1/2" Roofing Nails	2kg
Tie-wire (various types)	1.75kg
Gravel	0.5m <sup>3</sup>
Cement (40kg)	2 bags
Deformed Round Bar (6m length)	6 bars



## A.23 Philippines – 2013 - Typhoon - Overview

### Overview

**Emergency:** Typhoon Haiyan (Yolanda), Philippines.

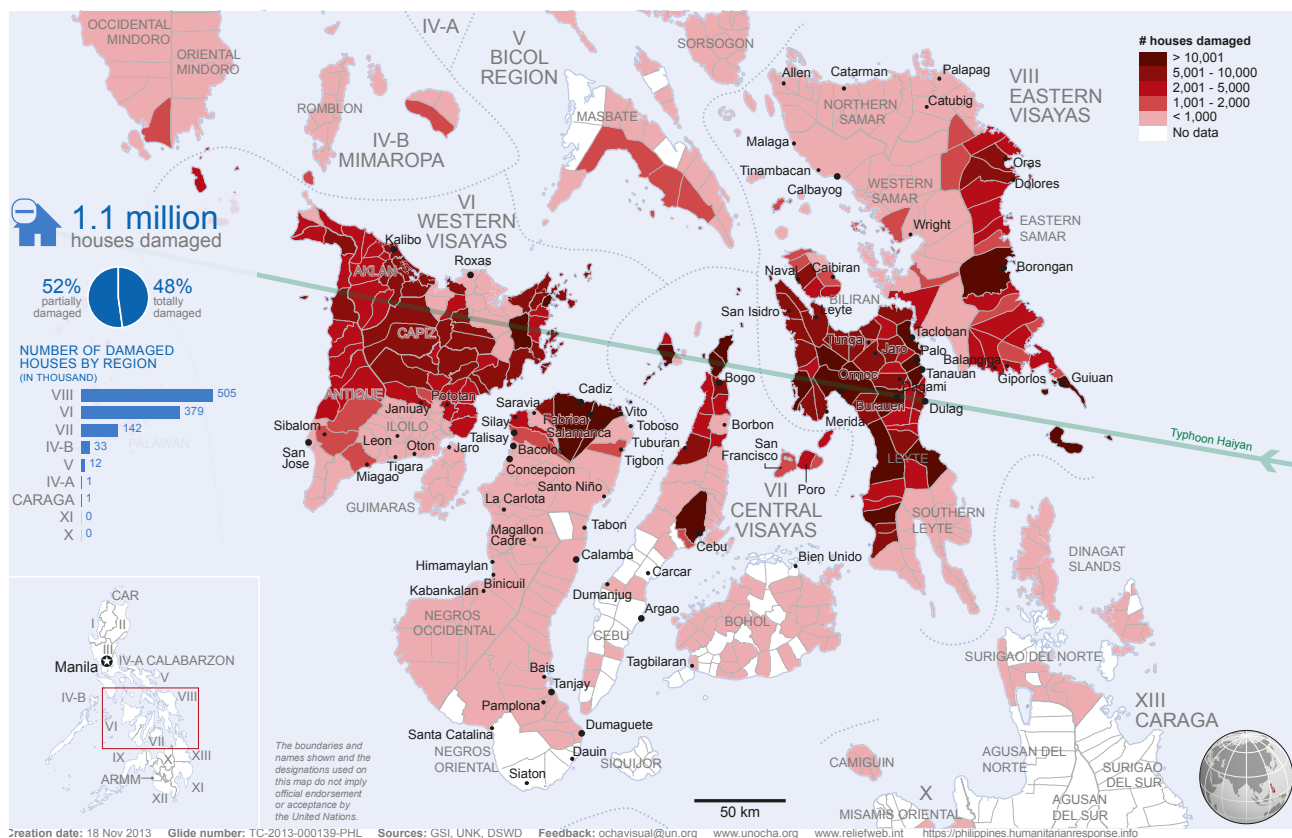
**Date:** 8th November 2013.

**Impact:** 1.12 million houses damaged. Over 4 million people displaced.

### Summary of emergency:

Typhoon Haiyan (locally known as Yolanda) was one of the largest typhoons ever to make landfall, and the deadliest in the history of the Philippines. It brought unprecedented levels of damage to a vast area of the country, affecting more than 10% of the population.

### PHILIPPINES: Damaged houses (as of 18 Nov 2013 18:00 UTC+8)



Graphic: OCHA

### Situation before the disaster

Philippines is a lower-middle income country that is highly prone to volcanic, tectonic and climatic disasters. Averaging more than 20 typhoons per year, the country has a well-developed disaster response capacity, though Typhoon Haiyan was exceptionally severe.

The country was still recovering from Typhoon Pablo (December 2012), the Zamboanga conflict (September 2013) and the Bohol Earthquake (October 2013).

Much of the affected rural and coastal population is highly dependent on fishing and coconut farming for their primary livelihoods. Land tenure is a major issue, with the majority of people living with varying levels of formal or informal tenure arrangements on other peoples' land.

### Emergency

Preparation and early warning systems led to the evacuation of 800,000 people. However, with sustained wind speeds of over 235km/hour, gusts over 300km/hour and a tidal surge of up to five metres

in some areas, over 6,000 people lost their lives, and over 25,000 were injured.

One-hundred-thousand people remained in evacuation centres, and many airports, seaports, roads and bridges were rendered unusable, leading to substantial logistical and transport issues.

Given the severity and scale, Haiyan was designated as a Level 3 disaster by the IASC.

### Damage

Haiyan left a swathe of damage from Leyte and Samar in the east of

the country right through to Palawan in the west. Over 1.1 million houses were damaged in the 100km corridor path, with more than 50% of these totally destroyed. An additional 300,000 houses were damaged outside of the 100km corridor.

Damage levels and typology varied greatly across the affected areas. Some areas were densely urban or peri-urban, comprised of a mixture of timber and masonry single- and multi-storey constructions such as in Tacloban, Guiuan and Ormoc. Other areas were remote, isolated island and mountain communities, with primarily single-storey timber or bamboo-framed huts. Informal settler communities by waterways were some of the most heavily affected, due to storm surges.

## Displacement

Over four million people were displaced by the typhoon, with many taking initial refuge in emergency evacuation centres and larger public facilities. Some evacuated to safe areas including Manila and Cebu.

Over the coming months many found themselves living in small tent cities, government-managed bunkhouses (emergency barracks), or with host families, though the majority remained on-site, living in self-made makeshift shelters.

A short time after the initial disaster a "No Build Zone" (NBZ) of 40 metres from the coast was declared across the affected area, leaving more than 200,000 families facing permanent relocation.

## Shelter strategy

The Philippines' Humanitarian Country Team Strategic Response Plan's overall goal was to ensure that 'Communities and local governments recover from the disaster, build back safer and avoid relapses while strengthening resilience'.

The Shelter Cluster strategy was developed within the first month, in consultation with Cluster partners and the Department of Social Welfare and Development (DSWD – the Government lead for the shelter cluster). Two objectives were formulated:

- Provide immediate, life-saving emergency shelter and NFIs to 300,000 of the most vulnerable households.
- Support for self-recovery to 500,000 households through incremental housing solutions using consultative and participatory processes.

A variety of recovery intervention types were proposed: the supply of materials for roofing and framing, salvaging lumber and debris for re-use, training of skilled and unskilled labour, awareness-raising in safer building practices, technical assistance, and cash-based programmes.

The overall aim for the Shelter Cluster was to promote self-recovery solutions and ultimately owner-driven reconstruction practices. This resulted in predominately the provision of shelter repair kits in the first year.

As the emergency phase receded, the Shelter Cluster consulted with organisations and government counterparts to develop recovery guidelines that advocated for prioritising permanent solutions, with adherence to key principles, and parameters around safety, adequacy, appropriateness and accessibility, where possible.

These Recovery Guidelines emphasised that temporary assistance in high-risk areas, where allowed, should include preparedness and evacuation plans.

The guidelines also used the Right to Adequate Housing as one of its underlying principles, and organisations were encouraged to ensure that assistance was provided regardless of tenure status.

Given the early Government announcement of a proposed 40m NBZ, the Shelter Cluster worked with the CCCM, Protection, WASH, and Early Recovery & Livelihoods Clusters in the development of three HCT endorsed inter-cluster advisories on:

- Recommended minimum standards for bunkhouses.
- Standards for relocation to transitional sites.

- NBZs to be determined by hazard mapping as opposed to an arbitrary 40m measurement.

Advocacy around durable solutions both in situ and in resettlement sites continued throughout the response, especially around themes of building back safer.

## Response phases

In the first 10 months 570,000 households were provided with emergency shelter, and 160,000 households were provided with a 'durable roofing solution'.

Funding and material constraints meant that at the time of publication approximately another 140,000 households will hopefully receive a shelter recovery solution (minor/major repair kit, core shelter or permanent house), and thus a total of 300,000 households will hopefully be assisted - 60% of the original target.

## Future developments and challenges

Disaster-resistant construction knowledge and practice remains low amongst much of the affected area. High background poverty levels, land rights' issues and poor enforcement of building regulations have combined to create a building culture of low quality construction.

Changes in dominant building materials, from timber and bamboo frames with 'nippa' thatched roofs and woven bamboo walls to materials such as plywood cladding, masonry walls and CGI roofing have occurred without corresponding changes in technical construction knowledge, increasing the risk of catastrophic failure when disasters strike.

Global warming is likely to increase the intensity and frequency of storms, whilst population growth and increasing urbanisation are predicted to increase vulnerable urban and peri-urban populations.

This, combined with poor building practices, may result in an increased risk of future displacement. Addressing these increasing risks in the housing sector remains a major challenge for the Philippine Government and other organisations.

## A.24 Philippines – 2013 – Typhoon Haiyan

### Case study

**Keywords:** Household items; Construction materials; Transitional shelter / T-shelter; Training.

- Emergency:** Typhoon Haiyan (Yolanda), Philippines.
- Date:** 8<sup>th</sup> November 2013.
- Damage:** 1.12 million houses damaged.
- People affected:** Approximately 14 million affected, 4.1 million displaced.
- Project location:** Tacloban, Santa Fe and Tanauan Municipalities in Leyte.
- Beneficiaries:** 16,079 households.
- Outputs:** 16,079 Shelter kits were distributed (90% complete as of October 2014).
- Occupancy rate:** To be evaluated.
- Shelter size:** Large kit/Roofing kit: 12 x 16ft (3.65m x 4.88m); Small kit: 12 x 12ft (3.65m x 3.65m). Partial kit (70%) was also provided.
- Cost per shelter:** Large: 18,500 Philippine Pesos (PHP) (US\$ 413); small: 16,700 PHP (US\$ 373) ; roof kit: 10,300 PHP (US\$ 230). Transport and labour costs: 700 PHP (US\$ 16) per shelter.

### Project description:

The project addressed the need for temporary shelter in the municipalities of Tanauan, Santa Fe and Tacloban through the provision of four types of shelter kit based on the degree of damage to a house. The project prioritised households living in inadequate shelter conditions and with low self-recovery capacity. The organisation supported self-recovery through "Build Back Safer" trainings conducted before shelter kit distributions.



### Emergency timeline:

- [a]** 8 November 2013: Typhoon Haiyan hits. **[b]** Heavy rains affect those in makeshift shelters. **[c]** July: Typhoon Glenda. Some evacuations in Tacloban.

### Project timeline [number of months]:

- [1-3]** Planning phase.  
**[4]** Implementation in Santa Fe.  
**[5]** Household assessments completed. Distributions completed in Santa Fe.  
**[6]** Distributions in Tanuan completed.  
**[7]** Distributions in Tacloban finished.  
**[8]** Project completed and final evaluation.

Emergency

Years

2012

2013

a

b

c

2014

Project (months)

1

2

3

4

5

6

7

8

### Strengths

- ✓ The decision to produce coco lumber ensured supply early on. The switch to local lumber suppliers meant distribution goals were surpassed.
- ✓ Partnership agreement with a second organisation meant more components could be provided in the shelter kit.
- ✓ High capacity national staff allowed for rapid response in assessments and distribution.
- ✓ WASH and Shelter was prioritized from the start.
- ✓ The local economy was stimulated through the cash-for-assets initiative to process fallen coconut trees into lumber.

### Weaknesses

- ✗ Coordination with local government could have been stronger. The organisation had to revise beneficiary lists when the local government began duplicating the provision of materials.
- ✗ Shared organisational logistical pipelines led to conflicts and breakdowns. The Tacloban port was functioning at 20% capacity in the months following the typhoon and greater coordination would have helped to mitigate problems of delays.
- ✗ The local market for coco lumber recovered quicker than anticipated, but heavy investment in milling and processing meant a slow transition to purchasing from suppliers. Production could have sped up if the switch had been quicker.





Shelter kit vouchers were handed out during the training sessions. Kits were then delivered three days later. Photos: Rebekah Price.

## Situation before the disaster

In Region VIII, the region hardest hit by Haiyan, the poverty rate had been worsening and was 20 percentage points higher in 2012 than the national average of 25%. The lack of secure access to land was closely linked to poverty, with roughly 32% of the region's population living in informal settlements.

A Shelter Cluster and REACH Rapid Assessment reported that over half of the population of the area had been living in dwellings that offered little protection from climate hazards, with 24% living in 'nipa' huts (huts with roofs made from leaves from the nipa tree, sewn together over bamboo sticks) and around 60% in timber or timber and concrete houses.

## Situation after the disaster

According to the Shelter Cluster and REACH Rapid Assessment, 13% of all homes were classified as totally destroyed while 29% experienced major damage and 37% partial damage (79% in total).

Despite rapid progress made by the affected population with the support of the government and the humanitarian community, an estimated 1.27 million people in Leyte were still without durable shelter by July 2014. Of the homes that have been repaired, many will not be able to withstand heavy rains or major storms in the coming months.

## Shelter strategy

A Damage Loss and Need Assessment (DaLA) led by the National

Economic and Development Authority (NEDA) and supported by the Shelter Cluster, was completed in December 2013. The conclusions recommended supporting a self-recovery approach for rapid recovery.

