SHELTER PROJECTS

LESSONS FROM FLOODS

LEARNING FROM TWO DECADES OF SHELTER PROJECTS

GLOBAL
SHELTER CLUSTER
Coordinating Humanitarian Shelter and Settlements

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LEARNING FROM TWO DECADES OF SHELTER PROJECTS

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GLOBAL
SHELTER CLUSTER
Coordinating Humanitarian Shelter and Settlements

Lessons from Floods

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FOREWORD

Lessons from Floods: Learning from Two Decades of Shelter Projects by the Global Shelter Cluster could not come at a more urgent time. As humanitarian and development agencies strive to address the escalating impacts of flooding and climate change, this report underscores the critical need for adaptive, gender-sensitive approaches in the face of compounding crises. Flooding, though a global phenomenon, disproportionately impacts the Global South, with devastating effects in countries such as Somalia, China, the Philippines, Pakistan, Ethiopia, India, Brazil, Bangladesh, Sudan, and Yemen. As the world remains on track to exceed the 1.5°C threshold above pre-industrial levels—an objective set by the 2016 Paris Agreement—flood hazards are projected to intensify. This escalation, driven by global warming and recurring El Niño and La Niña weather cycles, could threaten 1.8 billion people worldwide.

Flooding is increasingly intertwined with conflict, economic instability, and social disruption, contributing to widespread displacement, disruption to livelihoods, food insecurity, forced migration, and economic hardship. Gains in infrastructure and early warning systems have mitigated flood-related death tolls, yet the frequency of these crises continues to uproot communities and destabilize livelihoods. For vulnerable populations, the compounding effects of these challenges require an urgent, collaborative response.

Flood impacts are further intensified by wider social and economic trends. The spread of informal settlements, unplanned urbanization, and the location of refugee and IDP camps often amplify the humanitarian toll of flooding, particularly in regions burdened by conflict. Economic factors, such as deforestation and mining, also contribute to greater flood risk. Recurring El Niño and La Niña weather patterns add another dimension to these vulnerabilities, generating cycles of severe rainfall and drought that destabilize food systems, intensify displacement, and strain existing resources for crisis response.

Gender is key to addressing flooding impacts. While women and girls often face heightened risks, including greater exposure to violence, loss of livelihoods, and limited access to resources, they are also essential to the solutions. Women play a critical role in fostering resilience, leading recovery efforts, and driving sustainable disaster preparedness. Investing in women and girls is not just a moral imperative but a practical one, as it can transform communities and build stronger, more inclusive systems. Lessons from Floods underscores the importance of gender-sensitive strategies that empower women, support women-led resilience initiatives, and position them as key actors in creating sustainable, equitable solutions to flood-related challenges.

Lessons from Floods showcases an impressive range of adaptive strategies developed by shelter and settlement programs operating under challenging conditions with limited resources. As humanitarian and development actors confront the complex, cascading effects of climate change, conflict, and social transformation, these documented case studies provide valuable insights across preparedness, response, recovery, and risk reduction. This collection reflects the urgent need to address the physical and social vulnerabilities of flood-affected communities while striving for sustainable, long-term impacts through shelter interventions.

Lessons from Floods makes a compelling case for recognizing the shelter and settlements sector's essential role in disaster risk reduction, resilience building, and gender equality in vulnerable communities around the world.

- Reena Ghelani

14-11-2024

REENA GHELANI

was designated on 15 January 2024 as the Climate Crisis Coordinator for the El Niño / La Niña by Mr. Martin Griffiths, Under-Secretary General for Humanitarian Affairs and Emergency Relief Coordinator.

The Climate Crisis Coordinator works closely with the members of the Inter-Agency Standing Committee, including UN agencies, non-governmental organizations, Red Cross and Red Crescent societies, and other partners and international financial institutions to coordinate an effective response to the humanitarian impacts of the climate crisis and El Niño in the countries most at risk.

Fig. 1: *© IOM, Mamasapano, Philippines, 2023.*

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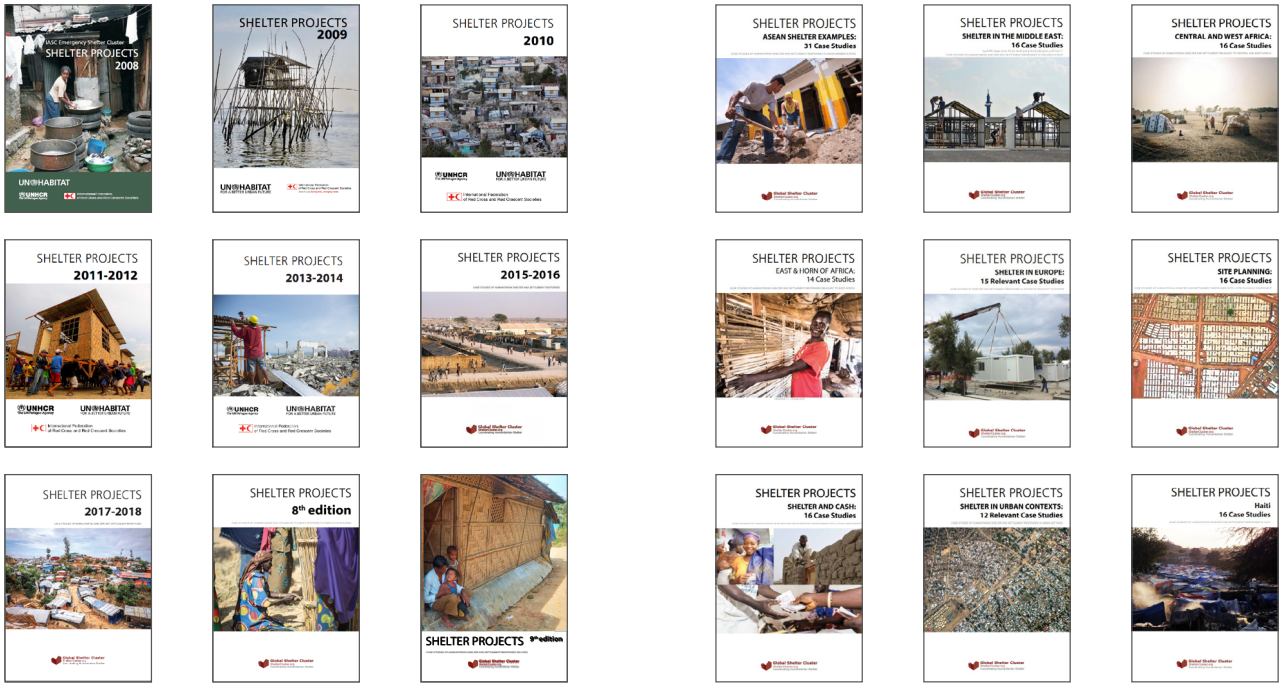

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shelterprojects@sheltercluster.org

LEGEND TABLE SUMMARY

SUMMARY TABLE OF SETTLEMENT OPTIONS, SUPPORT METHODS AND SHELTER ASSISTANCE TYPES DESCRIBED IN THE CASE STUDIES

CRISIS	**Conflict**	Conflict	
	Complex	Complex	
	Disaster	Flooding	
		Cyclone/Storm	
		Preparedeness	
CONTEXT	**Location**	Urban	
		Peri-urban	
		Rural	
SETTLEMENT OPTIONS/ SITUATIONS	**Non-Displaced / Returns**	Owner occupied	
		Rental	
		Informally occupied	
	Displaced, dispersed	Rental	
		Host families	
		Spontaneous / Self-settled	
	Displaced, communal	Collective centres	
		Planned site / Settlement	
		Unplanned site / Settlement	
		Planned resettlement sites	
		Dispersed resettlement	

The table gives a legend summary of:

1. ***Context:*** *whether projects were located in urban, peri-urban and/or rural contexts.*
2. ***Settlement options/situations:*** *the type of settlements in which people were assisted (or assisted to return/move to).*
3. ***Shelter assistance types:*** *broad categories of the kind of shelter assistance provided by the project.*
4. ***Support methods:*** *the methods and modalities through which people were assisted. This includes different forms of Cash-Based Interventions, in-kind distributions of a variety of shelter and household items, and a wide range of other support methods.*

SHELTER ASSISTANCE TYPES		Emergency shelter	
		Transitional/semi-permanent shelter	
		Host family support	
		Rental support	
		Core housing	
		Housing repair/retrofit/rehabilitation	
		Permanent housing	
SUPPORT METHODS	**Cash-Based Interventions**	Cash-for-Work	
		Conditional cash transfer	
		Restricted cash/voucher	
		Unconditional & Unrestricted	
		Loans / Micro-credits etc.	
	In-kind Distribution	Household items	
		Shelter materials (incl. kits)	
		Tools / Fixings	
		WASH items (& kits)	
	Advocacy / Legal assistance		
	Site / Settlement planning		
	Infrastructure		
	Training / Capacity Building		
	Tech. Assistance / Quality Assurance		
	Structural Assessment		
	Guidelines / Mass communication		
	Site Management		
	Debris / Rubble Removal		

ACRONYMS

AGD Age, Gender and Diversity
AAP Accountability to Affected Populations
ABA Area Based Approach
BBS Build Back Safer
CBI Cash-Based Interventions
CCFS Conditional Cash for Shelter
CFW Cash-for-Work
CCCM Camp Coordination and Camp Management
CMRU Municipal Urban Resilience Cells
CGI Construction Grade Items
CRS Catholic Relief Services
DMU Disaster Management Unit
DRR Disaster Risk Reduction
EAP Early Action Protocols
EVI Extremely Vulnerable Individuals
GBV Gender-Based Violence
GEDSI Gender, Diversity Social Inclusion
GIS Geographic Information Systems
GSC Global Shelter Cluster
HLP Housing, Land and Property
HRP Humanitarian Response Plan
HNRP Humanitarian Needs and Response Plan
HNO Humanitarian Need Overview
IDP Internally Displaced Person
IEC Information, Education, and Communication
IM Information Management
INGO International Non-Governmental Organization
IP Implementing Partner
MoU Memorandum of Understanding
M&E Monitoring and Evaluation
NDMA National Disaster Management Authority
NFI Non-Food Item(s)
NGO Non-Governmental Organization
PDM Post-Distribution Monitoring
PDMA Provincial Disaster Management Authority
PASSA Participatory Approach for Safe Shelter Awareness
SAG Strategic Advisory Group
SOP Standard Operating Procedures
SUFAL Supporting Flood Forecast-Based Action and Learning
SHRRP Sindh Housing Recovery and Reconstruction Platform
TPM Third Party Monitoring
UN United Nations
WASH Water, Sanitation and Hygiene

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Dear reader, if you are accessing this publication online, please note that by clicking on each mentioned case studies you will be able to access the online pdf for each of the case study.

The online version of this publication is accessible on

https://www.shelterprojects.org/shelterprojects-compilations/Shelter-Projects-Floods-2024EN.pdf (English version)

https://www.shelterprojects.org/shelterprojects-compilations/Shelter-Projects-Floods-2024FR.pdf (French version)

OVERVIEW

Lessons from Floods: Learning from two decades of Shelter Projects Case Studies could not come at a more critical time as people and organisations working in the humanitarian shelter and settlements sector grapple with the intensification, increasing frequency, and growing impact of flooding. Over the last twenty years floods affected 1.6 billion people and over the last fifty years they have caused economic losses of US$115 billion[1]. While flooding is a global phenomenon (causing devastation in Central Europe in 2024), flood and drought related displacement especially impacts countries in the Global South such as Somalia, China, the Philippines, Pakistan, Ethiopia, India, Brazil, Bangladesh, and Yemen.[2] The impact of climate change and global warming, and the conditions arising from El Niño and La Niña weather cycles, is anticipated to lead to increased flood hazards globally. An estimated 1.8 billion people, or 23% of the world population, face significant flood risk.[3] With increasingly protracted displacement owing to conflict, flood events are a major humanitarian risk in contexts such as Northwest Syria, Sudan, Northern Nigeria and Yemen and add a still greater level of suffering to people fleeing conflict as well as additional complexity for humanitarian responders. Coastal settlements with high inequality, including a high proportion of informal settlements, as well as deltaic cities prone to land subsidence (e.g. Bangkok, Jakarta, Lagos, New Orleans, etc.) and small island states, are highly vulnerable and have experienced impacts from severe storms, floods, and accelerating sea-level rise.[4] Disasters exacerbate already high levels of gender-based violence as well as wider gender inequalities.[5]

Humanitarian responders are often asked to do more with less and to address the compound and cascading challenges brought about by disasters and interconnecting processes of climate change, conflict, urbanisation and economic change. Broad trends for the sector estimates conclude that 30% or less of families receive shelter assistance within the year following a disaster .[6]

Nonetheless, shelter actors have developed a remarkable range of experience in adapting shelter and settlements programs in these complex circumstances and with often limited resources. Shelter Projects contains more than 60 case studies of shelter interventions in the context of floods spanning 26 countries over a period of nearly twenty years. *Lessons from Floods* is based on these case studies as well as selected interviews. It identifies lessons learned, strengths, and gaps in shelter programs as communities respond to, recover from, and build resilience towards growing risks from floods and climate change.

THEMATIC SUMMARY

1. Empowered Communities and Settlements Approaches

Shelter Projects floods case studies provide many examples of participation, accountability, and empowerment as well as the importance of partnership and building trust as a means to achieving long-term shelter and housing needs. Women-led project design frequently resulted in settlement level activities rather than focussing narrowly household-level shelter construction.

2. Preparedness

Information & communication

Shelter Projects floods case studies highlighted the importance of social media and innovative communication campaigns, especially in highly urbanised, newly industrialised economies while noting concerns about the digital divide, misinformation, accountability and access to vulnerable groups.

Given the importance of effective communication for wider impact of safe shelter messages, key messages were tested and agreed upon by community members and local illustrators were engaged to translate technical content into accessible and culturally appropriate.

Longer-term interventions included working with government counterparts to develop flood-specific revisions of existing building codes as well as training programs to develop key skills to support communities to recover from floods at scale.

3. Response

In-kind items

In-kind items were intended to support households with lifesaving protection from the elements in emergencies. In-kind items included tents, tarpaulins, tool kits, fixing kits, kitchen supplies, hygiene kits, mosquito nets, blankets, solar lights, water filters and water purifiers. There was recognition that in-kind items met short-term humanitarian needs and did not directly support recovery programming.

Fig. 2: *© Philipp Hübner / UNHCR. Kutupalong, Cox's Bazar, Bangladesh, 2017.*

Use of cash in flood responses

Multi-purpose cash supported initial shelter repair and improved access to basic household items flood-affected people lost during floods. Concerns were raised that solely cash-based programs without additional technical and settlements planning to reduce risk contributed to ongoing vulnerability. Case studies also highlighted the importance of considering gender in cash programming.

Flood response and COVID-19

COVID-19 emphasised the centrality of housing and settlements with health. Case studies documented how shelter agencies worked with governments and communities on the dissemination of key health awareness messages including how to adapt housing to ensure good ventilation, create additional living space, and construct isolation spaces that are essential in pandemics.

4. Risk Reduction

Shelter Projects floods case studies repeatedly outline the experience of organisations responding to compounding humanitarian issues. These include responding to floods in contexts marked by the growing scale of displacement and urban informality as well as protracted conflict and forced migration due to the impacts of climate change. A recurring theme in the flood response case studies was the attempt to stretch the scope of programs to include these components within narrow 'humanitarian' parameters that often determine the scope and available funding for programs in a context of growing humanitarian and programming needs.

Further, flood case studies emphasised that interventions target the most vulnerable people and communities with often complex needs and few resources. Many flood-affected communities lack secure land tenure or may live in 'red zone' areas that have been designated by authorities as high risk and therefore not suitable for settlement. In some conflict settings the ability to implement longer term risk reduction programs can be constrained owing to perceptions that this may lead to permanent settlement despite the increasingly protracted nature of conflict-induced displacement.

For these reasons, shelter projects floods case studies navigate sensitive political terrain when programming with the poorest and most vulnerable communities living in the most high-risk areas. Many of the flood interventions outlined in Shelter Projects described shelter interventions as 'light-touch', 'incremental', 'transitional' or 'dignified' in order to achieve maximum wider impact within a series of funding and policy constraints imposed on longer-term programming.

Fig. 3: *© Bria Fast. Nepal, 2016. A mason lays bricks during reconstruction of a home after the Nepal earthquake.*

Fig. 4: *Paraguay, 2019. Shelter Project Case Study A9, 8th Edition.*

5. Recovery & Durable Solutions

In some cases, the floods projects case studies supported working with local government in relocating especially vulnerable communities. These case studies emphasised the important of consultation, linked services at the relocation sites, and ongoing access to livelihoods as well as the importance of cultural continuity given the centrality of land to identity. Other longer-term recovery projects focussed on housing and infrastructure rehabilitation, with the construction of demonstration houses in each commune as models for replication; livelihoods reinforcement and regeneration (community-based microfinance and food security, cash-for-work); hygiene promotion, gender awareness and GBV prevention.

6. Housing Land & Property Considerations

Absence of security of tenure has the potential to undermine any shelter intervention and is a recurring challenge of shelter programs which often work with the most economically disadvantaged people living in high-risk areas without secure land tenure. This situation can become exacerbated in conflict, often with the mass loss of documents relating to HLP and demonstrating security of tenure.

A variety of experiences were outlined in the case studies including advocacy, partnership with government agencies to formalise land tenure, and negotiations with landlords to arrange incremental land purchase. A number of case studies observed that the absence of tenure meant that interventions had to be clearly temporary or 'transitional' with one case study describing reconstruction in the flood response that included a roof designed so that it can be removed and taken away if the household were evicted..[7]

7. Gender and Social Inclusion

Disasters exacerbate already high levels of GBV as well as wider gender inequalities. Women are more likely to die in a disaster than men due to the intersection of a range of vulnerabilities. The gender inequality of disasters severely impacts the ability of communities to prepare for and respond to flooding and undermines risk reduction and resilience-building through loss of lives and livelihoods owing to violence and discrimination.

Taking GBV risks into account at settlement level can help shelter practitioners to consider how shelter program will impact on issues such as overcrowding and site density, access to sanitation facilities, markets and emergency relief items. Participatory and inclusive shelter programs can improve women's status in society and decrease GBV risks. In the Typhoon Haiyan response in the Philippines "women had a key voice in deciding the design of shelters, to ensure the inclusion of elements to guard their privacy and dignity, such as internal partitions for separate sleeping areas, opaque cladding and spaces for hygiene and sanitation activities and to mitigate risks of GBV".[8] Women's participation in shelter programs reinforced settlements based approaches and ensured that warning messages and early action protocols were widely communicated, including to socially isolated groups, in disasters.

RECOMMENDATIONS

To Policymakers & Donors:

- **Investment in risk reduction:** Shelter & Settlements programs make a critical contribution to resilience. Investment in risk reduction is cost-effective and can be the basis for quick and efficient humanitarian response. The current short-term boom-and-bust approach to funding crises undermines the growing need to increase resilience through preparedness to recurrent environmental crises in a context of climate change.
- **Development of Shelter & Settlement-specific approaches to anticipatory action and forecast-based financing:** Forecast-based financing and anticipatory action have a relief focus; however this could be extended in partnership with governments, humanitarian actors, and meteorological bureaux to support risk reduction at a more systemic, settlements level including in contexts of urban informality.

To Development Actors & Government:

- **Reinforce the connection between humanitarian response and longer-term recovery/planning/development processes:** Humanitarian response and longer-term development needs are often considered separately. They fall into different phases, timeframes, and funding processes despite often working in the same places and the same communities. Partnerships between humanitarian actors, development actors, and governments can bridge this gap, support longer-term risk reduction and planning processes for the most vulnerable and at-risk communities. Communities are often left in 'a suspended state' between the end of a humanitarian response and the arrival of longer-term risk reduction/development actors.
- **Joined up humanitarian and development funding streams within donor governments**. Often there is a lack of coordination between the humanitarian and longer-term development arms of donor countries. Greater coordination and collaboration will be needed to address issues relating to risk reduction, climate change, and protracted displacement.
- **Start recovery planning a lot earlier after a disaster in a way that links with humanitarian actors**: While some progress has been made, there is often a gap – in some cases years – between early recovery processes after a disaster and more formal and longer-term recovery and planning processes. For vulnerable communities, this often means that the short-term, transitional interventions from humanitarian agencies end up being permanent and not connected with wider planning processes or investment.
- **Flood Specific Building Codes and key messages**: There is scope to work with humanitarian and development partners around the adaptation of building codes to include flood-specific elements as well as the development of key messages for use at community level around key considerations for enhancing the resilience of shelters and settlements to flooding. Significant investment and research have gone into earthquake preparedness but this has not yet been the case for flooding.

