

SHELTER PROJECTS

10th edition

CASE STUDIES OF HUMANITARIAN SHELTER AND SETTLEMENT RESPONSES UNTIL 2024



**GLOBAL
SHELTER CLUSTER**

Amidst the ruins of Türkiye's earthquake-ravaged landscape, a man sits, awaiting his transfer.
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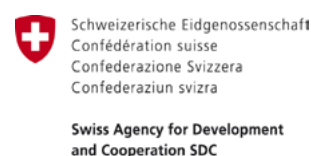


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10th edition

CASE STUDIES OF HUMANITARIAN SHELTER AND SETTLEMENT RESPONSES 2023-2024

Shelter Projects Working Group partners and supporting agencies for this edition



Shelter Projects 10th edition

Published in July 2026 by the International Organization for Migration (IOM), on behalf of the Global Shelter Cluster.

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Deema and her family sit in front of their one-room shelter constructed after the floods in Pakistan destroyed their home.

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© Hilena Tafesse/ IOM Afar, Ethiopia. 2022. *In Ethiopia's Afar region, women build their homes together using traditional knowledge. Designed for a nomadic lifestyle, each shelter can be dismantled, moved, and rebuilt—a testament to resilience and community.*

© Emrah Özesen/ IOM. Nurdagı, Gaziantep, Türkiye 2023. *Amidst the ruins of Türkiye's earthquake-ravaged landscape in Gaziantep's Nurdagı district, a man sits, awaiting his transfer.*

© Juan Luis Rodríguez/ Ayuda en Acción. Meluco, Cabo Delgado, Mozambique, 2024 *A girl supporting the wall-mudding task for her family shelter.*

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FOREWORD

The publication of the 10th edition of Shelter Projects comes at a time of growing and increasingly complex humanitarian shelter and settlements needs. Although its development was temporarily suspended, its completion reaffirms a collective commitment to documenting operational experience and transforming it into practical learning for the humanitarian community. Reaching a 10th edition also marks an important milestone for the Shelter Projects initiative, reflecting nearly two decades of collective learning, knowledge sharing and collaboration across the humanitarian shelter and settlements sector.

This edition presents a new collection of case studies and research pieces documenting interventions implemented up to the end of 2024. Together, they reflect the diversity of shelter and settlements practice across different crises, regions and operational environments. They also show how humanitarian shelter and settlements practice continues to evolve beyond the provision of emergency shelter alone, addressing wider questions of recovery, settlement conditions, disaster risk reduction, access to services, environmental sustainability and people's ability to make informed choices about their own lives. In doing so, the publication helps connect operational practice with broader discussions on how shelter and settlements responses can better support safety, dignity and recovery.

As in previous editions, the projects included here do not present a single model to be replicated everywhere. Rather, they offer a range of experiences from which practitioners, coordination teams, authorities, researchers and affected communities can draw lessons. Effective shelter and settlements programming depends on approaches that respond to local capacities, priorities and constraints, while adapting to the realities of each context.

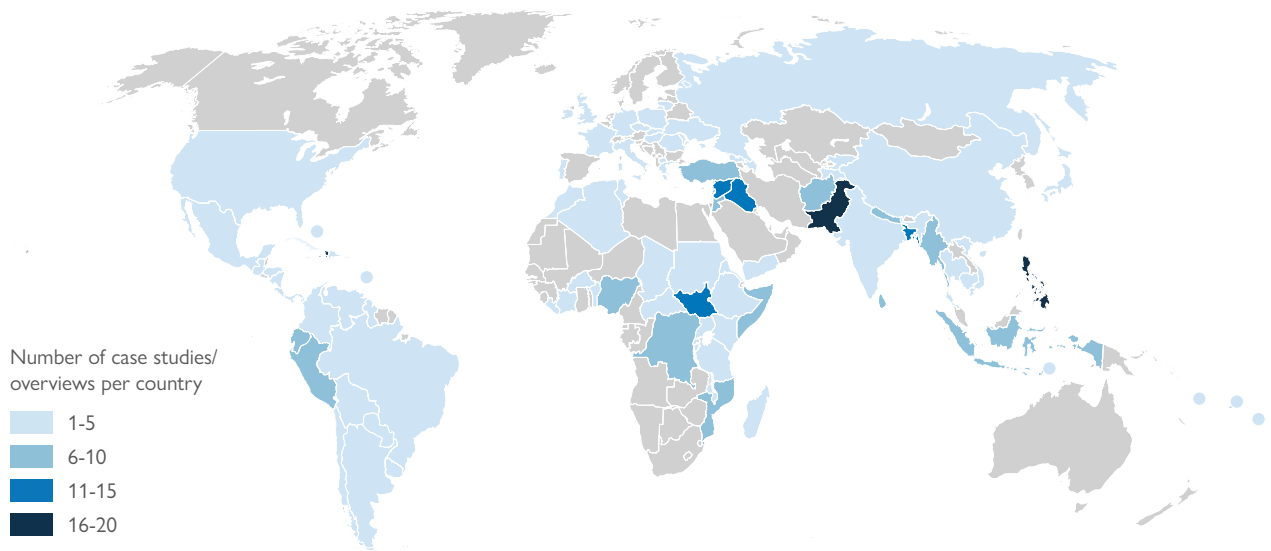
The case studies are intended to support reflection as much as replication: they help identify what worked, what proved difficult, why certain decisions were made, and what may need to be adapted in future responses.

Shelter Projects has always been a collective effort. This edition was made possible by the contributions of field practitioners, coordination teams, authors, reviewers and members of the Working Group, whose engagement helped strengthen the quality and relevance of the publication. Each contribution benefited from a collaborative peer-review process, encouraging constructive reflection on both successes and challenges while helping ensure the technical quality of every case study. Together, these contributions reflect a shared commitment to learning from practice and making that learning accessible across the sector, while recognizing the people and communities whose experiences, priorities and recovery efforts are at the centre of the responses documented in these pages.

As humanitarian crises become more complex, prolonged and resource-constrained, the shelter and settlements sector will need to continue adapting how it works, learns and collaborates. This 10th edition offers practical experience to support that process, helping practitioners and partners translate lessons from past responses into stronger action for the challenges ahead, seeking to help the sector respond more thoughtfully to future crises, strengthening approaches that are effective, inclusive and sustainable.

**The Shelter Projects Working Group,
July 2026.**

INDEX OF CASE STUDIES/OVERVIEWS BY COUNTRY PUBLISHED IN SHELTER PROJECTS (2008-2024)



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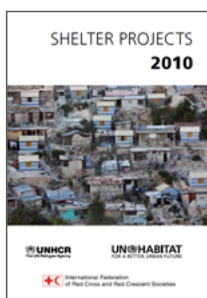
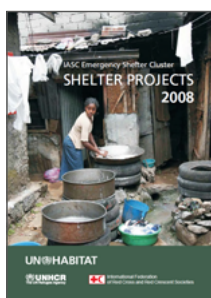
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For comments, feedback or questions, please visit the website or contact

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ACRONYMS

AGD	Age, Gender and Diversity	IDP	Internally Displaced Person
AAP	Accountability to Affected Populations	IEC	Information, Education, and Communication
ABA	Area Based Approach	IM	Information Management
BBS	Build Back Safer	INGO	International Non-Governmental Organization
CBI	Cash-Based Interventions	IP	Implementing Partner
CCFS	Conditional Cash for Shelter	MoU	Memorandum of Understanding
CFW	Cash-for-Work	M&E	Monitoring and Evaluation
CCCM	Camp Coordination and Camp Management	NFI	Non-Food Item(s)
CMRU	Municipal Urban Resilience Cells	NGO	Non-Governmental Organization
DMU	Disaster Management Unit	PDM	Post-Distribution Monitoring
DRR	Disaster Risk Reduction	SAG	Strategic Advisory Group
EVI	Extremely Vulnerable Individuals	SOP	Standard Operating Procedures
GBV	Gender-Based Violence	TPM	Third Party Monitoring
HLP	Housing, Land and Property	UN	United Nations
HRP	Humanitarian Response Plan	WASH	Water, Sanitation and Hygiene

A NOTE ON TERMINOLOGY

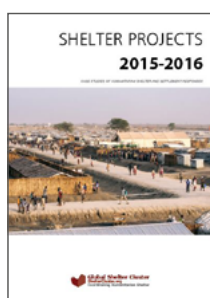
There has been much debate around terminology used in the shelter sector. The focus of these conversations has been held in the English language. As such the distinctions may not translate well into other languages.

There have been particular discussions in English language definitions used for different phases of assistance. For example, the terms “emergency shelter”, “transitional shelter”, “temporary shelter”, “semi-permanent shelter” and “incremental shelter” have all been used to define both the types of shelters and the processes used. Similarly terms have been used for Non food items (NFIs), Core relief items (CRIs), Household items. There are similar discussions related to the use of cash and vouchers in assistance.

Another example of terminology that has many variations is “camp planning”, “site planning” and “settlement planning”.

Sometimes these terms are used interchangeably, and sometimes they are used very specifically. This can be impacted for example by the political context (e.g. in contexts where “camps” are not allowed) or can be impacted by the degree of integration with existing settlements and wider urban and regional planning. In this book we use the terms used in-country and by the specific implementing organizations, which may vary.

The summary table within each case study includes sections showing the “Direct cost” and the “Project cost”. The direct cost refers to the value of assistance package directly received by households, this includes for example the costs of materials, of labor and/or the value of cash assistance provided. The term “Project cost” refers to the direct costs plus the indirect costs, for example taking account for staffing and overhead costs.





Newly displaced children next to their new transitional shelter on Yemen's west coast.
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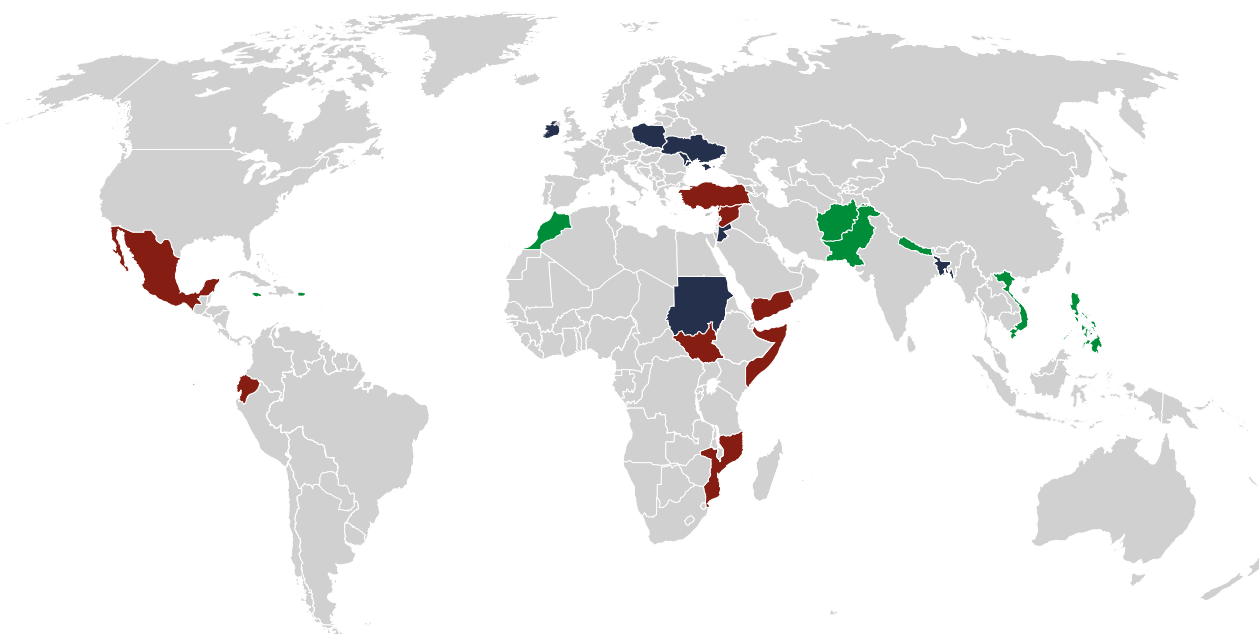
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INTRODUCTION



Newly displaced people receive emergency items to help them cope with displacement.

© Ma'rib/IOM Yemen 2020

INTRODUCTION



A resident explains how her roof was torn off by Hurricane Beryl, Jamaica 2024

ABOUT THIS BOOK

This new edition of Shelter Projects contains 28 new case studies of humanitarian shelter and settlements responses implemented primarily during 2023 and 2024, with some exceptions for multi-year programmes or projects implemented earlier but not previously published. The articles, which can be found in Section A of the publication, are written by field practitioners and coordination teams who have been involved directly in each of the projects and responses.

Originally planned for last year, this edition has been published right one year later due to the suspension of activities imposed on U.S. funded projects that occurred in early 2025. The resumption of works was made possible by the renewed efforts of all contributors and peer reviewers more than a year later. Despite it being finalized and published in 2026, the original timeline -- covering projects implemented, mostly, until the end of 2024 -- was maintained. Future editions of case studies compilations developed within the broader scope of the newly merged Shelter, Land and Site Coordination Cluster may cover the period from 2025 onwards.

In Section B of this edition there are three Research Pieces curated by the Research Working Group of the Global Shelter Cluster, and an obituary piece in memoriam of colleagues and contributors to the publication who have passed away. Two of the research abstracts focus on specific scenarios in Mexico and Pakistan, while the third one analyses longitudinal impact of shelter responses with examples from Afghanistan, Nepal and the Philippines.

The case studies in this book deal with projects implemented by many different organizations, a full list of which can be found in the acknowledgements section. To allow strengths and weaknesses of projects to be shared openly, the case studies are not directly attributed to individual organizations. Since projects are implemented in diverse and challenging conditions, case studies illustrate both good and bad practices. From each one, there are lessons that can be learned, and aspects that may be repeated or avoided. A list of suggested Further Readings from Shelter Projects on common themes can be found at the end of each case study, as well.

The objective of this publication has always been to encourage a learning process, a critical reflection on our practice, advocate for following best practices and avoid “reinventing the wheel” every time. If you wish to find out more about the specific projects, please contact shelterprojects@sheltercluster.org, or any contact available at www.shelterprojects.org



After a hard day of work, Ali and his friends look forward to unwinding in their new shelters and spending quality time with family. (Yemen)



A displaced family sits in their tent in the middle of the afternoon to escape the intense heat in the Harbanoush area in northern Syria.



Ms. Babita Rana, a model house beneficiary and worker, transports CSEB blocks, building a safer tomorrow for herself and her community. (Nepal)

CASE STUDY SELECTION, REVIEW AND EDITING

All the fifty-seven abstracts submitted following an open call were reviewed by representatives of all the organizations that form part of the Shelter Projects Working Group and rated according to the following criteria: a) Significance / scale of impact of the work for the given context, b) Potential contribution to learning, c) Quality of the submission materials and intervention.

The working group reviewed the final list aiming to include a balance representation of shelter and settlements responses from different regions, modalities, and organizations, with a priority for local actors where possible.

Aiming to extend the inclusion of new geographical contexts in Shelter Projects, this 10th edition brings in six countries for the first time: Ireland, Jamaica, Mexico, Morocco, Poland and Puerto Rico.

As in previous editions, the projects included were required to:

Be wholly completed or, if not, implemented enough to present solid learning elements that could be gained from the project by late 2024.

Given the scale of shelter needs every year, case studies must have had large-scale impacts. Discontinued trials, pilot projects or design concepts were not included. Smaller scale projects were included especially when they were implemented by local organizations.

Most of the project must have been implemented within the first year following a disaster, or over longer time frames for recovery processes. For conflict, chronic emergencies and return processes, longer time scales were considered.

Accurate project information was available from staff or individuals involved in the implementation. In most cases, content was provided directly by project field staff and program managers.

The case studies illustrate a diversity of approaches to meet shelter and settlements needs, as providing shelter assistance is more than simply designing architecturally impressive structures or constructing individual houses.

After a pre-selection based on the above criteria, each case study was fully drafted by the project implementer, screened by the editorial team, and further peer-reviewed

by two independent members of the Shelter Projects Working Group. The review enabled an additional level of critical analysis of the strengths and weaknesses of each project, and pointed out what lessons to highlight and what aspects to expand upon, ultimately increasing the overall quality of each piece after the final revision by the author(s).

Lastly, for the first time in the history of this publication, the final step involved the use of artificial intelligence (AI), which was leveraged with tailored prompts to help editing the final authors' drafts using a consistent style in line with previous editions and word count limits. The ai-generated versions were checked both by the editorial team and the original authors for accuracy, and subsequently adjusted, where needed, before the final layout and publication.

In some cases, the AI was also used to draw new or under-developed sections, as well as strengths and weaknesses, either from supporting documents provided by the authors, from the data collection templates, or also from transcript calls between the editorial team and the authors. This helped ensure quality and consistency of the final outputs even despite having limited time and resources compared to previous editions. All the learnings from this first experience using AI in the publication will be leveraged moving forward to significantly reduce the level of effort required to contributors of case studies through the development process.



Kun Maya Chepang tends to her chickens in her newly built home, a vital source of income and resilience after the 2015 earthquake. (Nepal)

KEY HIGHLIGHTS

40.6 million (36% of total)	new internal displacements for conflict and violence in 2023-2024
72.2 million (64% of total)	new internal displacements for disasters in 2023-2024
123.2 million	forcibly displaced people globally by the end of 2024
260.3 million	people affected by disasters in 2023-2024
63.2 million (88% of total)	new internal displacements due to floods and storms alone in 2023-2024
37 million	people reached with Shelter / NFI assistance in countries with shelter clusters in 2023-2024, 57% of those targeted

GLOBAL OVERVIEW OF DISPLACEMENT AND RESPONSE

Over the course of 2024, 65.9 million new internal displacements (i.e., within country borders) were reported;¹ in addition to the 5.4 million people who crossed international borders to seek protection (refugees and asylum seekers).² Conflict and violence contributed to a total of 20.1 million internal displacements (nearly as many as in 2023 when these were 20.5 million) while 45.8 million people were displaced by disasters, a stark increase from the previous years and nearly double the annual average for the past decade.³ Remarkably, the number of countries reporting displacement from both conflict and disasters tripled since 2009. This section provides more details about where these displacements took place while also giving an overview of the displaced population globally, beyond new displacements.

1 IDMC 2025 GRID

2 UNHCR (2025). [Global Trends - Forced Displacement in 2024](#)

3 IDMC (2025). [Global Report on Internal Displacement 2025](#)



In Duwaibq, Suran, Aleppo, a displaced family has transformed their earthquake-damaged house into a safe, secure home, restoring stability, dignity, and hope for the future.

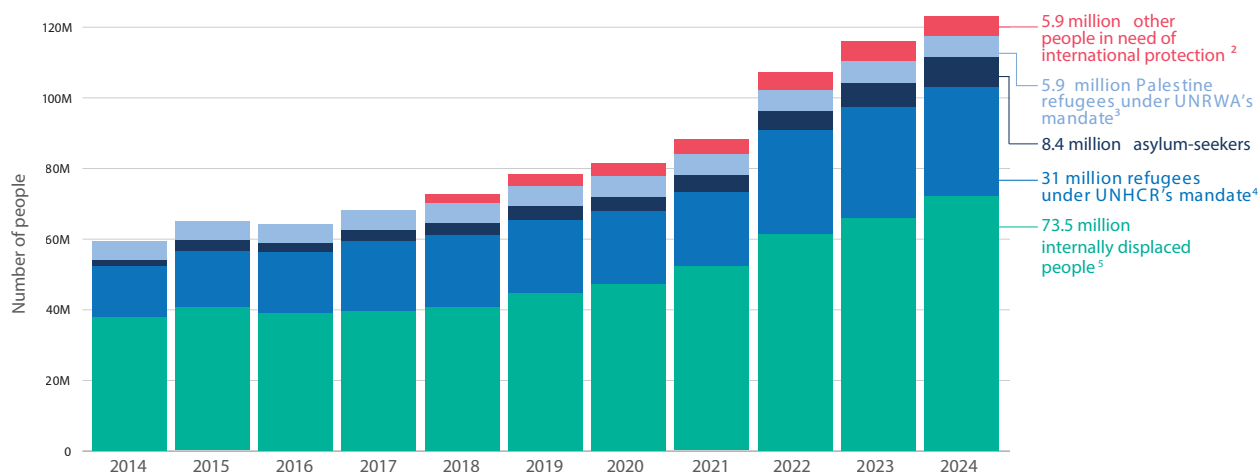


Fig. 1: Number of people forcibly displaced worldwide between 2014 and 2024 as a result of persecution, conflict, violence, human rights violations or events seriously disturbing public order. Source: UNHCR Global Trends Report, 2024.