The organisation was actively involved in the Shelter Cluster in Region VIII and regularly met with municipal mayors and 'barangay' (village/community) captains.

The shelter design was informed by the Cluster "Build Back Safer" guidelines.

## Project implementation

After an initial distribution of emergency shelter materials the organisation decided to adopt a project methodology of shelter kit distribution coupled with Build Back Safer (BBS) training.

After identifying areas for intervention, the organisation met with barangay captains and committees to discuss the shelter distribution process and present the project's activities. Barangays are the smallest administrative unit in the Philippines, equivalent to a village.

Following sensitisation, blanket household assessments of each community were made using tablet computers and a software application designed by the organisation. The assessments determined which type of kits a household would receive.

The lists of beneficiaries were distributed to the barangay captains three days before the BBS trainings began, with teams of mobilisers on motorcycles dispersing information about training dates. A complaints desk was set up during selection,

distribution and trainings. Complaints about exclusion based on vulnerability criteria led to re-assessments being made by the organisation, and inclusion of new beneficiaries if they met the criteria.

The trainings were conducted at a central location within each barangay, with shelter kit vouchers distributed during the trainings. An order form for each beneficiary was created and sent to the warehouse to ensure that trucks were loaded with the correct kits on the day of each distribution.

Shelter kits were distributed three days after a training occurred, to give families time to organise the pick-up of their kits. On collection the beneficiary checked the materials against the order form created and signed an invoice to confirm reception.

Evaluations were conducted two to three months after the distributions, with the results currently being processed in September 2014. Household survey tools were used to determine how effective the response had been in targeting vulnerable households, differences between inland and coastal barangays, and the degree to which BBS trainings had been effective.

## Beneficiary selection

The organisation followed the Shelter Cluster guidelines on vulnerable beneficiary selection and delivered 15,000 shelters to the most vulnerable households (determined by gender, age, income, household size, etc.) and households with the most damage to their homes.



A shelter built from the kit. The high-specification plastic sheeting could not be sourced locally and had to be imported. Photo: Rebekah Price.

## Coordination

The organisation worked as part of the Shelter Cluster, helping to identify gaps in the humanitarian response, and coordinate resources accordingly. The organisation developed a specific partnership with one other INGO in order to cover a larger area and to take advantage of the other organisation's supply of Corrugated Galvanised Iron (CGI) sheeting.

Some duplication occurred when the Department of Social Welfare and Development managed to source CGI that had been very hard to obtain and did not wish to delay its distributions any longer. Beneficiary lists had to be revised accordingly.

The local government provided crucial support to the project. Mayors offered covered spaces for sawmills to operate and for processed lumber to be stored.

## Technical solutions

The shelter kits were designed to be flexible in order to meet beneficiary needs. Four different kits were designed in response to different levels of damage:

- Full Kit (3.65m x 4.88m)  
– for families of more than three people.
- Small Kit (3.65m x 3.65m) - For families of three people or less.
- 70% Shelter Kit (for damaged houses).

- Roof Kit only.

The kits were reasonably light and most households were able to transport the kits from the central distribution point back to their plots without assistance.

For those who were not able to carry the shelter kit, the community always found a solution to help them get the kits home.

The shelter kit contents were designed by the organisation's technical advisor, with the Cluster concentrating on coordinating BBS messages rather than standardising shelter designs.

A small number of beneficiaries have used the kit to build structures for business use (52 out of 2,900 beneficiaries in Tanauan). Around 7% of beneficiaries in Tanauan sold the kit, using the cash to buy medicine, food, or other items.

## Disaster Risk Reduction (DRR)

There were eight key Build Back Safer messages (see poster).

The training consisted of one-day shelter workshops, co-hosted with the Philippines Department of Social Welfare. In the morning, local and foreign engineers provided participants with lessons on house shapes and ratios as well as how to build different parts of the structure, such as the foundation and roofing.

In the afternoon, the engineers demonstrated these concepts with real wood and nails, and teams of

trainees were afforded the opportunity to practice what they had learned by producing scale-model houses.

Barangay captains and engineers were given a checklist to determine if Build Back Safer techniques were being incorporated into the construction of the shelters. No separate follow-ups were made by organisation technical staff and a full evaluation of construction quality has yet to be made.

## Materials

CGI for roofing was not readily available in the months following the typhoon. According to the Emergency Market Mapping & Analysis (EMMA: see *Shelter Projects 2010*, A.13) of CGI undertaken in January 2014, constraints on CGI supply were caused by damaged ports and the disruption of transport systems, something which meant that even pre-positioning might not have increased supply.

The shelter kit was composed of coco lumber, various nail types, plastic sheet, CGI roofing, a tool kit, and a fixing kit (high tensile wire and a roof sealant).

The typhoon resulted in 33 million coconut trees being damaged or destroyed. This provided a huge, salvageable resource for construction materials.

Coco lumber is a familiar construction material, though houses built with coconut lumber are normally seen as temporary. Households will eventually use other materials when building more permanent houses, most likely adapting the coco lumber structure

Initially the organisation processed the lumber itself, as local processors had been unable to recover their activities. As the market recovered, lumber was purchased directly from local sawmills.

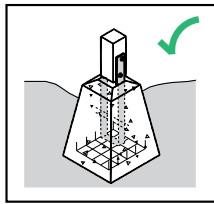
During the early phase of organisation-led processing, over 1,000 beneficiaries were enrolled in a "cash-for-assets" initiative (coordinated with the Philippines Coconut Authority), in order to source the fallen coco trees from local farmers and to pay for the processing labour.

The organisation employed a team of chainsaw operators who were instructed by an organisation

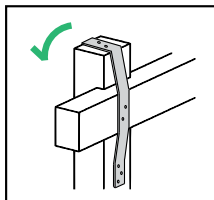
**8 BUILD BACK SAFER KEY MESSAGES**

V1.1

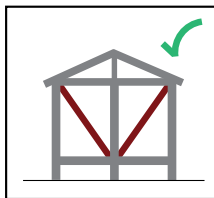
**1 BUILD ON STRONG FOUNDATIONS**



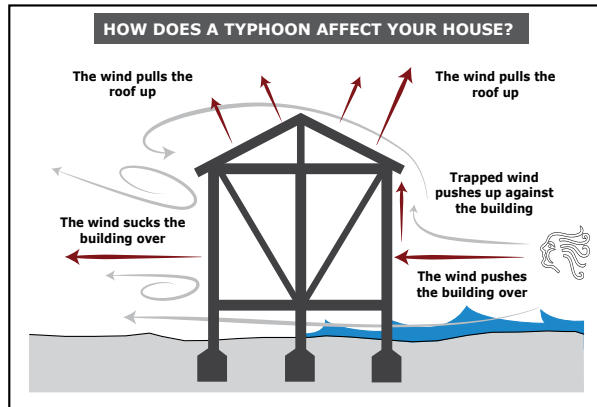
**2 TIE-DOWN FROM BOTTOM UP**



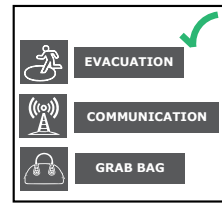
**3 BRACE AGAINST THE STORM**



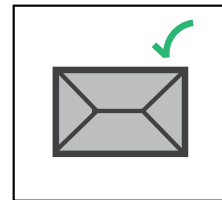
**Yolanda showed us that the way we build houses needs to be stronger. These are 8 key messages on how to repair your house and build back safer.**



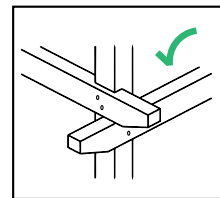
**8 BE PREPARED**



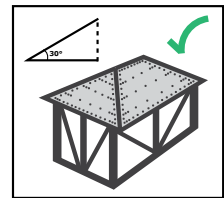
**7 A SIMPLE SHAPE WILL KEEP YOU SAFE**



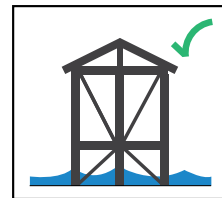
**4 USE STRONG JOINTS**



**5 A GOOD HOUSE NEEDS A GOOD ROOF**



**6 SITE YOUR HOUSE SAFELY**



Shelter Cluster Philippines  
ShelterCluster.org  
Coordinating Humanitarian Shelter

DSWD  
Department of Social Welfare and Development

The Shelter Cluster produced this poster with 8 Build Back Safer messages. Graphic: Shelter Cluster Philippines.

expert in how to process the lumber efficiently and safely. Trees were not transported, as it was too dangerous and difficult to transport whole logs (live trees were not cut down). Instead, lumber was processed where the tree had fallen, and additional labourers carried the finished planks to the trucks for transportation.

Lumber was checked by local arborists and civil engineers employed by the project, to make sure it met the appropriate standards and wasn't affected by rot or parasites. Due to time pressures, deflection testing was not part of the quality control.

The organisation included advice developed by the Cluster's Coco Lumber Working Group and from the book "Coconut Palm Stem Processing Technical Handbook" by GTZ (now GIZ).

The rip-stop plastic sheeting provided by the organisation (tightly interwoven nylon threads to prevent punctures and rips with a five-year lifetime) could not be sourced locally

or regionally and was imported from the USA.

All other components were procured from national markets.

**Kit contents**

Item	Unit
CGI	12 Sheets
Ridge Roll	3 pieces
Elastoseal	4 tubes
Bucket	1 unit
Rope	30 meters
Tie Wire	1kg
Sack	1 unit
Hammer	1 unit
Crow bar	1 unit
Pliers	1 unit
Crosscut saw	1 unit
3m tape measure	1 unit
Shovel	1 unit



## A.25 Philippines – 2013 – Typhoon Haiyan

### Case study

**Keywords:** Cash / vouchers; Advocacy / legal; Training.

<b>Emergency:</b>	Typhoon Haiyan (Yolanda), Philippines.
<b>Date:</b>	8 <sup>th</sup> November 2013.
<b>Damage:</b>	1.12 million houses damaged.
<b>People affected:</b>	Approximately 14 million affected, 4.1 million displaced.
<b>Project location:</b>	Tanauan and Tacloban, Eastern Leyte.
<b>Beneficiaries:</b>	35,000 - 45,000 people.
<b>Outputs:</b>	6,615 shelters (3,277 completed as of September 2014).
<b>Occupancy rate:</b>	100%.
<b>Shelter size:</b>	Average of 12.5m <sup>2</sup> depending on household inputs. Engineers make recommendations based upon <i>Sphere</i> .
<b>Cost per shelter:</b>	The organisation provides US\$ 450, with beneficiaries' self-recovery efforts valued at around US\$ 250.

### Project description:

The main organisation, in collaboration with a local implementing partner, supported the self-recovery of those affected by Haiyan through the provision of direct cash grants, vouchers for quality-controlled materials, and training and guidance in DRR techniques.

The two organisations lobbied the government to allow assistance to families waiting to be relocated who were living in the "No Build Zone" (NBZ). Relocation is likely to take 1-2 years.



### Emergency timeline:

**[a]** 8 November 2013: Typhoon Haiyan hits. **[b]** Heavy rains affect those in makeshift shelters. **[c]** July: Typhoon Glenda. Some evacuations in Tacloban.

### Project timeline [number of months]:

**[1-3]** March 2014: strategy development and community consultation in Tanauan.  
**[3]** Implementation in Tanauan; assessment in Tacloban.  
**[4]** Beneficiary selection. Gov. approves light-material assistance in NBZ.  
**[4-9]** Conditional cash grant payment.  
**[6]** Land-use problems resolved in Tacloban.  
**[5-11]** Voucher redemption. Project forecast to end February 2015.

Emergency

Years

2012

2013

2014

Project (months)

a

b

c

1 2 3 4 5 6 7 8 9 10

### Strengths

- ✓ The project provides choice, rather than imposing one shelter solution on all beneficiaries.
- ✓ Price and quality control components ensure value for money and safety, with vouchers reducing the potential for corruption.
- ✓ Material assistance is delivered with minimal transportation costs by mobile hardware stores.
- ✓ The local economy has been stimulated, and local suppliers have been keen to provide good quality products and service to their local customers.
- ✓ The relocation process away from the NBZ takes time, and the main organisation, following the lead of its local partner, successfully advocated for the

government to allow light material assistance to those still waiting in the NBZ.

### Weaknesses

- ✗ The voucher system can end up causing delays since small traders have limited capacity and are unfamiliar with the process.
- ✗ The cash-on-delivery procurement mechanism does not suit small traders who need cash up-front to buy in stock. Revising the procurement procedures to resolve this issue delayed the project implementation.

### Observations

- Sourcing quality materials from small suppliers has proved to be problematic.

## Situation before the disaster

The Municipality of Tanauan's economic activity is based around fishing and farming, whilst Tacloban City is a large urban area. Poor families, whether living in urban or rural areas, were mostly living in one-room shelters made of coco lumber with bamboo or plywood walling and CGI sheet or 'nipa' shingles (leaves from the nipa tree sewn together over bamboo sticks) for roofing.

In urban areas foundations were more likely to be made with concrete, but in general shelters were poorly constructed, because of limited financial resources and because skilled craftsmen with good technical knowledge tended to work in larger cities.

## Situation after the disaster

Six months after Typhoon Haiyan struck, shelter remained the highest priority need, with only 22% coverage out of 1.12 million affected houses across the Philippines by the end of April 2014, when the project was just beginning.

The city of Tacloban presented complex challenges due to the high level of damage and the large urban population. Those that began recovery in "safe zones" were often re-building their shelters to an even lower standard than before the typhoon, due to limited financial resources and poor quality materials. In April 2014 heavy rains caused flooding, especially in Tacloban and in July Typhoon Glenda hit, which resulted in some families being evacuated for up to two weeks.

## Shelter strategy

A Damage Loss and Need Assessment (DaLA) led by the National Economic and Development Authority (NEDA) and supported by the Shelter Cluster, was completed in December 2013. The conclusions recommended supporting a self-recovery approach for rapid recovery.