To Humanitarian Actors:

- **Scaling impact:** Many of the Shelter Projects case studies focus on particular projects in particular communities. While this is important, a still greater question is how to scale impact. Partnerships with government and development actors as well as long-term connections with communities can support impact at scale beyond the confines of a single intervention or project.
- **Longer-term in-country presence and partnership development is needed:** Although this is funding related, international humanitarian agencies rarely stay long following an emergency. Staying longer into the recovery period and forging local partnerships will be especially important in contexts of recurrent crisises exacerbated by climate change.
- **Increased use of technology in planning interventions**: Many of the case studies emphasised community participation and consultation approaches. Few case studies looked at the use of technology (forecasting, vulnerability mapping, flood mapping) as a planning tool and how this could complement community-based processes. This might better support linkages between longer-term planning processes with government and development actors.

Fig. 5: *© IOM, Mamasapano, Philippines, 2023.*

INTRODUCTION

© Liliana Pires, Cambodia

Global impact of floods

Lessons from Floods: Learning from Two Decades of Shelter Projects could not come at a more critical time as the humanitarian shelter and settlements sector grapples with the growing impact of flooding. In the twenty years of experience in shelter programming covered by Shelter Projects Case Studies there were an estimated 3,371 recorded flood events.[9] Over the last twenty years floods affected 1.6 billion people, and over the last fifty years they have caused economic losses of US$115 billion.[10] Flooding is a global phenomenon (causing devastation in Central Europe in 2024) however flood and drought related displacement especially impact countries in the Global South such as Somalia, China, Philippines, Pakistan, Ethiopia, India, Brazil, Bangladesh, Sudan and Yemen.[11] While the overall death toll from disasters has fallen over the last century as a result of early warning systems, better infrastructure, more and coordinated responses,[12] the level of displacement, disruption of livelihoods, forced migration and economic damage has sharply increased over recent decades. Nearly 95 percent of infrastructure loss and damage reported between 2010 to 2019 were due to water-related disasters.[13] Last year, 2023, the global cost of floods was an estimated USD20.37 billion.[14]

In 2024 alone, major floods in Yemen impacted more than 562,000 people.[15] In Brazil, 2 million people were affected and 600,000 were displaced by floods and accompanying severe storms.[16] In the Philippines, Typhoon Gaemi displaced 237,000 people and affected more than three million across the country, causing widespread damage to the capital, Manila.[17] Major flood events have occurred across Europe, Nigeria, Bangladesh and Sudan. Astonishing images have emerged from the Sahara Desert which has flooded for the first time in fifty years in October 2024.[18] The World Meteorological Organisation's El Niño/La Niña August 2024 Update now confirms that there is a 60% probability of a transition to a La Niña weather event.[19] Past La Niña events were a major contributing factor in the massive floods in Pakistan in 2010 as well as more widely in South Asia, Australia, and South America as well as drought in East Africa.[20]

The extraordinary levels of destruction caused by flooding are set to worsen as the world remains on track to exceed the 1.5 degrees above pre-industrial levels threshold that was established by the 2016 Paris Agreement to limit the worst impacts of climate change.[21] The impact of climate change and global warming, and the conditions arising from El Niño and La Niña weather cycles, is anticipated to lead to increased flood hazards globally and is estimated to affect 1.8 billion people.[22] Floods are additionally a leading contributor to global displacement and forced migration. Floods can occur in conflict zones, disrupt food supply, and they can contribute to the spread of waterborne diseases.[23] In addition to the massive destruction caused by the mega-floods in Pakistan in 2010, for example, which affected more than twenty million people and left fourteen million people without homes there were also outbreaks of gastroenteritis, diarrhoea, cholera, and malaria.[24]

Disasters increase gender inequalities and exacerbate already high levels of GBV. A Rapid Gender Analysis by CARE following the Burundi floods in 2023 found that women and girls were among the most vulnerable to the effects of flooding, with 26 percent of them afraid to go to the market or other public places for fear of being sexually abused. This has profound personal, social and economic impacts. The economic impact of GBV is estimated at between 2 to 3.5 percent of global GDP.[25] The gender inequality of disasters severely impacts the ability of communities to prepare for and respond to flooding and undermines risk reduction and resilience-building through loss of lives, livelihoods, and women-led community resilience networks owing to violence and discrimination.

Flood events are complex and are exacerbated by wider processes of social and economic change. Flood events can be caused by hydrometeorological events (intense rainfall), dam releases, tsunamis, cyclones/storm surges, and the impacts of climate change.

Fig. 6: *© Joseph Ashmore, Benin, 2010. Shelter Projects (2015–2016) Case Study A16, Flood waters damaged housing, land and other properties, and caused displacement of affected people to temporary sites and host families settings.*

Fig. 7: *© Charmalee Jayasinghe. Sri Lanka 2017. Shelter Projects (2017–2018) Case Study A24.*

The broader category of flooding or inundation includes climate change and sea level rise leading to longer-term displacement and the need for settlement planning and mitigation. Other social/economic trends can increase risk and exposure to flood events. These include growth in informal settlements, rapid/unplanned urbanisation, site selection of refugee and IDP camps, and economic processes such as deforestation and mining. With increasingly protracted displacement owing to conflict, flood events are a major humanitarian risk in contexts such as Northwest Syria, Sudan, Northern Nigeria and Yemen and add a still greater level of suffering to people fleeing conflict as well as additional complexity for humanitarian responders.

Crises impacting urban areas have increased significantly over the last decade and large-scale flooding is a recurring disaster in cities such as Manila, Jakarta, Lagos, New Orleans, Chennai and Bangkok while tsunamis and cyclones have caused widespread devastation. The most rapid growth in urban vulnerability has been in unplanned and informal settlements where there is 'a strong relationship between informal settlements, hazard exposure, vulnerability and disaster risk'.[26] In 2007 the world's urban population outnumbered the rural population for the first time in history.

By 2050, 70 percent of the world's population will be living in urban areas, especially in cities in the Global South where urban populations have grown by 300 percent in the last 40 years.[27] Coastal settlements with high inequality, including a high proportion of informal settlements, as well as deltaic cities prone to land subsidence (e.g. Bangkok, Jakarta, Lagos, New Orleans, etc.) and small island states, are highly vulnerable and have experienced impacts from severe storms, floods, and accelerating sea-level rise.[28]

Humanitarian Shelter & Settlements

Humanitarian responders are increasingly asked to do more with less in order to address the compound and cascading challenges brought about by disasters and interconnecting processes of climate change, conflict, urbanisation and economic change. While not exclusively flood related, the Global Shelter Cluster (GSC) tracks shelter programming in response to international emergencies in 42 countries where it has an active coordination platform. The GSC targets 32 million people out of an estimated total of 92 million people who are in need of shelter assistance globally. Roughly one third of the USD3.1 billion required to achieve this target has been received for the current year.[29] This is in keeping with broad trends for the sector where estimates conclude that 30 percent or less of families receive shelter assistance within the year following a disaster.[30]

Fig. 8: *© Nate Webb / IOM. Rohingya Crisis; 2019. Cox's Bazar, Bangladesh.*

Nonetheless, shelter actors have developed a remarkable range of experience in adapting shelter and settlements programs in these complex circumstances and with often limited resources. These programs span preparedness, response, recovery, and risk reduction in shelter and wider settlements approaches and planning. They reflect growing concerns about how to address the underlying physical and social vulnerabilities of people at risk of flooding as well as attempts to ensure the longer-term impact of shelter interventions.

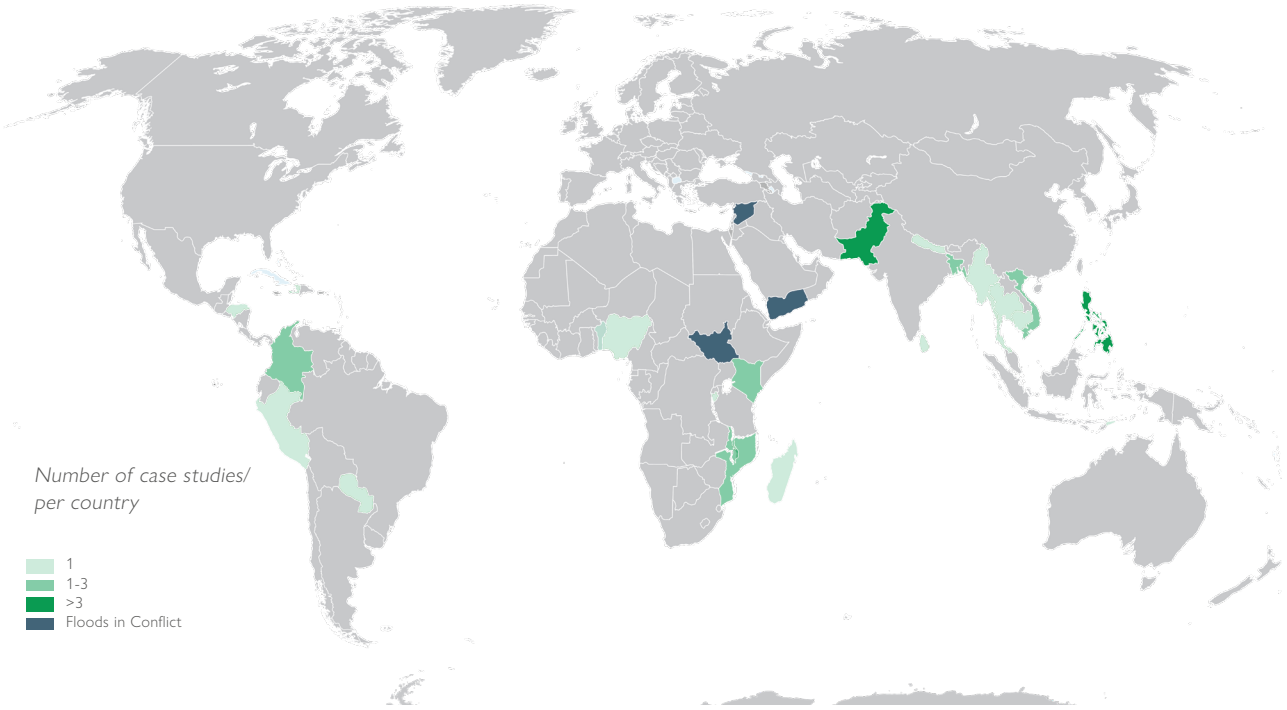
Lessons from Floods: Learning from Two Decades of Shelter Projects Case Studies

Lessons from Floods presents a global overview of the effects of floods on different regions across the world and the important role of the shelter sector in preparedness, response, recovery and resilience. Shelter response agencies have provided significant support to disaster-stricken communities that have experienced major flood events, as well as other disasters, over the past two decades and many of these experiences have been captured in the Shelter Projects publications.

Using these publications and case studies as an evidence base, Sheltering from Floods identifies lessons learned, strengths, and gaps in shelter operations to lead and enhance good practice in providing immediate and medium-term support, and to foster long-term resilience in affected communities as they respond to, recover from, and build resilience towards growing threats from floods and climate change.

The publication is based on an analysis and synthesis of more than 60 case studies of shelter interventions in the context of floods spanning over 26 countries over a period of nearly twenty years. The case studies were complemented by fifteen interviews with shelter and settlements practitioners working at local, national, and global levels.

INDEX OF FLOODS CASE STUDIES BY COUNTRY PUBLISHED IN SHELTER PROJECTS (2008-2022)



1. LESSONS FROM SHELTER PROJECTS

Through the phases of shelter intervention (preparedness & risk reduction, response, recovery, durable solutions)

©Shita Sabnam, Bangladesh

OVERVIEW

Shelter responses to flood events have evolved over time and have developed from a focus on in-kind distribution including tents, NFIs, and shelter kits to more complex programming. More recent flood response programs have increasingly used cash distribution, had strong community engagement processes, have had a focus on gender and inclusion, and have had a settlements focus. Shelter responses have also transitioned quickly from immediate response to life-saving needs into early recovery and longer-term risk reduction programs as part of a continuum of engagement with communities impacted by flooding. There has been an increasing focus on anticipatory action, the use of satellite imaging and partnerships with meteorological organisations to ensure that early warning and early action occurs in places and communities of heightened vulnerability. While the majority of Shelter Projects case studies document response, recovery and adaptation more recent case studies outline expanding areas of work in long-term recovery and to support durable solutions through relocation and advocacy for land rights and services including education, health and access to livelihoods opportunities.

Importantly, the case studies reveal emerging challenges in shelter and settlements programming. These include the scale, severity and unpredictability of weather patterns owing to climate change, the growing scale of the impact of floods and the number of people affected and displaced. There are increasing concerns about the consequences of rising economic inequality which leads to settlement in high-risk areas such as riverbanks or flood plains, often in unplanned urban environments.

The entry point for much of this work around the wider impacts of shelter has been crisis response. Most examples of flood-related preparedness and risk reduction came out of the extension of flood response programs and reflect efforts by shelter actors to try to ensure the wider impact of often short-term emergency interventions. Despite funding constraints, Shelter Projects case studies have grown in depth and sophistication over the years and increasingly focus on the longer-term impact of interventions.

EMPOWERED COMMUNITIES AND SETTLEMENT APPROACHES

Shelter Projects case studies emphasised the overarching importance of community participation acknowledging that shelter programs themselves can often focus on tangible outcomes such as the number of units constructed or other technical or donor compliance. The opinion piece 'Designing Shelter Programs that Empower Communities' argues that programs need to be strength-based and recognise existing capacities, resources and expertise that can be harnessed towards post-disaster recovery.

> ***"Shelter and settlements programming now is different to ten years ago. It is so much more than distributing shelter kits. The key shelter questions now are how to align with communities' own capacities for disaster risk reduction and what local solutions can meet demands and scale of the events? Our individual agency shelter programs are rarely sufficient to meet the shelter needs. Only by working collaboratively to strengthen system can scale be achieved"***
>
> *(Jamie Richardson, CRS)*

Fig. 10: *© Loetitia Raymond, Benin, 2010. Shelter Projects (2015–2016) Case Study A16.*

> ***"Empowerment requires enabling communities to move from being objects of designing, planning, and decision-making to become designers, planners, and decision-makers themselves. Without undermining the knowledge and technical expertise that shelter practitioners bring with them, or the local governments that have political jurisdiction over their constituents, it is worth noting that communities are, in their own right, experts of their cultural contexts, local practices, and social dynamics".***[34]

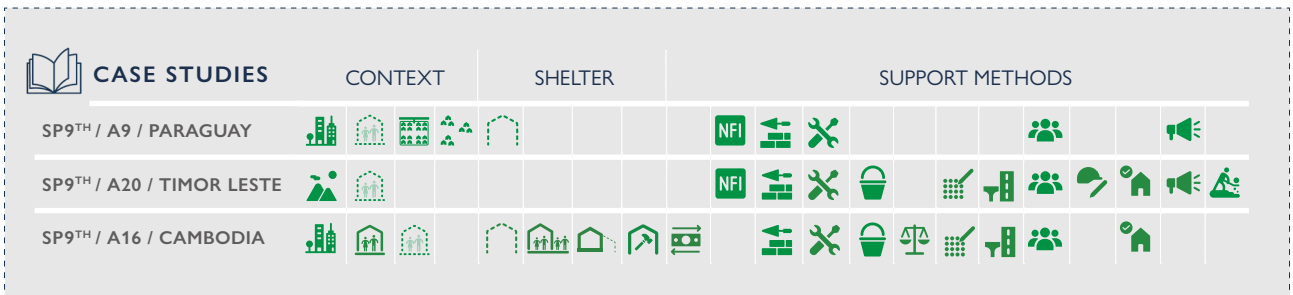
Putting principles of empowerment, inclusion, accountability and community-led and participatory decision-making into practice is a consistent theme in Shelter Projects floods case studies. These participatory approaches as well as the importance of partnership, trust building, and solidarity are emphasised as means to achieving long-term shelter, housing, and settlements needs along with psychological support after disaster. Following floods in Paraguay, for example, implementing partners consulted with community groups and community leadership structures. Community members were involved in supporting training and in the distribution of relief items. Information Education Communication (IEC) materials were developed following community consultation processes.[31]

Meaningful participation processes also led to an increasing focus on settlements issues, such as in response to the Dili Floods in Timor Leste in 2021. Participatory processes included risk assessment and project design in order to address settlement-level needs and empower community-led self-recovery. Each village developed its own set of settlement level activities such as drainage canal repair and/or reconstruction, refuse management, water system repair, retaining wall construction and community building construction. Importantly, the case study noted that "while this process did not result in traditional household-level shelter construction, the interventions determined by each community were seen as more relevant, impactful, and complementing existing government programs at the household-level to support self-recovery".[32]

Women-led community disaster risk reduction

Floods case studies emphasise the importance of supporting women-led local community organisations for wider impact, especially with vulnerable and economically marginalised communities. An example of this is in Cambodia where there is a high risk of hazards such as floods, storms, typhoons, and cyclical droughts and climate change. In addition, growing social and economic marginalization, and the impact of the process of urbanization contributed to increasing shelter-related vulnerability. This has resulted in a growing number of informal settlements in areas prone to landslides and floods. These areas included road edges, railways, riverbanks, and canals, and often without tenure and access to wider services and utilities such as sanitation. The structure and conditions of the housing was also poor.

In this context, the shelter response focussed on women's participation in safe sheltering through implementing Participatory Approach for Safe Shelter Awareness (PASSA) to promote disaster risk reduction. The project focussed on women in the community who were more vulnerable owing to cultural normative responsibilities such as securing water, cooking, and taking over household activities and sanitation practices. The intervention created partnership with government aimed at addressing local planning and land tenure issues. It also supported the development of women-led community micro-finance groups who agreed on investments in local risk reduction measures including waste management and solar lighting. Members of the savings group were also able to use loans to invest in family livelihood development, shelter improvements (including house repair and upgrade), and water and sanitation improvements (including clear water connection and toilet construction).[33] Working with and through women-led community groups ensured a wider consideration of settlements-related issues in project design, funding, and implementation.



2. PREPAREDNESS

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Social Media and communication

Shelter Projects floods case studies highlighted the importance of social media and innovative communication campaigns, especially in highly urbanised, newly industrialised economies such as **Thailand.** During the 2011 floods in Thailand, social media became a crucial tool for information-sharing and decision-making, both for those affected by the floods and for agencies responding to needs.

In an example of how to illustrate the risk posed by flooding, the volume of flood waters was calculated to be the equivalent of 50 million blue whales. A popular online animation was made which explained the impact of the floods in terms of these millions of whales slowly trying to make their way through the country and into the Gulf of Thailand. This communication strategy in the context of slow onset flooding ensured that vulnerable communities were able to make preparedness plans and take precautions that were relevant to them.[35]

Important as the use of social media and innovative risk communication strategies is, concerns were also raised about misinformation, the reliability and accountability of those distributing messages, as well as the need to have a variety of communication channels and strategies to reach specific target groups, including those who do not use social media channels at all.