CONFLICTS AND VIOLENCE

At the end of 2024, a total of 123.2 million were forcibly displaced worldwide as a result of persecution, conflict, violence, human rights violations, or events seriously disturbing public order. This represented an increase compared to previous years (almost 38 per cent more than 2021 and 14 per cent more than 2022) and includes 73.5 million IDPs, 31 million refugees, 8.4 million asylum seekers, 5.9 million Palestinian refugees and another 5.9 million people in need of international protection. Out of the total, 73 per cent were hosted in low-and middle-income countries, while 67 per cent of refugees and people in need of international protection lived in neighbouring countries from their country of origin.⁴

The largest number of refugees and other internationally displaced people by the end of 2024 (not including the 5.9 million Palestinian refugees under UNWRA's mandate) were from the following countries: Venezuela (7.6 million), Afghanistan (6.1 million), the Syrian Arab Republic (6.1 million), Ukraine (5.1 million) and Sudan (2.8 million). While the top four countries of origin were the same as by the end of 2023, Sudan registered a stark increase of nearly 1 million people from the previous year. South Sudan, Myanmar, the Democratic Republic of Congo and Somalia all had more than 1 million internationally displaced each

by the end of 2024, as well. In this publication, there are several case studies from projects in support of these groups, such as in [A.25/Turkiye](#) and [A.22/Jordan](#) in response to the Syrian crisis, [A.20/Poland](#) and [A.19/Moldova](#) to the Ukraine crisis, in [A.07](#) and [A.08/Ecuador](#) to the Venezuela crisis, as well as [A.03/South Sudan](#) and [A.04/South Sudan](#) to the Sudan crisis.

While global data for returnees and non-displaced people (such as affected host communities) was not available, projects in this book also include assistance to these groups of people, such as [A.05/South Sudan](#) (assisting returnees fleeing the Sudan crisis) or [A.19/Moldova](#) (which established community centres serving both refugees and local populations).

The top five countries with the highest number of internally displaced people by conflicts and violence in 2024 were Sudan (11.6 million), the Syrian Arab Republic (7.4 million), Colombia (7.3 million), the Democratic Republic of Congo (6.2 million) and Yemen (4.8 million). In terms of new displacements in 2024 alone, out of a total of 20.1 million new displacements, the Democratic Republic of Congo, Sudan, Palestine, Myanmar and Lebanon reported the highest figures, accounting for over 70 per cent of the total. This edition includes case studies from the Syrian Arab Republic ([A.24/Syrian Arab Rep.](#) and [A.23/Syrian Arab Rep.](#)) and Yemen ([A.26/Yemen](#)) that were related to the above internal displacement crises.

⁴ UNHCR (2025). [Global Trends - Forced Displacement in 2024](#)



Ifraah, 27-year-old mother displaced by drought in Somalia, washing the red sand stains from her sons clothing amidst makeshift and transitional shelters in Baidoa Camp.



A community member stands amid the ruins of her home during a post-earthquake assessment, in Nepal.



Building elevated toilets and bathing shelters in a burned down fishing village on the Kafue River, Zambia.

DISASTERS

In 2023 and 2024, disasters affected 93.1 million and 167.2 million people respectively,⁵ which combined were slightly fewer than the 286.5 million registered in the previous two years and also than the annual average since 2004 (168.7 million). These disasters occurred primarily in Asia, the Americas and Africa respectively, with floods, storms, extreme temperatures and droughts being the events affecting most of the overall disaster-affected population. However, the numbers of people affected do not necessarily mean that all had shelter needs. The introductory page of most case studies in the publication, for the respective crises, shows the both the figures of people affected and people with shelter needs.

In terms of new displacements triggered by disasters in 2023 and 2024, 72.2 million people were displaced globally (26.4 and 45.8 million respectively). This represented 64 per cent of the total number of new displacements during those years.

In 2023, the most impacted countries were China (4.7 million), Türkiye (4 million), Philippines (2.6 million), Somalia (2 million) and Bangladesh (1.8 million). In 2024, the most affected were the United States (11.1 million), Philippines (8.9 million), India (5.4 million) China (3.9 million) and Bangladesh (2.4 million). Across both years, the top hazards causing internal displacements were consistently storms and floods, however in 2023 nearly a quarter were caused by earthquakes, in particular that of Türkiye-Syria in February 2023 (see [A.24/Syrian Arab Rep.](#) and [A.23/Syrian Arab Rep.](#) in this publication).

It should be noted that many displacements were in the form of pre-emptive evacuations (in 2024 a third of affected countries reported these), showing how pre-emptive displacement can be a life-saving mechanism and highlighting the relevance of early warning systems in place and contingency plans developed that include a preparedness

phase. This was the case for storm-related evacuations in the United States, China, Bangladesh and the Philippines. In 2024, almost 6 million people were displaced for a single storm (mostly in the US), the highest number ever recorded for one single event. However, the extent of damage to housing and infrastructure in some of the disasters also suggests that significant numbers of people would face prolonged displacement.

This edition includes multiple shelter responses to storms and floods, such as [A.17/Vietnam](#) supporting cyclone-affected families to conduct housing repairs, [A.16/Philippines](#) following Typhoon Odette, [A.11/Puerto Rico](#) with a multi-year recovery program following Hurricanes Irma and María, and [A.15/Pakistan](#), an integrated program in response to the 2022 floods. Prior to this edition, in October 2024 the Working Group also published Shelter Projects: Lessons from Floods, a thematic edition available in [English](#) and [French](#) built on learnings from two decades of shelter responses. The booklet includes a research piece linking the over 70 case studies available on projects responding to floods scenarios in different contexts.

In terms of other types of disasters, beyond the above-mentioned case studies from the Syrian Arab Republic, this publication also features responses to the earthquakes in [A.27/Morocco](#) and [A.12/Afghanistan](#), as well as a housing reconstruction program conducted several years after the 2015 Gorkha earthquake in [A.14/Nepal](#).

Disasters often overlap with conflict, as over 90 per cent of the countries reporting conflict displacement also reported disaster displacement. This multiplies existing vulnerabilities and results in complex crises, complicating efforts to alleviate immediate needs but also to find pathways to durable solutions. In this edition, there are case studies where disasters and conflict situations overlap, such as those from [A.01/Mozambique](#), [A.02/Somalia](#), [A.03](#) and [A.05/South Sudan](#), [A.23](#) and [A.24/Syrian Arab Republic](#), and [A.26/Yemen](#).

⁵ UCLouvain, CRED, USAID. [Disasters in Numbers 2023 and 2024](#)

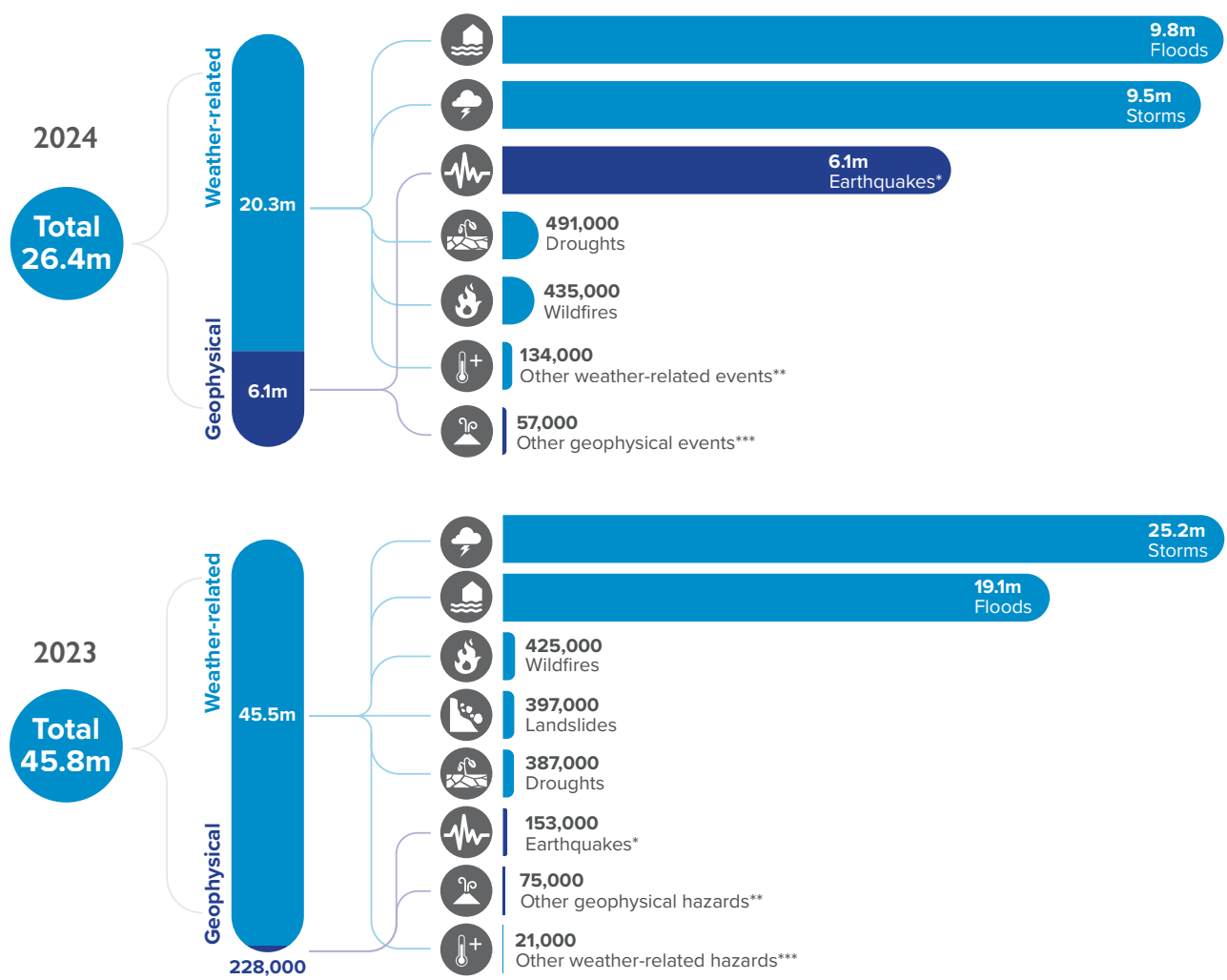


Fig 2: The charts show the figures related to new internal displacements caused by disasters in 2023 and 2024, with the breakdown by type of hazard.



An aerial shot captures the devastation left by Hurricane Beryl, showing a roofless house in Jamaica. The powerful storm caused widespread destruction, leaving many homes and buildings severely damaged and communities struggling to recover.

SHELTER RESPONSES IN 2023 AND 2024

In 2023 and 2024, the Global Shelter Cluster (GSC) reported that 20 and 17 million people respectively had been reached in countries where a cluster or cluster-like coordination mechanism was active.⁶ It is important to note that this excludes, among others, some large-scale refugee responses such as the Rohingya crisis, or those in the countries around Venezuela and Ukraine (included in this edition of Shelter Projects). These figures combined represent a slight increase in people reached when compared to the two preceding years. (see Fig. 2).

Fig. 3 shows the total people targeted and reached with Shelter-NFI support since 2015. These figures should also be considered in relation to the overall number of people in need of Shelter-NFI assistance, showing that overall, Shelter Cluster responses met 22 per cent of the total needs in 2023 and 18 per cent of the needs in 2024. In both years combined, responses assisted 57 per cent of people targeted, although in large part through the provision of household items only (around 65 per cent).

Fig. 4 shows the combined total of people reached in 2023-2024 split by region. It shows that most of the people supported with Shelter-NFI assistance were either in Africa (17.3 million people or 42 per cent) or in the Middle East and North Africa (14.1 million people or 34 per cent), followed by Europe at 15 per cent and Asia-Pacific at 8 per cent of the total.

In 2023-2024, the major humanitarian Shelter-NFI responses were in the following countries: Türkiye (7m reached, see [A.25](#)), Ukraine (6.2m, see [A.21](#)), the Democratic Republic of Congo (4.5m reached), Palestine (2.6m reached) Somalia (2.6m reached, see [A.02](#)), the

Syrian Arab Republic (2.5m reached, see [A.23](#) and [A.24](#)), Ethiopia (2.5m reached), Sudan with 2m reached (see [A.06](#)), Yemen with 2m reached, see [A.26/Yemen](#)) and South Sudan (1.9m reached, see [A.04/South Sudan](#), [A.03/South Sudan](#) and [A.05/South Sudan](#)). Compared to the two previous years, the main differences were the scale of the response in Türkiye due to the earthquakes, the new response in Palestine due to the war in Gaza, the significant reduction in Syria and the increase in Sudan due to the protracted and large-scale hostilities. While the majority of Shelter-NFI assistance in 2023-2024 was related to conflict and violence, the 2023 earthquakes in Türkiye and Syria also accounted for a significant share, and in some cases conflict contexts also experienced the additional damage and displacement caused by exposure to natural hazards.

In this edition, there are over a third of case studies from responses to complex or multiple crises, such as [A.03/South Sudan](#), [A.01/Mozambique](#), or [A.08/Ecuador](#). Seven case studies focused on responses to conflict alone (such as [A.21/Ukraine](#) on housing repairs, or [A.20/Poland](#) and [A.25/Turkey](#) focusing on refugee situations) and another seven to disasters (such as [A.16/Philippines](#) or [A.15/Pakistan](#)). One case study focuses on disaster risk reduction activities ([A.09/Jamaica](#)).

Fig. 5 also shows the split between NFI assistance and Shelter assistance across these responses.⁷ It is possible to note for example that some responses, such as Palestine, have reached a relatively large number of people with NFI assistance but have reached a much smaller amount of people with more substantial Shelter assistance.

7 Note that the overall number of people reached noted in Figure 5 is in most cases not equal to the sum of the breakdown of people reached with NFI assistance and people reached with Shelter assistance. This is because some people will have been reached with both NFI and Shelter assistance.

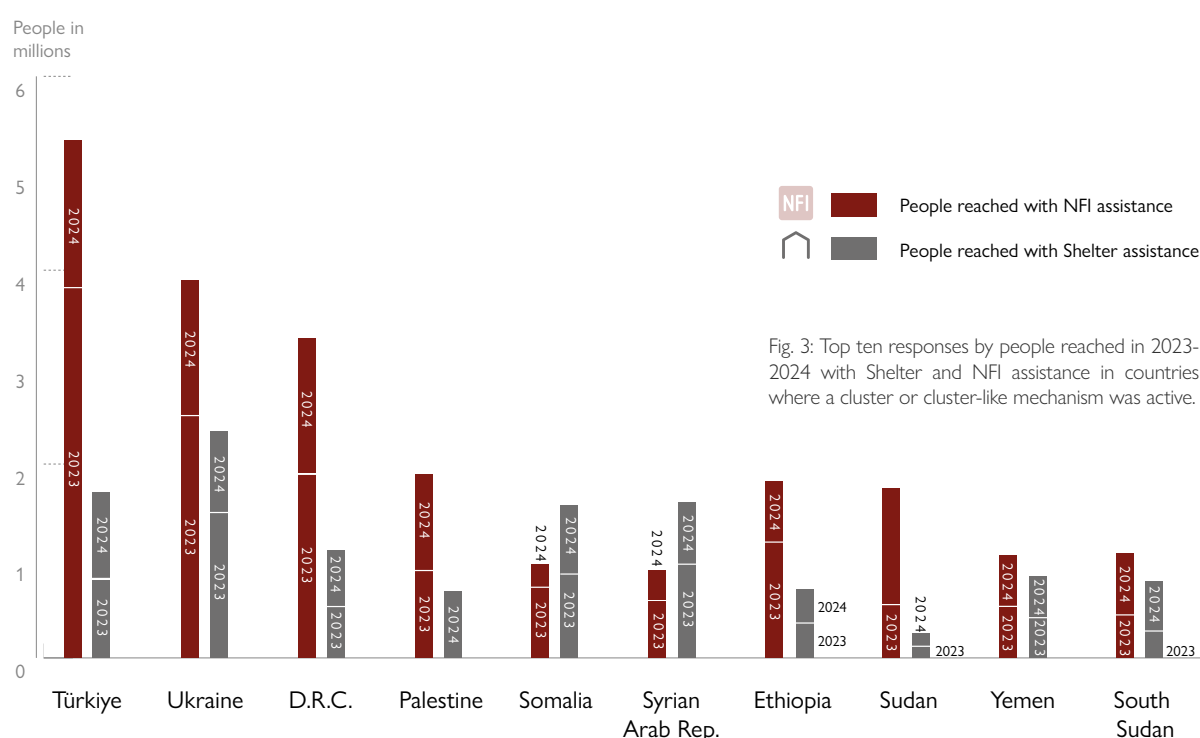


Fig. 3: Top ten responses by people reached in 2023-2024 with Shelter and NFI assistance in countries where a cluster or cluster-like mechanism was active.



Zahara, the head of her household, stands proudly in front of her new transitional shelter (left) in Mokha, Yemen, surrounded by her family.



Fig. 4: Total people targeted and reached with Shelter-NFI support from 2015 to 2024, in responses where a cluster or cluster-like mechanism was active.

OVERVIEW OF CASE STUDIES

DIVERSITY IN RESPONSES

Shelter and settlements assistance should always be part of a process where crisis-affected people are active participants. How and where assistance is provided in an emergency can have long-term impacts on people's ability to improve their situation and eventually recover.

The case studies in this book show a wide range of approaches to providing shelter and settlements assistance. The approaches taken vary significantly due to a wide range of contextual factors, including the resources, needs, capacities, vulnerabilities, intentions, priorities and barriers faced by crisis-affected people, and due to the phase of response, organizational mandates and funding availability.

See the table on pages xx-xxi for a summary of the locations and settlement options, types of shelter assistance and support methods of the projects in this book.

TYPE OF CRISIS AND DISPLACEMENT

Nine of the case studies are of projects that supported refugee populations: a case study in South Sudan supporting refugees and people returning from Sudan ([A.04/South Sudan](#)) adopting traditional constructions known as Tukuls, two case studies responding to the Venezuelan crisis in Latin America ([A.07](#) and [A.08/Ecuador](#)), one case study on the Rohingya crisis ([A.13/Bangladesh](#)), showcasing the largest energy supply project in a refugee camp ever, three case studies from Europe supporting refugees from Ukraine ([A.18/Ireland](#), [A.19/Moldova](#) and [A.20/Poland](#)), and two on Syrian refugees, one in [A.22/Jordan](#) and another in [A.25/Türkiye](#), both dealing with housing rehabilitation in urban settings.

Eight case studies describe projects that were implemented in support of people internally displaced due to conflict or violence. These include case studies from [A.01/Mozambique](#), [A.02/Somalia](#), [A.03](#), [A.04](#) and [A.05/South Sudan](#), [A.21/Ukraine](#), [A.23](#) and [A.24/Syrian Arab Rep.](#), and [A.26/Yemen](#).

Eight case studies showcase projects that responded to the impact of disasters (floods, storms, hurricanes, earthquakes). These include responses to earthquakes, such as [A.27/Morocco](#) or housing repair and reconstruction projects in [A.12/Afghanistan](#) and [A.14/Nepal](#); integrated responses to floods in [A.15/Pakistan](#); and programmes following storms in [A.11/Puerto Rico](#), [A.16/Philippines](#) and [A.17/Vietnam](#). This edition also includes a case study on disaster risk reduction interventions in [A.09/Jamaica](#).

CONTEXT AND SETTLEMENTS OPTIONS/SITUATIONS

People assisted by the projects in this edition were reached with shelter support in different types of locations. This includes six projects that were implemented only in urban areas, and ten projects only in rural areas, while the rest of the projects were a combination of urban, peri-urban, and rural settings, though the definition of what is urban varies from one country to another.

From a shelter perspective, the location and typology of settlement where people are can be considered amongst the main determinants in selecting appropriate response options. Projects in this book were implemented for displaced populations in planned sites and settlements (including [A.05/South Sudan](#) which set up a transit centre or [A.10/Mexico](#) a migrant centre at the border with the US); spontaneous camps where people self-settled (such as [A.13/Bangladesh](#) in Cox's Bazar); and planned resettlement sites designed to provide longer-term shelter solutions for people who had been displaced (including [A.01/Mozambique](#), [A.06/Sudan](#), [A.16/Philippines](#) and [A.23](#) and [A.24/Syrian Arab Republic](#) in the north-west of the country).

Many projects also supported populations in dispersed locations, including people in rental accommodation ([A.07/Ecuador](#), [A.22/Jordan](#) and [A.25/Türkiye](#)), and people staying with host families ([A.18/Ireland](#) and [A.20/Poland](#)).

The collected projects also assisted people who had been displaced for various reasons and lived in dispersed, spontaneous locations, such as [A.14/Nepal](#), following the 2015 earthquake, or [A.26/Yemen](#), through the protracted conflict.



Building shelters, Gambella Ethiopia



Suitcase Homes



Women taking part in wall-mudding for a shelter construction in Mozambique

SHELTER ASSISTANCE TYPES

The case studies in this edition show a range of different types of shelter assistance. Three projects offered support in providing materials for or directly constructing emergency shelters, among which a case study focusing on the common Shelter/NFI pipeline in [A.03/South Sudan](#) which reached over 705,000 people in 2023 alone. Nine projects supported the construction of transitional or semi-permanent shelters, which definition varied greatly based on the country and context. These include, among others, case study [A.27/Morocco](#) on the use of imported prefab units following an earthquake, and [A.02/Somalia](#) where emergency shelters were upgraded incrementally to more durable options. Two projects supported host families in [A.18/Ireland](#) and [A.20/Poland](#), who volunteered in hosting Ukrainian refugees especially during the peak of the influx.