A "No Build Zone" (NBZ) was announced by the President a few weeks after the Typhoon hit, and humanitarian agencies were



Demonstration of prototype collapsible transitional shelter. While the design is in development, beneficiaries are assisted through the standard voucher modality. Photo: Oxfam.

prevented from providing non-emergency assistance in the NBZ whilst people were moved to temporary shelters away from the NBZ (tent cities or bunkhouses) in preparation for permanent relocation.

Government relocation plans involve the moving of 200,000 households in total, with 10,000 households being relocated from parts of Tacloban City. While waiting for relocation to take place, some families have lived in tents and makeshift shelters for nearly a year and the relocation process continues at a slow pace.

For the first six months, no shelter assistance to these families was permitted, apart from the distribution of tarpaulins.

Humanitarian organisations, including efforts made by the project's local partner, advocated for the provision of more substantial shelter support in the NBZ.

In March 2014, the NBZ was re-classified as a No Dwelling Zone (NDZ) by the Office of the Presidential Assistant for Rehabilitation and Recovery, in order to allow work to begin on the reconstruction of buildings for tourism and other livelihoods activities. However, local government authorities retained the power to take final decisions on policy, and the impact of the decision was not immediately felt.

After further advocacy by humanitarian organisations, it was accepted by the local government that

light materials assistance could be provided in the original NBZ. Whilst the authorities in Tanauan allowed assistance to families on the site they were currently living in, authorities in Tacloban wanted all potential plots where temporary shelter would be provided to be officially accepted. This meant that a number of alternative plots had to be identified by the project, delaying the response until August 2014.

As of end of October 2014, 325 IDPs living in tents have been assisted by helping them to move to a safe lot, signing an agreement with the lot owner to pay a rent of US\$ 2 per month.

## Project implementation

Prior to beneficiary selection, several community consultation sessions were conducted in Tanauan, in order to provide feedback on the proposed strategy. Following the meetings, several adjustments to the plan were made, including replacing tools with additional money for roofing materials, and adjustments to beneficiary criteria to include financial considerations and the need for extra construction support for the most vulnerable (they were given additional money to pay for four days' worth of unskilled labour).

Build Back Safer Committees (BBSC) were formed, with their membership including representatives from local government, community leaders, beneficiary representatives,



grassroots organisations, women's representatives and representatives of religious groups. This community participation mechanism played a crucial role in the transparency and effectiveness of the project.

Following beneficiary selection, beneficiaries were grouped into clusters of 25-30 households, with each cluster choosing a representative who became a member of the BBSC.

There were three main components of the assistance programme, described below:

### 1) Technical assistance

Prior to the cash and voucher distribution, the two organisations provide training in DRR techniques with on-site demonstrations, educational material and scale models. The quality of salvaged materials is validated, and support is given to the families to identify their specific needs and recommend how to best utilise the cash and voucher to recover the shelter.

### 2) Conditional cash grant

The organisations link local suppliers to the community, with the leader of each group of beneficiary households being supported to produce a procurement order. Suppliers agree standard prices and quality levels with the organisations. The grant is paid through the Philippine Post Office once the beneficiary cluster has completed the training.

### 3) Cash voucher for roofing materials

Vouchers are distributed once the structures are complete, and can be redeemed at mobile hardware stores, with a master-list of available materials printed on the beneficiary's registration card.

The materials are quality-controlled by a team made up of BBSC members, staff from the main organisation and its local partner, and local government representatives. A certificate of satisfaction is signed by the team once the quality of the materials presented by the supplier on distribution day has been validated and cross-checked against previous warehouse joint visits.

The implementation of key DRR messages is monitored during the project, with checks made before the next phase of support is provided. The project records all information on materials-use and DRR techniques implemented in a database, to facilitate a final evaluation.

### Beneficiary selection

The Disaster Assistance Family Access Card (DAFAC) database and Local Government Unit (LGU) damage assessment were used as initial data to triangulate beneficiary needs and avoid duplication of responses.

Due to many people's identity documents being destroyed in the typhoon, assistance has been based on pre-issued tokens combined with

the detailed beneficiary databases. Vulnerability criteria are then used to select households, whose needs are validated by a home visit. Criteria include prioritising female-headed households, the elderly, and people with disabilities.

The BBSCs have an important role to play, helping to resolve problems and ensure that beneficiary lists are correct. Beneficiary lists are made public (through notice boards or committee meetings) for two days, to allow time for beneficiary feedback through help desks and complaints boxes. After following up feedback (in the presence of the BBSC, to ensure the process is transparent) the final list is posted, along with written responses to complaints.

### Coordination

The organisations were actively involved in the Shelter Cluster, which operated at national, regional, provincial and LGU levels, done in order to prevent duplication. The organisations also cooperate closely with the local government. In order to reduce the potential for conflict and tensions in the communities, the organisations within the Cluster agree to make sure that their assistance packages do not greatly differ in value.

The main organisation's partnership with the local partner, who had led the advocacy for a change in policy on the NBZ, added a great deal of local knowledge and understanding





of context when planning and implementing the project.

The project also plans to work with Philippine university academics to test a prototype collapsible shelter for structural integrity and social acceptance to see if it is a viable sheltering solution for communities living with disasters.

### Technical solutions

As part of the project, a prototype collapsible shelter has been developed and is currently being tested. In the meantime, the project's standard shelter response is being implemented in Tacloban.

To deal with the restrictions on rebuilding in the NBZ, the project engineering team designed the prototype shelter so that it would be easy to dismantle and re-locate. The design is extendable and can be upgraded if sited in a safe area.

The purpose of the design was to initiate more productive discussions with the Tacloban authorities on what kind of assistance could be provided in the NBZ in order to support families who had been waiting to be relocated for months, and a model shelter was erected in Tacloban in July 2014. However, the organisations would prefer to provide more flexible shelter assistance to beneficiaries in these problem areas.

Following a detailed field survey which included discussions with craftsman and households, the shelter size was designed to be a minimum of 12.5m<sup>2</sup> for an average family of five people. Beneficiaries can modify the design to enlarge it using additional materials which they provide themselves.

The survey also indicated that the communities were able to provide around a third of the cost of the shelter in terms of providing unskilled labour and salvaged materials.

The final collapsible shelter design can be dismantled in 2-3 hours, making it possible to completely collapse the shelter if there is advance warning of an extreme typhoon. The dismantling requires no skilled labour and the shelter itself is made from local materials.

### Disaster Risk Reduction (DRR)

The Build Back Safer techniques include:

- Using hurricane strapping to tie down the frame and roofing.
- Assessing the quality of salvaged materials.
- Elevating structures in flood-prone areas.

At the beginning of the project, an international training organisation organised and ran the Training of Trainers sessions for the staff of the main organisation and its local partner in order to establish a model for training the household clusters.

Each household cluster participated in a half-day construction training. This involved on-site demonstrations with models and training material identifying ten key points for typhoon-resistant construction.

A separate four-day training workshop, targeted only at specific villages in Tacloban, comprised of practising emergency evacuation drills and developing contingency plans for the most vulnerable areas. The BBSCs also received preparedness training in order for them to become rescue teams in an emergency.

A disaster preparedness campaign was launched, with educational material developed and distributed in collaboration with local government. The wall and roof frames are built with coco lumber and wall screens are made from either plywood or weaved bamboo mats locally known as 'amakan'. Roof options include cladding with leaf mats, locally known

as nipa shingles, or corrugated iron sheets.

By providing materials through local suppliers using mobile hardware stores, the organisation avoids the overheads of centralised procurement, warehousing and transport costs.

### Wider project impacts

The project voucher approach has influenced the national government to review their own roofing material distribution process, changing from in-kind distribution to vouchers in order to increase beneficiaries' choice and reduce supply chain problems.

The project approach has resulted in the injection of direct and indirect cash payments worth US\$ 2.5 million into the local economy of the specific target municipalities.

The certified training of 200 women carpenters is linked with long-term gender programmes in the area.

## A.26 South Sudan – 2012 – Conflict

### Case study

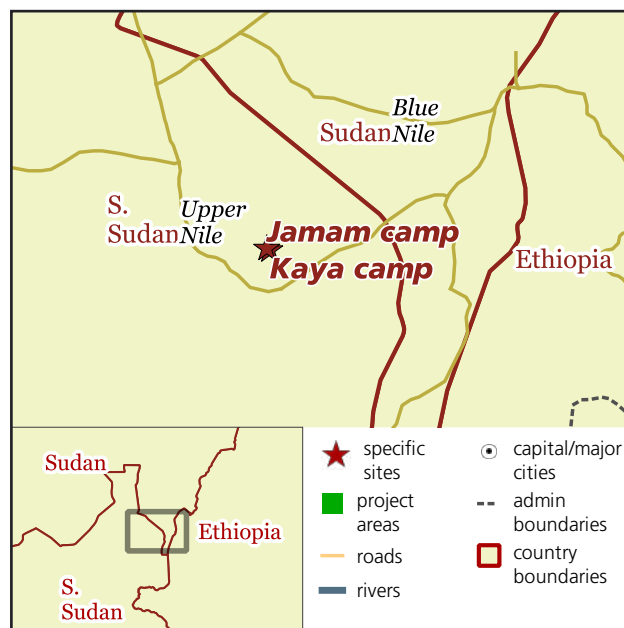
**Keywords:** Transitional shelter / T-shelter.

<b>Emergency:</b>	Conflict in Blue Nile state (Sudan).
<b>Date:</b>	December 2011 (ongoing).
<b>People affected:</b>	Maban County hosts 127,715 refugees, including 21,428 in Kaya camp (September 2014).
<b>Project location:</b>	Kaya camp, Maban County, Upper Nile State.
<b>Beneficiaries:</b>	4,007 households (15,433 refugees).
<b>Outputs:</b>	3,747 timber-frame shelters.
<b>Occupancy rate:</b>	100%.
<b>Shelter size:</b>	15m <sup>2</sup> for families of three or more people.
<b>Cost per shelter / household:</b>	Materials and transport: US\$ 310 (timber structure and plastic roof). Construction and implementation costs: US\$ 56

### Project description:

In order to improve the quality of shelter available to refugees in Kaya refugee camp, the lead agency and its implementing partner built 3,747 15m<sup>2</sup> shelters. The shelters were designed with flexibility in mind, allowing for later upgrading to CGI roofing and expansion or extension by the beneficiaries.

Beneficiaries were given training in construction techniques. Problems with sourcing construction materials meant that construction was delayed.

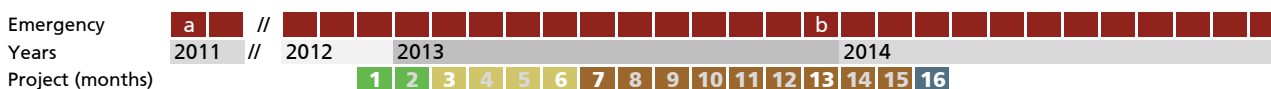


### Emergency timeline:

- [a]** December 2011 refugees arrive in Maban county. Conflict in Blue Nile State ongoing.
- [b]** Civil conflict breaks out across South Sudan.

### Project timeline (number of months):

- [1-3]** Project planning.
- [3-6]** Advance construction of 700 shelters.
- [6]** Relocation from Jamam to Kaya camp begins.
- [7-15]** Paid prefabrication and voluntary construction phase.
- [13]** Conflict halts supply and staff evacuated.
- [16]** 3,747 shelters completed in Kaya.



### Strengths

- ✓ The shelter was easily upgraded, with several families reinforcing roofs with thatch.
- ✓ The shelter could be expanded by building out from one side, though it has been too early to see this in practice.
- ✓ Prefabricating parts of the shelter means that shelters could be constructed in a single day.
- ✓ The beneficiaries were instructed on how to construct both the prefabricated parts and the shelter itself, resulting in a transfer of knowledge and skills and a reduction in the need for external expertise.

### Weaknesses

- ✗ The use of plastic tarpaulin as a roofing material was inappropriate, as it provided poor protection against the sun. It is planned that 2,000 shelter roofs will be

replaced with CGI sheeting later on.

- ✗ Payment for construction of the first batch of shelters created an unrealistic expectation amongst the camp community that all work to construct and erect the shelters would be paid for.
- ✗ The construction monitoring process was weak initially, partly due to gaps in staffing, and corrections had to be made to some shelters.

### Observations

- Very few refugees had prior construction skills as most were agro-pastoralists without previous experience of constructing with timber.
- Timber was not available locally and the conflict in December 2013 meant that timber supplies were halted, staff were withdrawn, and the project was delayed.

## Situation before the crisis

The end of the North/South Sudan war with the 2005 Comprehensive Peace Agreement did not resolve the status of areas such as Blue Nile State. With South Sudan becoming officially independent in July 2011, violence in the state re-erupted, a mixture of local and national conflicts.

## Situation after the crisis began

There are currently more than twice as many refugees from Blue Nile State in Maban county than the original 50,000 inhabitants of the county.

Several refugee camps were established in Maban county, but the rainy season of June to November 2012 led to flooding in several of them and a need to relocate. In May 2013, 17,000 refugees moved from Jamam camp to Kaya.

## Shelter strategy

There was no national government shelter strategy for refugees, partly because South Sudan's Commission of Refugee Affairs was created as recently as 2013.

A local shelter strategy was developed by the main agency and its implementing partners. As Maban does not have the capacity to host large numbers of displaced people directly in the community, the default sheltering option was to build camps.

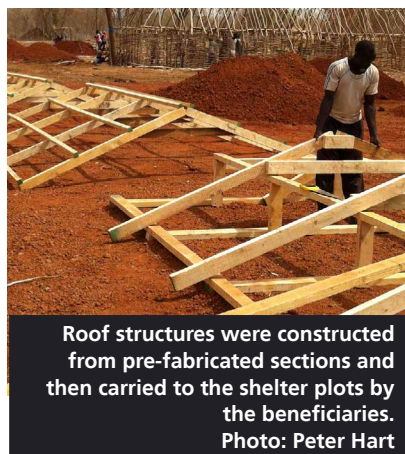
## Project implementation

The project was overseen by a lead agency and implemented by an international NGO.