Floods Information, Education, and Communication (IEC) messages for wider impact

In addition to communication and communities there were several examples of working with national authorities to develop and disseminate safe shelter awareness messages for flood preparedness. Following floods in **Timor Leste** in 2021 a group of Shelter NGOs worked in support of the national government to develop a national shelter manual, *"Hari'I Uma ne'ebe Ho Seguru husi Disastre no Asesivel".* Technical messages were developed by global shelter advisors, in coordination with local engineers, the national government, and the Technical Working Group of NGOs. These guidelines addressed vernacular construction practices and were designed to provide accessible and affordable guidance on rural home construction. Given the importance of effective communication for wider impact of safe shelter messages, key messages were tested and agreed upon by community members. Local illustrators were engaged to translate technical content into accessible and culturally appropriate visual guidance materials. This included specific messaging for children, acknowledging the impact of children's learning in school on that of the parents, wider household and community.[36]

Following the 2017 Floods in **Sri Lanka,** the Shelter Sector developed technical IEC brochures based on government construction guidelines to support owner-driven recovery and resilient construction. IEC posters were distributed in evacuation centres and safe relocation sites to increase awareness of site selection and environmental hazards. The key messages included risk reduction features in construction and repairs. These were: choosing safe locations or plots, building orientation to mitigate wind impact, raising foundations above flood levels, reinforcing structures, anchoring roof elements against high winds (using metal straps and hooks) and improving slope stability with recycled materials.[37]

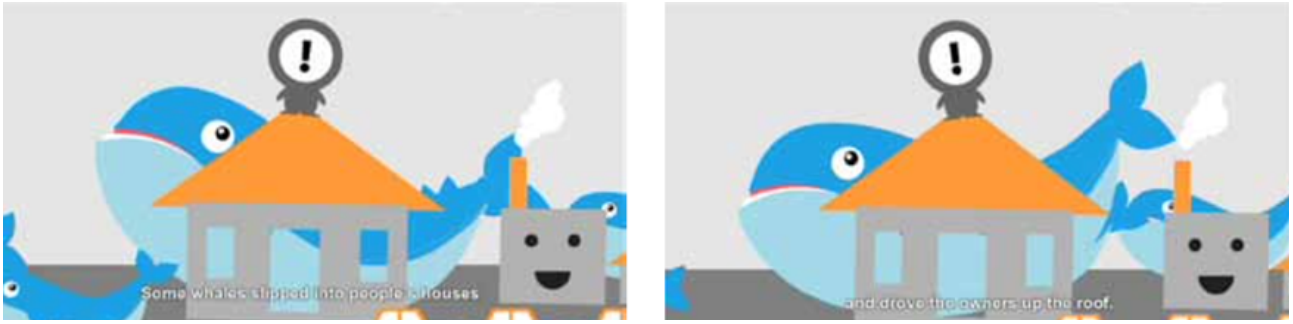


Fig. 11: *This animated video explained the floods and wheter people should stay or evacuate, using whales to help explain the volum of floods waters, it has received over one million internet hits; Images: Roo Su Flood, Shelter projects (2011-2012), Thailand Case Study A30.*

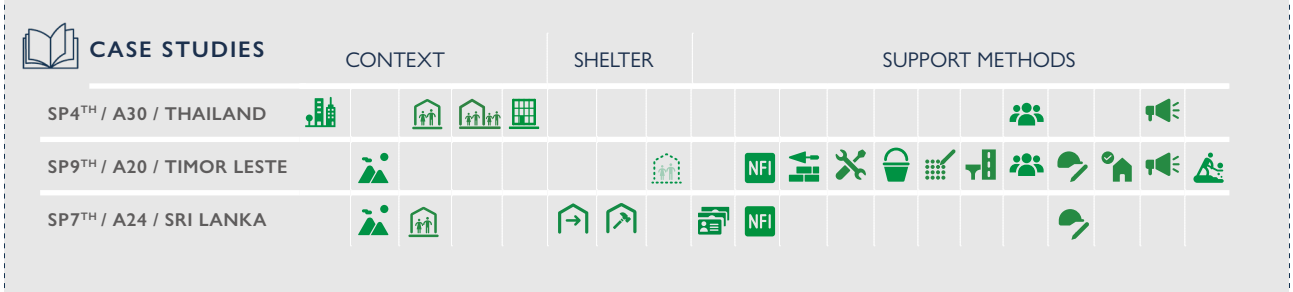


Fig. 12: *Locally illustrated safer home construction IEC messages were disseminated through the Lafaek community magazine. A.20 Timor-Leste, Shelter Projects (2023)*

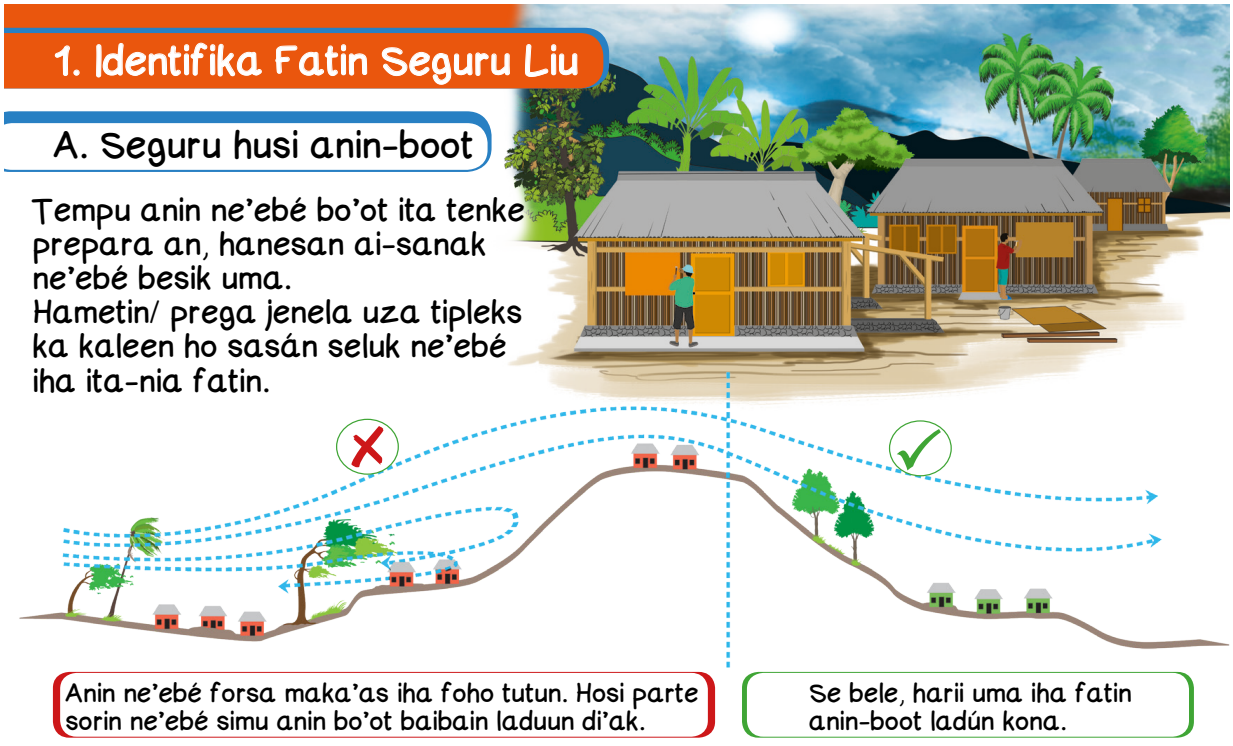


Fig. 13: *National Shelter Manual," page 5. Guidance on securing houses against strong winds by maintaining a safe distance from trees and reinforcing structures using appropriate materials for protection during disasters.*

Longer-term interventions outlined in Shelter Projects floods case studies included working with government counterparts to develop flood-specific revisions of existing building codes as well as training programs to develop key skills to support communities to recover from floods at scale. In **Nepal**, for example, the building code was heavily influenced by the need for earthquake resilience. However, the country also has low lying areas which are flood prone but the code and masons training focus on the Himalayas. This also reflects the strong investment over many years in research, education and training by institutions focussing on earthquakes. A similar level of investment and codification does not exist for floods.[38]

In this context, a further observation was made that a preferred option for government recovery agencies had often been the implementation of a specific set of designs. However, to respond at scale and to recognise different needs, assets and capacities of different families and communities, key messages around core household building standards were seen as a more effective way of ensuring quality construction. Key messaging around recovery and risk reduction principles reinforced knowledge, awareness and adherence to building codes while also supporting processes of self-recovery. Supported self-recovery based around key building principles rather than specific designs recognised and adapted to the diversity of household and community housing and settlement planning needs. [39]

Flood preparedness in a conflict zone (Northwest Syria)

> ***"We work in a conflict but every year floods occur."***
>
> *(Martha Kow Donkor, Shelter Cluster Yemen)*

In **Northwest Syria** 1.8 million people live in unplanned, self-settled displacement sites. They live in tents and makeshift shelters and are vulnerable to harsh winter conditions with freezing temperatures, rain, and snowfall. The sites lack planning, infrastructure, and management systems and are often located in farmland and around river systems. These structural challenges coupled with the annual heavy rainfall in Winter and Spring leaves the sites particularly at risk of flooding events. In 2022, approximately 30 percent of IDP sites in NW Syria experienced flooding, affecting over 540,000 people.

By raising tents off the ground around 20 centimetres via concrete and gravel bases, shelter responders were able to mitigate potential damage to homes and possessions that could impact that household's ability to keep warm (e.g., if carpets, mattresses, and blankets get wet or if they are destroyed) and to provide some level of thermal insulation from the cold. Broader interventions focused on community-level infrastructure and flooding mitigation through drainage network implementation were outside of the scope of this project.

> ***"Lives and livelihoods are affected by floods and disasters as much as by conflict"***
>
> *(Mandy George, GSC)*

Owing to the recurrent risk of flooding, levelling the ground around tents and adding concrete bases offered a cost-effective solution that could be retrofitted to existing tents and makeshift shelters. This allowed IDPs who were part of the project to remain in their current location and limiting disruption and onward displacement. In a protracted conflict context where durable solutions are a long way off, the tent bases combined with an under-layer of polythene acting as a dump barrier offer a significant improvement to the living conditions. Importantly, the concrete tent base along with wider site improvements provided a foundation for subsequent incremental progress towards longer-lasting shelter.[40]

Anticipatory Action and Forecast-based Financing

While it is not widely reflected in the Shelter Projects case studies there is an increasingly urgent emphasis in the wider sector on models of anticipatory action and forecast-based financing.

Anticipatory actions are:

- Planned in advance with the objective of preventing or reducing the impacts of a forecast hazardous event before they fully unfold.
- Triggered based on forecasts or predictive analyses of when and where a hazard will occur.
- Implemented before the hazard's impact, or its most severe impacts, are felt.

Anticipatory Action can:

- Help households to maintain their levels of food intake and protect food security during a shock.
- Reduce negative coping strategies such as taking on more household debt or selling assets.
- Encourage precautionary actions to protect livelihoods.
- Support households to make productive investments which could enhance future income-generating capacity and long-term resilience.
- Be more cost-effective than traditional response activities.[41]

Anticipatory Action pilot projects have shown their importance and effectiveness for the shelter sector which have been extensively piloted in Bangladesh. Between 1971 and 2014, 78 floods in Bangladesh claimed over 41,783 lives and inflicted significant economic losses.[42] Based on weather forecasts, early warning, cash transfers, and investment in preparedness actions (such as preparation of houses and safeguarding livelihoods) have promoted coping mechanisms and significantly reduced the humanitarian and economic impact of floods. A major consideration in respect of shelter is reduction of debt levels owing to early preparation – an especially important consideration in funding constrained environments.[43]

An anticipatory action program delivered by a shelter-focussed organisation in Bangladesh found that 93 percent of people who received early flood forecasts took proactive actions to mitigate potential damage and losses. During the 2020 floods, each household was able to save over USD200 and reduce the post-flood loan burden by up to 18 percent.[44]

Shelter Projects case studies often outline preparedness and risk reduction actions and micro-finance models of response but have yet to do this within the wider framing of anticipatory action and forecast-based financing. In key respects, preparedness and risk reduction approaches described in shelter projects are different and more far reaching. They often occur in the context of humanitarian response programs and are an attempt to make a lasting impact in particularly vulnerable communities by addressing key settlements challenges after disaster, albeit within constrained funding and policy environments. A key reflection on Anticipatory Action for shelter and settlement practitioners therefore is that it is still skewed towards relief processes and that the dissemination of information is "largely determined by information suppliers rather than the needs of end users".[45]

Fig. 14: *© Philipp Hübner / UNHCR/SD, Bangladesh, Kutupalong Camp 4, 2018. Shelter Projects (2017–2018) Case Study A14.*

3. RESPONSE

©Megan Kirby / IOM, Bor South Sudan, 2020

The Shelter Projects floods case studies show how approaches to the immediate, acute phase of initial emergency shelter response to floods have developed over the course of the lasty 20 years. The flood case studies emphasised the vulnerability of the communities supported with shelter interventions. This was because a combination of geophysical vulnerability (living next to riverbanks on in flood-prone areas), the impacts of climate change making hazards more unpredictable and acute, environmental degradation and economic inequality. Consequently, vulnerable families and communities did not necessarily have the resources, assets or expertise to adopt mitigating measures (such as relocating to safer areas or retrofitting their existing dwellings). Shelter Projects documents the transition within the shelter sector from relief-focussed approaches to shelter response to more holistic approaches that seek to address underlying vulnerabilities using crisis as an entry point to catalyse development processes.[46]

Shelter Projects case studies also identified the different response options needed owing to the short-term displacement that often comes with floods as people leave their homes temporarily for evacuation centres before returning once the flood waters have subsided.

> ***"We have been distributing tents, NFIs, winter clothing for a long time but this is not really addressing the main issue. It was so muddy in winter - the wider conditions in IDP sites were sub-standard."***
>
> *(Julian Tung, CARE Türkiye)*

Non-food items and in-kind relief

All case studies identified the distribution of in-kind non-food items as core element of response. These items included tents, tarpaulins, tool kits, fixing kits, kitchen supplies, hygiene kits, mosquito nets, blankets, solar lights, water filters and water purifiers. While they are separately tracked and often fall under different funders, budgets, and back-donor financial arrangements the response packages outlined in the floods case studies often contained shelter and water and sanitation items.

The intent was to support affected households with protection from the elements, improved privacy and security, make living conditions more dignified and to provide protection from vector borne diseases.

In **Pakistan**, the 2010 monsoon season caused the worst flooding in the country's history. Subsequent flooding damaged or destroyed 1.8 million homes. The initial response focussed on the in-kind distribution and more than 1 million households received of tarpaulins, tents and other non-food items. The government also made cash payments using a "WATAN Card".[47]

Some case studies included a 'return kit' or 'clean up kit' to support the decongestion of evacuation centres and processes of return. In the town of Gonaives in **Haiti** following floods in 2008 "80 percent of the city was submerged under two metres of water. The receding flood waters left more than three million tons of mud. Over half of the population of Gonaives was displaced, finding refuge with friends and family or in over 200 collective shelters in schools, churches and warehouses. Major clean-up operations ran for many months. Many families were not able to return to their houses until the mud was cleared".[48]

The in-kind response items were mainly derived from international stocks following global guidance and procurement standards for shelter-related non-food items. They also came from preparedness stocks located in-country which significantly expedited emergency shelter response to floods and avoided administrative, logistical and bureaucratic delays related to importation as well as additional handling costs. The case studies also emphasised that the packages, although standardised, were adapted to local needs and contexts. This was done through needs assessments and community consultations which informed the local adaptation of in-kind items and ensured cultural appropriateness and capacity to use the items delivered.

There was recognition in the case studies of the limitations of in-kind immediate shelter response. They were used to meet short-term humanitarian needs and were not the 'sole solution' nor did they directly support recovery programming. In addition, some case studies recognised that there is often a 'construction season' which avoids the worst of summer and winter temperatures. Emergency shelters and in-kind relief items filled a gap until the weather improved and the beginning of the 'construction season'.

Fig.15: © Joseph Ashmore, Benin, 2010. Shelter Projects (2015–2016) Case Study A16.

Use of cash in flood responses

In a number of cases, in-kind items were complemented with small amounts of multipurpose cash. While this was not specifically tied to shelter, multi-purpose cash supported initial shelter repair and augmented the distribution of in-kind items. It was also used to support returns processes for people living in evacuation centres. In cases of ongoing displacement while waiting for flood waters to subside or for clean-up operations to be completed, cash was used to support the shelter needs of renters and host communities.

In **Pakistan**, following the 2010 monsoonal floods, the government established the WATAN ATM card scheme. Through this scheme 1.6 million households received an initial payment of USD225 within the first year of the response with a second phase supporting 1.1 million households with high damage levels with cash grants of USD450 per household.[49] Conditional cash was also provided by NGOs as part of shelter programs and came in three payment tranches to households for construction purposes. Unlike the unconditional cash distribution through WATAN Cards, the cash provided for construction by the Shelter Project partner was monitored through GPS coordinates and photographs. Provision of the second and third tranches were conditional on the completion of the previous construction stage.[50]

Case studies also highlighted the importance of considering gender in cash programming. In the 2011 **Benin** flood response households were provided with unconditional cash support to assist people leaving emergency shelter and use their judgement to spend it to meet their basic needs. The cash grant was given to the woman in the household "who was seen as best placed to spend the money to meet basic needs of the family. Although not implicitly given for shelter support, the cash meant it was easier for families to restart their lives and could be spent on shelter materials, if this was a priority. The shelter project was part of an integrated approach that included education, water, sanitation and hygiene activities".[51]

The experience of responding with cash in Benin further emphasised the importance of understanding diverse concepts of family groups and dynamics in shelter programming. Inadequate analysis and understanding of social and household dynamics meant that the shelter programming failed to provide assistance to meet the specific needs of households. In this context, the cash distribution based on a single family unit was insufficient to meet basic needs owing to extended family arrangements through the widespread practice of polygamy.[52]

While flood response case studies were supportive of the use of cash, they also outlined some limitations in respect of shelter programs. These limitations related to the availability and quality of core relief items in local markets, partner capacity to manage cash-based distributions as well as concerns about the equity of assistance. Additionally, concerns were raised that solely cash-based programs without additional technical and settlements planning support could contribute to ongoing vulnerability owing to poor location near riverbanks or floodplains. The case studies emphasised the importance of good building

practice in individual shelters such as strong connections and foundations. While multi-purpose cash was used for technical dimensions of safe sheltering. This included site location, settlements planning aimed at reducing risk and short-term relief purposes, conditional cash transfers which linked cash assistance with technical quality was the preferred modality for cash distributions outlined in Shelter Projects case studies.

Shelter Response strategy and decision-tree for floods responses

The Pakistan Floods Shelter Response Strategy outlined the immediate shelter needs and temporary settlement typologies of people affected by the floods. A recurring concern in Shelter Projects case studies is the rise in high-risk settlement patterns. The strategy shows built up settlements in high-risk flood locations. In the immediate aftermath of the floods large numbers of people flee to collective centres, spontaneous settlements, host families or rental arrangements, and in some cases formal planned camps. In these locations they received in-kind relief items such as tarpaulins and NFIs. As the flood waters subside, families begin to return and a second wave of relief starts including repair kits to repair damaged houses, clean up kits, and cash and voucher-based assistance. As returns continue there was additional need for construction materials, transitional shelters, as well as longer-term options for those cannot return (for example owing to landslide). [53]

This process was slightly more developed in the diagrammatic version of the shelter strategy for the 2017 floods in Sri Lanka. In the Sri Lanka floods in 2017, rapid, unplanned settlement development and climate change increased the country's vulnerability to disasters. In the years before the floods, affected districts had faced a rapid increase in population.

Settlements had grown along rivers and streams bordering main cities. Informal housing and economic activities increased, surpassing the local government's capacities to control development. Because there is an increased pattern of settlement by vulnerable communities in high-risk locations, shelter projects case studies have increasingly focussed on the implementation of flood risk reduction. A network of community-based organizations and affected families themselves were engaged to conduct shelter repairs, build transitional shelters for those unable to return, distribute NFIs and upgrade evacuation facilities.

Disaster risk reduction features were included in the response and salvaged materials were reused in the repairs. The disaster response plan followed the structure and decision-tree outlined below:

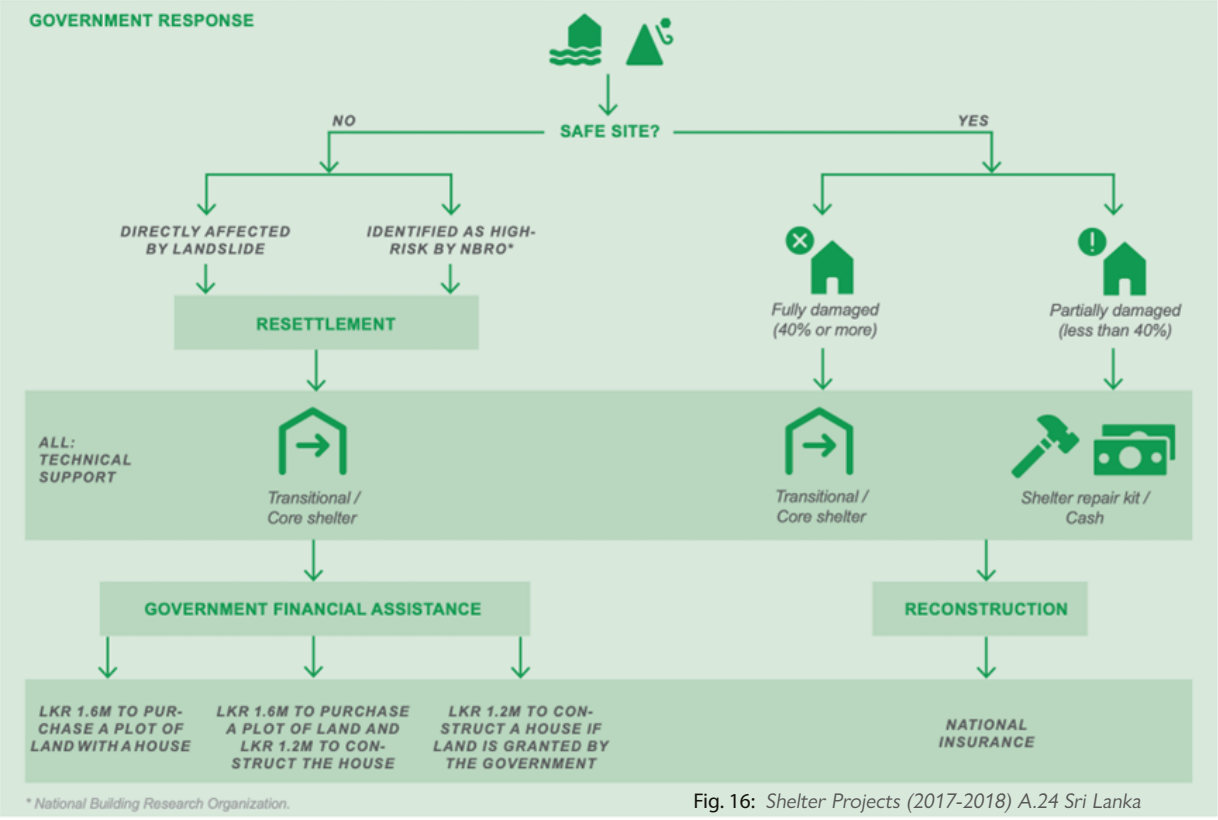


Fig. 16: *Shelter Projects (2017-2018) A.24 Sri Lanka*

The Sri Lanka shelter response strategy included the following:

- **Emergency shelter:** support vulnerable households (whose homes had been partially damaged, but were able to return or were already living near their houses) through the provision of emergency shelter items contributing to self-recovery, such as shelter kits (including tools and CGI) or their cash equivalent.
- **Return:** support the most vulnerable households to return through the provision of NFI kits (including kitchen sets and solar lights), or their cash equivalent.
- **Relocation and resettlement:** provide transitional shelter options for vulnerable households in designated high-risk zones, where a permanent housing solution would need to be found.
- **Technical support:** provide information, education and communication (IEC) on safer construction principles, community-based hazard awareness, preparedness and DRR, during all phases of the response.