Ten projects supported housing repair, retrofit and/or rehabilitation in support of a combination of displaced people who were renting accommodation ([A.07/Ecuador](#), [A.22/Jordan](#) and [A.25/Türkiye](#)), returnees and non-displaced local populations ([A.01/Mozambique](#), [A.09/Jamaica](#), [A.12/Afghanistan](#), [A.17/Vietnam](#) and [A.21/Ukraine](#)), and vulnerable host community members ([A.22/Jordan](#) and [A.26/Yemen](#)).

Three projects provided direct rental assistance: [A.07/Ecuador](#), which also included upgrades of housing and common facilities; [A.20/Poland](#), where rental support was part of a multi-phased projects which also helped establish Social Rental Agencies across the country; and [A.12/Afghanistan](#), as temporary measure during the winter before reconstruction.

Four projects supported the construction of core or permanent housing, either supporting the permanent reconstruction of severely damaged or destroyed homes ([A.11/Puerto Rico](#), [A.14/Nepal](#) and [A.15/Pakistan](#)), or building new permanent housing developments ([A.16/Philippines](#)).

Beyond projects supporting individual households, [A.19/Moldova](#) rehabilitated community centers to serve refugees and local populations to access a range of services, and [A.28/Global](#) is a project which worked to design, produce and field-test a new eco-tarpaulin with recycled plastics for the benefit of all responses worldwide.

SUPPORT METHODS

Projects adopted a variety of support methods to deliver shelter assistance. These include the distribution of household items or shelter materials, tools and kits (used by 13 projects, e.g. [A.02/Somalia](#) and [A.10/Mexico](#)); the use of cash-based interventions (CBI), for example through conditional cash transfers (used by eight projects, including all those implementing housing recovery activities in Asia Pacific, but also in [A.26/Yemen](#), and restricted vouchers ([A.21/Ukraine](#) and [A.25/Turkey](#)); as well as non-material form of assistance, such as capacity building (implemented by 17 projects such as [A.09/Jamaica](#)), technical assistance (e.g. [A.12/Afghanistan](#), [A.15/Pakistan](#)), structural assessments (e.g. [A.01/Mozambique](#) or [A.21/Ukraine](#)), advocacy and legal advice in relation to Housing Land and Property Rights (for example [A.11/Puerto Rico](#) which helped families formalize their ownership following the 2017 hurricanes), and the development of guidelines and manuals (such as [A.09/Jamaica](#), [A.11/Puerto Rico](#), [A.12/Afghanistan](#) and [A.17/Vietnam](#)). A few projects also included site management components (such as [A.10/Mexico](#) and [A.23/Syrian Arab Rep.](#)) and several case studies deal with multi-layered, multi-phase programs, such as that of Jamaica ([A.09/Jamaica](#)), Puerto Rico ([A.11/Puerto Rico](#)) and Poland ([A.20/Poland](#)).

Many projects also provided settlements-level support. Nine projects involved site or settlement planning including planning for the development, growth and upgrading of new and existing displacement sites and settlements (e.g. [A.01/Mozambique](#), [A.06/Sudan](#) or [A.23](#) and [A.24/Syrian Arab Republic](#)), and supporting planning in existing urban and peri-urban areas (e.g. [A.02/Somalia](#) and [A.09/Jamaica](#)). Eleven projects supported infrastructure improvements, including improvements to roads, drainage, communal spaces, and access to local services and amenities (see [A.07/Ecuador](#), [A.19/Moldova](#) and [A.22/Jordan](#)). Settlement planning and infrastructure support was often implemented with aims to reduce vulnerability to natural hazards, mitigate protection and health risks, and promote social cohesion. In some cases, it was the precondition for new resettlement projects such as those implemented in north-west Syria ([A.23](#) and [A.24](#)) or [A.16/Philippines](#) implemented following Typhoon Odette.

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		Resettlement				
		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
✱	A.01 / MOZAMBIQUE 2022-2024 / COMPLEX CRISIS			🏠	🏠		🏠					🏠	🏠	🏠	🏠
✱	A.02 / SOMALIA 2022-2024 / COMPLEX CRISIS	🏠	🏠	🏠						🏠				🏠	
✱	A.03 / SOUTH SUDAN 2023 / COMPLEX CRISIS		🏠	🏠	🏠		🏠		🏠		🏠	🏠	🏠		
✱	A.04 / SOUTH SUDAN 2023-2024 / COMPLEX CRISIS		🏠		🏠		🏠		🏠			🏠			
🚶	A.05 / SOUTH SUDAN 2023-2024 / SUDAN CRISIS			🏠								🏠			
🚶	A.06 / SUDAN 2021-2023 / ETHIOPIAN CRISIS			🏠								🏠			
🚶	A.07 / ECUADOR 2020-2024 / MIGRATION CRISIS	🏠						🏠	🏠		🏠				
🚶	A.08 / ECUADOR 2023-2024 / MIGRATION CRISIS	🏠	🏠								🏠				
🏠	A.09 / JAMAICA 2014-2019 / DRR		🏠		🏠	🏠	🏠								
🚶	A.10 / MEXICO 2021-2024 / MIGRATION CRISIS	🏠										🏠	🏠		
🏠	A.11 / PUERTO RICO 2017-2024 / HURRICANES	🏠	🏠	🏠	🏠										
🏠	A.12 / AFGHANISTAN 2022-2024 / EARTHQUAKE			🏠	🏠										
🚶	A.13 / BANGLADESH 2018-2024 / ROHINGYA CRISIS		🏠										🏠		
🏠	A.14 / NEPAL 2021-2023 / GORKHA EARTHQUAKE			🏠	🏠					🏠					
🏠	A.15 / PAKISTAN 2023-2024 / FLOODS 2022			🏠	🏠										
🏠	A.16 / PHILIPPINES 2023-2024 / TYPHOON ODETTE			🏠						🏠					
🏠	A.17 / VIETNAM 2020-2021 / TROPICAL STORMS			🏠	🏠										
🚶	A.18 / IRELAND 2022-2024 / UKRAINE CRISIS	🏠	🏠	🏠											
🚶	A.19 / MOLDOVA 2022-2024 / UKRAINE CRISIS	🏠													
🚶	A.20 / POLAND 2022-2024 / UKRAINE CRISIS	🏠						🏠	🏠		🏠				
✱	A.21 / UKRAINE 2023-2024 / CONFLICT	🏠	🏠	🏠	🏠	🏠									
🚶	A.22 / JORDAN 2018-2022 / SYRIAN CRISIS	🏠						🏠							
✱	A.23 / SYRIAN ARAB REP. 2022-2023 / SYRIAN CRISIS			🏠										🏠	
✱	A.24 / SYRIAN ARAB REP. 2023-2024 / SYRIAN CRISIS			🏠					🏠		🏠				
🚶	A.25 / TURKEY 2022-2025 / SYRIAN CRISIS	🏠				🏠		🏠							
✱	A.26 / YEMEN 2023-2024 / COMPLEX CRISIS		🏠	🏠					🏠	🏠					
🏠	A.27 / MOROCCO 2023-2024 / EARTHQUAKE			🏠	🏠					🏠			🏠		

This table shows the range of types of projects described in the case studies and the variety of contexts in which they were implemented

Context: whether projects were located in urban, peri-urban and/or rural contexts.

Settlement options/situations: the type of settlements in which people were assisted (or assisted to return/move to).

Shelter assistance types: broad categories of the kind of shelter assistance provided by the project.

	SHELTER ASSISTANCE TYPES																
	Emergency shelter	Transitional/semi-permanent shelter	Host family support	Rental support	Core housing	Housing repair/retrofit/rehabilitation	Permanent housing	Cash-Based Interventions				In-kind Distribution				Advocacy / Legal assistance	Site / Settlement planning
								Conditional cash transfer	Restricted cash/voucher	Unconditional & Unrestricted	Loans / Micro-credits etc.	Household items	Shelter materials (incl. kits)	Tools/Fixings	WASH items (& kits)		
A.01																	
A.02																	
A.03																	
A.04																	
A.05																	
A.06																	
A.07																	
A.08																	
A.09																	
A.10																	
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A.18																	
A.19																	
A.20																	
A.21																	
A.22																	
A.23																	
A.24																	
A.25																	
A.26																	
A.27																	

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.

CASE STUDY ANALYSIS AND RECURRING THEMES

This 10th edition continues the structured meta-analysis introduced in earlier volumes. For each signed-off case study, the strengths and weaknesses reported by authors and validated in review were coded against a standard list of themes at two levels: intervention/output (what was implemented) and outcome (the change or effect observed). Each entry could be assigned up to two themes per level. As with the previous edition, this method aims to reveal recurring patterns across varied contexts while acknowledging the limitations of self-reported material, uneven scope and length among case studies, and the editorial constraints of a multi-agency compilation. The intent is indicative learning rather than exhaustive evaluation. This section mirrors the [9th edition's](#) framing and caveats regarding biases, validation, and comparability.

From the analysis of the 28 case studies in the 10th edition, the most frequently reported strengths were Community engagement; Coordination and partnerships; Integrated programming / Multi-sectoral approaches; Protection mainstreaming / risk mitigation; and Cash and market-based approaches. Conversely, the most frequently cited weaknesses had to do with Timeliness of the assistance; Project planning; Monitoring and Evaluation; and, in a notable echo of the strengths, Coordination and partnerships, underscoring that coordination can either unlock performance or expose fragilities depending on capacities, roles and timelines. These results align closely with the patterns observed previously.

Overall, the most reported theme was indeed Coordination and partnerships, with 24 mentions. This was followed by Project planning and Timeliness of the assistance, each with 23 mentions; Community engagement, with 20 mentions; and Monitoring and Evaluation, with 19 mentions. The most recurring themes found through the analysis described above are briefly expanded below.

COORDINATION AND PARTNERSHIPS

When roles and capacities aligned, coordination and partnerships were decisive for both speed and quality. The global eco-tarpaulin initiative ([A.28/Global](#)) convened more than 90 stakeholders and translated joint testing and verification into procurement practice, showing how inclusive technical coordination can shape markets beyond a single operation. In [A.02/Somalia](#), the Common Pipeline used centralized logistics and harmonized items so partners could deliver reliably under access constraints and pre-position stocks for seasonal disruptions. In [A.18/Ireland](#), national–local partnerships shared operational responsibility across government, civil society and communities, with mediation and casework stabilizing a rapidly evolving hosting program. In [A.09/Jamaica](#), a neighborhood approach formalized collaboration among municipal departments, national agencies, community-based organizations and private actors; an advisory committee sustained policy dialogue and helped develop replicable tools such as fast-track land regularization. In [A.11/Puerto Rico](#), an international–local affiliate partnership split roles between construction delivery and community-facing casework, while a dedicated alliance with a legal-aid foundation mobilized around 50 attorneys to resolve tenure barriers at scale, linking shelter repair with HLP outcomes. [A.20/Poland](#) also showed how municipal collaboration and social-rental advocacy can connect operational delivery with wider housing policy and integration outcomes. The same theme also appeared as a weakness when partner capacities and standards diverged: compressed multi-actor cycles in [A.23/Syrian Arab Republic](#) strained early coordination, and differing organizational practices in [A.18/Ireland](#) complicated consistent assessments and matching.

PROJECT PLANNING

Project Planning often determined whether good technical ideas translated into timely, usable outcomes. Where planning was strong, clear front-end analysis and phased delivery underpinned equitable targeting and predictable execution, for example, [A.23/Syrian Arab Republic](#) combined robust upfront planning with vulnerability-based criteria, improving relevance and sequencing of works across a complex portfolio.

SUMMARY OF FINDINGS FROM THE ANALYSIS

Top four strengths overall	Community engagement, Coordination and partnerships, Integrated programming / Multi-sectoral approaches, Protection mainstreaming / risk mitigation
Top four weaknesses overall	Timeliness of the assistance, Project planning, Monitoring and Evaluation, Coordination and partnerships
Top four strengths in conflict responses	Community engagement, Coordination and partnerships, Local authority / Government engagement, Coverage and scale
Top two weaknesses in conflict responses	Project planning, Timeliness of the assistance
Top strength in disaster responses	Community Engagement
Top weakness in disaster response	Project planning

[A.12/Afghanistan](#) also illustrated the value of cluster-endorsed standardization and diagnostics-driven technical priorities, using phased delivery to stabilize households while reconstruction planning advanced under agreed standards. [A.14/Nepal](#) further showed how strong monitoring, government collaboration and adaptable delivery methods can keep reconstruction moving in remote areas despite rugged terrain, limited markets and weather disruptions. More commonly, weaknesses stemmed from underestimating enabling works, incomplete market assessments or compressed design windows. In [A.16/Philippines](#), permanent housing delivery was slowed by unanticipated site-development demands such as terracing, drainage, water-supply constraints and heavy-equipment needs, illustrating how early neglect of settlement-level works can derail housing timelines.

[A.17/Vietnam](#) highlighted the planning cost of thin preparedness data; gaps in pre-crisis market and risk information required extra resources during start-up to validate assumptions. [A.27/Morocco](#) showed why early standardization matters in transitional shelter: adaptations driven by wind, moisture and ground conditions increased costs and follow-up needs once field realities emerged, signalling the need to fix foundations, anchoring and volunteer mobilization before scale-up. Across these cases, the consistent messaging advises to ensure realistic critical paths, enabling-works budgeting, pre-crisis market/risk data and defined decision mechanisms as prerequisites for a smooth implementation.

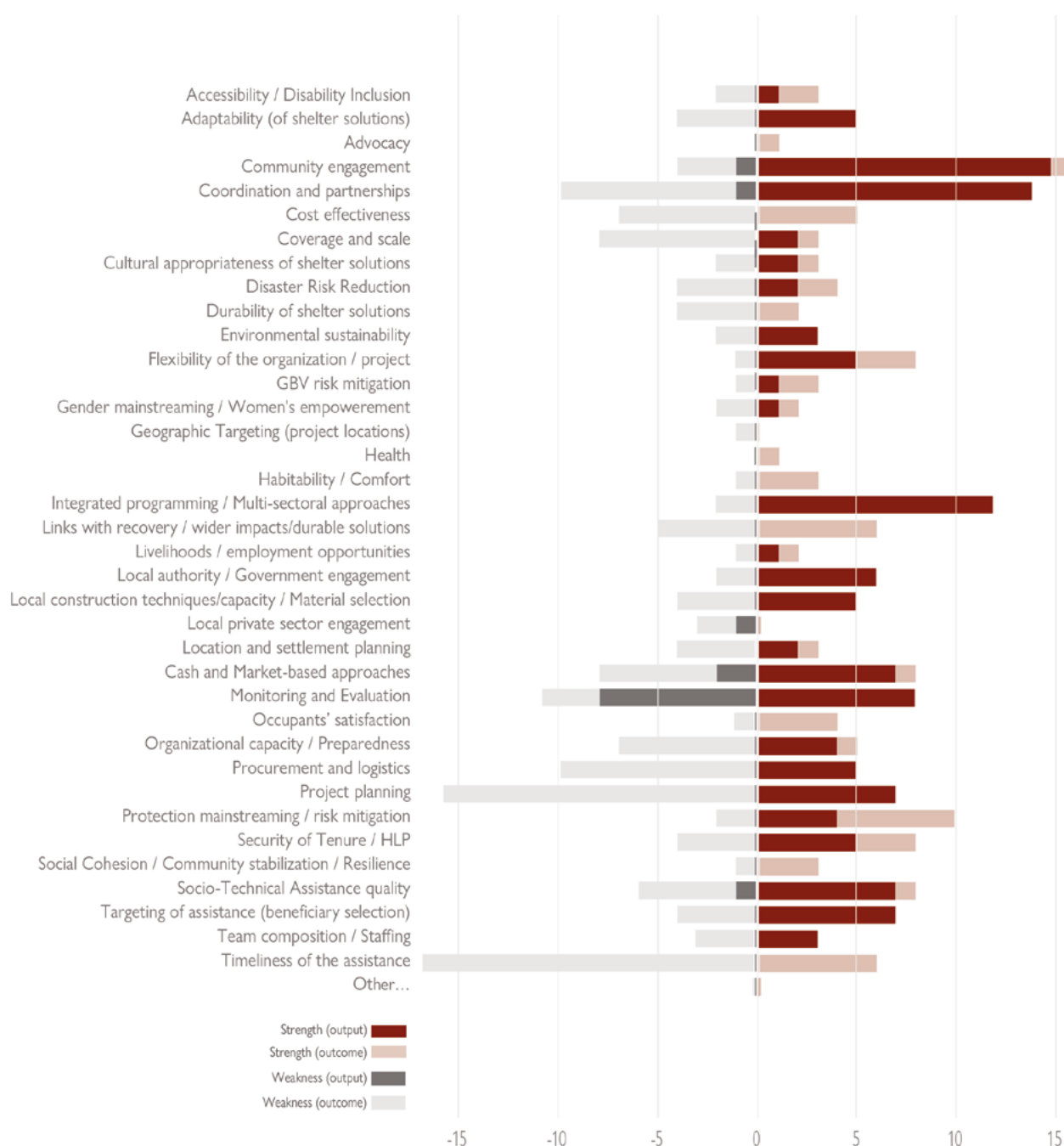


Fig. 5: Strengths and weaknesses reported in the case studies, by theme.



Francisco Luna's new home under construction in El Chopa, Colombia, March 2024, replacing one that collapsed twice.

TIMELINES OF THE ASSISTANCE

In several cases, speed came from design choices made well before delivery windows opened. In [A.03/South Sudan](#), strategic pre-positioning and shared logistics meant partners could move rapidly when access allowed, turning recurrent flood-season constraints into predictable operations. [A.20/Poland](#) also showed how existing operations and pre-crisis pilots in social rent and vacant-building rehabilitation enabled quick start-up and rapid scaling for refugee housing needs. By contrast, delays frequently traced back to prerequisites that were not fully in place at the start. In [A.26/Yemen](#), lack of identification documents and weak liquidity conditions slowed cash disbursement, requiring additional verification and follow-up to reach intended households.

[A.21/Ukraine](#) owner-driven repair model introduced variable completion times as households organized their own labor around weather, contractor availability and finances, prompting extended monitoring and more staggered finish dates. Across these contexts, timeliness is less about rushing and more about readiness: pre-positioned stocks, adaptive procurement, verified caseloads and realistic enabling-works plans shorten the distance between intent and impact.

COMMUNITY ENGAGEMENT

Community engagement consistently translated technical intent into accepted, usable outcomes. In [A.13/Bangladesh](#), continuous engagement through focus groups, trainings, door-to-door mobilization and Rohingya volunteers helped the program adapt quickly under challenging conditions and tailor support to extremely vulnerable households. In [A.19/Moldova](#), a participatory design process that involved refugees, hosts and local authorities from identification through implementation fostered ownership and smoother establishment of community service centers across several regions. In [A.10/Mexico](#), directly involving migrant residents in construction and site management reduced labor costs, accelerated timelines and built day-to-day stewardship, showing that participation can be both a social and operational strategy. [A.21/Ukraine](#) owner-driven repair model showed another face of engagement: household control over materials, labor and sequencing produced context-appropriate solutions, even as it required stronger monitoring to handle staggered timelines. In [A.07/Ecuador](#), active community involvement in site-level upgrades increased ownership and care for infrastructure, improving acceptance and prospects for long-term maintenance, reminding us that engagement sustains outcomes beyond handover. [A.01/Mozambique](#) further demonstrated this through a community-anchored shelter model combining household-level coaching, Build Back Better training, women-only groups and DRR committees, linking participation directly to safer construction and settlement-level resilience. Across these cases, the pattern is clear: engagement is not a single meeting, but a continuous function that builds consent, captures local knowledge, and creates the feedback loops that keep delivery on track and assets in use.

MONITORING AND EVALUATION

On fifth place, the most mentioned theme was M&E, central to quality, accountability and learning across cases, functioning best when designed as a feedback system rather than an afterthought. In [A.04/South Sudan](#), repeated safety audits and a structured post-construction survey created an iterative loop that surfaced protection, accessibility and usability issues and informed immediate corrective actions, while also tracking satisfaction and actual occupancy after handover. [A.17/Vietnam](#) showed how standardization and capacity-building can anchor consistent results: community-led repair guidelines and training for local masons and technicians embedded safer-practice checks into day-to-day delivery and supported replication beyond the initial footprint.

[A.06/Sudan](#) added a strong example of post-construction monitoring linked to shelter performance, with high satisfaction reported for materials and construction quality and households also reporting greater perceived safety from stronger walls and closable doors and windows. Elsewhere, gaps in M&E design or resourcing constrained performance and learning. In [A.08/Ecuador](#), the absence of a formal post-implementation monitoring plan made it harder to verify upkeep and troubleshoot unconventional systems over time.

In [A.10/Mexico](#), limited quality-assurance arrangements under access constraints reduced consistency in construction standards, highlighting the need for simple, enforceable checks that work in insecure settings. At global scale, the eco-tarpaulin initiative ([A.28/Global](#)) found that quality control, testing, verification and field-feedback capture became demanding without proportional planning, tools and staffing, illustrating how M&E burdens compound as portfolios grow. The cross-cutting lesson suggests to resource M&E early, agree common tools and acceptance criteria, and schedule decision points where evidence routinely triggers design, procurement or implementation adjustments.