The lead agency started working with county authorities in Maban from December 2012 to identify a site less at risk of flooding. After three months, Kaya site was approved, located around an hour's drive away from Jamam and with a capacity for up to 30,000 people.

Prototype shelters were built in Kaya and Jamam in order to obtain beneficiary feedback. Initially the design did not include a framed door, but beneficiaries requested that this be added.

The first refugees were transferred to Kaya in May 2013. Jamam's transit centres were dismantled, with



Roof structures were constructed from pre-fabricated sections and then carried to the shelter plots by the beneficiaries.  
Photo: Peter Hart

reusable materials transported to Kaya.

A pre-fabricated approach to shelter construction was decided upon in order to erect as many shelters as possible before the transfer in May, with the aim of completing 4,000 shelters by September 2013.

Around 700 shelters were built (at a rate of around 50 a day) in advance of the arrival of the first camp residents. These shelters were constructed by fully-paid teams made up of the refugees themselves and the host community.

Paying for the construction of the first shelters in preparation for the first arrivals meant that the refugee community was initially reluctant to contribute voluntary labour for the erection of the remaining shelters.

Cooperation improved when each sheik agreed to provide 30 individuals to assist in construction, and the imminent arrival of the rainy season encouraged greater participation.

The lead agency procured and transported all the construction materials. Upgrading of shelters from plastic sheet roofs to CGI sheeting is planned for 2,000 shelters, though procurement will be managed by the implementing partner.

Delays occurred in sourcing timber and eventually the timber pipeline dried up completely in December 2013, due to insecurity. At the same time many camp staff had to be evacuated and the final shelters were finished after a short delay in March 2014.

Monitoring of the quality of construction was improved half-way through the project after a gap in staffing resulted in shelters being

constructed incorrectly. Some shelters had to be fixed and from then on all shelters were built under closer inspection.

## Beneficiary selection

Though all refugees can be categorised as "vulnerable", with most arriving in Maban with nothing more than their clothes and a few belongings, prioritisation had to be made for relocation. Priority was given to female-headed households as well as to households with elderly or disabled family members and/or with a large family size.

A beneficiary list was provided by the lead agency which was used by the implementing partner to distribute the shelter kits. Ration cards were marked once the shelter kit had been distributed to prevent duplications of distributions, and biometric registration data was recorded for the whole population.

Within Kaya itself those families which were initially allocated tents were then prioritised for upgrades to the new shelters. Families of more than seven were given highest priority, followed by large households with a high proportion of vulnerable family members.

Households of only one or two people were not part of the target group. These refugees continued to be sheltered in tents.

By the end of March 2014, Kaya camp housed 4,657 households, a total of 19,161 refugees. 3,272 households of three or more family members received a shelter, along with 735 of the remaining 1,385 households made up of individuals or families of two people.

## Technical solutions

### Design

When the initial shelter design was made in December 2012, poles were chosen for the frame.

Although Maban County is a source for poles sold to other parts of South Sudan, tensions between refugee and host communities increased as refugee numbers rose and competition for construction poles intensified.



By early 2013 it became clear that using poles would exacerbate tensions between the groups and it was decided to ship timber into Maban in order to avoid worsening the situation and in order to start the construction process on time.

Mud bricks were also considered but the volume of water required to produce thousands of shelters was too great.

### Construction

The shelters were prepared as kits by paid teams while the erection and assembly of the shelters was carried out by the beneficiary community themselves, with some refugees receiving special carpentry training.

The shelters were put together in four stages by four different teams:

- Pre-fabrication stage.
- Distribution stage.
- Roof assembly stage.
- Installation (erection) stage.

Each team was made up of around 15 people, making 60 paid workers in total.

#### Pre-fabrication unit

The end walls and roof sections were pre-fabricated. The production line was split into sections, supported by workers who fed the timber to the teams as it was processed:

- Cutting section: saw timber/ poles to length.
- Truss section: assemble trusses with two rafters and two beams.
- Walls section: assemble walls with 1 x 4m and 4 x 2m timber/ poles. Prepare bundles of bamboo and binding wire.

#### Distribution unit

The distribution unit loaded the trucks, transporting the pre-assembled parts and shelter kit items to the distribution points.



Posts were treated with engine oil before being dug into the ground. The community was responsible for the final erection of the shelters.

Photos: UNHCR

#### Roof assembly unit

Roof assembly was carried out by four teams of four people. These teams worked in tandem with the distribution teams, assembling the two roof truss sections per shelter at the distribution points.

Assembly took approximately 15 minutes per roof, with four sets of roofs being assembled at the same time. Completed sections were carried to the shelter plots by the families themselves.

#### Installation unit

For the initial advance shelters, installation of the shelters was carried out by a paid team.

Once refugees moved into Kaya, the implementing partner agreed with the camp shelter committee that the beneficiaries themselves would build the shelters without payment.

The installation of the shelter was supported by the five carpenters provided by each community leader (sheik), who were trained by the implementing partner. The final structure was checked by the project's technical team.

A toolkit was shared between five families, which they kept. It included a digging bar, a claw hammer and a saw.

### Disaster Risk Reduction (DRR)

Maban County faces extreme heat during the dry season and storms and flooding during the rainy season.

Shelters were designed with bracing to counteract strong winds (sand storms are common) and

CGI roofing, once it is in place, will provide improved protection against the sun, compared to tarpaulin.

The site of the camp was chosen with mitigation of flooding in mind and precautions were taken to lay down gravel for roads. The shelter floor could be raised using marram (gravel mixed with laterite) if required.

### Materials

Timber was sourced outside of the county until conflict in late 2013 put a stop to deliveries. At this point it was decided to spend money that would have been spent on timber on CGI sheets instead, for later upgrading.

Transport costs were high as many items had to be flown in to avoid the risk of materials being seized.

Shelter kit
1 pre-assembled roof (12 timber pieces 4" x 2", and 8 timber pieces 2" x 2")
2 end walls (to be joined with bamboo)
22 pieces of bamboo
2 plastic sheets 4m x 5m (one for wall, one for roof)
Binding wire (3kg)
Nails (3kg of 4" and 2.5")

# A.27 Portugal – 1755 – Earthquake

## Historical

**Keywords:** Emergency shelter; Core housing / progressive shelter; Site planning; Infrastructure.

**Emergency:** 1755 Earthquake, Tsunami and Fire, Portugal.

**Date:** 1<sup>st</sup> November 1755.

**Damage:** Approximately 17,000 destroyed (85% of the housing stock).

**People affected:** 50,000 died, majority of Lisbon population affected.

**Project location:** Lisbon.

**Outputs:** City centre largely rebuilt within 30 years.

### Project description:

Following the destruction of most of the housing stock in Lisbon by an earthquake and related tsunami and fire, a complete re-design and reconstruction of the city was undertaken. The new city was designed to include large public spaces, modern infrastructure, and new, anti-seismic building designs.

*This historical case study was researched and written by Pedro Clarke and Charles Parrack.*



### Emergency timeline:

[a] November 1755: earthquake followed by tsunami and 6-day fire.

### Project timeline (number of months):

- [1] November 1755: survey of damage.
- [2] December 1755: Five recovery options considered. Law prohibits construction outside city walls.
- [5] March 1756: First reconstruction plans.

[6] April 1756: Number of wooden shelters reaches 9,000.

[2yrs 6m] May-June 1758: Plans authorised, construction begins.

[3yrs] 1759: "Pombaline Cage" design approved.

[30yrs] 1785: Main city completed, population numbers return to pre-earthquake levels.

[83yrs] 1838: Final elements of reconstruction completed.



## Situation before the disaster

Despite being the capital of a powerful empire, Lisbon in 1755 had significant levels of poverty, worse than many other European capitals, and was known for problems with violence.

Downtown Lisbon was a densely-populated collection of multi-storey, weakly-built houses with narrow streets. Houses were predominantly masonry structures with timber floors and partitions (Paice 2008, Mata dos Santos 2008).

## Impact of the disaster

On the 1<sup>st</sup> of November 1755, Lisbon was shaken for 10 minutes by an earthquake measuring 8.7 in moment magnitude, and the after-shocks were felt for months. The earthquake triggered a tsunami, with an estimated height of 20 metres, which devastated Lisbon's downtown area. Finally, a fire raged through the city for six days incinerating many of the buildings that were still standing.

As the downtown buildings were built on soft soils and surrounded by steep hills, once the earthquake

struck the whole area folded in on itself (Mullin 1992).

Estimates vary, but according to an amalgamation of accounts by British Merchants and the local authorities the total number of deaths was estimated to be around 50,000, the majority of which lived in the city. This means that one in seven of its inhabitants perished (Paice 2008).

In terms of material losses, an estimated 85% of the buildings of the city were destroyed. This included 17,000 out of 20,000 houses. Of Lisbon's 40 parishes only five were



Following the earthquake, Lisbon was hit by a tidal wave and then a fire that burned for six days. Many in the clergy believed that people were being punished for their sins. Image: 1755 German copperplate image, "The Ruins of Lisbon" Wikimedia Commons, public domain



Portrait of Marquês of Pombal (1699-1782) by Van Loo (1707-1771), Museu da Cidade, Lisbon. Image: Wikimedia Commons, public domain

able to continue with the rituals and celebration of mass and the sacraments: the others were burnt or destroyed.

### Situation after the disaster

Although news quickly reached other countries, the UK aid package agreed in parliament two weeks after the disaster did not arrive in port until February due to transportation and customs issues. Spain and France also sent aid, but the initial relief operation was in the hands of the Marquês of Pombal (Paice 2008). Pombal was the then Minister of State and Foreign Affairs and was considering the reconstruction operation at the same time as the emergency response.

The Church provided a great deal of support and the level of cooperation between Church and State was good considering ongoing tensions between the two. Some religious leaders claimed that the city had been punished by God due to its lack of faith (Paice 2008) while many working in government had embraced Enlightenment thinking, and wished to reduce the influence of the Church.

It appears that despite the magnitude of the disaster and the level of need following it, no-one died of hunger. Those whose properties were still intact assisted those in need, housing people in their homes and on their farms (Francisco 2006)

and food in granaries belonging to the King, the Church and the nobility, was distributed.

By royal order, a monastery was set up as a hospital for wounded civilians, while a convent was converted into a military hospital (Francisco 2006). Priests set up local infirmaries in tents and distributed medicine, food and sangria (diluted wine).

Not much information survives on how people coped in the aftermath of the disaster, though the poorest experienced the worst conditions.

Those that had lost their homes camped in the squares, on land owned by convents, and on the beaches. The king ordered a distribution of canvas from the large stockpiles in the royal warehouses, so many people erected makeshift tents. Some supplies were donated by merchants and traders (Francisco 2006).

In the first six months after the quake, it has been estimated that 9,000 wooden buildings were constructed, with settlements developing on the east and west sides of the city. As timber was scarce, much of the lumber had to be brought in from outside (Kendrick, 1956).

Many of the wooden huts were erected as part of government initiatives, others by the church and others by wealthy individuals sheltering those they had immediate responsibility for (Paice 2008). The most famous inhabitants of these wooden

huts was the Royal Family who were sheltered in Royal wooden barracks.

Despite control measures to prevent citizens from leaving it was not until the 1780s that the city's population returned to pre-earthquake levels.

### Shelter strategy

Decision-making power was concentrated in the hands of the Marquês de Pombal, whose management of the recovery has been described as "despotic planning" (Mullin 1992).

Pombal immediately passed a series of laws, announcing the death penalty for looting and forbidding people from deserting the city or settling in unplanned camps.

By the end of November 1755, Pombal had commissioned a survey of the damage, and of land ownership, to avoid later disputes over land tenancy (Paice 2008). In December he passed two construction laws, banning construction outside of the city walls or in unaffected areas to prevent unlawful land occupation and low-standard reconstruction. The army was employed to patrol the city and enforce the regulations.

Any temporary building was prohibited until all the debris was cleared and plans for rebuilding were completed. To prevent inflation, construction salaries, rents and the prices of construction materials were all frozen.





Reconstruction planning started in parallel with the relief operation and on the 4th of December 1755 the Chief Engineer, Manuel da Maia, presented a concept paper outlining five broad strategies (Paice 2008):

- Rebuild the city as it was.
- Rebuild the city as it was, but with wider roads.
- Rebuild the city with the same layout but restrict buildings to two storeys.
- Move the city to a new location.
- Demolish the remaining buildings and build a new, modern city.

Pombal opted for the last option even though, or perhaps because, it would involve completely redrawing the map of land ownership in the city. The city would be planned following the progressive spirit of the European Enlightenment and the citizen, rather than the Crown, was to be put at the centre of a modern city.

Land within the Baixa (downtown area) was immediately appropriated by the state and re-allocated, with preference given to existing landowners, or to the administrators who represented the nobles, the church or the crown. Compensation was based only on site area, and not the

post-earthquake building condition, and the medieval property rules and conditions were discarded.

On receiving the deeds, landowners had to agree to complete redevelopment within five years, preventing property and land speculation.

As the new plan for Lisbon involved larger public spaces, some landowners had to be compensated. The compensation plan involved reducing all land lots by a proportional percentage and dividing the Baixa into different zones of value, with a premium being placed on land adjoining public squares.

The effect of the land re-allocation and compensation was to reduce ownership by the nobility and the clergy and increase ownership by merchants, whose investments were in part financing the reconstruction.

This significantly contributed to the increase in economic power of the middle classes, increasing upward social mobility.

### The new city

Within a matter of weeks following the disaster, the Marquês had assembled a team of military architects and engineers, led by the country's Chief Engineer, Manuel da Maia, to start discussing plans for the city's reconstruction.

Once the decision had been taken to completely redesign the city, six designs were drawn up and

presented in March 1756 (Mata dos Santos 2008).