Flood response and COVID-19

> ***"COVID-19 emphasised that housing is not just a private question for individuals and families but a question of public health"***
>
> *(Bernard Barth, UN-Habitat)*

The COVID-19 epidemic placed housing at the centre of public health planning and policy.[54] Research into COVID-19 and housing in informal urban settlements in the Philippines reinforced the link between housing, settlements and health. It found that the majority of houses in informal settlements lacked ventilation, had no rooms or private space available for isolation and there was limited access to open public space. Loss of jobs meant that many renters faced threats of eviction (as high as 25% of respondents living in informal settlements in Ormoc City, for example).

The report concluded that "for many cities, the COVID-19 pandemic has exacerbated pre-existing issues in poverty and inequality including challenges in employment and livelihood, transport and accessibility, access to basic services, and security of tenure".[55]

Shelter response agencies were tasked with responding to some of these compound health, shelter and settlements issues. The Paraguay flood response in 2019 quickly morphed into a COVID-19 response as emergency responders were requested to provide messaging on COVID-19 risk mitigation and specific advice on how communities could adapt their shelters to mitigate the spread of COVID-19. The partners worked with the Department of Health on key messages, including on social distancing, washing hands, and cleaning of shelters. The partners also designed messages related to shelter and COVID-19 mitigation, with information on how shelter materials that had been distributed during the flood response could be used to create additional living space and create divisions between living spaces, improve ventilation, and to construct an isolation space if a household member was taken ill and could not isolate elsewhere.[56]

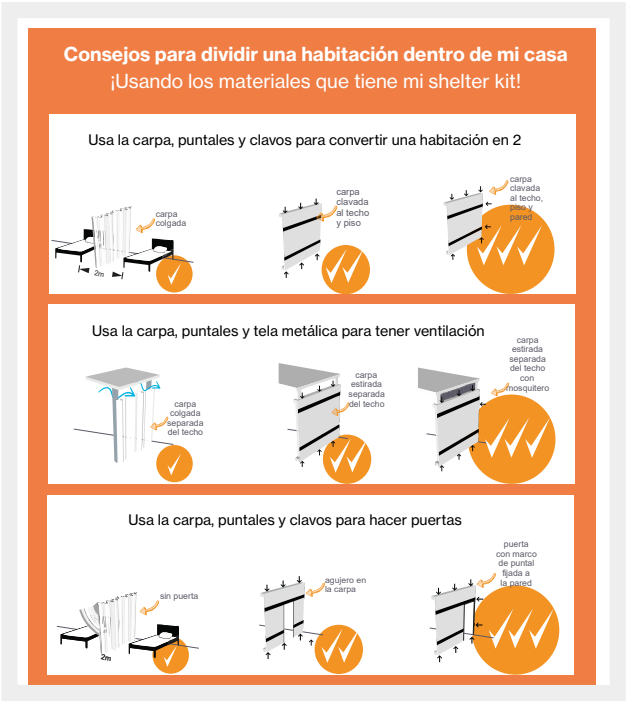


Fig. 17: *Shelter Projects (9th Edition), Paraguay A9.*

CASE STUDIES | CONTEXT | SHELTER | SUPPORT METHODS
SP3RD / A22-25 / PAKISTAN
SP7TH / A24 / SRI LANKA
SP9th / A9 / PARAGUAY

4. RISK REDUCTION

© Muse Mohammed / IOM, South Sudan

Linking flood response with disaster risk reduction principles is a central component of the floods case studies outlined in Shelter Projects and contributes to longer term hazard mitigation and Build Back Safer approaches. Disaster risk reduction describes a comprehensive cycle that goes beyond emergency response to disasters but planning and implementing actions and frameworks with a view to prevent disasters, prepare for the onset of a disaster, respond to and recover from disaster and crisis. In some quarters there is a perception that shelter programs are 'product driven' at the expense of livelihoods and infrastructure that are crucial to risk reduction. However, the Shelter Projects floods case studies do not bear this out at all.

> ***"Shelter responders try to contort the humanitarian system to include risk reduction and longer-term interventions but the system itself which packages things neatly into sectors may need a radical overall."***
>
> ***(Dr Aaron Opdyke, University of Sydney)***

Shelter Projects floods case studies repeatedly outline the experience of organisations responding to compounding humanitarian issues. These include responding to floods in contexts marked by the growing scale of displacement and urban informality as a consequence of protracted conflict, forced migration and climate change. This is a combination that increases the risk, scale and urgency of humanitarian response. In interviews, shelter practitioners returned to the same set of larger concerns in flood response and risk reduction around how to extend the impact of programs to meet the scale of need and vulnerability. Shelter Projects floods case studies reflect a transition in flood responses from single projects to more integrated, holistic approaches that engage governments, mobilise community capacities, invest in risk reduction at the settlement level, and make use of technology to augment community-based processes to address underlying causes of vulnerability. In addition, case studies and interviews highlighted the importance of partnerships especially with local government and meteorological services.[57]

A recurring theme in the flood response case studies is the quick transition from relief to early recovery and risk reduction. Floods case studies also document attempts to stretch the scope of programs to include these wider components of sheltering within 'humanitarian' funding parameters. These parameters can restrict shelter programs to narrowly conceived relief activities despite growing needs and increasingly complex humanitarian conditions.

Floods case studies often referred to funding constraints as one of the main challenges in extending the scope and impact of shelter programs beyond relief. This was especially the case when working with the most vulnerable people and communities with often complex needs. Living in flood prone areas is a last resort for the most socio-economically marginalised communities. Many flood-affected communities lack secure land tenure or may live in 'red zone' areas that have been designated by authorities as high risk and therefore not suitable for settlement. In some conflict settings the ability to implement longer term risk reduction programs can be constrained owing to perceptions that this may lead to permanent settlement despite the increasingly protracted nature of conflict-induced displacement. For these reasons, floods case studies navigate sensitive political terrain when programming with the poorest and most vulnerable communities living in the most high-risk areas. Many of the flood interventions outlined in Shelter Projects are therefore relatively 'light-touch', 'incremental', 'transitional' or 'dignified'. The different terms used describe attempts by shelter actors to achieve maximum wider impact within a series of funding and policy constraints imposed on longer-term programming to address compounding shelter and settlements needs.

The shelter response to floods in the Yemen provides an example of the possibilities as well as the limitations of flood response and risk reduction in a complex emergency. In **Yemen** high levels of internal displacement, risks from flooding and climate change are some of the challenges facing humanitarian actors attempting to move away from repeated, short term emergency response programs to invest in risk reduction.

CASE STUDIES

	CONTEXT	SHELTER	SUPPORT METHODS
SP4TH / A3/ COLOMBIA / 2011			
SP4TH / A23 / PAKISTAN / 2010			
SP5TH / A21 / PAKISTAN / 2014			

Fig. 18: *© ACTED, Shelter Projects (2011-2012), Pakistan A21. The project was designed on community-based disaster risk reduction and permaculture principles. However it found It difficult to maintain these principles and effect the social change required given the scale and donor time frames.*

Owing to social marginality, poverty, and lack of land tenure 36 percent of the country's 4.5 million IDPs live in self-settled, unplanned sites often in small family-oriented groups rather than larger sites. These sites are prone to flooding. Despite recurrent needs, lack of funding, institutional capacity and a relative absence of longer-term development partners has made investment in risk reduction or wider nexus programming difficult. Nonetheless, relatively small amounts of funding have the capacity to reduce flood risk substantially in IDP sites through hazard and vulnerability mapping, light infrastructure investments (such as drainage, gabion cages to create flood barriers, site reorganisation, and wider site planning interventions).

Additionally, training programs in safe shelter construction and risk reduction techniques have been developed through pilot projects which are capable of replication at scale and which are ultimately cost effective since they mean that repeat humanitarian response is not needed in displacement sites that have undergone a site planning process to improve existing living conditions. While the pilot projects have proved effective, the ability to deliver them at scale requires further advocacy in the context of limited funding and inherently short-term policy setting that frame the humanitarian response.[58]

Approaches to flood risk reduction

In **Colombia** regular seasonal flooding usually lasts one month however the 2010 floods lasted for six months owing to a combination of intense rainfall and the impact of deforestation on water flow.

Families were supported to make adaptations to their houses and to remain in place in their communities. Despite significant loss of assets and livelihoods, families built mezzanine levels inside their homes to keep them and their possessions dry. New houses were built on stilts and there was investment in community infrastructure including a two-metre high, kilometre long footbridge to enable movement between houses during flood periods. Disaster preparedness activities, first aid, hygiene promotion and safe construction training was also provided.[59]

Floods responses in **Pakistan** between 2010 and 2014 are the most extensively documented response in the Shelter Projects archive. Following the 2010 floods the immediate priority was to deliver temporary shelters to millions of people across five provinces – an enormous logistical challenge. As the response transitioned into return and recovery, the shelter sector piloted a recovery strategy including:

- Brick and cement-mortar foundations, continuing up to window line as the main flood-resistant design element.
- 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 USD800 for flood affected families to support recovery. This was by far the largest investment to date in recovery of any sector, costing almost USD1 billion of Government/ donor funding.

This response changed in the 2014 floods owing to lessons learned from 2010. 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 fed into a revised approach including:

- 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.

With an increasing focus on locally available materials and vernacular architecture, the cost of each house was reduced from around USD1,200 after 2010 floods to just over USD500 in the 2011 and 2012 responses. Multiplied over 100,000 durable homes this revised approach resulted in a "saving" of almost USD70 million and the ability to reach more than twice as many people.[60] Targeted risk reduction measures included raised platforms made of several layers of pressed soil to protect the base of the structure from flood water and a one-foot-high incline on roofs with deep eaves to protect the walls from being soaked and weakened during intense rain. Similarly, in 2011 following flooding in **Pakistan** a core component of the shelter project was to train flood affected households on how to build back safer using risk reduction techniques with the intention of strengthening the resilience of affected populations and to enable them to cope with future disasters on their own.[61]

Risk reduction interventions in Pakistan also integrated permaculture principles to mitigate the future impact of flooding in high-risk areas. In Northern Sindh, improved disaster-resilient construction techniques included raising platforms for shelter construction and improving roof drainage. Risk reduction trainings were provided to target communities as a whole, not just direct project beneficiaries. Locations for construction were agreed following hazard mapping by the community.

Cash for work projects were conducted to repair embankments and some flood defences. Despite extreme summer heat and saline soil conditions in the region, tree planting, kitchen gardening and permaculture principles to capture wastewater and improve the village environment and food security were introduced.[62]

Wider settlements, or Village Planning, approaches were also adopted to reduce future flood risk. Families were supported to identify safe plots on higher ground and in less flood prone areas of the village. This included avoiding low-lying areas or areas near steep slopes with risks of landslides, and sites next to busy roads, waste dumps or electrical lines, and plots too close to other buildings. Model shelters were developed and were integrated with water and sanitation facilities including with hand pumps and latrines. A settlement-planning approach was adopted with communities focusing 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, rainwater run-off from the roofs, and village evacuation planning. This wider investment in settlements ensured that both those who were directly affected by the flooding as well as the wider community benefited from the shelter recovery programs.[63]

> ***"Community-based methods are not enough anymore. We need to use technology: drone assessments, GIS mapping, infrastructure mapping, hydrology analysis, flood modelling, risk visualisation"***
>
> *(Minar Thapa Sindh Housing Recovery and Reconstruction Platform)*

Flood risk reduction in refugee and IDP sites

Flood risk reduction in IDP sites is complex. This is partly owing to the fact that often the only land that is available and accessible to displaced people is in vulnerable areas such as riverbanks, the edges of cities, or agricultural fields. Vulnerability to floods is also a consequence of a lack of initial site planning when the sites were established. Initial humanitarian shelter responses to mass displacement are never meant to be long term however the average time of displacement lasts twenty years for refugees and ten years for those who are internally displaced.[64] Consequently, shelter programs in refugee and IDP sites must often address the humanitarian consequences of poor initial planning retrospectively.

In **South Sudan,** the Malakal Protection of Civilians Site (a displacement site) experienced an influx of people fleeing conflict in 2017. As it was never intended to become a long-term settlement, the site conditions quickly deteriorated during the rainy season.

Fig. 19: *© Muse Mohammed / IOM. South Sudan Malakal Protection of Civilians, 2018.*

Fig. 20: *© Joanna Cameira, Dadaab Refugee Camp, Kenya.*

The site required rehabilitation due to uneven distribution of common facilities and infrastructure, as well as disorganized location and density of shelter areas. Critical issues in the site were congestion and overcrowding, encroachment of roads, lack of privacy for families sharing communal shelters, as well as the overall deterioration of shelters. Recurrent flooding affected the site due to poor drainage and infrastructure. The unplanned nature of the site contributed to increasing risks to safety and security, including GBV. To address these issues, one of most overcrowded blocks was relocated to higher ground in coordination with water and sanitation partners. Latrines, bathing facilities, communal spaces and kitchens were upgraded and the new site was prepared with levelling, site planning, drainage.[65]

> *"Risk Reduction and Climate Change Mitigation and Adaptation have moved from niche areas into the mainstream"*
>
> *(Emilia Wahlstrom, UNEP/OCHA)*

Similar concerns were raised in the **Dadaab** refugee camps in Kenya hosting Somali refugees. While the camps have been established in the 1990s it had grown into three large settlements with more than 170,000 people by the time of the case study in 2007. This caused congestion, water and sanitation issues and resulted in quickly and poorly constructed shelters as well as vulnerability to flooding owing to lack of settlement planning during the rainy season.

Severe flooding occurred in the camp in 2007 and 2008. Portions of the camp vulnerable to flooding were relocated to higher ground and more robust shelter were developed using mud bricks alongside community mobilisation and training as this was not a standard local building tradition.

Designs were developed involving extra bricks to build a thick foundation and lower wall to improve the structure's performance in heavy rains.

A change in the position of the house on the plot improved sanitation. Latrines were moved to the front of the plot next to the street and the house was positioned at the back of the plot. This left space for more construction inside the plot and prevented the problems of a dirty backyard blocked by wastewater runoff.[66]

An extension to the refugee camp in Cox's Bazar in **Bangladesh** showed a way in which shelter actors could address issues caused by rapid, unplanned settlement in advance. By 2019, the only remaining land available for development in the camp was in the valley floor. According to the 2018 flood risk map, this area was flood prone. An initial drainage masterplan of the area was developed, creating catch drains around the edge of each shelter area to intercept water washing off the slopes, linked to primary drains through the centre of each valley. Soil excavated in digging the primary drains was used to raise the level of the shelters. The project prioritized the use of environmentally sustainable risk reduction measures, such as using natural drains with earth bedding to promote water infiltration and reduce flood risks for downstream communities.

Quick growing, deep-rooted grasses were planted along the embankments and on slopes to prevent soil erosion. In addition to this, several actors carried out major tree plantation and reforestation activities across the camp, to restore the environment, protect the slopes from erosion, and reduce flooding. GBV risks were considered during site planning, including the placement and width of pathways, the segregation and placement of latrines, bathing spaces and water points, street lighting, and consideration of typically male-dominated spaces. Cash for Work teams also constructed catchment drains around the blocks and connected each block to the main drainage network, installed brick-paved access routes and bamboo bridges within and between blocks and implemented environmental restoration measures such as tree planting.[67]

Fig. 21: *© Abdullah Al Mashrif / IOM, Bangladesh, (Cox"s Bazar)*

5. RECOVERY & DURABLE SOLUTIONS

Durable solutions may aim to return IDPs to their place of origin,[68] use of durable materials and livelihoods generation,[69] and efforts to move beneficiaries beyond emergency response into longer term recovery.[70] The ability of the shelter practitioners to design and support durable solutions can heavily influenced by the availability of funding which might inform a staggered approach so that beneficiaries can build upon shelters over time rather than providing long-term shelter in the response and early recovery phase.[71]

> ***"Cost of doing response over and over again is much higher than long term investment in appropriate infrastructure. The dilemma for shelter responders is durable solutions when still under the umbrella of emergency response."***
>
> *(Joud Keyyali, CARE International)*

In some cases, the floods projects case studies supported working with local government in relocating especially vulnerable communities. These case studies emphasised the important of consultation, linked services at the relocation sites, and ongoing access to livelihoods as well as the importance of cultural continuity given the centrality of land to identity. In the relocations that occurred in response to flooding in **Colombia** in 2011 "the elderly population found it more difficult to overcome the feeling of loss that they had, mourning the end of the old village. A memorial park was created in the old village, to ensure that people can return to honour the dead, who remain buried in the cemetery in the old village". The project also tried to raise funds for community centres, places of worship, and livelihoods cooperatives to link create ties with surrounding villages.[72]

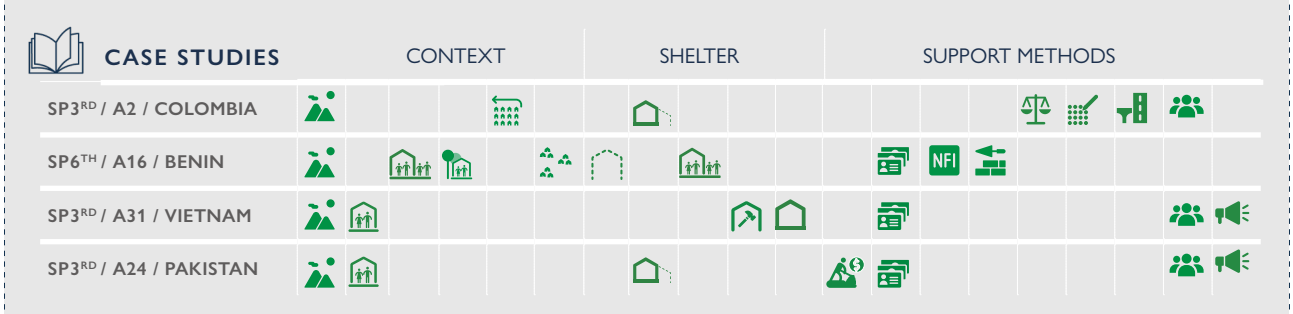
After floods in **Benin** support for longer-term recovery was provided through housing and infrastructure rehabilitation, with the construction of demonstration houses in each commune as models for replication; livelihoods reinforcement and regeneration (community-based microfinance and food security, cash-for-work); hygiene promotion, gender awareness and GBV prevention, with the support of community mobilizers based in each village.

Fig. 22: *©DWF, Vietnam 2009. Shelter Projects (2010) Case Study A31.*

The cash-for-work activities were intended to engage the affected people in the recovery of their communities although sometimes had the side effect of diverting people away from their daily income-generating activities.[73]

In **Vietnam** following Typhoon Ketsana, houses were destroyed because they were in vulnerable locations, were poorly constructed, materials were used poorly and lacked reinforcement. Houses were destroyed both by the winds and by flooding. The poor quality of construction was compounded by a lack of financial resources and awareness. In a rare example of a Shelter Projects case study of permanent housing construction, households who had lost their homes were supported through cash grants to rebuild storm and flood resistant houses:

- Houses were built according to traditional design with necessary reinforcement. Daily construction work was closely supervised by local engineers.
- Families decided on the house design and were able to adjust the home according to their individual needs.



Many families made additional contributions as they considered it a lifetime investment.

- The conditional cash grant enabled families to select local suppliers and builders whom they trusted, while benefitting from technical advice.
- Technical training helped families to follow each step of the construction work while being supported by project engineers.
- A participatory approach helped to provide a sense of ownership of their own homes. Some members of ethnic minority groups expressed their appreciation for their houses being reinforced.[74]

In **Pakistan**, following the 2010 floods, the focus of the recovery strategy was on the construction of one room shelters for those able to return to their place of origin and transitional shelters for those people who remained displaced, those with limited access to land, and for seasonal migrants.

'one room shelters' was defined as "a more durable solution built at place of origin with indigenous materials and techniques." The envisaged lifespan of the one room shelter was three to five years with the intent that it would provide the basis for owner-driven incremental improvement and permanent house construction.

By contrast, transitional shelter was defined as "a transitional solution that responds to temporary needs, e.g. for those facing extended displacement or those living in frequent flooded areas" with a life span of around one year and a design that allowed for reuse of materials.[75] 'one room shelters' were built with brick or mud bricks for a value of around 300USD per shelter with technical advice provided to help families improve their resilience to future disasters.[76]

In **Colombia**, the project supported the entire community of Doña Ana to voluntarily resettle to a new location, due to severe annual flooding. 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. 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. A new water system was set up and the community established a development plan. 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.