Aspirations of a safe, secured and dignified accommodation

INTERESTING POINTS RAISED IN OTHER THEMES

Beyond the five most frequent themes, several cases point to how shelter responses are increasingly being used to connect immediate habitability with longer-term recovery systems. [A.25/Türkiye](#) is a clear example: rehabilitation addressed substandard housing for refugees and host communities while also improving communal facilities such as schools and health centres, linking household-level safety with public infrastructure and social cohesion. [A.22/Jordan](#) similarly framed shelter as part of a wider urban and neighbourhood package, combining home rehabilitation, infrastructure upgrades, green interventions and public-space improvements that enhanced safety, accessibility and everyday use.

Housing, land and property also emerged as a practical determinant of whether shelter assistance translated into actual occupancy and reduced risk. [A.24/Syrian Arab Republic](#) used public land allocation, local council approvals and occupancy arrangements to enable rapid siting and more predictable tenure, while [A.05/South Sudan](#) combined shelter support with land verification, HLP awareness sessions and a standing legal-advice and complaints desk. These examples show that HLP work is not peripheral to shelter delivery; it is often the condition that allows households to use, maintain and improve the assistance received.

Several cases also highlight the continued importance of locally appropriate construction and environmental performance. [A.15/Pakistan](#) offered low-carbon, culturally rooted shelter typologies that improved flood resilience while reducing cost and embodied carbon, and its strategic investment in community infrastructure improved mobility during heavy rains. [A.06/Sudan](#) showed that familiar tukul construction, adapted through elevated foundations, back-filling and settlement-level drainage, could improve habitability in flood-prone settings. In a different way, [A.08/Ecuador](#) placed environmental sustainability at the centre of site upgrades, combining greener infrastructure with safety, protection and accessibility.

Finally, the less frequent themes underline a recurrent trade-off between depth, coverage and sustainability. [A.16/Philippines](#) delivered high-quality permanent relocation housing but reached fewer households than the overall level of need, while [A.13/Bangladesh](#) achieved scale through robust procurement, broad camp presence and dedicated distribution systems, yet still faced constraints in identifying an exit or handover pathway in a context with limited livelihood options.

Taken together, these cases suggest that the most durable shelter outcomes depend not only on good technical design, but on early choices about tenure, inclusion, local capacity, environmental fit and the realistic pathway from emergency assistance to recovery.

INTRODUCTION

Crisis	CASE STUDY	THEMES												
		Accessibility / Disability Inclusion	Adaptability (of shelter solutions)	Advocacy	Cash and Market-based approaches	Community engagement	Coordination and partnerships	Cost effectiveness	Coverage and scale	Cultural appropriateness of shelter solutions	Disaster Risk Reduction	Durability of shelter solutions	Environmental sustainability	Flexibility of the organization / project
✱	A.01 / MOZAMBIQUE 2022-2024 / COMPLEX CRISIS		S			S		W			SW			
✱	A.02 / SOMALIA 2022-2024 / COMPLEX CRISIS	W	S			S	SW							
✱	A.03 / SOUTH SUDAN 2023 / COMPLEX CRISIS		W				S	S		W				
✱	A.04 / SOUTH SUDAN 2023-2024 / COMPLEX CRISIS								W			S		
👉	A.05 / SOUTH SUDAN 2023-2024 / SUDAN CRISIS	S	S			SW	SW		W					
👉	A.06 / SUDAN 2021-2023 / ETHIOPIAN CRISIS									S	SW	W		
👉	A.07 / ECUADOR 2020-2024 / MIGRATION CRISIS				SW		W							S
👉	A.08 / ECUADOR 2023-2024 / MIGRATION CRISIS		W			S						W	S	
🏠	A.09 / JAMAICA 2014-2019 / DRR					S	S		W					
👉	A.10 / MEXICO 2021-2024 / MIGRATION CRISIS					S	S	S						S
👉	A.11 / PUERTO RICO 2017-2024 / HURRICANES					S	S							S
🏠	A.12 / AFGHANISTAN 2022-2024 / EARTHQUAKE				S		SW			SW	SW			
👉	A.13 / BANGLADESH 2018-2024 / ROHINGYA CRISIS					S	S	W	S				W	S
🏠	A.14 / NEPAL 2021-2023 / GORKHA EARTHQUAKE				W	SW			W		S			S
🌊	A.15 / PAKISTAN 2023-2024 / FLOODS 2022	S			W	SW		W		S			S	
👉	A.16 / PHILIPPINES 2023-2024 / TYPHOON ODETTE					S		W	W					
👉	A.17 / VIETNAM 2020-2021 / TROPICAL STORMS				SW		SW							
👉	A.18 / IRELAND 2022-2024 / UKRAINE CRISIS				S		SW							S
👉	A.19 / MOLDOVA 2022-2024 / UKRAINE CRISIS					SW	SW	SW						S
👉	A.20 / POLAND 2022-2024 / UKRAINE CRISIS			S					S					W
✱	A.21 / UKRAINE 2023-2024 / CONFLICT		S		SW	S		S	S					S
👉	A.22 / JORDAN 2018-2022 / SYRIAN CRISIS	S	W		W	S	S	W						
✱	A.23 / SYRIAN ARAB REP. 2022-2023 / SYRIAN CRISIS					S	W		W					S
✱	A.24 / SYRIAN ARAB REP. 2023-2024 / SYRIAN CRISIS						W		W			W		
👉	A.25 / TURKEY 2022-2025 / SYRIAN CRISIS	W					S				W	SW		S
✱	A.26 / YEMEN 2023-2024 / COMPLEX CRISIS				SW			SW						
🏠	A.27 / MOROCCO 2023-2024 / EARTHQUAKE		SW		SW	S	W		W					

	THEMES																									
	Gender mainstreaming // Women's empowerment	Geographic Targeting (project locations)	Habitability / Comfort	Health	Integrated programming / Multi-sectoral approaches	Links with recovery / wider impacts / durable solutions	Livelihoods / employment opportunities	Local authority / Government engagement	Local construction techniques / capacity / materials	Local private sector engagement	Monitoring and Evaluation	Occupants' satisfaction	Organizational capacity / Preparedness	Procurement and logistics	Project planning	Protection mainstreaming / risk mitigation	Security of Tenure / HLP	Settlements approach	Social Cohesion / Community stabilization / Resilience	Socio-Technical Assistance quality	Targeting of assistance (beneficiary selection)	Team composition / Staffing	Timeliness of the assistance	Other		
A.01	SW								SW				S	W						S						
A.02					S	SW		W	W	W	S			SW	W					S				W		
A.03											S			SW		S								SW		
A.04			W		S			S			S	W		W	S	S	SW				W			W		
A.05						W									SW	S	W							SW		
A.06			S						SW		S	S						S								
A.07										W	S		W			S	SW		S					W		
A.08					S						W		SW	W	SW									W		
A.09					S			S					W					S		W	S			W		
A.10											W				W	SW		W						W		
A.11					SW	S					W				SW		S					W		W		
A.12	W								SW						W					SW				SW		
A.13						W	W						S	SW				W			S	S				
A.14					S		S	W			SW			W						SW				W		
A.15															S			S		SW						
A.16					S	S		S				S		W	W		S	W			S			W		
A.17	S								S		W		W		W					SW	S					
A.18		W				W		S			W	S			W	S			SW			W				
A.19						SW		S							W				S					W		
A.20					S	S							SW									SW	S			
A.21										W	W			W	W									SW		
A.22				S	S			S					W		W	S				W				W		
A.23					S	S					S				W	S	S	W			S					
A.24					W						W			S	SW		S			S	SW	S	SW			
A.25			S		S							S				SW	W				SW					
A.26					S		S				W					S	S				W			W		
A.27			S						S		W				SW					S						

Women building their homes together using traditional knowledge,
Afar Ethiopia © Hilena Tafesse



SECTION A

CASE STUDIES & OVERVIEWS



CASE STUDY

MOZAMBIQUE 2022-2024 / COMPLEX CRISIS

CONTEXT / SETTLEMENT



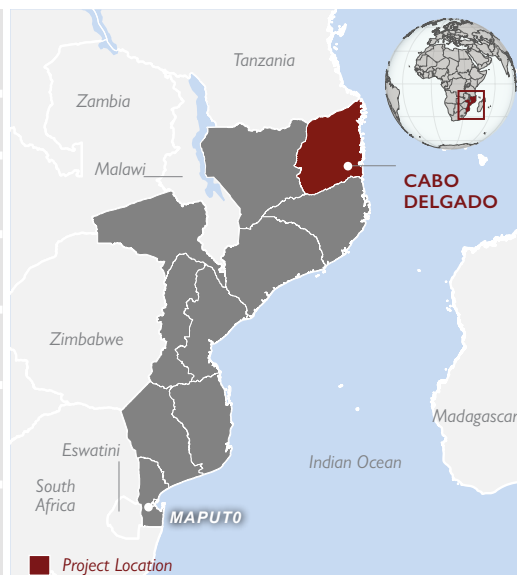
SHELTER TYPE



SUPPORT METHODS



CRISIS	Armed conflict and various Disasters (cyclones, floods and drought)
PEOPLE AFFECTED	2,3 Million people affected*
PEOPLE DISPLACED	1,341,937 people displaced*
PEOPLE WITH SHELTER NEEDS	1,6 Million (individuals)*
PROJECT LOCATION	Cabo Delgado
PEOPLE SUPPORTED BY THE PROJECT	Total of 4,960 HH direct beneficiaries (24,800 Individuals 13,081 female, 11,719 male)
PROJECT OUTPUTS	1,167 retrofitting of existing structures 1,562 shelter kits distributed 2,075 HH supported with early recovery and emergency shelter solutions. 650 HH trained in resilient construction techniques and Build Back Better Principles. 7 Community DRR committees established
SHELTER SIZE	29 m² for early recovery shelter 15-40 m² for shelter retrofitting
SHELTER DENSITY	5.8 m² per person (Including kitchen and veranda) 3.9 m² per person (Excluding kitchen and veranda)
DIRECT COST	USD 280 per shelter (New construction) USD 50-150 per shelter (retrofitting / kit)
PROJECT COST	USD 130 per household (including trainings, retrofitting and shelter construction activities)



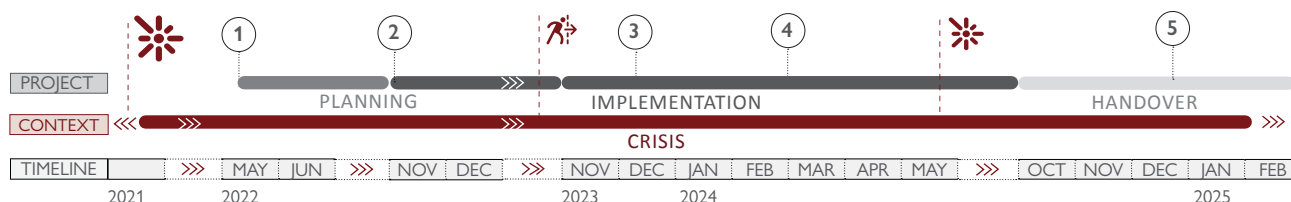
PROJECT SUMMARY

The project aimed to assist displaced and returned families affected by the armed conflict and various disasters in Cabo Delgado by providing early recovery shelter solutions and community engagement through capacity building.

The methodology used for implementing the project encompassed three key aspects: participatory design and DRR principles at the community level, capacity building on resilient construction techniques at household level, as well as collaborative shelter design implementation.

This approach ensured that the shelters met the families' needs and supported their mid and long-term resilience.

* HNRP 2024



2021: Major displacements following the attacks in Palma Sede.

1 May 2022: Needs assessment and identification of protection concerns following emergency shelter interventions.

2 Nov 2022: Design and implementation of new shelter models and start of the project.

April 2023: Increase of returnees.

3 Dec 2023: Implementation of early recovery shelter and shelter repair/upgrade for returnees in the Quissanga district.

4 March 2024: Prioritisation of BBB training due to the increase of transit population in Cabo Delgado.

May 2024: Resurgence of the conflict in 2024.

5 Dec 2024- Feb 2025: post monitoring and evaluation.

BACKGROUND

Mozambique, a southeastern African country with a population of around 33 million, gained independence in 1975 and endured a civil war until 1992. Since then, it has focused on rebuilding its economy, which relies heavily on agriculture, fishing, mining, and natural resources. Mozambique faces significant challenges such as poverty, political instability, and vulnerability to natural disasters like cyclones and droughts. Cyclones have impacted nearly 3.5 million people since 2019, with major storms including Kenneth, Idai, Gombe, and Freddy. Additionally, an ongoing armed conflict in the northern province of Cabo Delgado, which began in 2017, has exacerbated poverty and governance issues, contributing to the region's instability and further complicating efforts to address these challenges.

SITUATION BEFORE THE CRISIS

Cabo Delgado has long been marked by widespread poverty and precarious living conditions. Historically, it was one of Mozambique's most marginalized regions, while remaining culturally rich, with diverse ethnicities, languages, and traditions. Before the conflict, the security situation was generally stable, although some social tensions and petty crime persisted. Governance challenges and a sense of exclusion fuelled local frustration, even as traditional community structures helped maintain peace. Coastal and urban areas were comparatively more developed than today, and formal companies showed growing interest in natural resource extraction, raising expectations of future economic growth. However, the education system faced high dropout rates due to shortages of qualified staff and inadequate infrastructure, and literacy stood at 60% in 2017. Access to health services, especially in rural areas, was also limited, compounding these challenges.

SITUATION DURING THE CRISIS

Armed conflict that intensified from 2017 has produced cycles of displacement and returns. As of early 2024, over

half a million people remained displaced in Cabo Delgado, while hundreds of thousands had returned to areas marked by damage, destroyed homes, and disrupted services. Repeated movement, occasionally triggered by insecurity flare ups or heavy weather, undermined household assets, food security and social networks. In many sites and return areas, shelter gaps were acute: families needed safer, more durable options and guidance on resilient repair to reduce recurring losses.

NATIONAL SHELTER RESPONSE

The Shelter Cluster in 2024 prioritized a range of scalable modalities aligned to settlement types and population profiles. These included emergency household items and emergency shelters; shelter repair and upgrades; and early recovery shelter assistance. Recognizing the protracted nature of displacement, partners reinforced community engagement and technical trainings—often with CCCM collaboration—to reduce dependency and build self recovery capacity. An emergency common pipeline managed by the sub national shelter cluster in Pemba continued to enable rapid responses to sudden movements. In parallel, outreach to development actors sought to bridge humanitarian and recovery work on livelihoods and community led reconstruction.

PROJECT DESIGN

The project was designed to address immediate and medium to long term shelter needs for displaced and vulnerable households in Mozambique, with a strong focus on community participation. Given the complex displacement context, beneficiaries were engaged throughout design and implementation to ensure that assistance was effective and appropriate to local priorities and constraints.

Focus Group Discussions (FGDs) informed the project design by providing a structured space for community members to articulate needs, preferences and concerns regarding shelter options. This input helped tailor shelter designs and implementation arrangements to the requirements of displaced, returnee and host communities.



For households with existing but inadequate shelters, the project provided in kind construction materials and technical guidance to support repair and retrofitting.

Assistance was delivered through four complementary modalities:

1. Shelter construction: For households without a viable shelter alternative—primarily displaced and highly vulnerable returnee families—the project supported emergency or early recovery shelter construction.
2. Shelter repair and improvement: For households with existing but inadequate shelters, the project provided in kind construction materials based on technical assessments, alongside guidance to support safe repair and upgrading.
3. Capacity building: Build Back Better (BBB) training strengthened resilient construction and maintenance practices, increasing households' ability to withstand climatic hazards and potential future displacement linked to the conflict.
4. Community resilience: Disaster Risk Reduction (DRR) committees were established, equipped and trained in return and host communities to strengthen preparedness and local disaster management capacity.

PROJECT IMPLEMENTATION

Project implementation was led by two teams:

- a construction team (1 engineer and 4–6 trained masons);
- a community engagement team (2 shelter officers and 2 community engagement officers).

Work was delivered through four main phases:

Needs assessment: a rapid assessment was conducted by the technical team using key informant interviews (KIIs), supported by secondary data collection and analysis, to identify the community's priority needs. Focus group discussions (FGDs) were then held to gather additional detail and keep the community informed of the project's objectives and progress.

Beneficiary identification: household (HH) surveys were conducted to assess vulnerability and prioritise support for households with the most urgent needs.

Technical assessment and construction:

- Land allocation: land use was secured and formalised. In planned camps, this process was managed by the Serviço Distrital de Planejamento e Infraestruturas (SDPI). In return areas, land allocation relied on informal or customary tenure arrangements.
- Technical assessments: each house or shelter was assessed in detail to identify structural damage and define the scope of work required.
- Construction and rehabilitation: the team comprised four technical leaders and 50 artisans (including 10 women supporting mudding activities) who led and implemented the construction phase. The actual number of workers varied between 30-50 based on project timelines and the specific needs of each community. Teams of 4–6 people worked on site, while technical leaders oversaw structural checks and adapted each shelter design to the household's needs.



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Build Back Better trainings strengthened household skills and introduced improved, resilient construction techniques aligned with local customs and traditional shelter models.

Training and capacity building:

- Building Back Better (BBB) training: strengthened household skills and introduced improved, more resilient construction techniques aligned with local customs and traditional shelter models. At least 50% of participants were women. As many displaced and returning people are women, the training both involved them directly in construction activities and built practical skills for future shelter works.
- Disaster Risk Reduction (DRR) training: focused on strengthening community-level resilience. The project also supported the establishment of DRR committees (together with INGD) to improve preparedness and response to future shocks.

TARGETING

Targeting combined stakeholder inputs and community validation. A draft list of vulnerable families was prepared in coordination with Protection and CCCM actors and local leadership structures. FGDs—organized by gender, age and specific needs—were used to capture diverse realities, including persons with disabilities and other at risk profiles. A door to door household survey then confirmed eligibility. Selection guarded against exclusion by triangulating three factors: socioeconomic status, specific vulnerabilities (e.g., orphaned children, women headed households, pregnant women, older persons, people with disabilities, survivors of GBV), and shelter access/conditions. Results were presented publicly to communities to foster transparency and acceptance of the final lists.

COMMUNITY ENGAGEMENT

The community engagement process was integrated into every phase of the project, through different components or tools:

- Identification of beneficiaries as starting point to ensure that households most in need were included.
- Focus group discussions (FGDs) conducted to understand families' needs in depth. The discussions highlighted key shelter concerns and helped identify

specific requirements. FGDs were organised by gender, age, and special needs to reflect diverse realities and vulnerabilities, including men, women, and people with disabilities.

- Participatory design methodology: this approach was used to understand and incorporate community needs while building on Mozambique's vernacular construction systems. Families participated in design sessions—first with selected FGD participants and later with local artisans—so that shelter designs responded to household needs while integrating local building practices.

TECHNICAL APPROACH

The technical approach emphasized feasible, locally sourced solutions that households could implement and maintain. Early recovery shelters averaged 29 m² and were complemented by retrofitting/upgrade packages ranging from 15 to 40 m² to accommodate diverse starting conditions. Shelter density averaged 5.8 m² per person including the kitchen and veranda (3.9 m² excluding them), reflecting norms and usability of space. Models integrated resilient features learned through BBB sessions, such as improved fixings, bracing and weather proofing details adapted to local techniques. The approach prioritized incremental risk reduction achievable with local materials (e.g., bamboo, timber) and available skills.

COORDINATION

Operational relationships with authorities and partners were structured to support access, coherence and scale. SDPI's role in land allocation in planned camps ensured that shelter siting adhered to local development plans. Collaboration with CCCM teams enabled integrated support in resettlement centers—especially for vulnerable households needing help with drainage clearing and latrine or shelter construction. At the same time, engagement with the sub national Shelter Cluster in Pemba connected the project to the common pipeline and to broader strategic positioning alongside WASH and other sectors.

DISASTER RISK REDUCTION

DRR was delivered through community committees created and trained with the Instituto Nacional de Gestão de Desastres (INGD). Priority was given to coastal and flood prone locations and to resettlement centers, where committees supported reconstruction tasks for the most vulnerable families, including drainage maintenance and (re)construction of shelters and latrines with CCCM teams. Each committee—composed of 15 members with a minimum of seven women—developed action plans with INGD, conducted risk and vulnerability mapping via consultations and exploratory walks, and received five hands on training sessions on flood, fire and strong wind preparedness. Toolkits were provided to enhance response capacity.



Focus groups were organized by age, gender and special needs.

MATERIALS AND SUPPLY

To stimulate local economies and reduce environmental footprints, procurement favored materials cultivated, processed and treated within the project locations. The main materials used were bamboo, wooden poles, mud, recycled tire rope, straw, and tarpaulins. This market forward strategy reduced transport distances and costs, increased community acceptance and participation, and helped sustain small businesses. The approach required careful planning and close engagement with communities to manage potential delays in deliveries and to ensure that quality and availability met implementation timelines.

CROSS CUTTING ISSUES

The project mainstreamed inclusion and participation. BBB trainings aimed for at least 50% women attendees, and women were included directly in construction (e.g., as mudding artisans) while also receiving targeted sessions to raise confidence and leadership in site practices. Participatory processes elevated the voices of at risk groups identified through FGDs and household surveys, and the team facilitated design adaptations responsive to specific needs. Land allocation considerations were addressed through formal channels in planned sites (via SDPI) and through customary tenure in return areas, grounding implementation in locally legitimate arrangements.