The chosen plan featured wide avenues connecting two main squares and a restriction of building height to 3 or 4 storeys (considered to be more resistant against collapse). In further iterations of the plan, city infrastructure was to be greatly improved, with a modern water supply for the general public. Building components and construction processes were standardised in order to increase the efficiency of the reconstruction process and houses were designed to be earthquake-resistant.

In May 1758 the plan was officially approved and the reconstruction began.

The modernisation of the city created a robust rental market (Do Couto da Silva, 2012). The house designs allocated the ground-floor space to shops and workshops, the middle storeys to the middle classes whilst the lower-standard attic-floors were reserved for servants and the working classes (Wall Gago 2007). This is one of the first modern examples of people from different social classes living in the same buildings (Cornelio da Silva, 2006).

Reconstruction of the city centre took around 30 years from the 1750s, but other parts of the city were not completed until as late as 1838, still following the original plan. By 1780 the number of dwellings had surpassed the pre-earthquake numbers (Pereira 2006.)

### Disaster Risk Reduction (DRR)

Part of the plan was that all buildings should be built to the latest in anti-seismic design, and Pombal ordered the destruction of any houses not meeting the specifications (Mullin 1992).

The new anti-seismic design by Carlos Mardel included an internal timber-frame with an embedded post-and-beam construction with high levels of bracing. The frame was filled with rubble and then plastered to add protection against fire. The design became known as the "Pombaline Cage" and the first building began in 1759, a year after



A model showing the Pombaline cage design. The design is said to have been tested by getting the army to walk up and down on the roof of a full-size model.

Photo: Galinhola, 2008. wikipedia.org/wiki/File:Gaiola\_pombalina.jpg

the initiation of the reconstruction process.

The design was apparently tested by running a stress-test on a full-scale model in the city's main square. The military were ordered to march in uncoordinated, uneven rhythms on top of the building to simulate the tremor conditions of an earthquake (Mata dos Santos 2008).

### Issues today

Recent studies by some Portuguese engineers (Cardoso, Lopes and Bento 2004, and Ramos, Lourenço 2000) suggest that many of Pombaline Cage buildings in the Baixa have been profoundly altered, driven mainly by commercial interests and changes in building use. This would suggest that some parts of the city might now be more vulnerable than they were 200 years ago.

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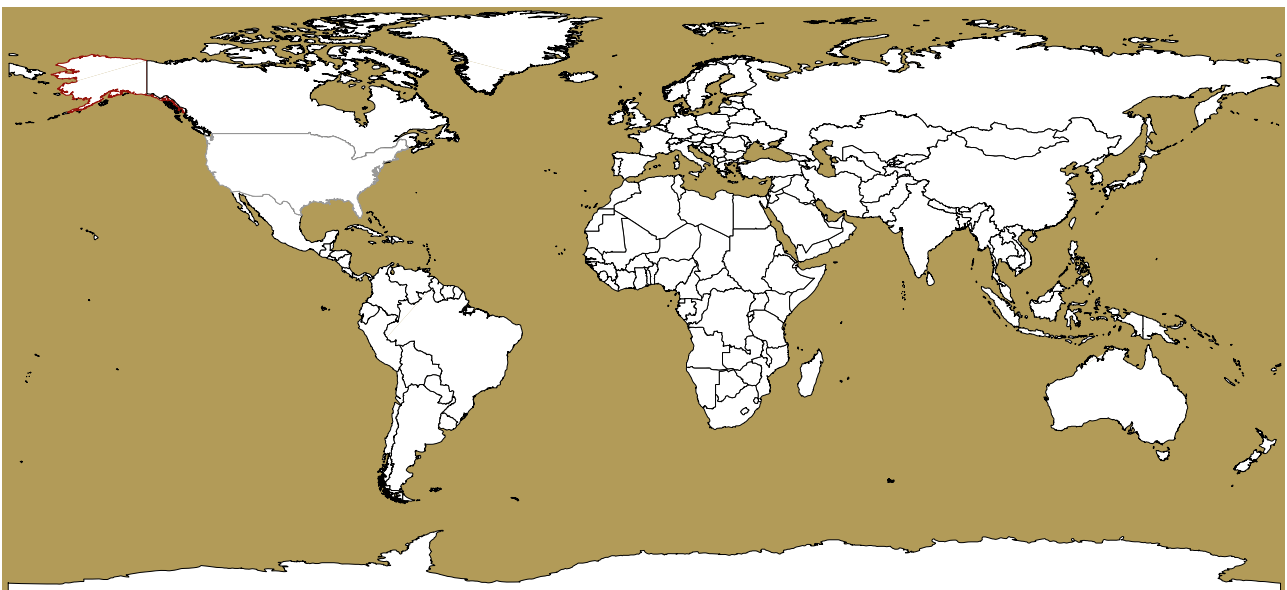
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# SECTION B - Opinions

*This section contains short discussion documents on various issues in shelter written by individuals with a specific interests in each subject.*

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## B.1 The importance of assessment in Shelter

By Megan Passey and Clay Westrope

### Introduction

This article describes how assessments have been used to inform humanitarian Shelter programming and support inter-agency coordination, with examples from different countries.

### Background to REACH Initiative

REACH was created in 2010 as a joint initiative of two INGOs and a UN agency to facilitate the development of information tools and products that enhance the capacity of aid actors to make evidence-based decisions in emergency, recovery and development contexts. The REACH Initiative has been working as a stand-by partner of the Global Shelter Cluster since 2011, supporting the development of a global assessment strategy and carrying out rapid assessments and evaluations for Cluster operations worldwide.

### Improving coordination through data sharing in Somalia

Following an increase in displacement in 2011 and 2012 due to famine and continued conflict, gaps in data across multiple sectors in settlements of Internally Displaced Persons (IDPs) in Somalia, Somaliland and Puntland made it difficult to quantify needs and to effectively target the delivery of humanitarian assistance to displaced populations.

In 2012, REACH worked with the Shelter Cluster to carry out a Shelter Sector Review to understand country-wide shelter needs, identify critical gaps and collect the information needed to fill them. Building on a contextual overview of the IDP situation from secondary data, the Shelter Sector Review used three types of primary data collection: household surveys, direct observation by enumerators, and remote sensing.

Sites were selected for assessment based on a review of secondary data and remote sensing analysis. A cluster sampling methodology was used to select a representative sample of households at the settlement level, which allowed for disaggregation of data by individual settlement. While this method of sampling required a large number of households to be assessed (8000), it decreased the overall error inherent in using complex paper forms, and provided comparable data at a settlement level, which had not previously been possible.

The assessment provided several outcomes, the most important of which was improved coordination between aid organisations and the government. The assessment instilled a common understanding by all actors of shelter



Using smartphones to collect survey data.  
Photo: REACH.

types and conditions, which in turn allowed better resource allocation by all actors.

Increased participation in inter-organisational and Cluster-based exercises facilitated the adoption of common frameworks for monitoring and evaluation.

### Rapid assessment, monitoring and evaluation in the Philippines

Typhoon Haiyan, known locally as Yolanda, struck the Philippines in early November 2013, damaging over a million houses and displacing over 4 million people.

In partnership with the Shelter and WASH Clusters, REACH carried out a rapid assessment in the immediate aftermath of the typhoon, to gather baseline data on the impact of the disaster. The affected area was vast, and coupled with significant damage to infrastructure, posed considerable challenges to carrying out the assessment.

Following a review of secondary data to identify the affected areas, the first round of primary data collection was carried out in November 2013 and included over 6,000 interviews in 16 targeted municipalities within 100km of the storm path.

For both baseline and monitoring assessments, primary data was collected by enumerators using a smartphone application, which allows surveys to be loaded on to a smartphone, completed off-line, and then uploaded onto a server at the end of a day. Each survey can be geo-located using GPS data, which clearly shows the spread of data collection across a geographic area and helps to check that sampling is random.

The use of mobile phone applications for data collection removes many of the problems with incomplete or illegible paper forms, and saves valuable time in data-entry. While this method of data collection worked well for the initial

assessment, technical issues with the smartphones caused problems with the monitoring assessment, which highlights the importance of having the correct equipment.

The speed of the initial assessment allowed the information collected to be fed directly into the 2014 Strategic Response Plan and the associated appeal. Subsequent sector response monitoring assessments in June and August 2014, together with an evaluation in late 2014, were also planned to coincide with the Humanitarian Programme Cycle (HPC). Timing assessments to coincide with these key programming and funding milestones was vital to ensure that up-to-date information was available to those who needed it for both practical response planning and wider advocacy efforts.

### Assessment access constraints in Iraq

Between January and August 2014, an estimated 1.7 million people had been displaced by months of increasing violence by armed opposition groups across much of Iraq. Following the declaration of a Level 3 emergency, the Office for the Coordination of Humanitarian Affairs (OCHA) requested that the Clusters collect sectoral information for an overview of humanitarian needs to inform the revised Strategic Response Plan.

REACH worked jointly with the Shelter Cluster and newly activated Camp Coordination and Camp Management (CCCM) Cluster to carry out a sectoral assessment of the needs of internally displaced Iraqis.

Due to ongoing violence and a lack of humanitarian access, the assessment adopted a mixed approach to data collection: household-level data was collected in the accessible Kurdistan Region of Iraq (KR-I), while community group discussions with key informants were used to assess shelter needs in inaccessible governorates.

Based on available data from an INGO and other secondary sources, sample sizes were constructed to allow a comparison of IDP needs by type of accommodation. Household interviews of over 750 families were carried out across the KR-I in a seven-day period, with provisional results monitored on a daily basis and shared with the

#### Resources and further reading

Further information about the REACH Initiative is available from [www.reachresourcecentre.info](http://www.reachresourcecentre.info)

Somalia Shelter Sector Review for Somalia, Somaliland & Puntland, December 2012

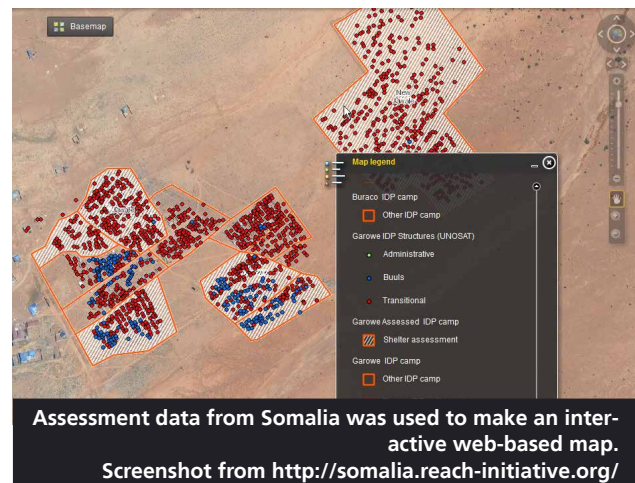
Philippines: Typhoon Haiyan Shelter & WASH Rapid Assessment, January 2014

Philippines: Typhoon Haiyan Shelter & WASH Response Monitoring, April 2014

Philippines: Typhoon Haiyan Shelter Sector Response Monitoring, September 2014

Iraq: Shelter & CCCM Cluster Rapid Assessment, Sept. 2014

Iraq: Shelter Cluster Area of Origin Assessment, Oct. 2014



Clusters. Data collected remotely from inaccessible areas was compiled into a series of factsheets and dashboards and also fed into the inter-agency planning process.

As in the Philippines, the ability to mobilise quickly was vital to ensure that data could be collected in time to inform the Humanitarian Needs Overview. A high level of information-sharing, facilitated by OCHA, meant that existing data on shelter types could be built upon, rather than duplicated. Collaboration between the Shelter and CCCM Clusters meant that a single data collection form covered indicators for both sectors, avoiding an unnecessary duplication of questions, which could have quickly led to assessment fatigue amongst the displaced population.

### Key points for an effective assessment

- Timely, coordinated assessments are vital. If data collection is timed to coincide with key humanitarian milestones, results can be disseminated widely for planning, advocacy and appeals.
- Inclusive assessments engage a range of actors. Collaboration for an assessment and providing publicly accessible information can result in improved communication, information sharing and increased participation in Clusters and inter-agency processes.
- Needs assessment data can be built upon for response monitoring, evaluation and preparedness. Assessment findings can feed into every phase of a project cycle, with consistent indicators used to establish a baseline, monitor progress, evaluate a response and prepare for the future.
- Triangulation is vital. Primary data is most useful when it builds upon a strong base of secondary data, can be geolocated and displayed visually on a map as well as in reports and databases.
- Embrace new technology. The speed and accuracy of data collection and analysis can be improved considerably by using new technology, when it complements existing processes.



## B.2 Evaluating cash-for-rent subsidies

By Yves-Kim Créac'h with contributions from Emily Sloane

### Background to cash-for-rent

In the last decade or so, the use of cash as a modality in humanitarian interventions has become increasingly prevalent. Today it takes on many diverse forms, from direct, "unconditional" cash transfers to different forms of conditional payments such as vouchers, cash-for-work, or cash-for-rent (see *Shelter Projects 2011-2012*, B.2).

Rental subsidies have long existed as a form of support within modern social welfare systems in many countries. The use of cash-for-rent in humanitarian projects, however, is relatively new. One of the first projects to involve cash-for-rent was UNHCR's cash scheme in the Balkans in 1999 to support Kosovar refugees who were being sheltered by the host Albanian population.

The rise in displacement in urban settings, especially following the Syrian crisis, has led to an increase in the use of cash-for-rent. Many refugees or IDPs, given a choice, prefer to live in rental accommodation rather than other shelter solutions such as camps or collective centres. At the same time, this shelter option is often relatively expensive, and families with precarious livelihoods may find themselves pushed into debt or at risk of eviction.

### Examples of cash-for-rent

During the Syrian refugee crisis, cash-for-rent projects first began appearing in Lebanon in June/July 2012. At that time the case for cash-for-rent appeared to be rather limited since alternative shelter options were available (collective shelter, small shelter units) and the host community had been very welcoming and eager to assist.