Fig. 23: *© Cristophe Arnold. Benin, 2010. Shelter Projects (2015–2016) Case Study A16.*

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. The final phase involved school construction involvement of the community in the building process to ensure ownership of the educational facilities and reinforce a sense of belonging in the relocated village.[77]

Longer-term recovery approaches have been adopted in Sindh, Pakistan through the post-flood Sindh Housing Recovery and Reconstruction Platform (SHRRP) which works in collaboration with local, provincial and national governments in Pakistan and international donors. The platform, which is coordinated by an INGO with previous long-term recovery coordination experience has linked humanitarian with longer-term development actors to support reconstruction and risk reduction for flood affected communities. This includes working with the Sindh Provincial Government around land tenure and support to relocation where necessary as well as adopting settlement planning approaches to recovery. This involves both community-based approaches and extensive GIS mapping, hydrology analysis, modelling, risk visualisation at household, community and settlement level. Through connections with longer-term, government-led planning and development processes, settlement-level interventions have included site planning, preparation and orientation, connections with water, sanitation and waste disposal, links with services and utilities including schools, health facilities, livelihoods, and programs to support economic resilience as well as investment in tree planting and nature-based solutions for risk reduction. The SHRRP additionally supports the development of a flood-specific building code. Importantly, it was observed that while there has been a great deal of research into earthquake resilience in the housing sector, there has not been the same level of research and policy investment for flooding and floods resilience.[78]

Limits of shelter and settlements after floods

> ***"Humanitarian shelter is not based on getting to tomorrow. We keep people in suspended state.*** *(Charles Kelly, GSC)* ***"***

There is growing concern among shelter actors that despite projectized attempts to address longer-term vulnerabilities, they are not achieving the necessary breakthroughs in reducing risk owing to systemic issues. Inherent short-term thinking within the wider humanitarian sector means that it is not based on "getting to tomorrow" by addressing the underlying causes of hazard vulnerability. This ultimately impacts the quality and scope of shelter programs in addressing changing and compounding humanitarian needs.[79]

Concerns about funding levels and the restrictive nature of policy settings is widely reflected in the sector which is often tries to stretch the scope and definition of humanitarian programs to address longer-term risk reduction. Humanitarian policy settings and administrative structures for planning and financing response have tended to remain within traditional, short-term parameters.

The Humanitarian Needs Overview (HNO) and Humanitarian Needs and Response Plan (HNRP) processes are increasingly focussed on narrow conceptions of response as well as 'humanitarian shocks' despite complex and ongoing weather and climate dynamics of countries and communities in crisis.[80] In this context, there is sometimes funding for flood response once the crisis reaches national level magnitude however this ignores the reality that living in flood hazard zones is a chronic condition. Additionally, flood response is also often very localised affecting particular regions or groups of people and does not necessarily attract the attention of donors.[81]

While the responses often now include a range of activities under a broad 'settlements' banner there is also a sense that the majority of the activities enabled through the current humanitarian system do not quite add up to a full settlements approach and that, despite some progress, responses ultimately do not make space for communities to say what they want.[82] Shelter response has now reached a limit in terms of what donors will fund. Light touch infrastructure such as lighting, gravel, access roads, and drainage channels can be included within shelter programs but not more as this is outside the humanitarian remit.[83] Shelter responders try to contort the humanitarian system to include risk reduction and longer-term interventions but the system itself which packages things neatly into sectors may need a radical overall.[84]

In some contexts, humanitarian agencies have been able to use independent funding to develop programs and approaches that are not constrained by humanitarian conventions and parameters. Crises have been seen as an entry point to catalyse development processes and to start thinking about recovery from the beginning in order to enhance emergency strategies. Additionally, some agencies have begun to move away from the physical of shelter and have focussed on their role as convenors and advocates in partnership with communities and local actors. An example in this context is flood a response in informal settlements in Free Town, Sierra Leone which focussed on the development of an area action plan, formalisation, and land rights. This process requires a different perspective by promoting genuine and equitable partnerships with locally led and community-based organisations.[85]

Fig. 24: © *Alejandro Diego Bravo/Colombian Red Cross. Colombia, 2011. the 'old' village of Doña Ana.*

Fig. 25: © *Alejandro Diego Bravo/Colombian Red Cross. Colombia, 2011. the new layout of Doña Ana village.*

6. HOUSING LAND & PROPERTY

© UN-Habitat Sri Lanka

Housing, land and property rights (HLP) is critical within shelter response and for the protection of beneficiary interests in the long-term. HLP is particular to each community and shelter practitioners must understand the implications of HLP in flood-affected communities when developing response and reconstruction plans.[86] To achieve this understanding, shelter agencies need to undertake consultation with the particular flood-affected communities and reach agreement from landlords and landowners, and households renting or residing in housing and property where they may not have direct ownership. The Global Shelter Cluster HLP Toolkit describes HLP rights "encompass the rules, arrangements, practices, customs and attitude that enable individuals to inhabit and use the land, property and accommodation they live in" and emphasises that HLP goes beyond legal frameworks to be informed by customary and social standards and principles that "safeguard the human right to access adequate housing, free from the fear of displacement, encroachment, or arbitrary eviction".[87]

> ***"Insecure tenure and vulnerability are linked. With secure tenure people have peace of mind. They can rebuild lives, invest in resilient and become self-reliant. They have confidence to invest in their lives, homes, education and in starting business."*** *(Ibere Lopes, GSC)*

There is increasing pressure in humanitarian shelter programs to provide assistance on the basis of secured tenure as part of accountability mechanisms. While definitions of what this mean vary and may range from formal title to community validation processes in many cases tenure is difficult to prove or demonstrate. In Africa, for example, formal tenure may only cover up to 10 percent of the continent's settled land. Similarly, in Myanmar more than half of all households are legally classified as landless. Consequently "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".[88]

Absence of security of tenure has the potential to undermine any shelter intervention and is a recurring challenge of shelter programs which often work with the most economically disadvantaged people living in high-risk areas without secure land tenure. One of the challenges facing longer-term recovery following floods in **Benin** in 2011 was that "families living in some of the flood risk area could not return home to rebuild, and it was unclear what rights they had to their original land and property, or what they could expect as compensation or where they would be asked to relocate to". [89] Similarly, in **Nepal** following the 2017 floods many of the affected families residing along river banks did not have proof of ownership. In these circumstances, alternative approaches to verifying land tenure and further advocacy with government authorities was vital to ensure the effectiveness of the project. Initially, a lower level of proof of tenure was required with verification from community leadership and local authorities. This was because the initial shelter intervention was only temporary. However, to qualify for longer term housing recovery assistance more formal tenure arrangements needed to be made. The organisation hosted an official handover event which drew top government officials, aiming at making the government accountable toward landless and vulnerable families and advocated for these families to be included in reconstruction programmes from the government.[90]

This situation can become exacerbated in conflict, often with the mass loss of documents relating to HLP and demonstrating security of tenure. One result of the conflict in **Syria** has been a large-scale loss or destruction of HLP documentation. A study by a shelter response organization found that two thirds of respondents with previous housing documentation reported that it had been left behind or had been destroyed or lost.

Fig. 26: © *Nepal*

This posed a challenge to carrying out HLP Due Diligence. The organization triangulated documentation through community assessment checks and coordination with local authorities. In cases where HLP could not be established, technical designs were also adapted to ensure that no infrastructure was constructed on land where HLP could not be verified.

Through community verification, triangulation of documentation, and coordination with local authorities, HLP Due Diligence took place in all 42 camps. In cases where land rights could not be comprehensively verified, technical designs were amended to ensure land was not altered where verification could not be secured.[91]

Following the floods in **Pakistan** in 2010 land tenure was a challenge due to the complex system of land ownership in the Jacobabad province. Achieving security for flood-affected households with landowners was negotiated to the best extent possible to protect them from eviction to make way for others. Under customary law in Jacobabad the landlord automatically owns any part of a structure that is in the ground. Therefore, reconstruction in the flood response included a roof designed so that it can be removed and taken away if the household were evicted.[92]

The shelter response to the **Nepal** floods in 2017 revealed the difficulties in working with landless populations and highlighted the need for shelter projects to explore modalities to support people regardless of tenure status. Following significant community lobbying supported by shelter partners to promote accountability toward landless and vulnerable populations, the central and municipal governments allocated funds in 2019 for housing programmes for landless flood-affected families, which were also allocated land.[93]

In the response to Tropical Storm Kai-Tak in the **Philippines,** which made landfall in December 2017, part of the community who had been affected by Typhoon Haiyan four years earlier were residing in at-risk areas declared as no build zones and vulnerable to hazards such as landslides in the absence of alternative options. At the time a National Housing Authority scheme was underway to move people occupying no build zones to other housing. Following Typhoon Haiyan, while some households were able to return with shelter kits to their homesites, a number were unable due to landslide risk. Local shelter partners negotiated agreements with landowners on behalf of households waiting for housing under the National Housing Authority scheme. Agreement was reached with landowners to sell the land and shelters to beneficiaries in affordable instalments, securing HLP rights for previously propertyless households.[94]

7. GENDER, DIVERSITY & SOCIAL INCLUSION

© Annie Maduka

Disasters exacerbate already high levels of GBV as well as wider gender inequalities. A Rapid Gender Analysis by CARE following the Burundi floods in 2023 found that women and girls were among the most vulnerable to the effects of flooding, with 26 percent of them afraid to go to the market or other public places for fear of being sexually abused.[95] This has profound personal, social and economic impacts. The economic impact of gender-based violence is estimated at between 2 to 3.5 percent of global GDP.[96] The gender inequality of disasters severely impacts the ability of communities to prepare for and respond to flooding and undermines risk reduction and resilience-building through loss of lives and livelihoods owing to violence and discrimination.

In its analysis of the impact of climate change and GBV, the Global protection Cluster has written that:

> ***"An often-cited statistic is that women are 14 times more likely to die or be injured during a disaster than men. Ninety percent of casualties resulting from the 2014 Solomon Islands flash floods were women and children. These striking numbers are a clear reflection of restrictive gender norms: women tended to be in their homes when the floods began in the Solomon Islands, while men were in open spaces, such as working on farms. When flood waters rose, women were essentially trapped. In addition, women in these domestic spaces were in charge of children and the elderly, slowing their opportunities to escape. Even those who might escape were likely to face challenges due to the social norms that discouraged females from learning survival skills like how to swim."***[101]

Gender equality, diversity and social inclusion (GEDSI) is an essential aspect of effective shelter programming both in relation to floods and other disaster events. By ensuring consultation with communities by shelter agencies the interests of different genders and diverse persons can be understood and integrated into planning, as well understanding the social nuances specific to affected communities.

Shelter can also play a role in empowering women and diverse groups through active inclusion in the response and recovery phases. By taking practical steps to understand the social needs of flood affected populations, shelter response and programming can play a key role in protecting against issues including GBV and loss of dignity for persons with disabilities.

> ***"In the 2020 floods in Bangladesh women and girls were not willing to come to evacuation shelters because there were no separate facilities, no hygiene management, and a lack of privacy and security (CARE Bangladesh)".***

In Bangladesh, an anticipatory action program working with vulnerable communities living along riverbanks has focussed on the gender dimensions of shelter in taking early action to potential flooding. With most of the men working away from the community in Dhaka, the project focussed on sending messaging, awareness raising and consultation with women around likely flood risks, early warning and key preparedness actions. The project found that women shared key information with other women and also that – owing to traditional social roles as care givers within the family and community – the impacts of early warning messages was much higher when disseminated to and by women. A focus on early warning also enabled action to be taken around women's unwillingness to relocate to evacuation shelters. The project was able to prepare evacuation shelters in advance to ensure adequate provision of privacy and water and sanitation facilities in order to increase access and reduce discrimination for women evacuating their homes because of floods.[97]

Criteria for the selection of beneficiaries should target the most vulnerable groups in flood-affected communities to ensure they have access to the assistance required so that they have adequate shelter and housing. A challenge in shelter programming is understanding cultural and social practices specific to certain communities which can heighten the risk of vulnerable populations being missed in planning.

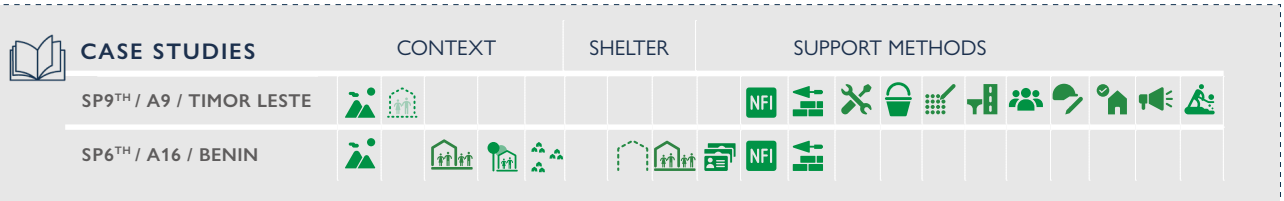


Fig. 27: © Phillipines

Loss of resources and livelihoods for flood-affected households increases the risk of adverse coping mechanisms if families are unable to afford or access adequate shelter, including child marriage. It also increases the risk of GBV where households are under continued stress and lack space for privacy. Vital to effective shelter assistance is understanding social and cultural contexts to ensure the voices of vulnerable groups are heard.[98]

While all humanitarian programming should ensure assessments and risk analyses that consider cultural, religious and economic practices, as well as the distribution of gender roles and existing power structures, shelter programming is quite specific in that it also targets the settlement level. Taking GBV risks into account at settlement level can help shelter practitioners to consider how shelter programmes will impact on issues such as overcrowding and site density, access to sanitation facilities, markets and emergency relief items. The appropriate inclusion of gender and female participation in any project can have the potential to improve women's status in society and to decrease risks that can lead to GBV.

In the Typhoon Haiyan response in the Philippines "certain projects aimed to equally involve women in the reconstruction process, e.g. in the promotion of Build Back Safer messaging and vocational trainings on construction. Women also had a key voice in deciding the design of shelters, to ensure the inclusion of elements to guard their privacy and dignity, such as internal partitions for separate sleeping areas, opaque cladding and spaces for hygiene and sanitation activities. Ultimately, to mitigate risks of GBV".[99]

In **Benin**, GBV is widespread and a deeply rooted problem which can be exacerbated in times of crisis. According to a survey conducted by the Benin Ministry of Family and National Solidarity in 2009, up to 70 percent of women and girls in Benin have experienced some form of GBV. Assessments carried out by shelter response organisations following floods confirmed that there was as strong relationship between GBV risks and the vulnerable shelter conditions of the displaced populations:

> ***"Loss of resources and livelihoods (especially women's) and the lack of safe and dignified living conditions heightened the vulnerability of affected populations and GBV risks. Other GBV risks were reported, linked to the incidences of excessive alcohol consumption, inter-family tensions, lack of safe spaces for girls and overcrowding. In addition, women in the camps reported an increase in intimate-partner violence and marital rape. Additionally, there was a general lack of knowledge about where survivors of GBV could go if they were abused, especially in more remote communities. Fear, shame, social stigma and distance to services also prevented survivors from seeking help and reporting cases of violence".***[102]

Shelter Projects focussing on floods identified that some of these issues relating to GBV can be addressed in shelter programming. In many respects, since floods have consequences for wider settlements programming they lend themselves to broader incorporation of gender as an underpinning principle of response and recovery. During the 2021 Floods in **Timor Leste**, the inclusion of gendered perspectives, women, girls, and other marginalized groups were given a platform for participation from the start of the project. As a result, women in the community deliberately assigned themselves key roles in many of the community projects – including some of the more traditionally male roles such as drainage clearance and construction.

Projects like these were not pre-designed by the organization, but rather emerged out of discussions with the communities themselves. One of the key learnings from the gendered shelter assessment was that, for participatory assessments to be meaningful, they must tie into and directly influence activity planning. While this process did not result in traditional household-level shelter construction, the interventions determined by each community were seen as more relevant, impactful, and complementing existing government programs at the household-level to support self-recovery.[100]

ANNEXES

© Lorrie Micalob, Philippines (Typhoon Odette)

CASE STUDY

BANGLADESH/ 2007-2018

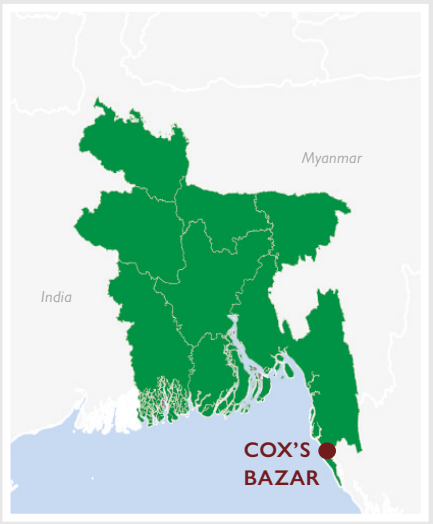
> 1,3 MILLION
PEOPLE AFFECTED (ROHINGYA CRISIS)

> 1 MILLION
PEOPLE DISPLACED (ROHINGYA CRISIS)

458,429
HOUSE DAMAGED (2007 CYCLONE)

CONTEXT

The densely populated country of Bangladesh is vulnerable to multiple complex crises arising from weather events and large-scale movements of displaced communities across its borders. Bangladesh experiences an annual monsoon season, bringing heavy rains and strong winds, which regularly lead to moderate to severe flooding. In August 2024, heavy monsoon rains caused flash flooding across 11 districts either partially damaging or destroying over 200,000 houses. An immediate Shelter Cluster assessment recommended distributions of cash supports for reconstruction, tarpaulins and tents, shelter toolkits, construction materials, and NFI including solar lighting and mosquito nets.



CASE STUDIES

- SP2ND / B03 / 2009
- SP5TH /A14 /2017-18
- SP5TH /A15 /2017-18
- SP8TH/ A12/ 2019-2020

OVERVIEWS

- SP2ND / B. 01 / 2009
- SP2nd / B. 02 /2007
- SP5TH /A13 /2017-18

STRENGTHS AND WEAKNESSES

- √ Strong involvement of local communities in planning and implementation, accross all case studies
- √ All projects integrated DRR measures into the shelter designs,
- √ The projects promoted the use of local construction techniques and materials
- √ Extensive training programs were provided to community members, artisans, and implementing partners.
- √ Strong coordination with local authorities, implementing partners, and other humanitarian actors was a common strength
- x Several projects faced significant delays due to procurement challenges, extensive beneficiary selection processes, and weather conditions
- x Variability in household contributions and adherence to guidelines led to uneven shelter durability.
- x Cultural barriers, particularly related to the participation of women
- x Cash approaches sometimes resulted in poor construction quality

LESSONS LEARNED

- Effective resource allocation is essential for project design, considering factors like cost, training duration, and human resources. Sector lead agencies should collaborate with partners to establish a shared resource allocation strategy through forums like technical working groups.
- Communities often have skilled individuals, such as carpenters, who can contribute to reconstruction efforts. While this project involved a people-driven approach, Rohingya carpenters could have been more integrated into the planning process, including developing IEC materials and training curriculum.

RESPONSES OVERVIEW

The Rohingya crises between 2017 to 2020 saw mass influxes of Rohingya refugees from Myanmar to Cox's Bazar in Bangladesh. Following the 2017 influx, newly arrived refugees led self-built shelter construction and site identification with minimal resources, and over subsequent months and years these shelters have been incrementally upgraded thanks to shelter and NFI assistance. Despite this assistance, refugees in these settlements are exposed to flood and landslide risks, as well as fire risks and health and protection risks due to overcrowding. Coordinated response and management by shelter partners since 2017 has sought to incorporate DRR techniques and strengthen the durability of shelters, as the displacement of the Rohingya community is ongoing and monsoon cycles paired with poor quality materials and pest infestations means that shelters degraded in a short period.

In 2019, new flood models for settlement camps were commissioned by shelter partners in light of there being no available sites that were not flood prone, and structures would need to be designed so that valleys could safely be developed for shelter. The project prioritised environmentally sustainable DRR measures including natural drainage to promote water infiltration to reduce flood risk of downstream inhabitants, and planting of fast growing deep-rooted grasses along embankments and slopes to prevent erosion.

Disaster Risk Reduction (DRR) strategies in site planning and shelter design were and integral consideration of practitioners supporting the Rohingya crisis in Bangladesh in 2019. Multiple hazards have required consideration in addition to flooding, including fire hazards, strong winds, and landslides (often a risk accompanying flooding). This necessitated complex integrated site planning, site development and shelter design to protect communities from heightened vulnerability to flood risks in addition to the other hazards.