MAIN CHALLENGES

Women's participation in construction faced traditional role constraints and competing daily responsibilities. To counter this, the project established women only training groups and adapted session schedules and content, improving attendance and empowerment without compromising cultural norms.

Insecurity and renewed movements sometimes displaced beneficiaries who had already received support. The team adopted a flexible posture: intensifying BBB training for people in transit or at higher risk of short term displacement and sequencing direct construction where stability permitted. This preserved continuity of learning and increased the likelihood that families could re establish shelters quickly after further movements.

Foundations posed a risk under budget constraints typical of early recovery solutions. Field observations showed that exposed posts or poorly drained footings could undermine stability in floods and heavy rains. The team documented practical mitigation options (e.g., crushed stone at load points to aid drainage, soil compaction around foundations, improved pole fixings into block holes with cement) for consideration in future budgeting and specifications.

OUTCOMES AND WIDER IMPACTS

At household level, the combined shelter construction, retrofitting, and kit support stabilized living conditions for thousands of families, while BBB training increased the quality and safety of self built solutions. Capacity building that initially had a smaller footprint expanded significantly once its positive effects on shelter quality became evident. Communities exposed to training showed a marked rise in shelters adopting improved models and details, with women notably more proactive where dedicated training had taken place. Skills gained—particularly around resilient detailing and maintenance—proved critical in a context of repeated displacement, allowing quicker stabilization after shocks.

Procurement strategies that emphasized local materials invigorated markets, strengthened acceptance and ownership within the community, and reduced logistical bottlenecks. The project's participatory design, tailored technical assistance, and integrated community structures collectively increased the odds that safer practices will persist—visible in the replication of improved techniques beyond direct beneficiaries and the growing pool of trained artisans who can support future interventions.

EXIT/HANDOVER AND SUSTAINABILITY

By anchoring solutions in vernacular methods, locally available materials and training delivered through live construction, the project positioned skills and know how within communities. This approach supported handover: households understood how to maintain and upgrade their shelters, and local artisans—many trained through the project—can continue to build and adapt safer models. DRR committees, established with INGD, provide an ongoing platform for preparedness and small scale mitigation actions. Together, these elements strengthen the sustainability of gains and the likelihood that safer construction practices will be replicated during future repairs and new builds.



Women were involved directly in the Build Back Better trainings as many of them played a key role in the rehabilitation or reconstruction of their own homes.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Community anchored, adaptable shelter assistance.** The model combined modalities such as early recovery shelter construction, retrofitting and shelter kits, with household level coaching, allowing tailored packages that matched families' starting conditions and priorities. Solutions incorporated local customs and site realities, supporting usability and acceptance.
- ✓ **Robust capacity building that elevated quality and ownership.** BBB trainings, designed for accessibility and practical application, improved shelter quality at household and community levels. Targeting at least 50% women and using women only groups where appropriate fostered inclusion, confidence and direct participation in construction, which, in turn, enhanced replication and day to day maintenance.
- ✓ **DRR structures embedded at community level.** With INGD, seven DRR committees were established and trained to map risks, plan collectively, and undertake preparedness and small scale response tasks (e.g., drainage maintenance). Toolkits and hands on sessions anchored practices in local routines, strengthening settlement level resilience.
- ✓ **Use of local materials and markets.** Prioritizing locally cultivated and processed materials reduced transport costs and delays, supported small businesses, and increased community buy in. This reinforced the circular benefits of shelter investments and improved prospects for sustained replication.
- ✓ **Implementation teams structured for coaching and customization.** A dedicated engineer, technical leaders and artisan teams enabled site specific adaptations and on the job learning, improving build quality and household understanding of safer details and upkeep.



DRR trainings were conducted at community level to strengthen resilience and preparedness to future shocks.

WEAKNESSES

- × **Foundations under early recovery budgets.** Limited budgets in emergency/early recovery phases resulted at times in weaker foundations and drainages that underperformed during floods or strong water currents. Addressing this requires marginal cost increases and standardizing practical improvements (e.g., crushed stone at load points, compacted soil, improved pole fixings).
- × **Constraints on women's participation in construction.** Traditional roles and daily workloads limited women's availability for full time site tasks. While women only groups and tailored training schedules improved engagement, these constraints remained a challenge across some locations.
- × **Material availability variances.** In areas where bamboo or specific timber were scarce or untreatable locally, replicating models was harder, creating variability in pace and, occasionally, in quality of outcomes.



The shelters provided by the project incorporated local knowledge and traditional techniques and materials.

LESSONS LEARNED

This project builds on, and improves, shelter models that have been implemented across multiple communities and districts in Cabo Delgado. Since 2021, internal evaluations have indicated strong replicability, supported by enhanced approaches to BBB training and Focus Group Discussions (FGDs). Key results include greater community initiative in reproducing improved shelter designs and increased participation and empowerment of women in construction. Over the past three years, shelter quality and design have also improved at community level across all targeted districts.

The main features supporting replicability were:

- **Adaptability.** The shelter model can be adjusted to household needs, informed by community consultations, FGDs, and other feedback mechanisms.
- **Vernacular approach.** The use of locally available materials and traditional construction methods supports community acceptance and facilitates replication over time. These elements are integrated into the shelter design and reinforced with contemporary resilient construction techniques.
- **Empowerment.** The project complemented shelter assistance with training delivered to women and men in equal numbers, including separate groups where appropriate. This increased women's participation in construction and strengthened practical skills among groups that are often excluded from these activities.

RECOMMENDATIONS MOVING FORWARD

- **Households require stronger sensitisation on routine shelter maintenance**, particularly adding capim (straw) to the roof after construction. This extends the lifespan of roofing materials such as tarpaulins. Site visits indicated that only a small number of families add capim once shelters are completed. Maintenance messaging should therefore emphasise (re)placing roof thatching as a key measure to improve comfort and reduce impacts during the rainy season. Other skills promoted through resilient construction training were generally applied and replicated by communities.
- **Safety could be strengthened further.** It was observed that some households using pau au pique mixed mud with cement to increase the strength of load bearing elements and walls, improving overall stability. In some shelters, laminated doors secured with padlocks were also installed.
- While the approach supported local markets through the purchase and sourcing of locally available materials, **integrating income generating activities linked to shelter construction would add value.** A model is being piloted that builds on the existing design while introducing prefabricated bamboo panels that can be manufactured locally. Pre positioning these panels would enable faster assembly and installation for newly displaced households and others with urgent shelter needs.



Prototypes were built during BBB trainings using vernacular techniques.



While women only groups and tailored training schedules had positive effects, some constraints on women's participation remained across some locations.



FURTHER READING ON SHELTER PROJECTS

On Mozambique: SP 8TH ED. A.6 / MOZAMBIQUE 2020-2021.
SP 9TH ED. A.7 / MOZAMBIQUE 2021-2022.

On BBB and DRR: SP 13-14 / A.23-25 / PHILIPPINES 2013.
SP 11-12 / A.22-23 / PAKISTAN 2011.

CASE STUDY

SOMALIA 2022-2024 / COMPLEX CRISIS

CONTEXT / SETTLEMENT



SUPPORT METHODS



CRISIS

Complex, protracted crisis
(drought, floods, and conflict)

PEOPLE
AFFECTED

8.25 million people during the drought period*
2.5 million people due to El-Niño induced flooding**

PEOPLE
DISPLACED

1.3 million Internally Displaced People*

PEOPLE WITH
SHELTER NEEDS

4.9 million people*

PROJECT
LOCATION

Multiple IDP sites and settlements across Somalia

PEOPLE
SUPPORTED BY
THE PROJECT

≈ 2,132,500 people supported with multiple types of assistance between mid-2022 and 2024

PROJECT
OUTPUTS

Emergency phase: 37,256 HH reached with emergency shelter assistance as part of the multi-sectoral Minimum Response Package (MRP) and 48,063 HH as part of the integrated First Line Response (FLR).
≈ 1.5 million ind. reached through the Common Pipeline.
1,500 HH supported with improved emergency shelters (IES) in a reconfigured site.
200 HH supported with IES which were later upgraded.
500+ community members contributed to site preparation activities through cash-for-work and community engagement.

Transitional phase:

42 HH upgraded their IES with mudbricks.
1,160 HH received transitional shelters after relocation.

Durable phase:

500 HH received rental support.
1,000 HH received concrete hollow block shelters.
61 HH supported with permanent shelter construction.
160 community members trained on mudbrick production and DRR.

SHELTER
SIZE

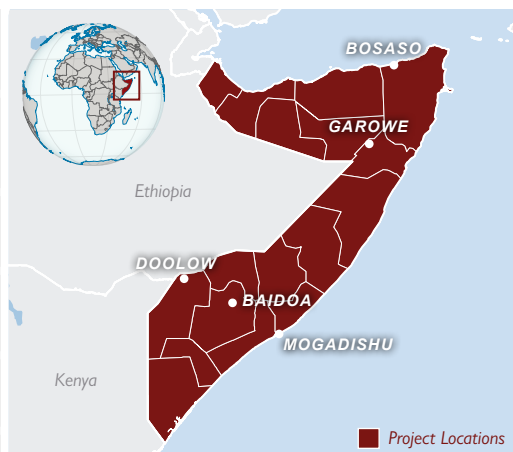
15.75-21 m² (incremental shelter typologies)
16-22.2 m² (permanent shelter typologies)

SHELTER
DENSITY

3.5 m² per person (minimum)

DIRECT COST

USD 600 (or less) for improved emergency shelter
+USD 1,040 for upgrade with mudbrick walls
+USD 1,595 for upgrade with CGI walls
+USD 2,120 for upgrade with concrete blocks
USD 2,520 for one-room core permanent shelter
USD 5,000+ for two-room permanent shelter



PROJECT SUMMARY

Between 2022 and 2024, Somalia faced an intensification of its historic drought, followed by severe El Niño-driven riverine and flash floods, while conflict and insecurity continued to drive displacement and humanitarian needs. In response, a multi-layered shelter programme supported newly displaced, protracted, eviction-affected and host-community households through emergency shelter assistance, transitional and incremental shelter construction, rental support and durable housing solutions. The response combined large-scale life-saving assistance with pathways towards recovery by strengthening local capacities, promoting locally appropriate construction, linking shelter with tenure security and livelihoods, and supporting community ownership.



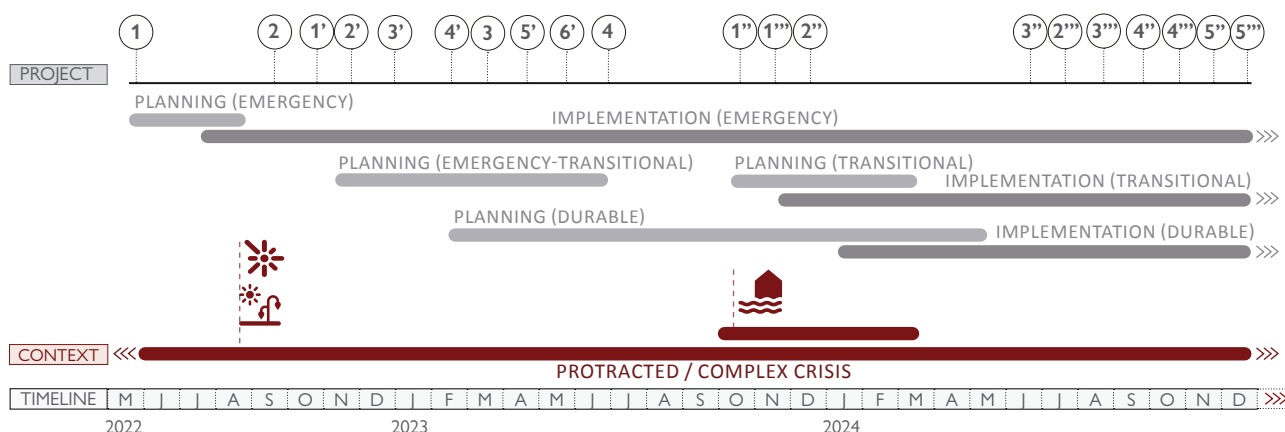
The prolonged 2022-2023 drought severely affected communities across Somalia causing wide-spread displacements.



When displaced, families often build makeshift shelters called "Buls" in self-settled sites.

* Somalia Humanitarian Response Plan, 2023;

** United Nations, Somalia.



 **Aug 2022:** Level 3 Emergency activation due to the historic drought, mass displacement, and extreme food insecurity.

 **Oct 2023 - Mar 2024:** El Niño Floods.

Emergency phase:

- 1 **May 2022 - Jan 2023:** Implementation of the Minimum Response Package (MRP), a multi-sectoral and multi-agency large scale response to drought.
- 2 **Sep 2022:** Planning for the establishment of the Common Pipeline System for in-kind responses.
- 3 **Mar 2023:** Common pipeline operations begin.
- 4 **Jul 2023 - Sep 2024:** Integrated drought response through First Line Response (FLR).

Emergency -Transitional phase:

- 1' **Oct-Nov 2022:** Design of an incremental shelter approach approved by the community and local authorities. Improved Emergency Shelter (IES) typology planned to be constructed to accommodate an influx of drought affected IDPs.
- 2' **Nov 2022:** Earth construction feasibility study and local capacity assessment.
- 3' **Dec 2022:** Construction of shelter prototypes using different designs and materials by local contractors to identify construction challenges, inform future training, and gather community feedback.
- 4' **Feb-Mar 2023:** Participatory analysis of local habitat assessments and contributions to cluster's Shelter Response Profile.
- 5' **Mar-Jun 2023:** Several trainings on earth construction with local masons and engineers to pilot mudbrick construction.
- 6' **Jan-Jun 2023:** 1,500 Improved Emergency Shelters (IES) were constructed engaging 200 community members with cash modality.

Transitional phase:

- 1'' **Oct 2023 - Mar 2024:** Shelter prototypes were constructed to test the incremental shelter approach and gather feedback from local authorities and community members.
- 2'' **Dec 2023 -Jun 2024:** 40 Improved Emergency Shelters were upgraded with mudbricks as pilots with two different designs.
- 3'' **Jun-Aug 2024:** 200 IES were incrementally upgraded with cement blocks as part of a two-phase approach in collaboration with another shelter partner.
- 4'' **Jun-Sep 2024:** Construction of 1,160 transitional shelters (CGI and cement blocks) completed as part of a relocation project.
- 5'' **Jun-Nov 2024:** A Training of Trainers (ToT) conducted with local masons, contractors, cluster partners and engineers from local authorities to disseminate the knowledge on earth construction.

Durable phase:

- 1''' **Nov 2023 - Jun 2024:** A rental market assessment was conducted to understand the average costs and challenges of renting in Mogadishu. The team also started government and community engagement and beneficiary selection during this time.
- 2''' **Jul 2024 onwards:** Households were relocated to their choice of rental housing and began receiving rental subsidies, as well as a relocation grant and monthly consumption allowance aligned with the national social protection assistance. Numeracy and literacy, life skills and entrepreneurship / TVET training began later in the year.
- 3''' **Aug 2024:** Construction of 1,000 owner-driven shelters completed as part of a relocation programme.
- 4''' **Oct 2024:** Construction of another 61 shelters completed as part of a relocation programme.
- 5''' **Nov 2024:** A collaborative initiative was planned between national and international universities, technical experts, diaspora, and govt to co-develop scalable housing solutions



Improved Emergency Shelters (IES) were designed to enable households to incrementally upgrade their shelters over time.



Upgradable walling materials, including concrete blocks and mudbricks, improve the durability and safety of Improved Emergency Shelters (IES)

BACKGROUND & CONTEXT

Somalia's humanitarian crisis is among the world's most complex and long-standing. Decades of conflict, political instability, poverty, limited infrastructure and recurrent climate shocks have weakened household resilience, restricted access to basic services and driven repeated displacement, particularly towards urban and peri-urban centres.

Between 2016 and 2017, consecutive failed rainy seasons drove around 6.3 million people into urgent need of humanitarian assistance. After this, Somalia entered a recovery and transition phase, but the situation remained fragile and quickly shifted into a protracted humanitarian crisis rather than a full recovery. Between 2022 and 2023, Somalia experienced one of its longest and most severe droughts in four decades, following five consecutive failed rainy seasons. The crisis left 8.25 million people in need of assistance, including 4.9 million people with shelter needs, and triggered a humanitarian system-wide scale-up. Soon after, El Niño-driven rains and floods caused further displacement, damaged broadly shelters and infrastructure, and disrupted livelihoods and services.

This case study reflects a shelter response across the humanitarian–development nexus, covering the drought emergency, subsequent El Niño floods and ongoing durable solutions efforts.

DISPLACEMENTS AND SHELTER NEEDS

Internally displaced people in Somalia are largely concentrated in urban and peri-urban centres. On arrival, many households settle in informal sites and construct traditional makeshift shelters known locally as “Buul”, using available materials such as grass, sticks, stones and fabrics. Although these shelters often fall below minimum standards, they reflect strong local knowledge and self-reliance.

Over time, informal settlements frequently become overcrowded and remain exposed to limited services, poor drainage and insecure tenure. Many sites are located on private or contested land, exposing households to eviction and secondary displacement.



During displacement, women and children often move first, and women are tasked to prepare makeshift shelters before men join them.



The El-Niño floods hit soon after the drought in 2023, causing further damage and displacement

NATIONAL SHELTER RESPONSE

The drought and subsequent floods deepened pre-existing vulnerabilities and further blurred the distinction between emergency response and recovery. Newly displaced households required immediate support, while protracted and eviction-affected households required safer settlement options, more durable shelter and tenure security.

The national shelter response therefore adapted to the changing context, prioritizing shock-responsive assistance while supporting movement towards more stable, resilient and dignified living conditions. During droughts and floods, the Shelter and NFI Cluster prioritized emergency shelter materials, SNFI kits, emergency shelter kits, and other emergency, transitional and more durable shelter solutions. For emergency in-kind assistance, the response relied on local partners with access in hard-to-reach areas and the Common Pipeline, a joint system for procurement, storage and distribution of emergency shelter and non-food items. For shelter construction activities, partners continued to provide support as per the agencies' resources and capacities, while making an attempt to harmonize the shelter responses.

At the same time, durable solutions efforts in Somalia were advanced through different initiatives, including a joint programme on durable solutions and resilience and a multi-agency consortium supporting displaced communities in transitioning towards longer-term stability and resilience. Working closely with development partners, government authorities and local communities, these initiatives applied integrated, area-based approaches to support recovery for displaced and at-risk communities. They prioritized government leadership and strengthened local systems to promote sustainable solutions for displacement.



During the emergency phase, newly displaced people received minimum emergency solutions, such as shelter and EHIs, often integrated with hygiene kits.

RESPONSE PHASES			
	PHASE	TRIGGER	IDP STATUS
I	Emergency Phase / in-kind response	drought, floods, conflict, fire, etc	new arrivals
II	Emergency Phase / shelter construction	drought	new arrivals
III	Transitional Phase / shelter construction	protracted crisis	protracted IDPs
IV	Transitional Phase / shelter construction (relocation) through consortium approach	protracted crisis	eviction-affected IDPs
V	Durable Phase / shelter construction (relocation) through consortium approach	protracted crisis	Variable IDPs status
VI	Durable Phase / rental assistance through consortium approach	protracted crisis	
VII	Durable Phase / shelter construction	protracted crisis	

PROGRAMME DESIGN / STRATEGY

Given Somalia's cyclical and protracted crisis, shelter responses were designed to be flexible and layered, delivering life-saving emergency assistance during acute shocks while simultaneously supporting durable solutions for long-term displacements. Even within emergency funding cycles, interventions were intentionally structured to allow gradual transition from immediate relief toward recovery and resilience.

While having a Durable Solutions portfolio in place, the organization focused on establishing and streamlining emergency in-kind and shelter construction responses to gradually move towards a transitional phase and, finally, complement the assistance modalities of the durable solutions portfolio. A multi-layered approach was adopted combining in-kind support, site development activities, incremental shelter construction and upgrades, rental support and durable housing. Modalities were selected according to response phase, location, access, household needs, tenure conditions, market capacity and operational feasibility. Cash-based approaches were used where feasible to increase household ownership, while in-kind assistance remained essential for rapid response at scale and in areas with limited access.

A central design principle was that shelter alone would not lead to durable solutions without links to housing, land and property, security, livelihoods, services and community ownership. The shelter construction programme integrated site planning, tenure considerations, local labour, technical training and maintenance. It also explored locally suitable materials, particularly earth construction, to reduce reliance on imports and retain skills in the community.



Distributions also included demonstration sessions on the plastic sheets.

PROJECT IMPLEMENTATION

This section captures the main response phases and types, as also summarized in the table above.

I. EMERGENCY PHASE / IN-KIND RESPONSE

In 2022 and early 2023, newly displaced households in locations with high numbers of new arrivals were supported through the Minimum Response Package (MRP), a coordinated multi-sector package that included distribution of emergency shelter materials, as well as assistance on WASH, health, nutrition, protection and multipurpose cash delivered jointly by a few agencies. Building on this model, the First Line Response was later adopted by the humanitarian country team as an integrated, area-based initiative to deliver timely, standardized and scalable life-saving multi-sector assistance to newly displaced households across Somalia.