However, once refugee numbers began to rise dramatically, with refugees quickly using up their financial resources in rental accommodation, pressure increased on the rental market and evictions began to occur more frequently. Cash-for-rent is now considered as a quick-response option, necessary when other options have gone awry.

In Jordan cash-for-rent is used as a way to support those families whose livelihood opportunities are limited because of the strained political context. Some NGOs that do not normally intervene in the shelter sector provide cash-for-rent to refugee households who do not have access to legal employment.

Not only is cash used by the Shelter and Livelihoods sectors, it is also an important part of protection work, providing a quick and effective means to offer safe shelter to vulnerable people when other options such as camps and collective centres may increase their vulnerability.

For example, an INGO in Lebanon has used the following mutually inclusive criteria when deciding whether to support a beneficiary with a rent subsidy:

- Vulnerable individuals, including victims of torture and survivors of gender-based violence;
- Ineligible for collective shelter or small shelter unit assistance; and
- Already living in a rented apartment or willing to find an apartment and negotiate price with the landlord.

The use of cash-for-rent by different sectors demonstrates that the methodology has yet to find its place within the traditional structures of operational organisations: in *Sphere*, standards on the use of cash and vouchers are found in the Food Security Chapter. This then frames part of the debate around the appropriateness of cash-for-rent interventions.

Those arguing for and against the use of cash-for-rent do not fall into clear groups between or within organisations. However, it does appear that a number of donors see cash-for-rent as a cost-inefficient and unsustainable modality of assistance.

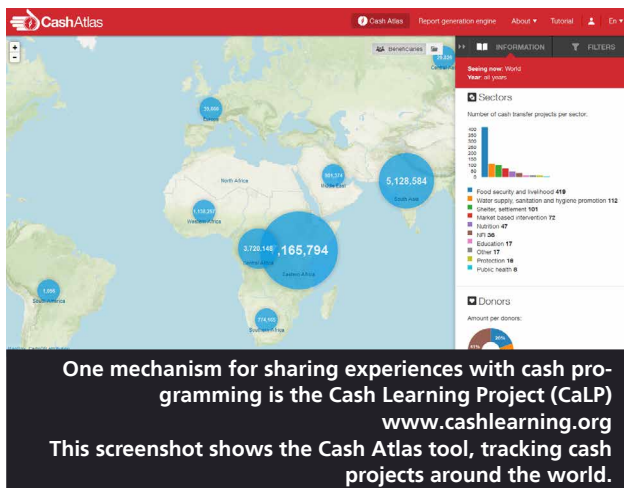
### Problems with cash-for-rent

The use of cash-for-rent within the urban context makes theoretical sense due to renting being a common shelter option, and the injection of cash into the host community can help mitigate tensions as it provides some compensation for hosting large numbers of displaced people. It is also a very direct solution in preventing forced eviction, an increasing problem in Lebanon.

Unfortunately, there are side effects, and it is hard to see the modality as a sustainable one. It may contribute to inflation of rental prices or create an informal negative parallel rent market. Evictions remain likely, as landlords know that there are plenty of other renters supported by subsidies who are waiting to take over accommodation.

Cash-for-rent also raises expectations in the host communities in terms of receiving compensation for hosting. This can cause problems for displaced families if landlords assume that their tenants have more resources than they actually do.

Finally, a cash-for-rent intervention itself can be very expensive in terms of cost per household over a long period of time, especially in countries with a relatively high cost of living, like Lebanon and Jordan.



### More evaluations needed

One INGO's report on unconditional cash transfers in Jordan provides some insights into the issues around cash-for-rent (see box below), but to date there have been no extensive or detailed evaluations of the full impacts of cash-for-rent.

Any cash-for-rent intervention needs to have a well-defined scope and is most likely to be used in a very specific part of the cycle of humanitarian response and almost exclusively in urban contexts. When assessing whether cash is an appropriate modality to support beneficiaries in rental accommodation, programmers should consider:

- Vulnerability profiling of the potential beneficiaries.
- Local context analysis via interviews with key informants, such as protection case workers, protection specialists, potential stakeholders, official or de facto authorities.
- A rental market survey, in order to minimize potential inflation or identify pockets of inflation caused by landlord expectations of beneficiaries' ability to pay.

One suggestion for improving the design and effectiveness of cash-for-rent programming globally is to make an evaluation of several projects in urban settings in different types of emergencies. These projects need to be identified at the very beginning of their life-cycle and require sufficient representative characteristics to allow for comparisons and inform the debate on cash-for-rent.

Each study should:

- Establish baseline indicators required to measure the impact and efficiency of cash-for-rent (such as the rental market, the impact on local economy, the impact on host community behaviour, etc.).
- Involve an extensive secondary data review to make sense of what data are available and identify gaps.

- Following the baseline survey, run further surveys every six months for two years in order to capture the changes over time and the impacts of factors such as seasonality.

### Summary of one INGO's findings in Jordan:

Many INGOs have supported Syrian refugees to meet their rental costs in Jordan, either through unconditional cash transfers or specific cash-for-rent programmes. The organisation profiled in this summary has used the former approach.

According to an assessment conducted in late 2013, the organisation's cash assistance largely served its intended purposes and had a significant, though short-term, impact on beneficiary families. It helped refugee families to meet their basic needs, including housing, and in some cases it allowed financially desperate families to remain in Jordan rather than return to an insecure Syria.

The organisation's cash transfer programme did not seem to contribute to families' resilience; all families interviewed expected to plunge into debt within a few months of the programme's end. Clearly, such programmes are unsustainable unless beneficiaries are able to secure viable, long-term income sources during the assistance period.

The enormous humanitarian response for Syrian refugees in Jordan, of which cash transfer programmes are a significant part, has helped to fuel a perception that refugees are receiving massive, comprehensive assistance. This feeds into Syrian-Jordanian tensions, which threaten to make refugees' lives more expensive and more challenging. Any contribution that cash assistance programmes have made to rising rental costs should be of particular concern to INGOs.

### Further reading

Oxfam (2014) The Impact of Oxfam's Cash Distributions on Syrian refugee households in Host Communities and Informal settlements in Jordan. [www.cashlearning.org/](http://www.cashlearning.org/)

ECHO: The use of cash vouchers in Humanitarian Crises - 2013: <http://ec.europa.eu>

Cash evaluation report - 2008: <http://ec.europa.eu>

ODI: Cash transfers and response analysis - 2012: [www.odihpn.org](http://www.odihpn.org)

External evaluation of the Rental Support Cash Grant Approach Applied to Return and Relocation Programs in Haiti: <http://www.eshelter-cccqhaiti.info>

The social impact of cash transfers: a study of the impact of cash transfers on social networks of Kenyan households participating in cash transfer programs: [www.ifpri.org](http://www.ifpri.org)

Cash-based responses in emergencies: [www.odi.org](http://www.odi.org)

Thanks to Souad Abbas and Carlee Hoffman-Schwarz from DRC Lebanon in the preparation of this article.

## B.3 Security of tenure and humanitarian shelter

**Based on “Security of Tenure in Humanitarian Shelter Operations”. Abridged by Jake Zarins.**

### Tenure and humanitarian assistance

In recent years the humanitarian community has made progress in better orientating emergency shelter toward addressing the needs of the most vulnerable conflict- and disaster-affected populations. During this time, increased attention has been devoted to the different bases upon which beneficiaries of humanitarian shelter assistance occupy their homes, (otherwise known as ‘tenure’).

At the same time, humanitarian organisations increasingly require potential beneficiaries to provide documented evidence of tenure in order to receive assistance. While the rationale may be understandable, restrictive notions of security of tenure can lead to discrimination against the most vulnerable, the very people who should be the primary target of humanitarian assistance.

So why do humanitarian actors often insist on documented title? Insisting on documentation enables humanitarian organisations to reach clear agreements on how and where assistance should be provided, with key stakeholders, including beneficiaries, landlords and local authorities. Documented proof of tenure also acts as a mechanism for accountability, not least to donors to demonstrate that funds are being spent on solutions that are sustainable, since the beneficiary is less likely to be a victim of eviction.

However in many contexts in which humanitarian shelter is provided, various forms of customary land rights are dominant. For example, in Africa, statutory tenure is generally thought to cover only between two and ten per cent of the land. Likewise, in several states in Myanmar more than half of all households are legally classified as landless. Therefore under ‘formal’ criteria they would be ineligible for shelter assistance in their place of origin if displaced by conflict or disaster.

In these situations there is a risk that making freehold title, or individual property ownership, a condition of assistance will result in the exclusion of socially vulnerable groups from accessing shelter assistance. This particularly affects those without registered title or other documentation to evidence of their landholding. This group includes customary landholders, renters, and especially women.

### Parallel systems

The increased focus on ‘accountability’, the complexities of security of tenure as a concept, and the vast diversity of the forms of tenure may have contributed to the emergence of registered title becoming a pre-requisite for humanitarian assistance. Title documents, however, are not the only or even the most common means by

An illegally occupied building on the outskirts of Kabul in 2012. The occupation was unofficially tolerated by local authorities.  
Photo: Jake Zarins.



which a beneficiary may demonstrate security of tenure. Depending on local law, custom and practice, documented title may represent only one among several commonly accepted land tenure arrangements. This is known as legal pluralism – the coexistence of parallel laws and authorities that guide and inform the administration of justice on similar matters. Often these are:

- Statutory laws – acts, rules or regulations approved and promulgated by a government.
- Customary laws – customs, rules or practices that regulate social behaviour that have developed over time in a specific community and are considered to be mandatory.
- Faith-based legal systems such as Sharia.

State law is often known as “de jure” law, while “de facto” law is the reality on the ground, which may be customary law.

Sometimes the customary systems are incorporated into state law and regulated by the authorities (for example, in Uganda and Mozambique). In other cases, customary rights may not be recognised by the state and



customary law is law only to the extent that the people who follow it, voluntarily or otherwise, consider it to have the status of law.

Whether formally recognised or not, customary land rights can, and often do, enjoy more legitimacy in the eyes of local community members than statutory rights. In these situations, security of tenure based on informal or customary rights may be at least as 'secure' as formally registered rights when considering the relative risk of eviction or similar challenges.

In Afghanistan, customary land tenure is often considered the most reliable given the long history of conflict, displacement and the wide-ranging ideological differences and ethnic biases of the various governments that have influenced adjustments in the laws around land allocation and ownership. With so many conflicting systems informing land rights over the years, the customary systems are still seen as the most reliable, as they are underpinned by principles of Sharia law often used in conflict resolution. In these situations, reliance on formal notions of security of tenure may tend to distort, rather than clarify, the pattern of land rights.

### Urban complexities

The overlapping ownership patterns common to customary landholdings are also commonly found in urban contexts, and nowhere is the diversity of tenure forms more apparent. Urban and peri-urban areas are frequently characterised by a relatively high percentage of renters (documented and undocumented) in multiple occupancy buildings or in informal settlements. In many urban areas informal settlements outnumber legally planned developments and are increasing more rapidly.

Not only does the overwhelming number of undocumented dwellers in urban areas present challenges for the humanitarian community; so too, does the physical lack of space, which is a premium in any urban area. This can result in several forms of tenure co-existing on the same plot in multiple-occupancy and multi-storey dwellings.

For instance, agencies aiming to support people displaced from the north of Mali to Bamako and other urban centres in 2012 found a wide range of tenure arrangements being used by the IDPs and hosting populations. There were households who were tenants in rooms, shared rooms or storeys of houses built by land-squatters, households on land claimed by others but with no formal title, and widely varying rental arrangements in terms of both rights and contract lengths, which varied from days to months. These complicated and varied living conditions made decisions on assistance levels very difficult, both in terms of determining per-household assistance and the application of per-square-metre humanitarian standards.

With such complicated overlapping arrangements existing before a disaster or conflict, it is unsurprising that

the issue of land tenure in an urban context has presented such challenges to the humanitarian community. Finding housing solutions in emergencies in big cities is extremely complex. These difficulties are not just restricted to developing cities but have also been seen in the response to the Great East Japan Earthquake in 2011 where, among many other issues, incomplete land registries and lack of proof of ownership continue to delay recovery.

### The need for greater understanding

Evidence suggests that, especially in the early recovery phase, favouring those beneficiaries who have documentary evidence of tenure excludes large numbers of beneficiaries, and especially the most vulnerable, from humanitarian assistance. Humanitarian organisations must work with community members, including landowners, local organisations and local governments, in order to understand existing complexities in *de jure* and *de facto* tenure arrangements and in order to identify the primary causes of insecurity. This understanding needs to include analysis of both individual and collective security as well as the political systems that accompany them. By doing so, the humanitarian community can address some of the worst forms of inequality and insecurity that are found during the delivery of shelter responses and take action, often through advocacy, to avoid prolonged displacement and forced evictions.

There are several case studies in Shelter Projects 2013-14 that illustrate issues with tenure. Often these demonstrate how negotiations with local authorities or government can result in providing a modified form of assistance where structures can be officially classified as "temporary" and therefore do not violate land issues. For examples of this issue see non-permanent shelter in Fiji (case study A.7), the change in policy on providing assistance in the "No Build Zone" in Tacloban in the Philippines (case study A.25), and the distribution of "lightweight" repair materials in informal settlements in both Kurdistan and Lebanon (case studies A.9 and A.13). In other situations, such as the response to hurricane Sandy in Haiti (case study A.6), beneficiaries who are unable to prove identity and land tenure were unable to receive the full level of assistance on offer.

### Further reading

This is a heavily edited version of "Security of Tenure in Humanitarian Shelter Operations", a paper released jointly by NRC and IFRC in June 2014.