© Nate Webb, Cox's Bazar Bangladesh

© Syeda Rubiya Hossain, Cox's Bazar, Bangladesh

ANTICIPATORY ACTION

The Supporting Flood Forecast-Based Action and Learning in Bangladesh (SUFAL) project, aiming to integrate anticipatory action into Bangladesh's national disaster risk management framework, commenced Phase 1 in August 2019 and has concluded Phase 2 in September 2024. The SUFAL project's foci are to enhance early warning systems with tailored forecast information which are available to stakeholders and the community; empower institutions and communities to take timely, appropriate, inclusive and sector specific early actions to respond to multi-hazards; and the development of Standard Operating Procedures (SOPs) and Early Action Protocols (EAP) and financing mechanisms.

The SUFAL project focused on monsoons, flash floods, and lightning hazards and includes the shelter sector, in addition other primary sectors (agriculture, livestock, WASH, public health, evacuation, GEDSI, social protection (cash)).

Shetler renovations as part of Phase 1 of the SUFAL project encouraged communities to evacuate earlier as households moved their livestock to cattle sheds, and cash for work schemes provided employment and the income needed to protect livelihoods and assets. Early warning messages enabled households to take early actions days before the flood event, thereby reducing their vulnerability to disaster.

MAIN CHALLENGES

A policy of non-permanent structures in refugee settlement camps is maintained by the Government of Bangladesh more durable materials, like concrete, steel, brick, and mud are restricted. Accordingly, an assessment by shelter partners identified that treated bamboo should be used to enable longer-term structural integrity. The inability to use permanent structure materials in settlement camps hinders shelter project goals to reduce costs by lessening the frequency that materials will need to be replaced (bamboo) and reduce the impacts on bamboo forests and groves, which is addressed by treating the bamboo for increased longevity in an environmentally sustainable method.

CASE STUDY

KENYA/ 2007 - 2018

100,000
PEOPLE AFFECTED
(IN DADAAB)

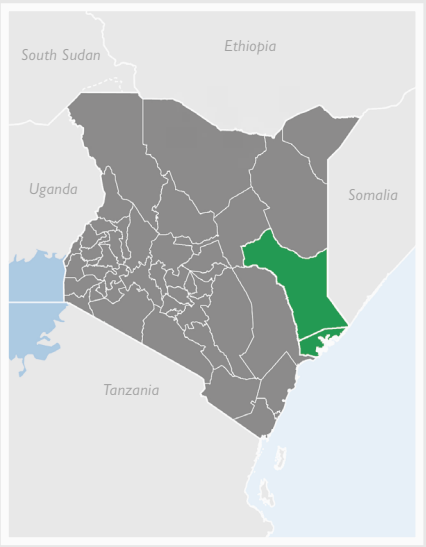
300,000
PEOPLE DISPLACED
(IN FLOODS 2018)

7,685
HOUSE DESTROYED
(IN TANA RIVER)

CONTEXT

Dadaab region, in eastern Kenya home to one of the world's largest refugee camps. Since the early 1990s, Dadaab has hosted hundreds of thousands of refugees fleeing conflict in Somalia, with the camp's population fluctuating due to ongoing violence and instability in the region. Additionally, recurring floods have exacerbated the challenges faced by both the refugees and host communities.

In response to these crises, multiple shelter interventions were implemented from 2007 to 2018, aimed to address both emergency and long-term shelter needs. These projects focused on providing durable shelters, incorporating Disaster Risk Reduction (DRR) strategies, and engaging local communities in construction efforts to promote sustainability and resilience. The projects also sought to enhance the capacity of local communities through training in safer building techniques and disaster preparedness.



CONTEXT	SHELTER	SUPPORT METHODS
		NFI

CASE STUDIES

- SP1ST / A.3 / 2007
- SP2ND / A.10 - A.11/ 2007
- SP7TH / A.3 / 2018

STRENGTHS AND WEAKNESSES

√ Community Participation: Strong community engagement in shelter construction and Training of beneficiaries helped reduce costs, ensured a higher quality of construction and empowered local communities.

√ Disaster Risk Reduction (DRR): The shelters were built with resilience to flooding, using elevated foundations and improved mud-brick designs to mitigate the impact of future disasters.

√ Partnerships and Collaboration: Strong partnerships and successful collaboration enabled quick response times and efficient use of resources.

√ Sustainability & Environmental Considerations: The use of mud bricks helped reduce deforestation in the Dadaab area. Mud brick production has also become a major income generating activity even after the projects.

x Logistical Challenges:Delays in procurement and supply chain issues. Sourcing adequate materials was challenging and creating logistical bottlenecks.

x Limited Baseline Data: In some cases, there were no baseline surveys conducted, making it difficult to objectively assess the impact of interventions and measure changes over time.

x Exclusion and Inequitable Resource Allocation: Some vulnerable groups, such as larger households or polygamous families, did not receive sufficient resources to meet their needs due to targeting criteria that did not account for varying household sizes.

x Environmental Risks: The extraction of mud for brick-making created environmental concerns, such as hazardous pits that became breeding grounds for mosquitoes, increasing public health risks.

RESPONSE
CONTEXT

© ShelterBox, Kenya.

© Joana Cameira, Kenya.

CASE STUDY

LATIN AMERICA & THE CARRIBEAN

273,000
PEOPLE AFFECTED (IN PARAGUAY)

165,337
PEOPLE DISPLACED (IN HAITI)

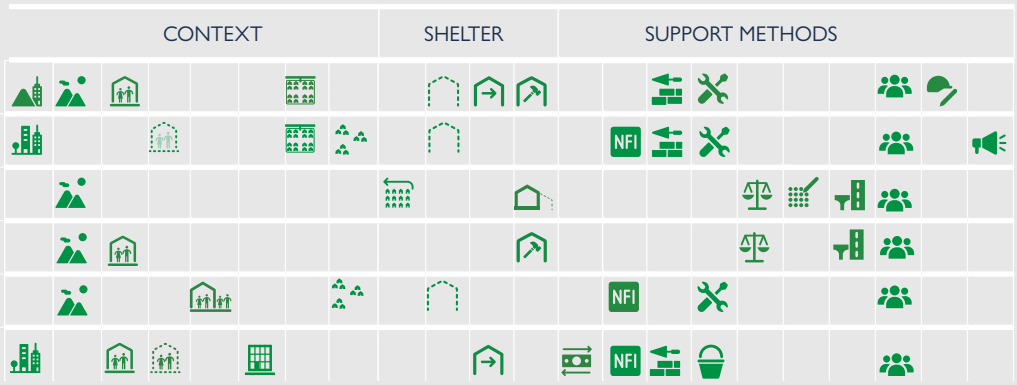
82,307
HOUSE DAMAGED (IN HONDURAS)

CONTEXT

Between 2008 and 2020, the Shelter Cluster documented major flood events across South America in Colombia, Haiti, Honduras, Paraguay, and Peru. In Colombia (2011), severe flooding led to the permanent relocation of the village of Dona Ana. In Haiti (2008), tropical storms and hurricanes devastated the city of Gonaives, affecting 80% of the population and causing 793 deaths, and displacing half of the population. Honduras (2020) experienced Hurricanes Eta and Iota, which damaged over 82,000 homes and destroyed more than 9,000. In Paraguay (2019/2020), rapid flooding of the Paraguay River led to widespread damage, with shelter kits provided to affected households in Asuncion. In Peru (2012), heavy rains caused floods and landslides in Loreto, leading to the provision of shelter kits and permanent site allocations for those whose homes were destroyed.

CASE STUDIES

- SP9TH /A.14 / HONDURAS
- SP8TH /A.9 / PARAGUAY
- SP5TH /A.2 / COLOMBIA
- SP4TH /A.3 / COLOMBIA
- SP4TH /A.24 / PERU
- SP2ND /B.6 / HAITI



STRENGTHS AND WEAKNESSES

- √ Community Engagement: Active participation in shelter construction and decision-making (Colombia, Paraguay) improved ownership and long-term maintenance.
- √ Disaster Risk Reduction (DRR): Use of flood-resistant techniques and elevated homes to mitigate future risks (Colombia, Paraguay). Capacity Building: On-the-job training in construction skills helped with self-recovery (Colombia, Honduras).
- √ Effective Collaboration: Strong partnerships between local governments, NGOs, and international organizations improved resource use and reduced duplication (Paraguay, Honduras).
- √ Rapid Response: Pre-positioned shelter kits ensured timely relief (Peru).implementing partners.
- x Logistical Delays: Delays in delivery due to customs, procurement, and transportation challenges (Peru, Honduras).
- x Limited Long-Term Solutions: Temporary shelter provision without addressing permanent housing needs (Paraguay, Honduras).
- x Environmental/Sustainability Gaps: Lack of sustainable materials and unmet water/sanitation needs (Colombia).
- x Insufficient Training: "Train the trainer" models and lack of humanitarian expertise hindered skill transfer (Paraguay, Honduras)
- x Late Government Involvement: Delayed involvement of local authorities affected scalability (Colombia).

RESPONSE
CONTEXT

RESPONSES OVERVIEW

The scale of response varied between situations depending on funding that could be accessed, and the amount of support already being provided and coordinated by the respective government and equivalent national disaster management authorities. Each shelter strategy was coordinated with governments in order to extend and strengthen the reach of assistance.

In the 2019/2020 Paraguay response an in-kind approach was adopted because of low capacity to include cash-based modalities in response, and an in-kind approach would achieve the most equitable response. The shelter response aimed to identify sites hosting households who had received the least assistance. Due to the limitations of the project partners' capacity to provide shelter assistance to the large number of affected households in Asuncion, households whose status prior to flooding was the most marginal and who were most likely to be displaced the longest were prioritised. A blanket approach to distribution within identified sites was chosen, as the majority of households within these sites were in similar positions. Community engagement was a key focus in the shelter strategy and this enabled protection concerns to be understood, and responses reviewed to ensure these concerns would not be exacerbated by response. This community engagement and voicing of protection concerns also informed the blanket approach to distribution, to lessen feelings of disparity and ensure a perception of equity. In Honduras (2020), the emergency phase provided vulnerable households impacted by Hurricanes Eta and Iota with tarpaulins and tools to repair damaged houses, or set up temporary shelters for displaced people. Households living in high-risk areas who requested relocation received support in the recovery phase by way of transitional shelters that later became permanent.

© Alejandro Diego Bravo/ Colombian red cross, Colombia

RISK REDUCTION

The response in Dona Ana, Colombia included three distinct phases of DRR. These consisted of raising risk awareness and knowledge development through risk-mapping workshops and exercises; disaster management training and the creation of a brigade that assisted the transition from the 'old' village to the 'new' village; environmental risk-awareness and education, and targeted initiatives to create a risk-informed community. Importantly, the selection of the new village site specifically identified an area with no risk of flooding, achieved through an assessment undertake by the National Authority for Disaster Management.

© Paraguay

MAIN CHALLENGES

Across each of these countries budget limitations created challenges in providing assistance to the number of households in need. In addition, the responses in Peru and Paraguay imported materials and items rather than using locally sourced materials, due to quality or availability. This created challenges in timeliness through delays in negotiations and deliveries, and unforeseen expenses.

The flooding in Paraguay coincided with the onset of the coronavirus pandemic which created challenges in physically reaching communities and monitoring effectiveness of the shelter assistance, procuring goods and materials for households in Asuncion, and increased the risk of virus contraction of household members due to difficulty in providing messaging and education regarding mitigation measures. Similarly in Honduras, the coronavirus pandemic meant that authorities had insufficient funds to respond to the disaster and restrictions on movement inhibited the implementation of community activities.

The shelter response in Haiti provides examples of assistance planning not always being appropriate to the needs of beneficiaries as well as challenges of monitoring single distributions to households. The initial shelter repair kits distributed to households were largely unsuccessful as many families did not own a house that they could repair, and the kits were suited to timber frame construction whereas many of the shelters in the city were built with blocks or masonry. In some cases, because the shelter repair kits were distributed unconditionally, families remained in collective shelters and awaited further relief distributions rather than utilising the repair kits as intended. A further challenge was identified in Haiti as some recipients forged vouchers and distribution cards. It was noted that in future responses the design of vouchers should be more difficult to copy, and that the short timeframe for which the vouchers could be redeemed helped to reduce the risk of forgeries.

CASE STUDY

MALAWI / 2015 - 2022

> 1,1 MILLION
PEOPLE AFFECTED

336,000
PEOPLE DISPLACED

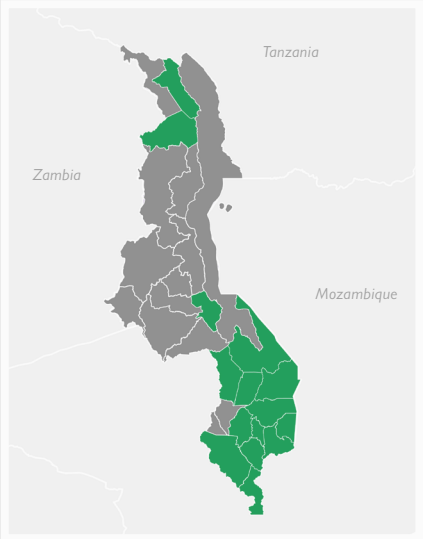
719,000
HOUSE DAMAGED

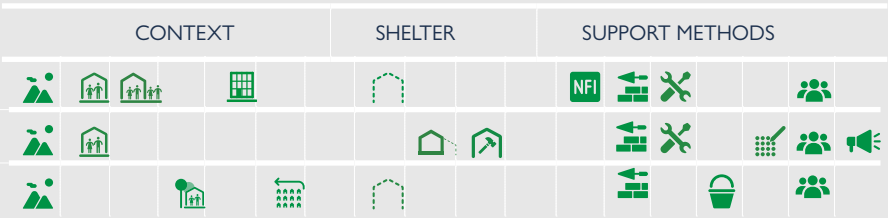
CONTEXT

Malawi is highly prone to natural disasters, particularly floods and tropical storms, due to its geographical location and climate vulnerability.

In 2015, Malawi faced one of its worst flood disasters, impacting over 1.1 million people, displacing 336,000, and caused extensive damage, with 523,347 houses affected, of which 356,643 were completely destroyed.

In 2022, Tropical Storm Ana further exacerbated the situation, affecting 195,801 houses and completely destroying 59,860. These repeated disasters have severely affected livelihoods, housing, and food security, making recovery a prolonged challenge for the affected communities, and highlight the need for stronger disaster management and resilience-building strategies





CASE STUDIES

SP6TH / A.20 / 2015

SP6TH / A.21 /2015-16

SP9TH / A.6 / / 2022

OVERVIEWS

SP6TH / A.19 / 2015

STRENGTHS AND WEAKNESSES

√ Community Engagement: Both responses involved strong community engagement, which helped improve ownership and foster self-recovery.

√ Rapid Initial Response: During both events, emergency shelters and essential non-food items were quickly distributed to affected populations, minimizing immediate harm.

√ Use of Local Materials: The response focused on using locally available materials for temporary shelters, which facilitated quick recovery and local participation.

√ Government and Partner Collaboration: There was effective collaboration between the government, NGOs, and international organizations, which allowed for better coordination and resource mobilization.

x Delayed Transition to Permanent Solutions: Both responses faced challenges in transitioning from temporary shelters to long-term housing solutions.

x Delays in beneficiary selection, the delivery of materials due to logistical bottlenecks, particularly in remote areas, slowed down recovery efforts, especially in the 2015 floods.

x Limited Preparedness: The 2022 response highlighted the ongoing issue of insufficient preparedness, with storm and flood impacts being exacerbated by a lack of pre-positioned materials and plans for resilient infrastructure.

x Sustainability Gaps: The interventions in both disasters lacked a strong focus on long-term sustainability, particularly regarding housing durability and infrastructure resilience to future disasters.

© Habitat for Humanity, Malawi.

© Jamie Richardson, Malawi

CASE STUDY

MOZAMBIQUE

160,000
PEOPLE AFFECTED

160,000
PEOPLE DISPLACED

6,500
HOUSE DAMAGED

CASE STUDIES

SP1ST / A.6 / 2007

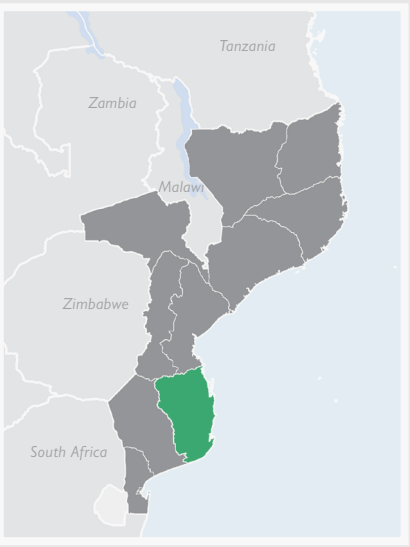
SP2ND / B.14 / 2007

CONTEXT

In February 2007, Cyclone Favio struck northern Inhambane in Mozambique, causing widespread damage, especially in flood-prone areas. The cyclone displaced 160,000 people and damaged approximately 6,500 houses. In response, shelter material packages were distributed to the most vulnerable households, including widows, child-headed families, and those chronically ill or disabled.

The recovery efforts also included training on improved construction techniques to help communities build more resilient shelters.

Despite challenges such as delayed funding, a lack of emergency shelter stockpiles, and procurement issues, the project managed to assist 2,219 vulnerable households (approximately 11,095 people) in two districts.



CONTEXT	SHELTER	SUPPORT METHODS
✓		✓ ✓ ✓ ✓ ✓
✓		✓ ✓ ✓ ✓

STRENGTHS AND WEAKNESSES

√ Targeted Vulnerable Groups: The response effectively prioritized vulnerable groups, including widows, child-headed families, and individuals with disabilities or chronic illnesses. Resilience

√ Building: Training on improved construction techniques was provided to help communities build more resilient shelters, which contributed to long-term disaster preparedness.

√ Significant Reach: Despite challenges, the project managed to assist 2,219 vulnerable households, reaching approximately 11,095 people in the two affected districts

x Delayed Funding and Procurement: The response faced delays in funding and procurement of materials, which slowed down the distribution of shelter assistance.

x Lack of Emergency Stockpiles: The absence of emergency shelter stockpiles resulted in longer response times, affecting the speed at which shelter materials could be delivered to beneficiaries.

x Logistical Issues: Challenges in mobilizing community support and logistical difficulties meant that some households struggled to use the distributed materials effectively.

LESSONS LEARNED

- Vulnerable households, such as those led by widows or the elderly, often lacked community assistance, highlighting the need for more direct support in future interventions.
- Delays in procuring materials locally, due to environmental and supply issues, underscored the importance of better planning and coordination with suppliers.
- Beneficiaries did not consistently apply improved building techniques, suggesting that repeated training and on-site support are essential for better outcomes.

RESPONSE
CONTEXT

© Lizzie Babister Mozambique

© Lizzie Babister, Mozambique

CASE STUDY

PAKISTAN / 2010 - 2014

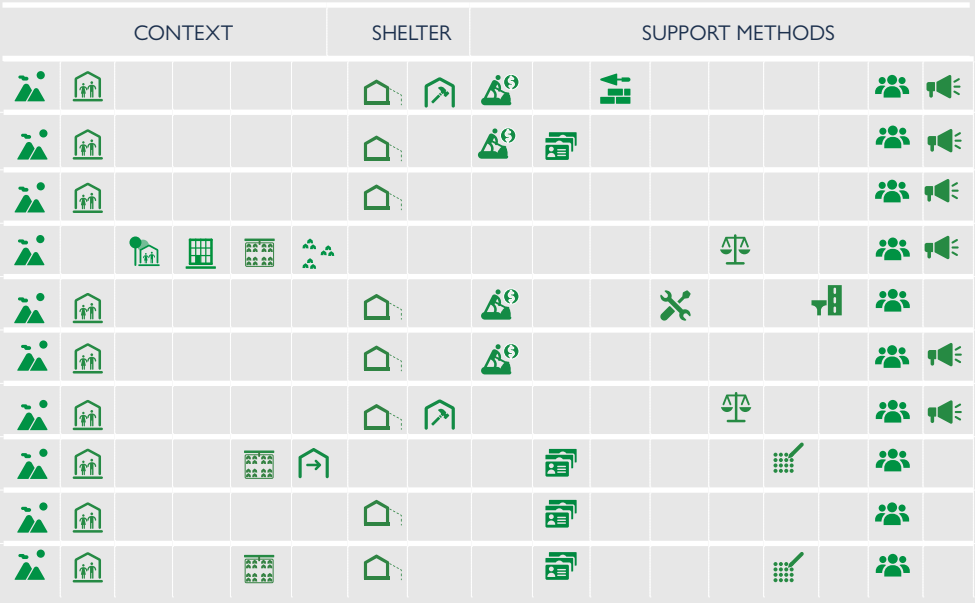
> 20 MILLION
PEOPLE AFFECTED

1.2 MILLION
PEOPLE DISPLACED

3.3 MILLION
HOUSE DAMAGED

CONTEXT

In 2010 Pakistan experienced a 'mega flood' causing widespread devastation and displacement. In the wake of the mega flood, the next four consecutive years brought further episodes of heavy rain and large-scale flooding. Prior to 2010, Pakistan had significant recent experience addressing humanitarian emergencies including conflict displacements – including Afghan refugee influx and an IDP crisis -, earthquakes in 2005 and 2008, and floods in 2007. Pakistan had experience with flood events before the mega flood in 2010, but these primarily occurred in the north of the country. When 75 percent of the flooding hit the Punjab and Sindh provinces in southern Pakistan, the region had low capacity to respond to the large-scale disaster.