Given the need to provide shelter materials at scale amid ongoing logistical challenges, the establishment of the Shelter Common Pipeline in early 2023 strengthened efforts to support affected households during emergencies, enabling partners to access and deliver shelter materials and NFI kits in a timely manner. The response included plastic sheets and ropes as core shelter materials to enhance buul shelters typically constructed using locally available materials, rather than promoting unfamiliar and costly emergency shelter typologies.

As a preferred shelter item, plastic sheeting enhanced protection from rain and extreme heat while remaining practical to transport and distribute at scale.

The Common Pipeline also provided financial and technical support to local partners, strengthening localization and response quality. Post-distribution monitoring informed demonstrations and installation guidance, while the model expanded reach in hard-to-access areas and later helped inform the Rapid Support Mechanism (RSM), which supports multi-sectoral integrated localized humanitarian response through actors working under area-based coordination structures.



An Improved Emergency Shelter (IES) with raised for an easy upgrade and as a flood mitigation measure.



The incremental upgrading process encourages participation of the households in the construction process and promote livelihood opportunities

II. EMERGENCY PHASE / SHELTER CONSTRUCTION

In 2022, large numbers of drought-affected IDPs settled in multiple displacement sites in makeshift shelters in Somalia's Gedo region. To accommodate thousands of displaced people, a reconfiguration project in Ladan's IDP site was carried out near Doolow town, in coordination with local authorities and other humanitarian actors to secure land tenure.

Once land tenure was secured, 1,500 plots were demarcated and supported by drainage, culverts, streetlights and basic services provided by different actors.

The planned site and stronger tenure conditions created an opportunity to go beyond short-term emergency shelter. Conventional emergency shelter typologies were not suitable, as they relied on imported materials and increased costs, had a short lifespan, and were difficult to upgrade. An Improved Emergency Shelter (IES) typology was therefore designed with a stronger foundation, raised plinth, higher columns and a timber frame with extended roof eaves. Initially covered with plastic sheeting, the structure could later be upgraded with more durable materials such as CGI sheets, mudbrick or concrete blocks.

Between January and June 2023, 1,500 IES and 450 latrines were constructed, with 200 community members engaged as unskilled labour through cash-for-work.

The IES model was later replicated in another site where 200 IES were constructed and later upgraded by another shelter actor through an owner-driven approach using cement block walls. A third partner also adopted the typology, demonstrating the broader relevance of the incremental design.



Upgrades were incremental, and allowed different partners to contribute.

III. TRANSITIONAL PHASE / SHELTER CONSTRUCTION

The increasing frequency of droughts and other climate-related shocks highlighted the need for shelter solutions that were more sustainable, climate-adaptive and locally feasible than conventional CGI-based shelters or traditional wattle-and-daub construction. The latter is a technique known locally which however can contribute to environmental degradation when implemented at scale. Earth construction was therefore explored to reduce reliance on imported materials, improve durability, create livelihoods, strengthen local ownership and reduce pressure on timber resources.

An earth construction feasibility study, local capacity assessment and participatory habitat assessments informed the approach. Mudbricks and compressed stabilized earth blocks were assessed, with mudbricks ultimately selected because they can be produced easily by communities without the need for machinery or highly specialized skills, making the approach more practical and less prone to implementation risks. Prototypes tested feasibility, identified challenges and further training needs, and gathered community feedback.

Several trainings on earth construction were conducted with local masons, engineers, contractors, community members, Shelter Cluster partners and local authority engineers to disseminate earth construction techniques and build a network of trained practitioners. As a pilot project, 42 Improved Emergency Shelters were upgraded with mudbrick walls and CGI roofs. Partners later constructed 400 mudbrick shelters showing the acceptance and replication of such evidence-based sustainable construction method.



Training on earth construction techniques, including plastering, was key.



In the transitional phase, a resettlement site was set up in northern Baidoa, with each household receiving a land title deed and plot allocation certificate.



The most vulnerable households in the site received cement blocks shelters.

IV. TRANSITIONAL PHASE / SHELTER CONSTRUCTION (RELOCATION) THROUGH CONSORTIUM APPROACH

The Barwaaqo Northern Extension in Baidoa was a government-led durable solutions initiative that relocated households exposed to eviction and flood risk to a planned settlement with more secure land tenure, infrastructure and basic services. A total of 1,160 transitional shelters were completed (each with an individual household latrine), and households received land title deeds and plot allocation certificates. Site development included roads, drainage, solar streetlights and other communal facilities.

The shelter design was adapted through consultations with communities, authorities and technical partners. Mudbrick walling was initially proposed, but local authority acceptance and regulatory considerations limited its use. The final typology balanced government requirements, available budget, scalability and future improvement potential: most shelters used CGI sheet walling, while the most vulnerable households received cement block walls (these shelters also served as demonstration for upgrading CGI shelters to cement blocks in the future). Conditional cash enabled households to complete flooring. Following the handover of the shelters and to ensure their maintenance, community maintenance committees were trained for inspections and minor repairs.

V. DURABLE PHASE / SHELTER CONSTRUCTION (RELOCATION) THROUGH CONSORTIUM APPROACH

In Garowe, 1,000 households were relocated to serviced settlements. Title deeds reduced eviction risk, while site development included roads, drainage, solar streetlights and a primary school. Each household received a 13 x 13 m plot and constructed a one-room shelter; in flood-prone areas, 98 shelters had elevated foundations.

The shelters were built through an owner-driven cash-based approach, with mobile money payments released in instalments linked to construction progress and supported by technical supervision. Households also received practical construction training, supporting timely completion and strengthening basic construction and maintenance knowledge.



Because of budgets and government requirements, most shelters in the Barwaaqo relocation site were built with CGI sheet cladding for the walls.

VI. DURABLE PHASE / RENTAL ASSISTANCE THROUGH CONSORTIUM APPROACH

In Mogadishu, climate shocks, conflict and long-term displacement increased pressure on urban land and housing markets, contributing to rising rents and forced evictions. In response, 500 households facing imminent eviction were supported to relocate into formal rented housing and receive 18 months of rental assistance, as part of a pathway out of displacement and aid dependency.

Rental support was combined with relocation assistance, legal identity documentation, life skills, livelihoods training, productive asset transfers and support to open bank accounts. This package aimed to help households maintain rent after project support ended, while improving tenure security, dignity and access to formal housing.

VII. DURABLE PHASE / SHELTER CONSTRUCTION

A further 61 permanent housing units were constructed through a multi-agency planned relocation and durable solutions intervention in Bosaso. Households moved from high-risk informal settlements to the Gribble site, received housing and tenure documentation, and gained access to basic services and infrastructure that were developed incrementally. This shifted their residential status from insecure informal occupancy towards a more stable settlement arrangement.

MAIN CHALLENGES

- **Limited access to field locations:** insecurity limits access to many field locations, affecting staff movement, transportation of in-kind materials (with air cargo often being the only transport option), and also activity monitoring. The Common Pipeline, with timely prepositioning of items and a large partner database, has been able to address these challenges to some extent. Secondly, to monitor shelter construction activities, in addition to on-site technical supervision, a multi-layered monitoring strategy was adopted including real-time evaluation and remote construction management to guarantee the quality and timely completion of all activities, especially those that had a cash-based component.
- **Implementation delays and coordination challenges:** Due to security and political instability, as well as delays in coordination and approvals with local authorities, implementation timelines were affected which resulted in temporarily suspending activities, delaying registrations and site activities. Continuous coordination with authorities, communities and CCCM actors helped reduce disruption.
- **Regional variation in construction costs:** material prices varied due to access constraints, transport routes and reliance on imported materials or supplies from Mogadishu. Long-term agreements with local contractors helped stabilize unit costs and support faster implementation.
- **Aid diversion risks:** in some locations, households reported being asked to pay or provide goods or mobile money in exchange for assistance. Monitoring systems, hotlines, sensitization, staff training and safeguards were strengthened to reinforce that assistance was free of charge. To address the challenge, the Remote Monitoring Team (RMT), a group of Somali diaspora, was established to verify, conduct household verifications, and monitor shelter activities amid security challenges.
- **Complex social networks and targeting risks:** site gatekeepers, clan dynamics and informal power structures affected targeting and implementation. Transparent communication with community leaders and local authorities helped mitigate these challenges.
- **Data-sharing limitations:** limited identification documentation and weak interoperability between registration systems increased duplication risks, particularly for cash assistance programmes that relied on biometric registration. Work towards common registration standards and improved referrals aimed to strengthen verification and accountability.
- **Acceptance of earth construction:** limited familiarity and differing views among local authorities affected approval of earth-based approaches that would have been more sustainable and cost effective in the long term. Advocacy, demonstrations, prototypes and engagement with government, universities and technical experts helped increase awareness, but uptake remained uneven and required midterm engagement and investments. To address this challenge, following the activities covered in this case study, the organization partnered with the Ministry of Public Works, Reconstruction and Housing and launched the Homegrown, Sustainable, and Scalable Shelter Solutions in Somalia initiative in early 2025, bringing together Somali university students, local professionals, the Somali diaspora, international students, and technical experts to co-develop culturally appropriate, sustainable, and scalable housing solutions while raising awareness of earth construction techniques.
- **Sequencing between emergency and durable solutions coordination mechanisms:** While both coordination mechanisms aimed to address displacement-related needs, opportunities for systematic collaboration and joint planning were not always fully realized. As a result, organizations implementing both emergency shelter and durable solutions interventions often played a bridging role, helping to connect the two approaches. Moreover, due to the large scale of needs, the SNFI cluster had capacity constraints to facilitate strategic collaboration, information sharing, and collective planning across partners. This occasionally resulted in organizations pursuing parallel approaches or competing for limited resources and funding opportunities.



Earth-based construction, and primarily adobe (mudbricks), was promoted but could not always be adopted at scale due to limited familiarity of the techniques and perception barriers.



The incremental shelter approach allowed partners to join efforts and resources, for instance enabling one partner to upgrade the emergency shelters built by another. This helped bridge the gap between emergency and more durable solutions.

OUTCOMES AND WIDER IMPACTS

The different responses showed how several major activities were implemented to ensure a safe, dignified, and adequate standard of living.

For emergency responses, the success of the Minimum Response Package (MRP) in delivering coordinated, multi-sector assistance to newly displaced households led to the adoption of the First Line Response (FLR) modality, which scaled and standardized rapid, multi-partner emergency support across Somalia.

The impact of the Common Pipeline Programme extended beyond improved supply chain and logistics efficiency, but fostered stronger partnerships, coordination mechanisms, and localization outcomes. The success of this model later informed the development of the Rapid Support Mechanism (RSM).

The incremental shelter approach created a practical bridge between emergency and more durable shelter support, and mudbrick construction demonstrated the feasibility of locally appropriate shelter approaches, while contributing to a broader shift towards sustainable construction practices.

Durable solutions interventions such as rental support and planned relocations improved tenure security, settlement conditions and housing options, improving household stability and pathways to self-reliance.



Cash-for-work was used to engage community members in site-level activities.



The use of timber frames for shelter construction allowed to erect many units in short timeframes, while also permitting several upgrade options once resources and conditions allowed.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Integrated multi-sectoral response packages:** the Minimum Response Package addressed the most pressing needs through a multi-agency and multi-sectoral assistance that is coordinated, integrated and timely, and provided a foundation for the later First Line Response scale-up.
- ✓ **Common Pipeline model:** centralized procurement, warehousing and logistics improved access to quality shelter and NFI materials, while financial and technical support to local partners strengthened localization, reach and response consistency.
- ✓ **Evidence-informed programme improvement:** post-distribution monitoring conducted at scale across the country by pipeline partners, including photographic documentation of plastic sheeting on buul shelters, informed technical guidance, field demonstrations and improved installation practices.
- ✓ **Prototyping and consultation:** go-see visits, prototypes and repeated engagement with communities and authorities helped adapt shelter designs to local priorities and secure acceptance for new or improved typologies.
- ✓ **Incremental shelter approach:** the Improved Emergency Shelter created an upgradable emergency structure that durable solutions actors could use as a platform for longer-term improvements.
- ✓ **Transfer of mudbrick construction skills:** training and practical implementation helped local masons, engineers, contractors and communities acquire earth construction skills, supporting replication and future locally led innovation.
- ✓ **Engaging local talent, diaspora experts, academic institutions, technical experts and government counterparts:** collaboration on sustainable construction and climate-adaptive shelter solutions strengthened local ownership and institutional partnerships, laying the foundation for continued research, innovation, and locally led development of earth construction approaches beyond the project.

WEAKNESSES

- ✗ **Capacity development for partners on administrative and compliance processes:** financial contributions under the Common Pipeline were sometimes delayed because partners had limited capacity to submit documentation that met compliance requirements, highlighting the need for earlier financial reporting support.
- ✗ **Acceptance of earth construction:** misconceptions and limited familiarity among some authorities slowed approvals and required design adaptations, demonstrating the importance of sustained advocacy and early government engagement.
- ✗ **Limited integration of inclusive shelter design:** inclusive shelter design for people with disabilities could not be fully integrated in initial project cycles due to tight implementation timelines and was instead addressed at a later stage.
- ✗ **Limited private sector engagement:** private sector partnerships were not fully explored, although they could support innovation, efficiency, materials supply and sustainability in future shelter programming.
- ✗ **System-level linkage between emergency and durable solutions was limited:** although some partners upgraded emergency shelters under durable solutions programmes, this depended on agency-level advocacy rather than on sequencing with a systematic planning and financing across coordination structures.



Mudbricks were used to upgrade the walls of emergency shelters.



FURTHER READING ON SHELTER PROJECTS

On resettlement in Somalia: [SP 2008 / A.8](#); [SP 15-16 / A.22](#).

On the Common Pipeline: [SP 10TH ED. / A.03 SOUTH SUDAN](#).

On large scale implementation using adobe: [SP 15-16 / A.27 UNITED REPUBLIC OF TANZANIA](#).



© IOM Somalia

Despite the barriers encountered around the acceptance of earth for construction, the program implemented several measures to ensure its adoption and future scale up. These included research, training, prototyping, advocacy and innovative initiative involving academia, government and the Somali diaspora.

LESSONS LEARNED

- **Adaptability.** The shelter model can be adjusted to household needs, informed by community consultations, FGDs, and other feedback mechanisms.
- **Integrated emergency assistance is essential in large-scale, multi-crisis contexts:** coordinated packages across sectors help ensure households are not supported in one sector while remaining underserved in others.
- **Housing, Land and Property considerations should start early:** tenure security enables households to invest in shelters and allows more sustainable site and shelter improvements with reduced eviction risk, and therefore should be considered from the outset of a response.
- **Long-term agreements can support faster construction:** agreements with local contractors can stabilize costs and facilitate larger-scale implementation of incremental shelter typologies in volatile markets.
- **Earth construction requires sustained technical investment:** Earth construction requires strong technical expertise, as poor workmanship can affect structural quality and durability. Practical training and regular refresher sessions are essential to ensure consistent application of appropriate construction techniques.
- **Maintenance should be planned from the outset:** Establishing community maintenance committees and equip them with training and basic tools helps ensure shelters can be maintained, particularly where vulnerable households lack the resources to do so independently after handover.
- **Robust monitoring is critical in access-constrained settings:** combining on-site monitoring, remote call-centre verification and third-party monitoring can strengthen quality control, accountability and feedback.
- **Emergency and durable solutions investments should be linked geographically and programmatically:** where possible, durable solutions funding should build on existing humanitarian investments in the same settlements, allowing shelters and sites to be progressively upgraded.
- **Local talent, diaspora and academic partnerships can sustain innovation:** engagement with universities, technical experts, diaspora and government stakeholders can build ownership of new shelter approaches beyond individual project cycles.

CASE STUDY

SOUTH SUDAN 2023 / COMPLEX CRISIS

CONTEXT / SETTLEMENT



SUPPORT METHODS



CRISIS

Complex (internal communal conflict, disasters and returns and refugees from Sudan)

PEOPLE IN NEED

9 million people*

PEOPLE
DISPLACED

1.9 million Internally Displaced People;
1.2 million Returnees; 0.5 million Refugees*

PEOPLE WITH
SHELTER NEEDS

2.1 million people**

PROJECT
LOCATION

Most relief efforts in 2023 focused on 4 states: Jonglei, Upper Nile, Unity, and parts of Northern Bahr Ghazal

PEOPLE
SUPPORTED BY
THE PROJECT

705,000+ people supported through the pipeline in 2023 (61% of total targets. 52% female, 48% male)**

PROJECT
OUTPUTS

527,000+ received shelter items
705,000+ received household items
255,000 received complementary cash

DIRECT COST

USD 82 per household on average

PROJECT
COST

USD 140 per household on average



PROJECT SUMMARY

The South Sudan Common Pipeline is a long-standing preparedness and response mechanism that enabled rapid, standardized shelter and non-food item assistance in a context marked by conflict, recurrent flooding, and large-scale displacement. Managed on behalf of the Shelter and Non-Food Items Cluster and linked to wider coordination, it has helped partners deliver pre-positioned supplies at scale while reducing lead times, improving quality control, and supporting more consistent assistance across responses. In 2023, this model remained a backbone of the shelter response by combining centralized procurement, warehousing, quality assurance, and coordinated release processes to reach crisis-affected households in areas where markets and logistics capacity were highly constrained.

* South Sudan HNRP 2024; ** South Sudan SNFI Cluster 2023 annual report.



CONTINGENCY PLANNING

PROCUREMENT AND PREPOSITIONING

PROJECT

COMMON PIPELINE RESPONSE ACTIVITIES, M&E, ADVOCACY AND FUNDRAISING

CONTEXT

PROTRACTED / COMPLEX CRISIS

TIMELINE

2013

2023

JAN

FEB

MAR

APR

MAY

JUN

JUL

AUG

SEP

OCT

NOV

DEC



© Lemn Nelson / IOM South Sudan

Timber and bamboo were locally procured, while all other core relief items delivered by the Common Pipeline were internationally sourced.



© Lemn Nelson / IOM South Sudan

The South Sudan Common Pipeline, active since 2011 in the country, continued enabling humanitarian partners to access and deliver shelter and NFI items.

BACKGROUND

Since independence in 2011, South Sudan has faced overlapping shocks driven by conflict, repeated displacement, climatic extremes, and economic fragility. Intercommunal violence and localized insecurity have persisted despite national peace efforts, while recurrent flooding has damaged homes, disrupted livelihoods, and cut off roads and markets for long periods. The outbreak of conflict in neighboring Sudan in April 2023 further increased pressures by driving large numbers of returnees and refugees into South Sudan, elevating demand for shelter, non-food items, and basic services.

These conditions made preparedness and common supply arrangements essential. In a context where roads are seasonally inaccessible, flights are expensive, and local markets often cannot provide sufficient quantities of standard items, the Common Pipeline provided a practical mechanism to procure, quality-check, warehouse, and rapidly release relief stocks when needs emerged. Refer to case study A.24 in Shelter Projects 2015-16 for more background.

SITUATION BEFORE 2023

Before new shocks in 2023, many households were already living in fragile conditions shaped by years of displacement, poverty, and repeated flooding. People were spread across rural villages, peri-urban areas, host community settings, collective centers, and informal sites, often in shelters that required frequent repair or seasonal maintenance.

SITUATION AFTER DISPLACEMENTS AND FLOODS IN 2023

During acute displacements or floods, families sheltered with hosts, in public buildings, collective centers, or erected makeshift structures; others remained in damaged homes. Many lost household assets and essentials, impairing their ability to cook, sleep safely, protect themselves from rain and mosquitoes, and maintain dignity. When partners judged that cash or local procurement were not feasible due to dysfunctional markets or access constraints, the Common Pipeline provided a structured way to mobilize standardized shelter and NFI packages within short timeframes.

THE COMMON PIPELINE WITHIN THE NATIONAL SHELTER STRATEGY

The Shelter and NFI Cluster strategy for 2023–2025 prioritized timely, tailored assistance, stronger emergency response capacity, support toward more durable shelter solutions, and improved monitoring and reporting. Within this framework, the Common Pipeline operated as a shared service linked to cluster decision-making. State and national focal points reviewed needs analyses and endorsed partner release requests; the pipeline then translated these decisions into procurement, stock management, and item releases.

RATIONALE FOR THE COMMON PIPELINE

The Common Pipeline was designed on the premise that many partners could not independently procure, store, quality-check, and transport standard shelter and NFI items to remote locations. A common mechanism would reduce delays, improve quality, and strengthen coordinated coverage. The intended outcome was to ensure that crisis-affected households could receive timely access to emergency shelter materials and essential household items through a transparent, cluster-supported process.

In-kind assistance was prioritized because local markets were frequently disrupted or unable to provide required items in the needed quantities and specifications. Partner assessments fed into state- and national-level endorsement; once approved, items were released from pipeline stocks and partners reported on distributions and outcomes. This design reinforced accountability, while pre-positioning enabled mobilization within days rather than months.

Timeliness was built into the pipeline process, although a single universal target from needs identification to household distribution was not formally defined. The request process included indicative processing times of less than 24 hours for initial review and less than 48 hours for subsequent endorsement and release steps. Pre-positioned Common Pipeline stocks also helped reduce procurement-to-delivery lead times from several months to under one week for most releases. In practice, items could be released within 72 hours or within two to five days, depending on stock availability, access conditions, and partners' last-mile logistics capacity.