The full paper including references can be downloaded from IFRC's website: [www.ifrc.org](http://www.ifrc.org)

For an explanation of freehold tenure, see UN Habitat, Security of Tenure Best Practices, p.3 at: [www.unhabitat.org](http://www.unhabitat.org)

## B.4 Supporting host families as shelter options

By **Eddie Argenal and Charles Setchell**

The vast majority of the people left homeless after a crisis, before they are assisted by local governments and humanitarian actors, frequently stay with friends, relatives and even strangers, in order to cope. The assistance provided by generous individuals and families who open their homes and hearts to stranded individuals has come to be known as host family support. Host family support is rooted in the willingness of people, whether compelled by family, friendship or community ties, or simply compassion for others, to help those in need. Hosted households rarely pay for support they receive; however, when they do they usually pay at a discounted rate.

Host family support plays a critical role in humanitarian assistance by temporarily making access available to a space where displaced households sleep, eat, play, rest, relax, and engage in social and economic activities, until they secure more permanent housing solution. Unfortunately, the failure to support host family arrangements in times of crisis often leads to poor living conditions, erosion of livelihoods, assets and savings for both the hosted and the hosting families, abuse and exploitation, strained relationships and social stigma.

Few families and their communities are able to support hosted households for long periods of time if unassisted. Host families share not only their personal space but also frequently their food, income, and livelihoods with displaced individuals. This sharing of limited resources may hinder the host family's own resilience to future shocks. Communities share their (often limited) access to basic services such as schools or health services which can reduce, in the short-term at least, the quality of those services and undermine the welfare of the community.

This pressure on host families and their communities explains why most hosting support arrangements, especially those that are not supported by humanitarian organisations and other actors, tend to be short-lived and may hinder the capacity of the affected population to recover from the crisis.

Supporting host family arrangements has become increasingly popular in recent years. Hosting arrangements have been supported by governments, non-governmental organisations, and, more recently, by the private sector and the public to meet urgent shelter needs, post-crisis. The support provided to host family arrangements has included:

- Housing upgrades to improve comfort, safety and privacy.



Numerous forms of hosting were supported in Kosovo in 1999-2000, including conversion of outbuildings such as this farm storage shed.

Photo: Charles Setchell, USAID/OFDA

- Distribution of household items (e.g. toiletries and bedding).
- Rent-subsidies or cash-assistance to compensate for increased utility fees or for lost income-generating assets.
- Upgrading basic services in host communities including schools, clinics, and water and sanitation systems.
- Providing vocational training, remedial classes, and other forms of livelihoods support to increase access to income-generating opportunities.

### Potential problems with hosting

Support to host family arrangements, similarly to other sheltering options, has its drawbacks.

In addition to being a burden to those involved, host family arrangements are difficult to identify and target, especially in urban areas. The assistance provided has to be, to a great extent, tailored to the needs of each household, which makes shelter projects heavily reliant on large numbers of survey staff and community mobilisers, which may make delivery of assistance time-consuming.

Host family arrangements can also expose vulnerable individuals, especially women and children, to abuse and exploitation. It is also hard to separate disaster-induced needs from chronic needs, as hosting arrangements may not be used exclusively to cope with disasters and conflict.

Hosting arrangements are vulnerable to informal eviction and have proven to last longer only when family and friends are involved.

## When hosting works

Support to host family arrangements can, however, be beneficial for both the organisation providing the assistance and the people receiving the assistance. Hosting support is one of the most cost-efficient and effective ways to assist large displaced populations over extended periods of time, especially when compared with other sheltering alternatives such as the construction of transitional shelters or the upgrading of buildings.

Hosting arrangements have the potential to evolve into permanent housing, especially for displaced female-headed households, orphans and the elderly. Hosting support prevents further displacement and the associated creation of camps, which are known to be costly and difficult to upgrade, operate, and decommission.

Finally, hosting support reduces the demand for housing, thus making shelter affordable for households unable or ineligible to access humanitarian or other types of assistance.

## Examples

The examples below help illustrate how host family arrangements can be supported or undermined:

### *Syrian Refugees in Lebanon*

The Syrian crisis, which began in March 2011, has resulted in a large internal population displacement and a large flow of refugees to neighbouring countries (see case studies A.8-15 in this book). According to the UNHCR, over 3 million Syrians have found refuge in other countries. In Lebanon, a country of close to 4.2 million people, UNCHR has registered over 1,150,000 refugees as of October 2014.

In response to the refugee influx, the Government of Lebanon (GoL) allowed Syrian households to enter the country and permitted their unrestricted internal movement. The GoL has tried to prevent the establishment of refugee camps, a response that has been common in neighbouring countries.

As a result, most Syrian refugees are living in rental accommodation (of varying quality) in Lebanese communities, while only a small percentage of the Syrian refugees in Lebanon have settled in the 1,000 spontaneous camps spread throughout the country.

The US Government responded to the crisis by providing to its partners close to \$83 million to support hosting arrangements from the onset of the conflict to May 2013. A large portion of that has benefitted Syrian refugees as well as their host Lebanese families and communities. The assistance provided included rent subsidies, essential household items, vouchers, and medical and psychosocial care. More importantly, the assistance provided contributed to tackling shelter shortages in Lebanon by

rehabilitating substandard housing, and assisting host families to upgrade their homes in order to better accommodate the refugees.

### *New York City - Hurricane Sandy*

Tropical Storm Sandy hit the United States in late October 2012, wreaking havoc in coastal areas from Florida to Maine. In New York City, the storm damaged the subway system, cut access to the city by flooding most tunnels, and disrupted the supply of electricity, running water and flooded housing in many neighbourhoods. Consequently, thousands of households were left with no place to stay.

In the aftermath of the disaster, generous households made available extra space in their homes to stranded families for free or at discounted rate through a website service normally used to facilitate people to privately rent out their homes to travellers. The website company, taking cues from its users, set up a network to connect households in need of shelter assistance with those willing to assist them. According to the company's own website, 1,400 rooms were made available to households and individuals in need of shelter in the aftermath of the storm in New York City.

### *Post-war Georgia, a missed opportunity*

In Georgia, after the conflict with Russian in 2008, 192,000 individuals (38,400 households) were displaced. At the onset of the crisis a large share of the displaced population was hosted in cities and towns outside the conflict area. Unfortunately, few humanitarian organisations supported host family arrangements during the crisis, targeting instead families that were living in vacant buildings or collective shelters.

This acted a pull-factor for hosted families, and the few collective shelters that existed and were suitable for living in quickly became overcrowded. This in turn forced most displaced households to stay in unfinished locations which often had limited or no access to drinking water, sanitation, heating, or electricity.

The cold temperatures only worsened the living conditions of the displaced families, and humanitarian agencies rushed to make collective shelters habitable, spending a large share of their limited budgets and time in doing so.

Unfortunately, despite the improvements performed to collective shelters, the living conditions in those locations only marginally improved. Many displaced households endured tough living conditions in collective shelters for several months. If host families had been supported at the beginning of the project, the story may have been very different.



## B.5 Urban settings

By Jim Kennedy



Mattresses are hung out to dry after being soaked with rain during the night. This unfinished, multi-storey building in Duhok city, Kurdistan, provides limited, temporary shelter for refugees. Photo: Wan Sophonpanich.

### Dynamic populations

Whether people are displaced or non-displaced as a result of a disaster or conflict is one of the fundamental ways in which humanitarian actors have sought to frame methods of Shelter response for disaster-affected populations. In the Sphere Project and many other key sectoral guidelines, the main categories of settlement typologies cascade down from this initial division, and continued displacement can be an indicator of vulnerability, and a key to understanding how far from durable shelter a disaster-affected household might be.

Many of the settlement typology names were created with urban populations in mind: 'apartment tenant' in the list of non-displaced options, could after all only occur in settlements large enough to have multi-unit housing. The full list of settlement typologies then form the foundation for the continuing development within the shelter sector of appropriate support responses: being able to use this terminology with regards to disaster-affected populations has been instrumental in discussions in recent years about a variety of support methods described in the case studies of this book, including rental support, upgrading for unfinished houses, and support for host families.

However, these useful terms are also easy to use poorly. Too often, humanitarian organisations assess households or communities as being displaced, but then assume that those households will move no further – unless as a direct result of the humanitarians' own programming. A brief review of twenty assessment tools commonly used by the

Shelter sector shows that the majority of them do not have any questions regarding intentions for future movement, or for the future shelter intentions of the households being interviewed.

In reality, affected populations are not static. Not all households will just choose just one form of post-disaster shelter solution, staying in that shelter until a more durable solution is arrived at. Furthermore, not all of the reasons for moving from one shelter location to another are driven by shelter considerations such as upgrading of the shelter – access to livelihoods or access to education may be decisive factors.

Other considerations in post-disaster urban responses might include:

#### *Changes in patterns of displacement*

What have been the patterns of movement, migration or displacement within the city before the disaster, and how have they changed since the disaster, and why? Were people moving around a lot beforehand? Who was moving around the most? Was this forced movement, or was it due to livelihoods choices, and how have these movement patterns changed since the disaster?

There may have been many households who were not living in single, stable housing situations even before the emergency, and there may have been many households which were not living as constant, cohesive single units all

under one roof before the emergency. The emergency, and any subsequent movement of people, was placed upon an already fluid – rather than static – situation.

### ***Seasonal and long-term trends in population movements***

What were either the patterns of seasonal migration between city and countryside before the disaster, or the general trends of urbanisation – and how have those been affected by the disaster, and the disaster response?

### ***Micro-displacement***

To what degree is there ‘micro-displacement’ within neighbourhoods? Or, is there the presence of the phenomenon seen in Port-au-Prince after the 2010 earthquake, of people sleeping in camps, but taking the risk of being caught in an aftershock by going back to damaged homes to go to the toilet or bathroom, rather than using those provided in the camp? In this book, case study A.17 from Nigeria gives an example of people choosing to voluntarily live in poor-quality shelter for a year so that they could better calculate household budgets, in order to decide on what type of upgrade to undertake.

### ***Fragmented displacement***

And, what about when the displacement is not undertaken by the whole household together, but actually results in the splitting up of the household, across a number of locations at once? Not all households which then split up, keep on being split up in the same way for the entire duration of the period until a durable solution is arrived at, as different household members come and go at different times.

Being ‘displaced or non-displaced’ may - at the same time – be different according to different sectors of humanitarian response: a household may have moved away from their old house (so, ‘displaced’ according to Shelter categorisation), but the children may still be close enough to continue to attend their old school (so, ‘non-displaced’ according to an emergency Education categorisation, perhaps).

### **Breaking down the concept of displacement**

It has taken the Shelter sector quite a while to realise that in some ways, the concept of ‘Shelter’ was too big a catch-all to be useful in all instances, and that it needed to be unpicked into more nuanced sub-definitions, in order to facilitate thinking about how to usefully respond.

There will continue to be a real value in trying to do a constructive unpicking for the word ‘displacement’ in urban areas. Humanitarian or development actors have limited access to – and probably lack capacity to analyse

– community profiles that would allow adaption to more tailored shelter options.

Work continues within the Shelter sector in order to further develop the palette of implementation methods available, but, as ever, there have been times that the Shelter sector might be accused of not having used the already-available tools intelligently enough – particularly when it comes to urban situations. There have been times when we haven’t used the existing conceptual tools in a way which is nuanced enough to provide the flexibility and capacity to give support to households who are part of a dynamic shelter process.

Examples in this book of where a flexible approach has been adopted include in Fiji (A.7), where following the principles of ‘transitional’ shelter, “temporary” moveable shelters can be taken by beneficiaries to new plot, or in Kurdistan (A.9), where some of the materials purchasable by vouchers could be used as portable investments by the beneficiaries.

# SECTION C - Annexes

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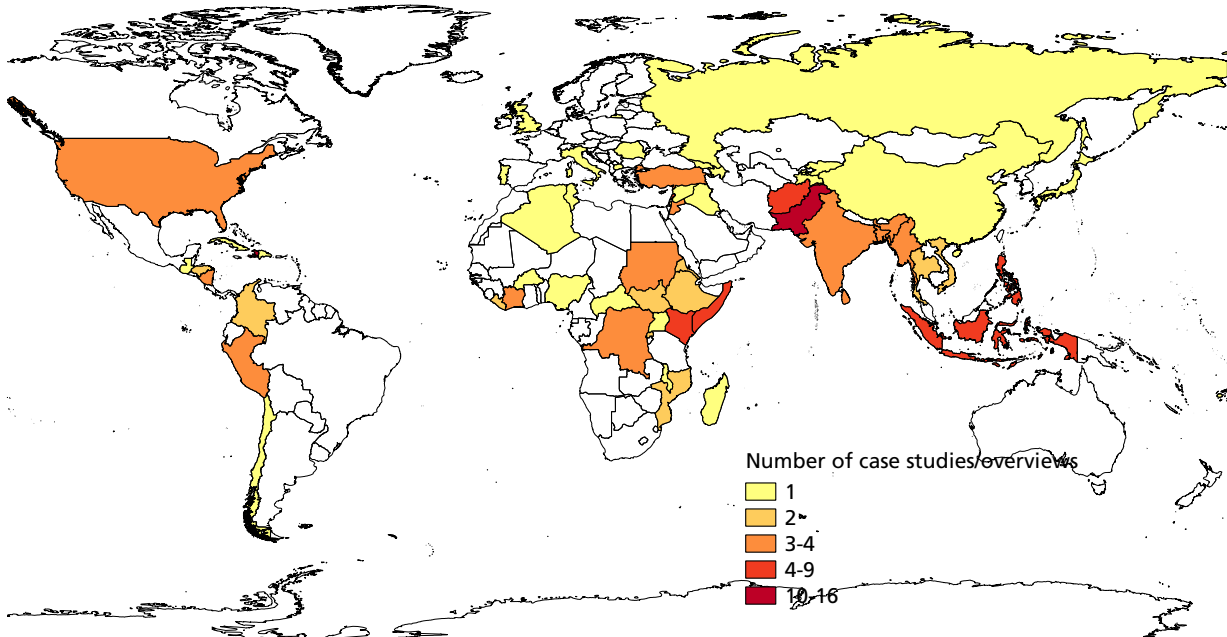
## C.1 Index of case studies by country

This index lists all the case studies in this book and all the previous editions of Shelter Projects (2008, 2009, 2010 and 2011-2012). It is sorted by country and by date. Projects are colour coded as follows:

Case studies

Updates - Follow up reports on existing case studies, and technical analyses of individual shelter designs.