CASE STUDIES

- SP3TH /A.23/ 2010
- SP3TH /A.24/ 2010
- SP3TH /A.25/ 2010
- SP4TH /A.20/ 2010
- SP4TH /A.21/ 2010
- SP4TH /A.22/ 2011
- SP4TH /A.23/ 2011
- SP5TH /A.19/ 2012
- SP5TH /A.20/ 2012
- SP5TH /A.21/ 2012

OVERVIEWS

- SP3TH /A.22/ 2010
- SP5TH /A.18/ 2010-14

STRENGTHS AND WEAKNESSES

√ Strong involvement of local communities in planning and implementation, accross all case studies

√ All projects integrated DRR measures into the shelter designs,

√ The projects promoted the use of local construction techniques and materials

√ Extensive training programs were provided to community members, artisans, and implementing partners.

x Several projects faced significant delays due to procurement challenges, extensive beneficiary selection processes, and weather conditions

x Variability in household contributions and adherence to guidelines led to uneven shelter durability.

x Cultural barriers, particularly related to the participation of women

x Cash approaches sometimes resulted in poor construction quality

RESPONSE
CONTEXT

COUNTRY CONTEXT

Between 2010 and 2014, 2.5 million homes were estimated to be destroyed by heavy rains and tens of millions of people were affected. Wide-scale displacement of households and individuals resulted from flooding and landslides across 2010 to 2014, varying from dates to months and leading people to seek shelter with host families, in collective centres, planned camps, spontaneous settlements, and returning or remaining in places of origin where possible. Post-flooding in 2012 affected communities took shelter in tents, emergency shelters, or were forced to live under the open sky. A Global Shelter Project case study of the 2010 floods in Pakistan highlighted the added risk of dropping temperatures as teams worked to reconstruct shelters. In 2010, in Sindh province 80 percent of households were either heavily damaged or totally destroyed, and 65 percent of the same in Punjab province. The damage over the years in Pakistan extended beyond housing and shelter to associated key fundamental needs with rice and vegetable crops being destroyed, a particular concern in northern Sindh where agricultural livelihoods provided the primary source of household income.

Significant portions of Pakistan had pre-existing vulnerabilities prior to the onset of flooding between 2010 and 2014. Chronic malnutrition in children under five was at approximately fifty percent, severe poverty, and female literacy rates were incredibly low. While construction techniques and materials vary across districts, even between villages, many houses and shelters prior to flooding were constructed from mud bricks ('kacha') or thatched straw ('chappar') which are prone to collapse during heavy rains and/or flooding. People who were already physically and economically vulnerable were gradually worn down, and in some cases, recovery efforts was halted or voided by new floods. Innovative and disaster-resilient structures was essential in the recovery of affected households and communities, designed, implemented and monitored by project partners.

RESPONSES OVERVIEW

The National Disaster Management Authority (NDMA) was established in 2007 and is the Government entity responsible for disaster response and management. The Khyber Pakhtunkhwa Province had a Provincial Disaster Management Authority (PDMA) established, have already experienced large-scale disasters in the region and was relatively well prepared to respond to the 2010 mega flood. Unlike Khyber Pakhtunkhwa, Punjab and Sindh provinces had much lower capacities to respond, having not experienced large-scale earthquake or flood disasters previously. Shelter response agencies worked with the NDMA at the national level, and national and international non-governmental organisations and the district level and provincial coordination teams established, for emergency response coordination in the wake of the flood events. The Government of Pakistan established a WATAN Card scheme. WATAN Cards were ATM cards that the Government could make payments to. This provided two rounds of assistance, the first to 1.6 million households and the second to 1.1 million households.

© Usman Ghani, Pakistan

Following the 2010 mega flood emergency response was swift and at large scale, with over 3000,000 families receiving emergency shelter items within the first six weeks. Despite the large number of households receiving emergency assistance in 2010, reaching one million households, this equated only to roughly 67 percent of households in need of support. Shelter interventions included transitional shelters with a lifespan of at least one year and a design that allowed for reuse of materials. They also included one room shelters which provided a permanent core room that could be extended over time by households. Less than 150,000 transitional and core shelters were built leaving the overwhelming majority of household without such targeted shelter support.

Beneficiary selection followed a similar, and in some responses the same, model. Specific criteria were set based on the vulnerability of the household and the level of destruction to the structure. Some models staggered the provision of finances in three tranches when households had met certain requirements of the developing build and others were given lump sum vouchers to pay for materials. Temporary settlement support unit teams were established to travel around the various shelters and provide regular reporting on outstanding needs and return progress. A feedback mechanism was established following the 2012 floods, including a hotline (Humanitarian Call Centre), complaint boxes and verbal feedback during site visits.

RISK REDUCTION

Following the 2010 floods DRR principles were a strong focus in shelter programmes. They aimed to improve disaster-resilient construction techniques, provide DRR trainings to target communities as a whole rather than just beneficiaries, and locations for construction were agreed following hazard mapping by the community. Additionally, community members were involved in repairing embankments and some flood defences, and part of the DRR approach combined tree planting, kitchen gardening and permaculture principles to capture wastewater and improve village environment and food security. During shelter responses, shelter designs were modified in response to community consultations, to address site-specific needs, and to ensure durability. Pilot phases for project implementation enabled testing of construction methods, materials and designs before widespread implementation, and to allow beneficiaries and engineers to provide feedback and for plans to be modified.

A training program delivered in the rebuilding phase following 2011 to 2012 floods consisted of eight shelter typology modules for disaster risk reduced construction. The program adapted to the different building method in each location. The 2012 flood response expanded it's DRR scope to include capacity-building, which was not prioritised in 2010. Settlement planning was introduced to promote disaster-resilient settlements and a condition for participation was that households were supported to identify safe plots to rebuild upon rather than rebuilding in hazard-prone areas.

© ACTED, Pakistan

MAIN CHALLENGES

Land tenure was found to be a consistent challenge in shelter responses to the Pakistan floods between 2010 and 2014. Attitudes between landowners varied and residents could not necessarily have assurance that they would not be evicted, and further some landowners were not receptive to having certain structures built on their land. This informed the designs of the structures, with some being easily disassembled if the household was evicted so that the structure, or at least the roofing, could be transported.

A further challenge was that people who were already vulnerable (physically, economically) were the hardest hit by each flood and coping capacities were worn down. In some cases, recovery was interrupted by a new flood. Local practices regarding the roles of men and women in villages meant that the organisation had to come up with ways to ensure that women were effectively consulted with, and to achieve this women's committees were established. Cultural practices included a social caste system, which also required consideration in the flood recovery planning, to protect security and privacy concerns.

Lastly, supporting shelter reconstruction on such a large scale was challenging in terms of coordination, quality control and collaboration with local government. Having different organisations taking the lead at provincial level during the 2010 response resulted in different organisations applying differing interpretations of the role of the coordination agency. It was further challenging to effectively plan between national to regional to local level.

CASE STUDY

PHILIPPINES / 2010 - 2020

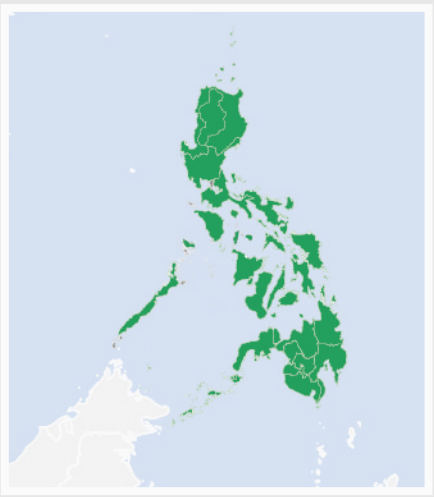
16,078,181
PEOPLE AFFECTED (TYPHOON HAIYAN)

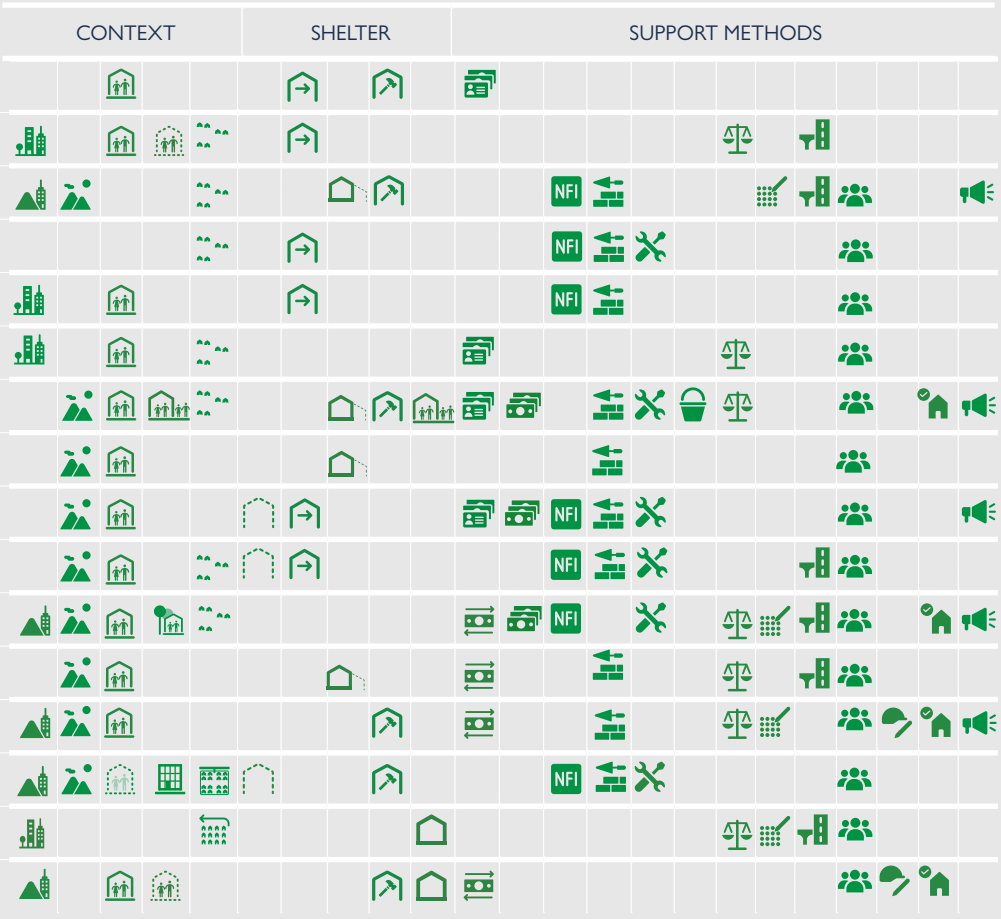
130,266
PEOPLE DISPLACED (IN TYPHOON GONI)

35,286
HOUSE DAMAGED (IN STORM KAI TAK)

CONTEXT

The Philippines experience an average of 20 typhoons each year. As a result, the country has developed disaster response capacities. However, in 2013 the Philippines was struck by Super Typhoon Haiyan (Yolanda) which wreaked devastation across the country, and was followed by Tropical Stom Kai-Tak (Urduja) in 2018, Typhoon Goni (Rolly) in 2020, and Typhoon Rai (Odette) in 2021. Exposure to repeated severe storms in areas where communities were still rebuilding from previous damage or living in areas known as flood-risk zones meant that communities had reduced coping capacities and experienced widespread displacement and lack of shelter post-disaster. These events required support from shelter practitioners to assist in recovery post-flood-related disasters.





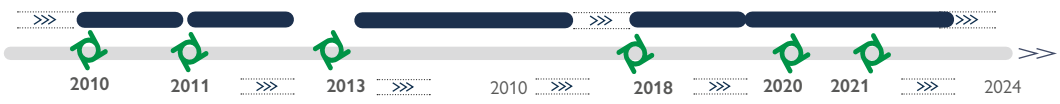
CASE STUDIES

SP3RD /A26 / TYPHOON 2010
SP4TH /A26 / STORM WASHI 2011
SP4TH /A27/ STORM WASHI 2011
SP5TH /A22 / TYPHOON 2012
SP5TH /A24 / TYPHOON 2013
SP5TH /A25 / TYPHOON 2013
SP6TH /A9 / TYPHOON 2013
SP6TH /A10 / TYPHOON 2013
SP6TH /A11 / TYPHOON 2013
SP6TH /A12 / TYPHOON 2013
SP6TH /A13 / TYPHOON 2013
SP7TH /A20 / TYPHOON 2013
SP7TH /A21 / TYPHOON 2013
SP7TH /A22 / STORM KAI 2017
SP8TH /A14 / TYPHOON 2013
SP9TH /A19 / TYPHOON GONI

OVERVIEWS

SP4TH /A25 / STORM WASHI 2011
SP5TH /A23 / TYPHOON 2013
SP6TH /A8 / TYPHOON 2013

RESPONSE
CONTEXT



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RESPONSES OVERVIEW

Following the impacts of Super Typhoon Haiyan in 2013, the initial response provided 570,000 households with emergency shelter and 160,000 with a durable roofing solution. Following the first phase, the province of Anibong faced forced relocation after the Government of the Philippines enforced 'no build zones' and 'no dwell zones' for all housing in coastal areas. Shelter partners developed the Anibong Resettlement Project aiming to a build safe, sustainable, resident-governed community which could be used as a model for other low-income urban areas affected by crises. The project began in 2013, with community consultations, and was completed with handovers to the residents in 2020.

When Tropical Storm Kai-Tak in 2018 many affected households were still occupying no build zones while the housing scheme developed following Super Typhoon Haiyan was still underway. Shelter gencies supported municipal authorities to engage with Local Government Units, the Municipal Disaster Risk Reduction Management Unit, and the Municipal Social Welfare and Development Office to provide temporary assistance to affected households while new housing was being built at the identified sites outside of the no build zones. Pre-positioned shelter kit and tent stocks meant a timely and cost-effective delivery to households in need.

In the onset of Typhoons Rai and Goni, the Government of the Philippines pre-emptively evacuated affected communities. However, due to the 2022 national elections approaching at that time and the non-permitted expenditure as part of the election ban, and change of leadership across most national government agencies, no further actions were taken toward recovery and rehabilitation. As a result, the shelter agencies aimed to increase access to safe shelters for communities through access to funding and promotion of and training in DRR strategies for Micro Finance Institutions. Build Back Safer principles and methods were integral to this response, and training in DRR and Build Back Safer methods was provided both to Micro Finance Institutions as well as participants, in collaboration with masons and labourers.

MAIN CHALLENGES

In the Typhoon Haiyan response in Coron, indigenous leaders initially refused to work with migrant communities creating a racial barrier to access to the programme which needed to be deconstructed. In the Anibong Resettlement Project, land tenure processes, weather, labour and material shortages, procurement and quality, and contractor management all proved challenging. Delays were also impacted by the impact of Tropical Storm Kai-Tak, and to address this so that households would not be left residing in tents for too long, negotiations were facilitated for landowners to sell plots to households in affordable instalments so that more durable shelters could be built while proper housing was being constructed.

The project response to Typhoons Rai and Goni were novel and needed to be worked through and tested. This meant that a relatively small pool of beneficiaries were recipients of this pilot assistance, but project created a good foundation for the financial model to be expanded upon and strengthened over time. The project was cognisant of the differential access for female-headed households and specifically ensured this vulnerable group was included as beneficiaries, and in doing so, strengthened those households' capacities to restore their livelihoods.

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CASE STUDY

SOUTH EAST ASIA

9 MILLION
PEOPLE AFFECTED (IN THAILAND)

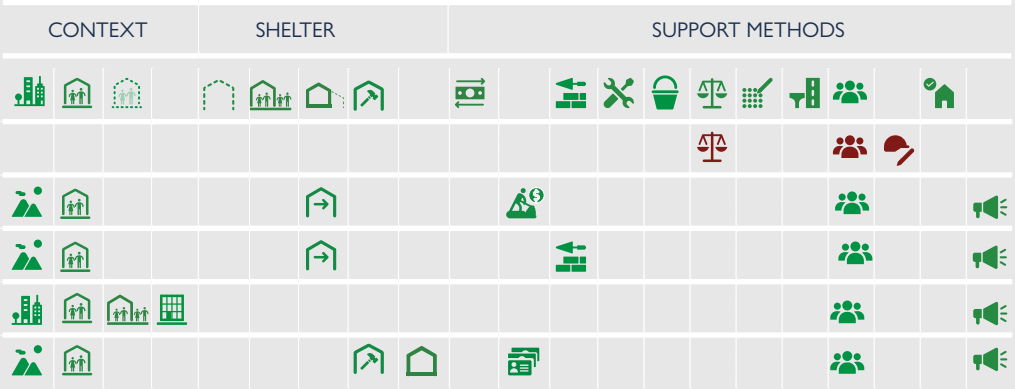
1.7MILLION
PEOPLE AFFECTED (IN MYANMAR 2012)

356,790
PEOPLE DISPLACED (IN VIETNAM)

CONTEXT

These Southeast Asian countries have faced a series of natural disasters and conflict-related crises over recent years. In Cambodia (2018-2021), disaster preparedness efforts focused on enhancing community resilience in informal settlements vulnerable to flooding and storms. Thailand experienced its worst floods in 50 years in 2011, affecting over 13 million people and highlighting the role of social media in disaster response coordination.

In Vietnam (2009), Typhoons Ketsana and Mirinae caused widespread destruction, displacing hundreds of thousands and prompting cash-based shelter reconstruction efforts. Meanwhile, Myanmar (2013-2016) faced internal conflict and severe flooding, leading to the establishment of coordinated efforts between humanitarian actors to address shelter needs for displaced populations across multiple crises.



CASE STUDIES

- SP9TH / A16 / CAMBODIA/ 2018
- SP6TH / A1 / MYANMAR / 2013
- SP3TH / A19 / MYANMAR / 2008
- SP3TH / A20 / MYANMAR / 2008
- SP4TH / A30 / THAILAND / 2011
- SP3TH / A31 / VIETNAM/ 2009

STRENGTHS AND WEAKNESSES

√ Strong Community Participation: Projects in Cambodia and Vietnam, used approaches like Participatory Safe Shelter Awareness (PASSA) and community-led shelter reconstruction, empowering local populations to take part in the planning and implementation of disaster response efforts.

√ Cash-Based Interventions promoted local economic recovery and enabled flexibility in the design of the shelters.

√ Strong partnerships with local authorities ensured that shelter interventions were aligned with national disaster recovery plans.

√ Projects in Vietnam and Myanmar placed a heavy focus on technical training, increasing the resilience of shelters to future disasters.

√ In Thailand, social media was used effectively to share information and coordinate disaster responses, showing community adaptability.

x Slow funding and material distribution impacted timely recovery efforts.

x Cultural mismatch: Some shelter designs did not align with the cultural needs of communities, especially ethnic minoritie.

x Limited WASH integration: Insufficient inclusion of water, sanitation, and hygiene components in shelter projects.

x Political and conflict challenges: In Myanmar, ongoing instability [2]hindered coordination and access to affected areas.

x In Cambodia, while community engagement was a strength, the lack of documentation particularly in measuring the inclusion of marginalized groups, limited the ability to fully assess the effectiveness of the interventions.

RESPONSE
CONTEXT

© Thanchanitch Suttichote, Thailand

CASE STUDY

SYRIAN ARAB REP. 2019–2022 / SYRIAN CRISIS

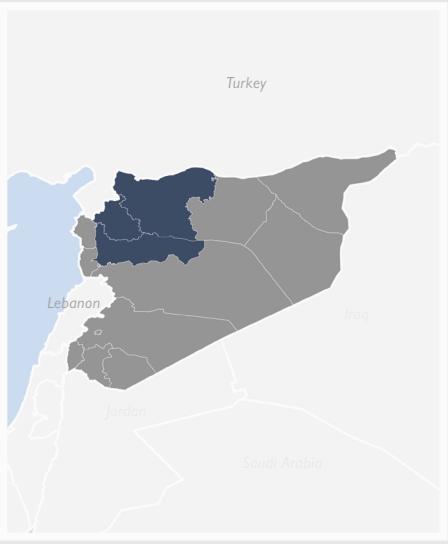
14.6 MILLION
PEOPLE AFFECTED

6.9 MILLION
PEOPLE DISPLACED (INTERNALLY)

5.9 MILLION
WITH SHELTER NEEDS

CONTEXT

Protracted conflict in Syria has created widespread internal displacement and exposure of affected communities to adverse weather events in addition to violence and socioeconomic struggle. As a result, communities face multiple and complex crises, and internally displaced persons (IDPs) have gathered in informal settlements with makeshift shelter constructs in areas prone to flood-risk. In Northwest Syria (NWS) there are over 1,000 IDP sites. Many of these sites have been established in low-lying areas previously used for agriculture, which expose already vulnerable IDPs to seasonal flooding risks. Following repeated flood events in IDP settlements in 2018 and 2019, the Shelter Cluster, in addition to other cluster partners, intervened to provide necessary assistance to affected communities to improve settlement sites infrastructure and shelter needs.