Bulk, centralised procurement and pre-positioning of relief items in strategic locations enabled much more predictable and rapid response to emergencies.



The assistance delivered by partners through the Common Pipeline reached vulnerable households in hard to reach areas where markets were disrupted.

IMPLEMENTATION

Implementation combined cluster coordination, supply chain management, and partner delivery. The Common Pipeline in 2023 served 23 SNFI partners, including international and national NGOs and UN agencies. Following cluster-approved requests, items were released from stocks pre-positioned in hubs such as Juba, Bor, Bentiu, Malakal, and Wau, reducing response times during flooding and access constraints.

The Common Pipeline covered core shelter and NFI items including plastic sheeting, blankets, mosquito nets, kitchen sets, sleeping mats, kangas, solar lamps, ropes, bamboo, poles, and bags. Quality assurance and quality control (QA/QC) used detailed specifications, inspection procedures, and acceptance checks for incoming goods. The Procurement and Logistics Management System (PALMS), a stock-and-release tracking system, improved visibility and planning compared with manual approaches.

As part of implementation, partners conducted safety audits before distributions to ensure that sites were accessible and appropriate for vulnerable groups, including women, older people, persons with disabilities, and other households facing protection risks.

TARGETING

Targeting followed cluster criteria and prioritized households facing acute shelter and NFI needs, particularly internally displaced people, returnees, and vulnerable host populations.

Priority locations included areas repeatedly affected by conflict, flooding, and new arrivals, especially in Jonglei, Upper Nile, Unity, and Northern Bahr el Ghazal.

COMMUNITY ENGAGEMENT

Community engagement informed needs assessment, beneficiary verification, distribution planning, and post-distribution monitoring. Feedback mechanisms, including help desks, complaint channels, and regular engagement with community representatives, allowed concerns about quality, suitability, and quantities to be captured and addressed in subsequent releases and procurement cycles. Survey findings indicated strong satisfaction in many locations but also highlighted the need to adjust quantities and item portfolios for larger households and varying preferences.

Despite this, the Common Pipeline's standardization, overall a strength, did not always capture community preferences or specialized needs across diverse groups, indicating room to incorporate systematic user feedback into item portfolios over time.



The core shelter and NFI items covered in the Pipeline included, among others, plastic sheeting, blankets, mosquito nets, sleeping mats and kitchen sets.

MATERIALS AND SUPPLY

Since the early stages of the response, the majority of emergency relief items in South Sudan are not produced locally, making international sourcing the dominant procurement route for core items. Most items were purchased via long-term agreements and delivered initially to Juba for inspection and consolidation, then staged to field hubs. To support local markets, select items, such as bamboo, wooden poles, and rubber rope, were procured from local vendors when quality and availability were sufficient, with supplier monitoring used to support sustainable production and harvesting of bamboo and wooden poles and reduce the risk of environmental degradation. Centralized procurement generated savings and simplified supply chains by consolidating transportation, warehousing, and tax exemptions.

Bamboo was locally procured where quality and availability allowed, making it one of the Common Pipeline items with direct links to local markets. This helped reduce dependence on imported materials and created opportunities for local suppliers, while quality control procedures ensured that bamboo met minimum specifications for length, straightness, diameter, and condition. To avoid environmental harm, local sourcing required continued monitoring of harvesting and supplier practices. Future Common Pipeline programming could add clearer sustainability criteria for bamboo procurement, including vendor screening, responsible harvesting guidance, and periodic review of local supply capacity.



Where local markets were unable to provide high-quality relief items, the pre-positioned goods of the Common Pipeline enabled to stock durable and standardized supplies while also generating savings thanks to economies of scale. Despite this, in some cases this standardization meant that not all preferences could be met.

Market monitoring and survey evidence highlighted the cost-efficiency advantages of the Common Pipeline. For instance, an October 2025 monitoring exercise found that a plastic sheet cost about USD 14.35 through the Common Pipeline, compared with an average of USD 37.47 in local markets. This doesn't consider the significant added lifespan advantage of the higher quality Common Pipeline items. Overall, items not meeting cluster standards cost roughly 2.3 times more when procured locally; kitchen kits outside the Common Pipeline were around USD 20 more expensive. A large tender also drove mosquito net prices down from USD 5 to USD 1.90, and plastic tarpaulins purchased outside the Common Pipeline were almost double the price. While dates reflect wider learning beyond 2023, these findings illuminate structural price differentials and quality risks that were also observed in 2023 operations.



During distributions, kits composition and each item were carefully explained, and feedback mechanisms allowed to gather inputs and tailor assistance.

COORDINATION

Coordination was a defining feature of the project. Managed on behalf of the cluster, the Common Pipeline's release decisions were linked to cluster validation and partner requests. The model relied on synchronized work with supply chain teams, the Logistics Cluster, government authorities, donors, and technical working groups, aligning stock decisions, transport, quality standards, and advocacy with operational priorities throughout the year.

Coordination with a broad set of stakeholders underpinned operations: Memoranda of Understanding (MoUs) with all 23 partners defined roles for assessment, distribution, monitoring, reporting, and joint advocacy; pipeline teams collected beneficiary feedback during post-distribution monitoring; global procurement and quality teams provided standards oversight; donors were regularly briefed; government actors enabled tax exemptions and safe passage; the Logistics Cluster facilitated transport and pre-positioning; and strategic and technical working groups guided prioritization and standards.

PREPAREDNESS MEASURES

Maintaining stock levels in multiple hubs before the main emergency season reduced the risk that households would wait months for assistance once floods or violence displaced them. Pre-positioning also mitigated reliance on costly air assets and minimized exposure to road closures and seasonal access constraints.



Detailed quality control measures ensured that only high-quality items meeting agreed specifications would be accepted and reached people in need.

MAIN CHALLENGES

- Long procurement lead times for internationally sourced items created structural dependence on offshore supply chains, requiring advance procurement and careful replenishment planning, especially when stocks tightened.
- Last-mile logistics capacity varied among partners, constraining distribution speed in some locations and necessitating additional support for warehousing, transport, and field delivery.
- Limited local production capacity meant core items were often imported, slowing replenishment and limiting supply-side localization.
- Bureaucratic impediments and access constraints, including multiple checkpoints, clearance delays, import duties, and seasonal flooding, increased costs, delays, and transport risks along supply routes.
- Funding gaps reduced procurement volumes and pre-positioning buffers in 2023, leaving some needs unmet when demand spiked.
- The centralized model created a concentration risk: if the managing agency faced delays with authorities, customs clearance, tax exemptions, or movement permissions, the wider shelter response could be affected. This was partly mitigated through cluster-led validation, multiple partner agreements, pre-positioned stocks in several hubs, local procurement of selected items, and coordination with government authorities and the Logistics Cluster on access and transport. Future programming should strengthen this by formalizing contingency arrangements, including backup suppliers, escalation protocols with authorities, and complementary procurement options that maintain common quality standards while reducing over-dependence on one channel.
- Fragmentation from parallel procurement streams in some agencies reduced standardization and diluted economies of scale.



Warehouses at strategic locations acted as hubs prior to last-mile delivery.

ENVIRONMENTAL IMPACT

Environmental considerations were present but uneven. On the one hand, the cluster context increasingly emphasized greener responses and the Common Pipeline incorporated items such as solar lamps and ensured appropriate packaging and disposal guidance. On the other hand, environmental criteria were not yet systematically embedded in all procurement decisions, in line with the organizational procurement guidelines which had not yet been updated at this time to include sustainability factors. The Common Pipeline relied heavily on plastic-based materials due to their superior performance in harsh conditions and their availability, although these products have a high carbon impact. Continual QA/QC helped reduce waste by curbing circulation of poor-quality goods that would fail quickly.

Environmental standards were applied mainly through item specifications, quality control checks, and procurement review, in line with global standards such as the Unified Technical Specifications of the Quality, Social, and Environmental (QSE) Interagency Group. These procedures helped ensure that items were durable and fit for purpose, reducing premature replacement and waste. For locally procured bamboo and wooden poles, supplier monitoring helped limit the risk of unsustainable harvesting. Disposal considerations focused on appropriate handling of packaging and used materials, but standardized disposal options were not yet fully documented. Future programming should formalize clearer environmental requirements within Common Pipeline SOPs, including packaging reduction, reuse or recycling where feasible, responsible sourcing of natural materials, and safe disposal guidance for plastic-based items.

TECHNICAL SOLUTIONS

The adoption of the PALMS platform for stock and release tracking provided partners and coordinators with clearer visibility, planning data, and accountability across hubs. In parallel, QA/QC protocols specified detailed inspections and acceptance criteria. For example, the standard QA form for wooden poles captured minimum lengths and diameters, wood quality, and packing; a similar form defined material, dimensions, stitching, and packing for sandbags, each form with sign-off fields and records procedures, to maintain quality and traceability.

EXIT/HANDOVER

The Common Pipeline did not include a conventional handover phase because it functions as an ongoing cluster service rather than a time-bound project. Nevertheless, its long-term value depends on building partner capacity, strengthening local participation, and, over time, investing in responsible local production where feasible and consistent with cluster standards.

For instance, more recently, the Common Pipeline engaged a local NGO through a pilot project to facilitate the local production and procurement of 30,000 local reed mats to replace the synthetic sleeping mats in the standard kit. The production was done by local women organized in over a hundred groups, which also had a positive impact on household incomes. Once produced, the items were delivered at the Common Pipeline warehouse in Wau and accessed by partners for frontline distributions to displaced populations.

OUTCOMES AND WIDER IMPACTS

One of the major direct outcomes was the rapid access to emergency items for affected people at scale. Because items were pre-positioned, partners could often reach households within days, rather than waiting months for independent procurements to clear. The number of people reached by the Common Pipeline in 2023 represented a large share of the overall cluster response, with distributions spanning shelter materials and core household kits across multiple states and settlement types.

Wider impacts extended beyond volumes delivered.

By centralizing procurement and enforcing specifications, the pipeline limited circulation of inferior items, improved consistency of assistance, and reduced unit prices via economies of scale, tax exemptions, and shared warehousing. In doing so, it also enabled smaller national actors to participate effectively in shelter responses without maintaining their own international supply chains and large warehouses, contributing to localization in a context where many national partners lacked access to bulk procurement. See case study A.04 as an example.

Community and partner feedback informed improvements.

Post-distribution monitoring highlighted generally positive perceptions of timeliness and quality, while also identifying needs linked to larger households and item preferences. One national partner noted that pre-positioned kits enabled rapid reach, restored basic living conditions, and strengthened accountability through joint verification and distribution oversight. Beneficiary feedback also showed that blankets, mosquito nets, and cooking sets improved safety, warmth, and the ability to prepare meals during displacement.

The Common Pipeline also served as a platform for advocacy.

Operational evidence, numbers reached, price differentials, QA/QC findings, and user feedback, supported regular briefings with donors and authorities on the consequences of underfunding, clearance delays, and access constraints. It provided a common factual basis for prioritization and replenishment decisions during peak flooding and heightened arrivals from Sudan.



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Despite the fact that durable materials meant longer lifespans and reduced the need for frequent replacement, the Pipeline still relied heavily on plastics.



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Beyond the volumes of assistance delivered via the Pipeline, its model also enabled smaller national actors to participate in shelter response.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Cost-effectiveness and value for money through scale.** Centralized, bulk procurement reduced unit costs via economies of scale and tax exemptions; shared warehousing and transport further contained costs. Market monitoring consistently found pipeline prices lower than local ones, with examples ranging from kitchen kits to mosquito nets and tarpaulins.
- ✓ **Harmonized items and standards.** Uniform specifications and QA/QC curtailed circulation of substandard items, supported safer and more equitable distributions, and simplified training, storage, and handover processes across agencies and locations.
- ✓ **Quality assurance and control.** Detailed inspection checklists and acceptance protocols strengthened reliability and performance in harsh field conditions, minimizing waste and the need for replacement.
- ✓ **Timeliness via pre-positioning.** Staging stocks in strategic hubs enabled partners to respond within days when access windows opened or new displacements occurred, particularly during flood seasons.
- ✓ **Inclusion and localization enablers.** The Pipeline's shared service allowed national partners to access standardized stocks and logistics support without maintaining their own international procurement systems, strengthening localized delivery capacity.

WEAKNESSES

- × **Lead-time sensitivity.** Continued dependence on offshore suppliers introduced three-to-six-month procurement cycles and exposure to clearance and checkpoint delays; pre-positioning mitigated, but did not eliminate, these constraints.
- × **Fit and preference gaps.** Standardized packages did not always reflect diverse household circumstances, cultural preferences, or larger family sizes, highlighting the need for stronger integration of user feedback in item portfolios and quantities.
- × **Uneven last-mile delivery capacity.** Variability in partner warehousing, fleet, and field logistics could limit distribution speed and coverage; downstream bottlenecks diluted some timeliness gains achieved through upstream pre-positioning.



FURTHER READING ON SHELTER PROJECTS

On the South Sudan response: [SP 15-16 / A.23 OVERVIEW](#); [SP 17-18 / A.06 OVERVIEW](#).

On the Common Pipeline: [SP 15-16 / A.24 SOUTH SUDAN](#); [SP 10TH ED. / A.04 SOUTH SUDAN / 2023-2024](#).

LESSONS LEARNED

- **Cluster–Pipeline co-ownership drives performance.** Embedding the Common Pipeline in cluster validation and prioritization processes kept allocations needs-based and transparent, aligned with broader response objectives, and strengthened joint advocacy.
- **Preparedness is the decisive timeliness factor.** The greatest performance gains arose from pre-positioning items ahead of seasonal floods, enabling rapid release during short access windows and reducing reliance on expensive air operations.
- **Timeliness should be measured more systematically.** Future Common Pipeline operations could define and monitor clear benchmarks for each stage of the response cycle, including time from needs identification to partner request, request to cluster endorsement, endorsement to release, and release to household distribution. Where stocks are available and access is feasible, a context-specific benchmark such as release within 72 hours of an endorsed request could help measure performance, identify bottlenecks, and distinguish delays linked to approvals, stock availability, transport, access, or partner capacity.
- **Accountability and continuous improvement.** Structured AAP mechanisms and post-distribution monitoring surfaced actionable feedback on quality and suitability; feeding those insights into procurement cycles and release protocols improved fit-for-use over time.
- **Quality and cost go hand in hand.** QA/QC safeguards limited failures and waste, while market monitoring and strategic tenders kept prices down across key items, demonstrating that centralized procurement can deliver both quality and savings.
- **Localization as equitable access.** Beyond local purchasing, localization includes giving national partners predictable access to stocks, procedures, and information, through MoUs, dashboards, snapshots, and joint monitoring, so they can deliver donor-compliant, audit-ready assistance at scale.

CASE STUDY

SOUTH SUDAN 2023-2024 / COMPLEX CRISIS

CONTEXT / SETTLEMENT

SHELTER TYPE

SUPPORT METHODS

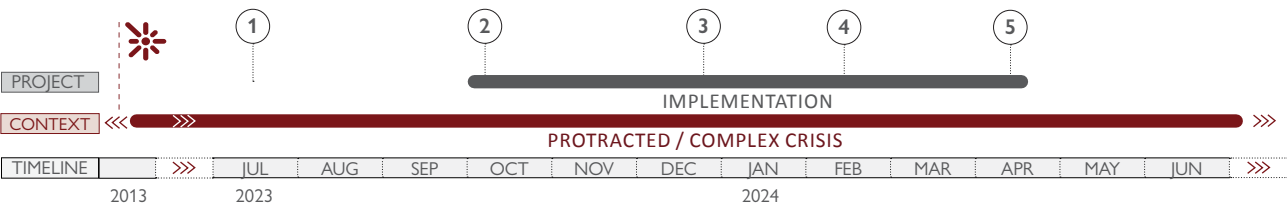
CRISIS	Complex (internal communal conflict, disasters and returns and refugees from Sudan)
PEOPLE DISPLACED	188,000 people displaced in Malakal across crises (incl. 17,669 ind. for 2022 floods* and 16,672 returnees from the Sudan crisis in 2023**)
PEOPLE WITH SHELTER NEEDS	8,000 people in Malakal as of 2023 (1,300–1,600 households)***
PROJECT LOCATION	Malakal, Upper Nile state
PEOPLE SUPPORTED BY THE PROJECT	1,045 people (186 HH, out of which 108 female-headed HH and 18 people with disabilities)
PROJECT OUTPUTS	186 shelters constructed 3 safety audits conducted 5 HLP awareness sessions delivered
SHELTER SIZE	18 m ²
SHELTER DENSITY	3-3.6 m ² per person
DIRECT COST	USD 650-700 per shelter
PROJECT COST	USD 850-900 per household

* Sources: RRC & local authorities; ** UNHCR;
*** UNHCR/IOM and Ministry of Housing assessments.



PROJECT SUMMARY

This project supported 186 households in Malakal between over four months through the construction of semi-transitional shelters, five HLP awareness sessions, and continuous land verification support. It combined shelter provision with safety audits, post-construction monitoring, community engagement, and referral pathways through a standing HLP desk linked to the Ministry of Housing, Land and Public Utilities. The intervention strengthened tenure security, safer occupancy, and community-based dispute resolution while generating practical lessons on how HLP engagement and user feedback can improve shelter programming in urban return settings.



- 1 Jul 2023:** Needs assessment and planning conducted in Malakal; coordination with UN agencies, Ministry of Housing, and NGOs.
- 2 Oct 2023:** Official project launch; start of shelter construction.
- 3 Dec 2023:** Completion of first batch of shelters; safety audits conducted to ensure standards.
- 4 Feb 2024:** Land rights awareness sessions delivered; collaboration with the Ministry of Housing for land verification.
- 5 Apr 2024:** Handover of 186 shelters to households; monitoring and evaluation initiated.



The project supported people returning from Sudan who had land in Malakal.

BACKGROUND

The project took place in Malakal, Upper Nile State, during an overlapping period of needs. From April 2023, the war in Sudan drove significant return movements into South Sudan, including Malakal (see case study A.05 for more details on the crisis background). The intervention was designed to help vulnerable returnees access safer, more dignified shelter while navigating unresolved HLP issues that complicate occupancy and reintegration in urban areas.

SITUATION BEFORE THE CRISIS

Before successive waves of conflict and displacement, households in Malakal commonly self-built or incrementally improved homes with familiar techniques using timber, poles, bamboo, mud plaster, and lightweight cladding. Land access often relied on customary arrangements, local administration and social networks. Even then, tenure could be fragile; when homes were destroyed and populations dispersed, competition over plots intensified and previous informal arrangements were harder to reclaim, particularly for households returning after years away.

SITUATION DURING THE CRISIS

The influx of returnees linked to the Sudan conflict sharply increased shelter demand. Many new arrivals stayed with relatives, occupied public buildings or moved through the UN-military secured Protection of Civilians sites (PoCs), lacking however adequate housing and documentation to prove plot rights. In this context, the effectiveness of shelter investments depended on plot verification and the right to use the land, not only on materials and construction. The project's targeted caseload remained small relative to unmet need; reports indicated that over 1,600 returnee cases had been verified by the State Ministry of Housing, Land and Public Utilities (MoH) but were still awaiting support.

NATIONAL SHELTER STRATEGY

The project aligned with the South Sudan Shelter and NFI Cluster framework. This included the use of endorsed typologies and a mixed supply approach that drew on the availability of internationally procured common pipeline items for certain components and local procurement for others, accompanied by coordination with authorities for land processes. The approach situated a small-scale construction project within a system that harmonized technical choices, facilitated materials flow, clarified responsibilities between state and cluster actors, and linked individual cases to MoH verification, complaint handling and dispute resolution mechanisms.

PROJECT DESIGN

The project combined direct construction of transitional shelters with a standing HLP interface and community engagement. The design adhered to cluster-aligned specifications and a blended supply chain: bamboo, wooden poles and plastic sheeting were requested through the common pipeline after approval of the needs analysis and pipeline request; iron sheets, timber, nails, hinges, locks and binding wire were procured locally. This approach helped standardize core shelter inputs while using local markets for complementary materials and adapting to beneficiary preferences.

This design reflected the cluster's wider scope from the previous purely emergency arrangements to more durable and transitional solutions outside the protected sites. The HLP desk, referrals to MoH and community-based dispute resolution were integral to the strategy to mitigate eventual delays between the construction and the legal right for occupancy.

PROJECT IMPLEMENTATION

Implementation in Malakal was carried out by a team including a project officer, field associates, community engagement and accountability staff, community mobilizers and contracted labor. Activities followed a practical sequence that helped coordinate case sequencing, materials flow, complaint handling and occupancy support:

1. **Stakeholder and authority engagement:** early meetings aligned the caseload and clarified the role of the MoH and the HLP committee in verification and case follow-up.
2. **Needs analysis and pipeline request:** cluster review and approval allowed release of pipeline items to the organization's storage.
3. **Beneficiary and plot verification:** eligibility focused on vulnerable returnees; plots were verified to confirm land status before construction.
4. **Procurement and transport:** local contracting supplied iron sheets and hardware; pipeline items moved from the common pipeline warehouse to organization storage, then onward to sites.
5. **Construction supervision and quality control:** project staff supervised works carried out by local contractors and laborers, with community mobilizers maintaining communication and collecting feedback during delivery.
6. **Aftercare and follow-up:** three safety audits and a post-construction monitoring exercise informed risk reduction, complaint handling and occupancy support after handover.