Historic case studies - Case studies of projects before 2000



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South Sudan, 2012, Conflict	Case study	Shelter_Projects 2013-2014
Sri Lanka, 2010, Conflict	Technical	Post-Disaster Shelter: 10 Designs
Sri Lanka, 2009, Conflict	Case study	Shelter Projects 2010
Sri Lanka, 2007, Conflict	Update	Shelter Projects 2009
Sri Lanka, 2007, Conflict	Case study	Shelter Projects 2008
Sri Lanka, 2004, Tsunami	Case study	Shelter Projects 2008
Sudan, 1985, Conflict	Case study	Shelter Projects 2008
Sudan, Darfur, 2004-, Conflict	Case study	Shelter Projects 2008
Sudan, Darfur, 2004-, Conflict	Case study	Shelter Projects 2009
Syria conflict, 2011, Conflict	Overview	Shelter_Projects 2013-2014
Tajikistan, 2010, Earthquake	Case study	Shelter Projects 2010
Thailand, 1979-1980, Conflict	Case study	Shelter Projects 2008
Thailand, 2011, Floods	Case study	Shelter Projects 2011-2012
Tonga, 2010, Tsunami	Case study	Shelter Projects 2010
Tonga, 1982, Cyclone	Case study	Shelter Projects 2008
Tunisia, 2011, Conflict	Case study	Shelter Projects 2011-2012
Turkey, 1976, Earthquake	Case study	Shelter Projects 2009
Turkey, 1975, Earthquake	Case study	Shelter Projects 2009
Turkey, 1970, Earthquake	Case study	Shelter Projects 2009
Uganda, 2007, Floods	Case study	Shelter Projects 2009
UK, 1945, Conflict	Case study	Shelter Projects 2009
USA, 1906, Earthquake	Case study	Shelter Projects 2010
USA, 1871, Fire	Case study	Shelter Projects 2011-2012
Vietnam, 2009, Typhoon	Case study	Shelter Projects 2010
Vietnam, 2004, Typhoon	Technical	T-shelter: 8 designs
Yugoslavia-Ex, 1963, Earthquake	Case study	Shelter Projects 2009

## C.2 Conversion tables

These tables are included to help readers convert the measurements in the Bills of Quantities. The data on this page is all rounded to 4 significant figures. Penny sizes are rounded to the nearest mm.

Length				
Imperial	1 inch (in.)	1 feet (ft.) = 12 in.	1 yard (yd.) = 3 ft. = 36 in.	1 mile = 1760 yd.
Metric	25.4 mm = 2.54 cm	304.8 mm	0.9144 m	1.609 km

For equivalence tables in timber sizing see UNOCHA / IFRC / CARE International, Timber

Area			
Imperial	1 square feet (sq. ft.)	1 square yard (yd <sup>2</sup> ) = 9 sq. ft.	1 acre
Metric	0.0929 m <sup>2</sup>	0.8361 m <sup>2</sup>	4046.9 m <sup>2</sup>

1 perch = 30.25 yd<sup>2</sup>

1 acre = 4,840 yd<sup>2</sup>

1 hectare = 10 000 m<sup>2</sup>

Volume		
Imperial	1 cubic feet (ft <sup>3</sup> )	1 cubic yard (yd <sup>3</sup> )
Metric	28.32 litres = 0.02832 m <sup>3</sup>	0.7646 m <sup>3</sup>

1 US liquid gallon = 3.785 litres

1 US dry gallon = 4.405 litres

1 imperial (UK) gallon = 4.546 litres

Weight			
Imperial	1 pound (lb)	Ton (UK, long ton)	Ton (US, net ton, short ton)
Metric	0.4536 Kg	1.1016 MT = 1016 Kg	0.9072 MT = 907.2 Kg

Note that there are several different imperial systems of weights. We quote the British imperial ton as in the Weights and Measures Act of 1824, and the United States customary system. Additional useful conversions are:

1 lb = 16 Ounces (Oz.)

1 stone = 14 pounds (lb.)

1 hundredweight (cwt.) - UK = 112 lb.

1 hundredweight (cwt.) - US = 100 lb.

Nails - "penny sizes"													
Imperial	Penny size	2d	3d	4d	6d	8d	10d	16d	20d	40d	50d	60d	100d
	Inches	1	1 ¼	1 ½	2	2 ½	3	3 ½	4	5	5 ½	6	10
Metric	Nearest length (mm)	25	32	38	51	64	76	89	102	127	140	152	254

## C.3 Further reading and resources

### Further Reading

In compiling this edition of Shelter Projects, we have drawn on key informant interviews, and a variety of sources. The published sources are listed below under General statistics and websites.

We also include a list of background documents - these are key shelter texts in which readers can find further reading on many of the shelter related issues raised by these case studies. Some of them are directly referred to in the text.

### General statistics

CRED, EM-DAT disaster database.

[www.emdat.be](http://www.emdat.be).

*Global database of world disasters*

IFRC, World Disasters Report, 2014 - Focus on culture and risk

IFRC, World Disasters Report, 2013 - Focus on technology and the future of humanitarian action

Available from [www.ifrc.org](http://www.ifrc.org)

*Annual report providing a global overview of disaster trends*

IFRC, reports

Available from [reliefweb.int](http://reliefweb.int)

*These include Appeals, Operational updates, final, mid year and annual reports.*

IDMC/ NRC, Internal Displacement Global Overview of Trends and Developments in 2010

Available from [www.internal-displacement.org](http://www.internal-displacement.org)

OCHA, Sitreps, Available from [reliefweb.int](http://reliefweb.int).

*Situation reports on major responses*

OCHA appeal documents

<http://www.unocha.org/cap/>

*Financial appeals, action plans and reviews with narratives for OCHA coordinated responses.*

UNHCR, Global Trends 2010

Available from [www.unhcr.org](http://www.unhcr.org)

### Websites

[www.sheltercluster.org](http://www.sheltercluster.org)

*Home page of the global shelter cluster - the coordination mechanism for shelter responses. Contains links to individual responses including strategy documents.*

[www.sphereproject.org](http://www.sphereproject.org)

*Download the Sphere handbook, find information on trainings and other activities from the Sphere Project. The Sphere Project aims to improve the quality of humanitarian assistance and the accountability of humanitarian actors to their constituents, donors and affected populations.*

[www.shelterlibrary.org](http://www.shelterlibrary.org)

*A library of free documents relating to transitional settlement and reconstruction.*

[humanitarianlibrary.org](http://humanitarianlibrary.org)

*The Humanitarian Library is designed as a global clearinghouse for regional humanitarian knowledge. As a user-oriented resource, it is designed to be the first reference for both sharing and searching for field-relevant documents.*

UNHCR Data portal

[data.unhcr.org](http://data.unhcr.org)

*Regional response portals for individual refugee related responses.*

[www.disasterassessment.org](http://www.disasterassessment.org)

*A site where members of the disaster management community can meet to exchange tools and case studies related to disaster risk assessment.*



IFRC/ICRC Emergency relief items catalogue - website

<http://procurement.ifrc.org/catalogue/>

*Detailed specifications of all items commonly used by IFRC and ICRC*

IFRC Shelter video channel

[bit.ly/ifrcshelter](http://bit.ly/ifrcshelter)

*Red Cross Red Crescent videos related to emergency shelter*

[www.reliefweb.int](http://www.reliefweb.int)

*Up to date information on complex emergencies and natural disasters as well as an archive of information, field reports and situation reports from emergencies since 1996. OCHA situation reports (sitreps) and IFRC appeal documents and operations updates have been of particular use in compiling these case studies.*

### **Key shelter publications**

Camp management project, Camp Management Toolkit 2008

Available from: [www.nrc.no/camp](http://www.nrc.no/camp)

*A comprehensive field manual for camp management organisations and stakeholders involved in camp operations.*

Charlesworth E., Humanitarian Architecture, 15 stories of architects working after disasters.

Available on [www.routledge.com](http://www.routledge.com) and [amazon.com](http://amazon.com)

*An analysis of the role and engagement of architects to respond to the design and planning challenges of rebuilding post-disaster sites and cities.*

Corsellis and Vitale, Transitional Settlement: Displaced Populations, Oxfam publishing, 2005

Available from: [www.shelterlibrary.org](http://www.shelterlibrary.org)

*Guidelines for the strategic planning and implementation of settlement responses for displaced populations.*

IASC, Shelter Centre, Selecting NFIs for shelter - 2008.

Available from: [www.shelterlibrary.org](http://www.shelterlibrary.org)

*Provides information, case studies and guidance on how to choose the best items to distribute to those affected by natural disaster or conflict.*

ICRC/IFRC Guidelines for cash transfer programming - 2007

Available from: [www.ifrc.org/](http://www.ifrc.org/)

*Provides information on when and how to distribute cash in disaster response.*

IFRC, Guidelines for assessment in emergencies - 2008.

Available from: [www.ifrc.org](http://www.ifrc.org)

*Practical information and guidance on how to conduct assessments in emergencies.*

IFRC Owner Driven Housing Reconstruction Guidelines (ODHR), 2010

Available from: [www.ifrc.org](http://www.ifrc.org)

*Guidance on the planning and implementation of assisted self help reconstruction projects.*

IFRC, Oxfam GB, Plastic sheeting, 2007

Available from: [www.plastic-sheeting.org](http://www.plastic-sheeting.org)

*A guide to the use and specification of plastic sheeting in humanitarian relief, 2007. An illustrated booklet on when and how to use plastic sheeting most effectively in emergencies.*

IFRC, The IFRC shelter kit, 2010

Available from: [www.shelterlibrary.org](http://www.shelterlibrary.org)

*A guide on the IFRC shelter kit and how to use it.*

IFRC, Transitional Shelter: Eight Designs, 2011

*A review of risks in shelter construction and detailed structural analysis of eight different transitional shelters designs that have been used in the field in large scale projects.*

IFRC, post-disaster shelter – 10 designs

Available from [www.sheltercasestudies.org](http://www.sheltercasestudies.org)

*A compilation of technical designs of selected shelter projects*

Mike Albu, The Emergency Market Mapping and Analysis Toolkit,

Available from: <http://emma-toolkit.org>

*A toolkit designed for generalists, as well as specialist staff on how to conduct an emergency market mapping analysis.*

NRC, Shelter Centre, Urban Shelter Guidelines

Available from: [www.shelterlibrary.org](http://www.shelterlibrary.org)

*General guidance for urban humanitarian response.*

NRC/IFRC, Security of tenure in humanitarian shelter operations

Available on [www.ifrc.org/documents](http://www.ifrc.org/documents)

*A short report highlighting the regulatory barriers to the provision of short and medium term shelter solutions, presented in collaboration through several case studies.*

Shelter Centre, UN, DfID, Shelter after disaster - Strategies for transitional settlement and reconstruction, 2010

Available from: [www.shelterlibrary.org](http://www.shelterlibrary.org)

*A book containing information and guidance on how to agree strategies for reconstruction after natural disasters. Contains description of the types of shelter programmes that organisations can implement.*

UNDRO, (now UNOCHA), Davis, I., Shelter After Disaster, Guidelines for Assistance, 1982

Available from: [www.shelterlibrary.org](http://www.shelterlibrary.org)

*Guidelines and description of shelter provision in all aspects of natural disasters (from preparedness to reconstruction).*

Sphere Project, Sphere - Humanitarian charter and minimum standards in humanitarian response, 2011

Available from: [www.sphereproject.org](http://www.sphereproject.org)

*Contains consensus standards agreed among major humanitarian organisations for key sectors including shelter and settlement. It also contains actions, indicators and guidance notes as to whether standards have been achieved.*

Sultan Barakat, HPN Network paper 043, Housing reconstruction after conflict and disaster, ODI, 2003

Available from: [www.odihpn.org/documents/networkpaper043.pdf](http://www.odihpn.org/documents/networkpaper043.pdf)

*Review of housing reconstruction experiences and approaches.*

UNHABITAT, IFRC, UNHCR, Shelter Projects 2011-12

Available from: [www.ShelterCaseStudies.org](http://www.ShelterCaseStudies.org)

*Case studies of shelter projects.*

UNHABITAT, IFRC, UNHCR, Shelter Projects 2010

Available from: [www.ShelterCaseStudies.org](http://www.ShelterCaseStudies.org)

*Case studies of shelter projects.*

UNHABITAT, IFRC, Shelter Projects 2009

Available from: [www.ShelterCaseStudies.org](http://www.ShelterCaseStudies.org)

*Case studies of shelter projects.*

UNHABITAT, IFRC, UNHCR, Shelter Projects 2008

Available from: [www.ShelterCaseStudies.org](http://www.ShelterCaseStudies.org)

*Case studies of shelter projects.*

UNHABITAT, Land and Natural Disasters - Guidance for Practitioners, 2010

Available from: [www.disasterassessment.org](http://www.disasterassessment.org) or from [unhabitat.org](http://unhabitat.org)

*A book containing guidance on land issues following natural disasters.*

UNHCR, Handbook for Emergencies, Third Edition, 2007

Available from: <http://www.unhcr.org>

*A book containing guidance on the management and all the key sectors in refugee emergencies.*

UNICEF, Compendium of Temporary Learning Spaces (TLS): Design and practice in emergencies 2011

*Designs and guidance on the construction of temporary learning spaces.*

UN/OCHA, Tents - A guide to the use and logistics of tents in humanitarian relief, 2004

Available from: [www.shelterlibrary.org](http://www.shelterlibrary.org)

*A booklet describing when and how to use tents as well how to support those living in them to best adapt them to meet their needs.*

UN/OCHA / IFRC / CARE International, Timber as a construction material in humanitarian operations, 2009

Available from: [www.humanitarian timber.org](http://www.humanitarian timber.org)

*An illustrated booklet on how to source and use timber for the construction of basic structures.*