CONTEXT	SHELTER	SUPPORT METHODS
		NFI

CASE STUDIES

SP9TH /A.27 / 2021-2022

SP8TH /A.23 / 2019-2020

STRENGTHS AND WEAKNESSES

√ **Large-scale impact.** By addressing flood risk and undertaking site improvements, the project was strategic in selecting interventions that would have large-scale impacts in improving the living environments of IDPs across 42 camps.

√ **Cost-Effective Interventions:** Both case studies implemented cost-effective solutions, such as tent levelling and graveling of roads, to address the immediate needs of displaced people at a low cost.

√ **Community Engagement and Flexibility**: Both case studies incorporated strong community engagement processes and flexibility, adjusting their approaches based on real-time feedback and the evolving context.

x **Challenges with Remote Management**: Due to access constraints, remote management created difficulties in maintaining high-quality standards, particularly in monitoring ongoing works.

x **Long-Term Sustainability Concerns:** Both projects faced challenges in ensuring long-term maintenance of the infrastructure, as many camps lacked formal management structures.

x **Wider Site Planning Needed:** While some flood prevention infrastructure was built, more holistic site planning improvements were not achieved.

LESSONS LEARNED

- Early and Proactive Planning: Planning early in disaster-prone areas is crucial for mitigating the effects of extreme weather events, such as floods
- New Site Planning: Consider establishing new sites due to overcrowding, and incorporate sewage networks to address sanitation issues.
- Ensure shelter resilience and accessibility to people with disabilities.

RESPONSE
CONTEXT

RESPONSE

Shelter partners providing assistance to IDPs in these settlements targeted a number of these camps with infrastructure upgrades or rehabilitation of roads, drainage channels and culverts, to mitigate flooding for the following winters.The project had several primary objectives, including improving access for residents within the camps (particularly for the elderly and those who face physical mobility challenges), and also to improve access within the camps more generally (for humanitarian actors, livelihood opportunities, medical emergencies, etc.). A further aim was also to improve overall health conditions for residents of these camps, as following on from flooding, stagnant water may remain present and can pose a hazard as it may become a breeding ground for mosquitoes, bacteria, and parasites. Of high importance to the project was to improve the efficiency of the humanitarian response.

Among other sectoral integrations, DRR was essential to the project design. Technical and needs assessments of each IDP settlement included in the shelter project were undertaken which, in turn, informed a variety of interventions. The interventions aim to reduce disaster risks of flooding, including infrastructure improvements like constructing open and closed drainage systems, sewage systems, culverts, roads, and raising tents 20cm off the ground through graveling. In camps where there was existing infrastructure, the project focused on infrastructure rehabilitation and providing supportive structures. Additionally, several camps had emergency latrines installed.

To improve both humanitarian access and access of camp inhabitants to the nearest towns and cities, the CCCM Cluster coordinated with the Early Recovery and Livelihoods Cluster to construct roads.

In the design phase there was some consideration of how infrastructure could be removed once the IDPs leave the sites. Plastic sheeting was placed under the drainage canals for example, to ensure that they are removable and to not harm agricultural land and soil.

OUTCOMES

Whilst millions of people remain displaced in NWS and reside in informal and unplanned IDP settlements, the project saw a number of positive outcomes and improved standards of living and safety for affected groups.

Infrastructure and shelter improvements protected health and prevented over 20,000 tents and self-built concrete units from being flooded. The 2020/2021 winter season demonstrated the effectiveness of the new infrastructure as shelters and roads had not been flooded, and sewage and drainage systems were functioning. Mobility was improved, whereas settlement residents would previously have been unable to access goods, services and livelihood opportunities due to the impacts of flooding, even groups with added vulnerability were able to travel. Employment opportunities were created through the response, as partners used all locally procured materials.

Importantly, humanitarian assistance was better able to reach the settlements, allowing distribution of critical aid and enabling protection services (GBV awareness training, psycho-social support) to be delivered. It also allowed IDPs to be supported where they are, rather than being further displaced through relocation.

SUMMARY TABLE OF SUPPORT METHODS USED BY THE PROJECTS DESCRIBED IN THE CASE STUDIES

Crisis	CASE STUDY	CONTEXT			SETTLEMENT OPTIONS/SITUATIONS										
		Location			Non-Displaced / Returns			Displaced, dispersed			Displaced, communal				
		Urban	Peri-urban	Rural	Owner occupied	Rental	Informally occupied	Rental	Host families	Spontaneous / Self-settled	Collective centres	Planned site / Settlement	Unplanned site / Settlement	Planned resettlement sites	Dispersed resettlement
Floods	SP3TH / A.23 / PAKISTAN/ 2010 / FLOODS			●	●										
Floods	SP3TH / A.24 / PAKISTAN/ 2010 / FLOODS			●	●										
Floods	SP3TH / A.25 / PAKISTAN/ 2010 / FLOOD			●	●										
Floods	SP4TH / A.20 / PAKISTAN/ 2010 / FLOODS			●						●	●	●	●		
Floods	SP4TH / A.21 / PAKISTAN/ 2010 / FLOODS			●	●										
Floods	SP4TH / A.22 / PAKISTAN/ 2011 / FLOODS			●	●										
Floods	SP4TH / A.23 / PAKISTAN/ 2011 / FLOODS			●	●										
Floods	SP5TH / A.19 / PAKISTAN/ 2010-2014 / FLOODS			●	●							●			
Floods	SP5TH / A.20 / PAKISTAN/ 2010-2014 / FLOODS			●	●										
Floods	SP5TH / A.21 / PAKISTAN/ 2010-2014 / FLOODS			●	●							●			
Typhoon	SP3TH /A.26 / PHILIPPINES / 2010 / TYPHOON				●										
Typhoon	SP4TH / A.26 / PHILIPPINES / 2012 / CYCLONE	●			●	●									●
Typhoon	SP4TH / A.27 / PHILIPPINES / 2012 / CYCLONE		●	●											●
Typhoon	SP5TH / A.22 / PHILIPPINES / 2012 /TYPHOON														●
Typhoon	SP5TH / A.24 / PHILIPPINES / 2013 /TYPHOON	●			●										
Typhoon	SP5TH / A.25 / PHILIPPINES / 2013 /TYPHOON	●			●										●
Typhoon	SP6TH / A.9 / PHILIPPINES / 2013 / TYPHOON			●	●				●						●
Typhoon	SP6TH / A.10 / PHILIPPINES / 2013 /TYPHOON			●	●										
Typhoon	SP6TH / A.11 / PHILIPPINES / 2013 /TYPHOON			●	●										
Typhoon	SP6TH / A.12 / PHILIPPINES / 2013 /TYPHOON			●	●										●
Typhoon	SP6TH / A.13 / PHILIPPINES / 2013 /TYPHOON		●	●	●					●					●
Typhoon	SP7TH / A.20 / PHILIPPINES / 2013 / TYPHOON			●	●										
Typhoon	SP7TH / A.21 / PHILIPPINES / 2013 / TYPHOON		●	●	●										
Typhoon	SP7TH / A.22 / PHILIPPINES / 2017 / STROM KAI		●	●			●				●	●			
Typhoon	SP8TH / A.14 / PHILIPPINES / 2013 / TYPHOON	●												●	
Typhoon	SP9TH / A.19 / PHILIPPINES / 2012 / TYPHOON		●		●	●									

	SHELTER ASSISTANCE TYPES							SUPPORT METHODS																			
								Cash-Based Interventions					In-kind Distribution															
	Emergency shelter	Transitional/semi-permanent shelter	Host family support	Rental support	Core housing	Housing repair/retrofit/rehabilitation	Permanent housing	Cash-for-Work	Conditional cash transfer	Restricted cash/voucher	Unconditional & Unrestricted	Loans / Micro-credits etc.	Household items	Shelter materials (incl. kits)	Tools/Fixings	WASH items (& kits)	Advocacy / Legal assistance	Site / Settlement planning	Infrastructure	Training / Capacity Building	Tech. Assistance / Quality Assurance	Structural Assessment	Guidelines / Mass communication	Site Management	Debris / Rubble Removal
3A.23					●	●		●						●						●			●		
3A.24					●			●		●										●			●		
3A.25					●															●			●		
4A.20																	●			●			●		
4A.21					●			●							●				●	●					
4A.22					●			●												●			●		
4A.23					●	●											●			●			●		
5A.19		●								●								●		●					
5A.20					●					●										●					
5A.21					●					●								●		●					
3A.26		●				●				●															
4A.26		●															●		●						
4A.27					●	●							NFI	●				●	●	●			●		
5A.22		●											NFI	●	●					●					
5A.24		●											NFI	●						●					
5A.25										●							●			●					
6A.9			●		●	●				●		●		●	●	●	●			●		●	●		
6A.10					●									●						●					
6A.11	○	●								●		●	NFI	●	●					●			●		
6A.12	○	●											NFI	●	●				●	●					
6A.13									●			●	NFI		●		●	●	●	●		●	●		
7A.20					●				●					●			●		●	●					
7A.21						●			●					●			●	●		●	●	●	●		
7A.22	○					●							NFI	●	●					●					
8A.14							●										●	●	●	●					
9A.19						●	●					●								●	●	●			

SUMMARY TABLE OF SUPPORT METHODS USED BY THE PROJECTS DESCRIBED IN THE CASE STUDIES

Crisis	CASE STUDY	CONTEXT			SETTLEMENT OPTIONS/SITUATIONS										
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	SP1ST / A.3 / KENYA/ 2007 / FLOODS			●								●			
	SP2ND / A.10 / KENYA/ 2007 / FLOODS / COMPLEX			●								●			
	SP2ND / A.11 / KENYA/ 2007 / FLOODS / COMPLEX			●								●			
	SP7TH / A.3 / KENYA/ 2018 / FLOODS			●							●		●		
	SP1ST / A.6 / MOZAMBIQUE /2007 / CYCLONE			●	●										
	SP2ND / B.14/ MOZAMBIQUE /2007 / CYCLONE			●	●										
	SP9TH / A.16 / CAMBODIA / 2018-21/PREPARDNESS	●			●		●								
	SP6TH / A.1 / MYANMAR / 2013-16/ COORDINATION														
	SP3TH / A.19 / MYANMAR / 2008 / CYCLONE NARGIS			●	●										
	SP3TH / A.20 / MYANMAR / 2008 / CYCLONE NARGIS			●	●										
	SP4TH / A.30 / THAILAND / 2011 / FLOODS	●			●				●		●				
	SP3RD / A.31 / VIETNAM/ 2009 / THYPOON			●	●										
	SP5TH/ A.19 / NEPAL / 2017-18/ FLOODS	●	●	●	●				●	●	●		●		●
	SP7TH/ A.24 / SRI LANKA/ 2017/ FLOODS			●	●										
	SP9TH/ A.20 / TIMOR LESTE/ 2021/ FLOODS			●											
	SP4TH /A18 /MADAGASCAR /2011-12 / STORM														
	SP2ND / B25 / UGANDA/ 2009/ FLOODS			●											
	SP5TH/ NIGERIA/ A.17/ 2012/ FLOODS														
	SP5TH/ BENIN /A.16/ 2010-11/ FLOODS			●					●	●			●		
	SP2ND/ BANGLADESH/ B.03/ 2007 / CYCLONE			●	●		●								
	SP5TH / BANGLADESH / A14 / 2017-18/ CONFLICT			●									●		
	SP5TH / BANGLADESH / A15 / 2017-18/ CONFLICT			●						●		●	●		
	SP8TH/ BANGLADESH/ A12/ 2019-20/ MULTIPLE CRISIS			●								●			
	SP8TH / A23 / SYRIA /2019-20 / SYRIAN CRISIS			●									●		
	SP9TH / A.27 / SYRIA / 2021-22 / SYRIAN CRISIS			●									●		
	SP7TH / A9 / SOUTH SUDAN / 2018/ CONFLICT		●									●			
	SP6TH / A25 / SOUTH SUDAN / 2013-16/ COMPLEX			●								●			

	SHELTER ASSISTANCE TYPES							SUPPORT METHODS																			
								Cash-Based Interventions					In-kind Distribution															
	Emergency shelter	Transitional/semi-permanent shelter	Host family support	Rental support	Core housing	Housing repair/retrofit/rehabilitation	Permanent housing	Cash-for-Work	Conditional cash transfer	Restricted cash/voucher	Unconditional & Unrestricted	Loans / Micro-credits etc.	Household items	Shelter materials (incl. kits)	Tools/Fixings	WASH items (& kits)	Advocacy / Legal assistance	Site / Settlement planning	Infrastructure	Training / Capacity Building	Tech. Assistance / Quality Assurance	Structural Assessment	Guidelines / Mass communication	Site Management	Debris / Rubble Removal
1A.3		●												●	●					●					
2A.10														●							●				
2A.11		●												●	●					●					
7A.3	○					●							NFI	●	●					●					
1A.6								●		●				●	●					●					
2B.14								●		●				●	●					●	●				
9A.16	○		●		○	●			●					●	●	●	●	●	●	●		●			
6A.1																	●			●	●				
3A.19		●						●												●			●		
3A.20		●												●						●			●		
4A.30																				●			●		
3A.31						●	○			●										●			●		
5A.19	○													●	●		●			●	●				●
7A.24		●				●				●			NFI								●				
9A.20													NFI	●	●	●		●	●	●	●	●	●		●
4A.18						●								●						●			●		
2B.25	○													●	●						●		●		
5A.17					○								NFI							●					
5A.16	○		●							●			NFI	●											
2B.03					○			●	●						●					●	●				
5A.14																		●							
5A.15	○													●	●					●	●		●		
8A.12		●						●										●	●	●		●	●	●	
8A.23	○																		●						
9A.27	○												NFI	●											
7A.9	○												NFI	●		●		●	●	●	●	●	●	●	
6A.25	○													●				●	●						

SUMMARY TABLE OF SUPPORT METHODS USED BY THE PROJECTS DESCRIBED IN THE CASE STUDIES

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	SP9TH / A.14 / HONDURAS / 2020-2021/ HURRICANES														
	SP8TH / A.9 / PARAGUAY / 2019-2020 / FLOODS														
	SP5TH / A.2 / COLOMBIA / 2011 / FLOODS														
	SP4TH / A.3 / COLOMBIA / 2010-11 / FLOODS														
	SP4TH / A.24 / PERU / 2012 / FLOOD & LANDSLIDES														
	SP2ND / B.6/ HAITI / 2008 / FLOODING														
	SP6TH / A.20 / MALAWI / 2015 / FLOODS														
	SP6TH / A.21 / MALAWI / 2015-16 / FLOODS														
	SP9TH / A.6 / MALAWI / 2022 / TROPICAL STORM ANA														
	SP3RD / A.27 / ROMANIA / 2010 / FLOODS														

TECHNICAL PIECES

- **Pakistan, 2010, Floods| B.9 Post-Disaster Shelter; 10 Designs**
- **Pakistan, 2010, Floods | B.3 T-Shelter: 8 Designs**
- **Philippines, 2012, Cyclone | B.06 Post-Disaster Shelter: 10 Designs**
- **Philippines, 2012, Cyclone | B.07 Post-Disaster Shelter: 10 Designs**
- **Vietnam, 2004, Typhoon | B.08 T-shelter: 8 designs**
- **Bangladesh, 2008, Cyclone| B.08 Post-Disaster Shelter: 10 Designs**

This table shows the range of types of projects described in the case studies and the variety of contexts in which they were implemented. The table gives a summary of:

1. ***Context:** whether projects were located in urban, peri-urban and/or rural contexts.*
2. ***Settlement options/situations:** the type of settlements in which people were assisted (or assisted to return/move to).*
3. ***Shelter assistance types:** broad categories of the kind of shelter assistance provided by the project.*
4. ***Support methods:** the methods and modalities through which people were assisted. This includes different forms of Cash-Based Interventions, in-kind distributions of a variety of shelter and household items, and a wide range of other support methods.*

	SHELTER ASSISTANCE TYPES							SUPPORT METHODS																			
								Cash-Based Interventions					In-kind Distribution															
	Emergency shelter	Transitional/semi-permanent shelter	Host family support	Rental support	Core housing	Housing repair/retrofit/rehabilitation	Permanent housing	Cash-for-Work	Conditional cash transfer	Restricted cash/voucher	Unconditional & Unrestricted	Loans / Micro-credits etc.	Household items	Shelter materials (incl. kits)	Tools/Fixings	WASH items (& kits)	Advocacy / Legal assistance	Site / Settlement planning	Infrastructure	Training / Capacity Building	Tech. Assistance / Quality Assurance	Structural Assessment	Guidelines / Mass communication	Site Management	Debris / Rubble Removal
9A.14	✓	✓				✓								✓	✓					✓	✓						
8A.9	✓												NFI	✓	✓					✓			✓			
5A.2					✓												✓	✓	✓	✓							
4A.3						✓											✓		✓	✓							
4A.24																											
2B.6		✓							✓				NFI	✓		✓				✓							
6A.20	✓												NFI	✓	✓					✓							
6A.21					✓	✓								✓	✓			✓		✓			✓				
9A.6	✓													✓		✓				✓							
3A.27						✓								✓													

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ADDITIONAL RESOURCES

- Action Aid (2024) Transforming Disaster Response: Women-Led Solutions in Asia and the Pacific
- Global Protection Cluster/GBV AoR (2021): Climate Change and Gender-based Violence: What are the Links
- IFRC (2022) From Grey to Green Infrastructure: What are the opportunities and challenges of using green and grey infrastructure to increase flood resilience?
- Practical Action (2019) Gender Transformative Early Warning Systems: Experiences from Nepal and Peru
- Practical Action (2021) Building flood resilience in vulnerable communities
- Sendai Framework for Disaster Risk Reduction, 2015-2030
- The Flood Alliance (2019) The Flood Resilience Measurement for Communities (FRMC)
- UN Habitat: City Resilience Global Program
- UNDRR (2019) Flood hazard and risk assessment
- UNDRR (2019) Words into Action guidelines: Implementation guide for local disaster risk reduction and resilience strategies
- UNDRR (2021) Scaling up Disaster Risk Reduction in Humanitarian Action 2.0
- UNDRR Words into Action Guidelines
- UNHCR (2023) Flood Risk in Human Settlement: Compendium of Flood Risk Mitigation Measures
- WMO Association Program on Flood Management
- World Bank (2015) Safer homes, stronger communities : a handbook for reconstruction after natural disaster : Safer homes, stronger communities : a handbook for reconstructing after natural disasters
- World Bank Global Program for Resilient Housing
- WWF (2017) Natural and Nature-Based Flood Management: A Green Guide
- Zurich Climate Resilience Alliance: Flood Resilience Portal

Dear reader, in case you are aware of any other relevant resource that should be added to this page, please reach out to shelterprojects@sheltercluster.org and we will update the section accordingly, Many thanks!

ENDNOTES

1. UNDRR (2022) Implementing the Sendai Framework. UNDRR Focus Areas: disaster risk reduction in practice.
2. Oxfam (2024) In the ten worst-hit countries, increasing floods and drought forced people to flee 8 million times last year – over twice that of a decade ago.
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4. Climate Centre (2023) Key findings related to loss and damage from the Working Group II report sixth IPCC assessment of the global climate
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6. Parrack C, Flinn B, Passey M, (2014) 'Getting the Message Across for Safer Self-Recovery in Post-Disaster Shelter' Open House International.
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17. ReliefWeb (2024): Typhoon Gaemi – Jul 2024
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21. WMO (2024) Global temperature is likely to exceed 1.5°C above pre-industrial level temporarily in next 5 years
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32. Shelter Projects 8th edition (2021) A.9 Timor Leste
33. Shelter Projects 9th edition (2023) Cambodia 2018-201 Disaster Preparedness
34. Shelter Projects (2021) Designing Programs that Empower Communies
35. Shelter Projects (2011-2012) Thailand – 2011 – Bangkok Floods
36. Shelter Projects 9th edition (2023) A.20 Timor Leste 2021 Dili Floods
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38. Interview with Sindh Flood Housing Recovery and Reconstruction Platform, 21 September 2024
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This booklet is a compilation of case studies of humanitarian shelter and settlements operations in floods specific contexts compiled across two decades of Shelter Projects editions.

"Lessons from Floods" captures the significant experience the shelter sector has in flood response, recovery, and risk reduction over the last twenty years. The report is based on more than 60 Shelter Projects case studies and overviews across 26 countries as well as 15 interviews with key stakeholders.

The booklet is intended to support learning by highlighting lessons, trends, best practices, and also gaps in the published library of floods-related case studies. It also provides recommendations for the sector and key partners. The cases have been written by practitioners, and the target audience is humanitarian managers and shelter programme staff from local, national and international organizations at all levels of experience.

Shelter Projects is also a useful resource for advocacy purposes, showcasing the work done by the sector, as well as for academic research and capacity-building activities. All case studies and overviews contained in this booklet, as well as from all editions of Shelter Projects, can be found online at:

www.shelterprojects.org

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