TARGETING

Targeting prioritized vulnerable returnee households linked to the Sudan crisis, including female-headed households, widows, older persons, persons with disabilities and pregnant or lactating women. The process involved the Relief and Rehabilitation Commission (RRC), MoH, returnee leaders and the HLP committee. Only upon verification of land status did construction proceed.

Targeting was made explicit early in the process because land casework and verification underpinned the project's operational choices and sequencing.

COMMUNITY ENGAGEMENT

Community engagement ran alongside verification, construction and aftercare. Five HLP awareness sessions covered property rights under the Transitional Constitution, documentation pathways, plot verification steps, dispute channels and women's tenure security. A standing HLP complaints and legal-advice desk received and referred cases to MoH and the HLP committee. Community mobilizers conducted regular visits, held meetings with leaders and gathered feedback on preferences for the shelter walls, with a particularly strong demand for mud plastering of walls (over a bamboo frame, wattle and daub) over exposed plastic sheeting to improve privacy, thermal comfort and habitability standards, once the land claim had been resolved positively.



Materials for the shelter frames were procured from the Common Pipeline, while roofing sheets and hardware items came from local contractors.



Most families preferred the wattle-and-daub shelters with mud plastering.

RISKS AND MITIGATION MEASURES

Three participatory safety audits used household interviews, FGDs with women, men, older persons and persons with disabilities, observation walks and key informant interviews. Recurring risks included inadequate lighting on access routes, unsafe movement at night, limited privacy and accessibility barriers to latrines and water points, and fire risks when cooking near plastic-sheet walls. Responses included strengthened safety briefings, promotion of safer cooking practices, referrals to WASH and protection partners, encouragement of stronger doors and locks, simple fencing where possible and recommended accessible paths and ramps for households with mobility needs. Findings were shared in community briefings, reinforcing safer occupancy messages.

HANDOVER

Shelters were handed over to beneficiaries, often in the presence of MoH representatives. Handover was connected to complaints management and post-construction follow-up rather than treated as a purely technical step. Community briefings and safety-audit discussions supported safer occupancy and reinforced confidence during the transition into the new shelters.

OUTCOMES AND WIDER IMPACTS

Post-construction monitoring found that 90 per cent of respondents were sleeping in the constructed shelters after handover, compared to earlier arrangements such as staying with relatives, public premises or open areas. Regarding satisfaction levels, 69 per cent were satisfied, 28 per cent partially satisfied and only 3 per cent dissatisfied; concerns focused on shelter size, the desire for mud-plastered walls, heat and durability. The same monitoring indicated that 92 per cent of affected people felt shelter was accessed in a safe, accessible, accountable and participatory manner. The most-used complaint channels were the MoH, community leaders, NGO staff and the HLP team, with just over half of reported complaints resolved by the time of monitoring. Beyond direct outputs, the project strengthened coordination, land-verification systems and community feedback mechanisms, while underscoring the magnitude of unmet shelter needs in Malakal.



Beyond shelter, the project supported families with increased tenure security.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Integrated shelter–HLP delivery for safer occupancy.** The project intentionally coupled construction with a standing HLP desk, MoH referrals and plot verification, avoiding a situation in which families receive structures they cannot legally or safely occupy. This integration made a small shelter intervention more impactful in an urban return setting with complex HLP dynamics.
- ✓ **Coordination across authorities and clusters.** The MoH and HLP committee handled verification and disputes; the Shelter and NFI Cluster reviewed the needs analysis and released common pipeline items. These linkages aligned standards, synchronized supplies and connected household cases to state processes.
- ✓ **Participation informed technical choices.** Community mobilizers and focused discussions surfaced a strong preference for mud-plastered walls over exposed plastic sheeting, allowing the team to adapt on site and improving usability, privacy and comfort.
- ✓ **Safety audits as a live risk management tool.** Three participatory audits fed directly into implementation adjustments (on issues like safer cooking, shelter access and security, lighting and accessible paths), helping refer and reduce protection risks.
- ✓ **Measured outcomes after handover.** High reported occupancy, majority satisfaction and strong perceptions of safety, accessibility, accountability and participation demonstrate the value of combining construction with HLP and community interfaces.

WEAKNESSES

- ✗ **Land verification slowed some starts.** Many households lacked documentation after years of displacement; some cases required extended MoH review before construction, affecting sequencing and creating uncertainty for families.
- ✗ **Targeting list gaps and complaint closure.** List discrepancies and unresolved grievances complicated implementation; just over half of complaints had been resolved at the time of monitoring, indicating the need to reinforce follow-up and case closure.
- ✗ **Design acceptance required on-site flexibility.** Demand for mud plastering necessitated adjustments in messaging and delivery. Earlier formalization of this option could have reduced friction and improved satisfaction more uniformly.
- ✗ **Labor rate disputes increased management load.** Concerns from masons about payment led to mid-course rate revisions; while this addressed tensions, it added complexity and indicates the value of clearer early communication on wages.
- ✗ **Not all shelters were occupied immediately.** Some households hesitated or were unable to move in at handover, requiring additional engagement with beneficiaries and MoH to address concerns and activate occupancy.



FURTHER READING ON SHELTER PROJECTS

On South Sudan Common Pipeline:

SP 15-16 / A.24; and SP 10TH ED. / A.04.

On shelter and HLP support for returnees:

SP 8TH ED. / A.05 ETHIOPIA; SP 17-18 / A.04 NIGERIA.

LESSONS LEARNED

- **Make HLP interfaces core to urban return shelter projects.** In urban contexts with layered displacement and fragile tenure, plot verification and an HLP desk with clear referral pathways should be embedded from the outset. This maximizes the likelihood that shelters are safely occupied and reduces disputes.
- **Institutionalize participatory safety audits.** Treat safety audits as a repeated operational tool linked to action tracking. Regular audits with specific groups (women, adolescent girls, older persons, people with disabilities) help teams respond to dynamic risks and direct referrals to WASH/protection partners efficiently.
- **Lock in user-preferred walling options earlier.** Given strong preferences for mud plastering, program designs in Malakal and similar contexts should promote and resource mudding earlier, clarifying roles, materials and timelines so that comfort and privacy improvements are delivered by design rather than ad hoc.
- **Anticipate labor market sensitivities.** Engage contractors and laborers early on wage rates, work organization and quality control. Clear agreements and swift, transparent adjustments where needed can reduce friction that otherwise slows works.
- **Strengthen complaints tracking to closure.** Publish multiple channels (MoH, community leaders, NGO staff, HLP desk), invest in case tracking and communicate aggregated complaint trends back to communities to reinforce accountability and alignment with expectations.

CASE STUDY

SOUTH SUDAN 2023-2024 / SUDAN CRISIS

CONTEXT / SETTLEMENT

SHELTER TYPE

SUPPORT METHODS

CRISIS	Sudan Crisis
PEOPLE AFFECTED	11.1 million people affected* 150,000 (individuals)* lost lives
PEOPLE DISPLACED	3.1 Million people displaced*
PEOPLE WITH SHELTER NEEDS	25,000 people with shelter needs
PROJECT LOCATION	Renk County, Upper Nile State, South Sudan
PEOPLE SUPPORTED BY THE PROJECT	9,318 individuals (56% female, 44% male; 1,436 people with disabilities)
PROJECT OUTPUTS	7 emergency communal shelters built 29 semi-permanent shelters constructed NFI and e-shelter kits distributed to 10,563 ind. 5 registration centers built at Joda border Site level activities: 1,670 m of access roads built; 3,140 m of drainage system installed; 200 solar-powered lighting facilities installed.
SHELTER SIZE	96 m ² communal shelter size (16 x 6 m)
SHELTER DENSITY	3.5 m ² per person
DIRECT COST	USD 22,635 per shelter (material and labor)
PROJECT COST	USD 55,555 per shelter (incl. site activities)



PROJECT SUMMARY

The project provided dignified communal shelter and critical site infrastructure for South Sudanese returnees and refugees transiting through Renk. Activities included site planning, the construction of semi-permanent communal shelters, improved access roads and drainage, and the installation of solar lighting at WASH and communal points to enhance safety and mitigate protection risks. A harmonized shelter design endorsed by the national cluster supported quality and consistency; the semi-permanent structures were planned to serve the host community and local authorities after the crisis.

* Sudan Situation UNHCR Emergency Response in South Sudan



- ✱ **Apr 2023:** Sudan Crisis started and still continuing.
- 1 **Aug 2023:** Land allocation.
- 2 **Aug 2023:** Land clearing and setting up land for shelter construction.
- 3 **Oct 2023:** Community engagement and negotiations with host community that had halted construction works.
- 4 **Jan 2024:** Completion of access roads with drainage systems.
- 5 **Jan 2024:** Installation of 200 solar powered streetlights.
- 6 **Jul 2024:** Handing over of completed shelters.



The project constructed communal shelters with inclusive design features.



Many South Sudanese returning from Sudan arrived at transit centers in Renk, leading to unsafe living conditions and makeshift shelter arrangements.



The existing transit sites were overcrowded and lacked privacy for returnees.

CONTEXT

Renk County is located near the border with Sudan and has a marked seasonal cycle (wet from June to October and dry from November to May). The area is home to several ethnic communities and livelihoods are largely based on agriculture, livestock and fishing, with some trade and natural resource production. As of 2020, prior to the Sudan crisis, population estimates suggested around 188,564 people. The county's northern location is relatively arid compared with other parts of South Sudan, and its border position supports regular cross border movement.

SITUATION BEFORE THE CRISIS

Sudan was a safe haven for many South Sudanese who fled the 2013 and 2016 conflicts that followed the establishment of the country. Renk county had had a history of multi-group coexistence even if the conflict had reached it, but overall conditions had improved following the 2018 peace agreement, with a gradual stabilization and recovery. Since 2014 Renk had also been serving as temporary state capital after Malakal fell to opposition forces, further elevating its administrative profile. Its border location nonetheless maintained Renk's role as a primary entry point for refugees, returnees and other nationals, often hosted in transit centres.

SITUATION AFTER THE CRISIS

The outbreak of conflict in Khartoum on 15 April 2023 triggered a sustained influx through South Sudan's northern border. Many of those refugees who had settled in Sudan were once again forced to return in search of safety. By November 2024, South Sudan had received approximately 848,540 cross-border arrivals, of whom more than 698,000 entered via Renk. Over 91% were South Sudanese returnees; the remainder were refugees and third-country nationals. An estimated 45% were children.

The returnees initially took shelter in the university compound, disrupting classes and other academic activities. Many families—predominantly women and children—were sheltering under fabric and blankets with minimal protection from weather and safety risks. In response, the Renk authorities, with the support of humanitarian partners, allocated land for new transit centres to decongest the university premises, accommodate the growing influx of returnees, and enable teaching to resume.

Transit centers and informal settlements faced escalating pressure on water and sanitation services, with vulnerability compounded during the rains. In October 2024, Renk experienced a cholera outbreak that subsequently spread to other regions. The capacity of host communities to absorb new arrivals waned, underscoring urgent needs in shelter, protection and WASH.



The project secured land for new transit facilities and adopted a coordinated approach to site planning and communal shelter provision.



Semi-permanent communal shelters were constructed alongside basic facilities and clearly organized areas in the site.

PROJECT DESIGN

The project's aim was to deliver communal shelter solutions and site improvements that restored dignity, reduced protection risks, and supported safe, orderly transit. Priorities at the national level included reducing protection threats and incidents faced by vulnerable individuals and ensuring that affected people had safe, timely and dignified access to appropriate services.

The project targeted 10,000 of the most vulnerable people by constructing communal shelters at the transit site. Designed to provide 3.5 m² per person, each 16 × 6 m shelter was sized to accommodate up to 27 occupants. The transit centre was intended for short stays, typically around two weeks, before returnees and refugees would move onward, enabling continuous rotation as new arrivals enter the site. At full occupancy, the 29 shelters provided capacity for up to 783 people at any given time.

Key parameters were harmonized across partners and endorsed by the national cluster. The project developed communal shelter typologies to house multiple households for temporary stays, enabling rotation as onward transport was arranged. The technical design integrated fire safety, drainage and accessibility and was later endorsed by the technical working group of the national cluster. Four core activities defined the approach:

- Site layout and planning. Adhering to global shelter standards while aligning with local practice. Sectorized blocks, safe walkways/passages and corridor planning prioritized accessibility and safety.
- Construction of semi-permanent communal shelters designed for dignified living conditions in transit. With a dual-purpose horizon: to serve immediate humanitarian needs and retain value for host communities or local authorities after the crisis.
- Safety and WASH enhancements. Improved lighting was installed within the site and at WASH facilities to mitigate protection risks, particularly at night.
- Accountability to Affected Populations (AAP). Training clarified stakeholder roles and responsibilities, criteria for beneficiary selection and entitlements. The program strengthened feedback mechanisms and emphasized key messages to prevent sexual exploitation and abuse.

PROJECT IMPLEMENTATION

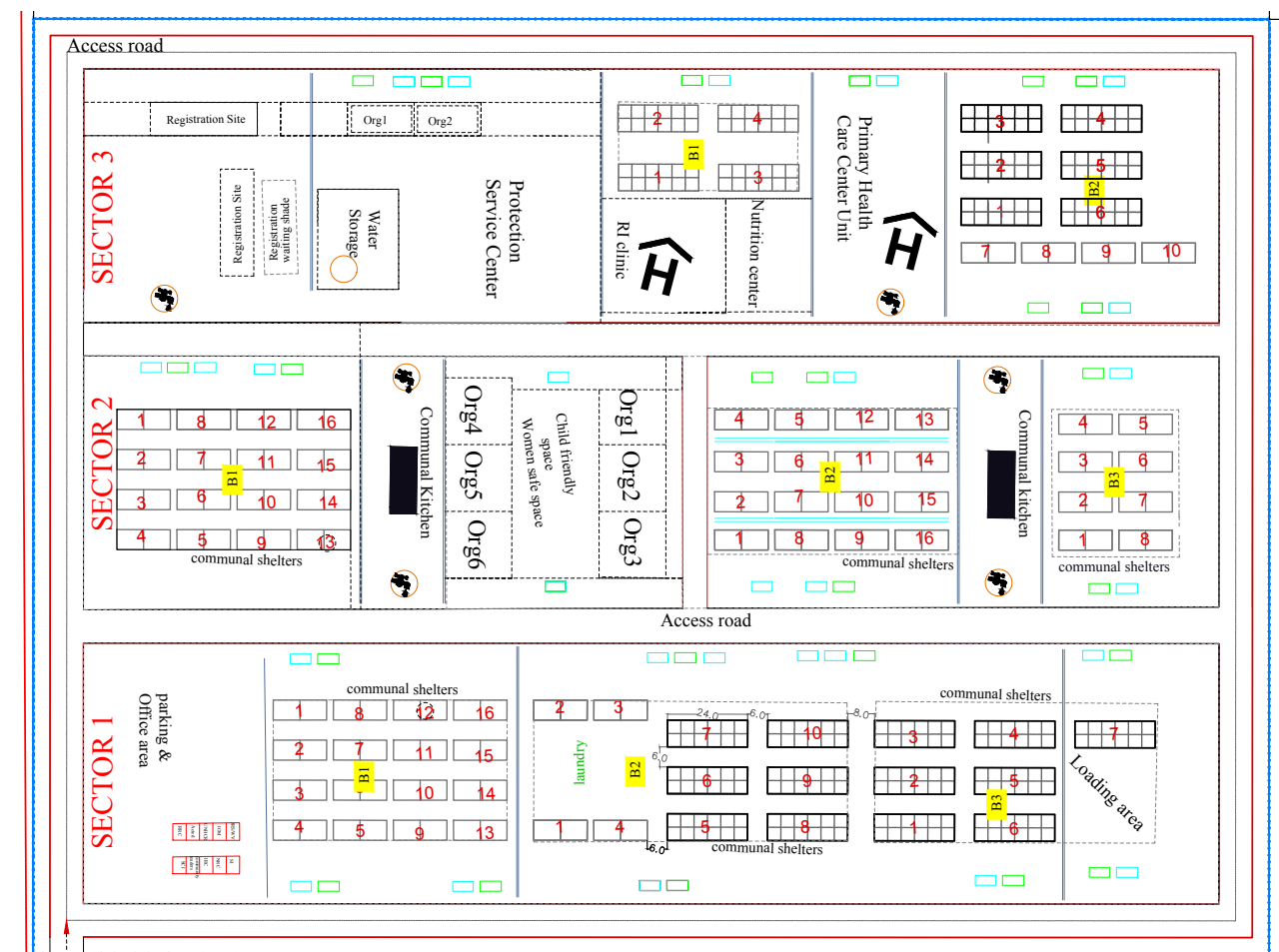
The site planning process was led by a multi agency technical team of engineers in close collaboration with the county land surveyor, local government officials and community chiefs. Authorities and host communities allocated one square kilometer for the transit center, of which approximately 350 m × 250 m was used initially. The area was divided into three functional blocks for shelter construction, WASH corridors, temporary learning spaces, women- and child friendly spaces and a hospital area. The layout incorporated four horizontal roads intersected by a single vertical road, organizing access and services coherently across the site.

Land issues resolution and community negotiations were central to the project's feasibility. Negotiations were conducted by the Relief and Rehabilitation Commission (RRC) on behalf of government and by humanitarian partners, with local chiefs representing the host community. The final agreement confirmed the land allocation for humanitarian use (right of use, not ownership), alongside defined community benefit commitments and youth prioritization for job opportunities. It also established that, once the crisis subsides, the land and any infrastructure developed would be handed back to the host community.

As implementation progressed, pricing shocks and logistics affected the supply chain, and the organization engaged a local contractor to manage the construction of communal shelters.

The overall implementation method balanced direct organization oversight with localized execution. A full time field Shelter Coordinator and a WASH/Shelter Officer were based in Renk, supported by technical specialists in the capital. Additional technical guidance from cluster coordination contributed to adherence with standards and alignment with the inter-agency design. While the construction works were carried out by a selected local contractor (involving the local community as well), other program components—such as education and protection—were delivered directly by the organization.

Training was conducted for shelter occupants and staff covering topics such as HLP, community dispute resolution, PSEA, complaints and feedback mechanisms, and GBV prevention, mitigation and reporting.



The site was organized in coordination with humanitarian partners and local authorities, ensuring clear access to spaces for communal shelters and site services.

TARGETING

Targeting focused on families arriving from Sudan, in urgent need of shelter prior to onward transportation beyond Renk. In cases where arrivals had no family connections or support networks, shelter at the transit center remained essential. In line with Shelter/NFI cluster criteria, priority was given to the most vulnerable: women, older people and persons with special needs. This approach functioned amid continuous construction of additional shelters and the onward movement of others to their destinations.

COORDINATION

The organization had been serving as co-lead of the national Shelter and NFI cluster for years and actively led coordination efforts within the response and beyond the project. Designs were coordinated and approved through the Cluster, allowing partners to construct with a single agreed typology. With CCCM structures facilitating the broader multi sector response, other essential service (including WASH, protection, health and food security) were coordinated and provided by partners with different funding streams. Daily and weekly meetings supported gap analysis, sharing of updates and adjustments. The Relief and Rehabilitation Commission and local authorities remained closely engaged throughout.

MATERIALS AND SUPPLY

Local supply constraints made reliance on distant supply lines costly and slow. The contractor approach leveraged longstanding ties to Sudanese markets where conflict impacts were uneven, accessing suppliers operating outside conflict areas, and helping source and deliver needed materials in Renk despite cross border disruptions and import bottlenecks. This solution complemented efforts to source some materials locally (e.g., sand, aggregates), while essential items such as iron sheets, timber, box pipes and fasteners were brought in from the capital.

ENVIRONMENTAL IMPACT

Environmental sustainability was addressed through an environmental screening and an accompanying management plan. The assessment flagged deforestation risk (outpacing regenerative capacity), limited solid waste management capacity, sanitation issues, potential disease transmission and carbon emissions associated with generators and machinery. Mitigation included community engagement to identify local environmental concerns and resource availability; using dried timber and diversifying the material palette; emphasizing the potential for future recycling, re-use or repurposing of components; and installing solar streetlighting to reduce carbon emissions and improve safe access at night.



© Gabriel Caccamo

Affected people were engaged in the planning and implementation process. Most of the returnees were women, boys and girls.

OTHER CHALLENGES

Many returnees had been away from South Sudan for prolonged periods and had lost contact with families and places of origin, including access to land and property. Onward transport assistance was also less effective for some returnees, who chose to remain in Renk to monitor the security situation in Sudan rather than relocate. Extended stays further increased congestion in the initial transit center structures, contributing to heightened public-health risks, including a cholera outbreak.

During negotiations to expand the transit centre, the host community conditioned access to additional land on parallel investments including the construction or rehabilitation of a health facility and upgrades to key access roads. Community representatives also expressed concerns that assistance (particularly cash and vouchers) was favouring new arrivals over long standing residents, which increased the risk of friction and delayed agreement on the expansion.

OUTCOMES AND WIDER IMPACTS

On one hand, the increased shelter capacity allowed to host new arrivals in dignified conditions. On the other, site layout and planning established a coherent framework for services and movement. Access roads and drainage reduced exposure to hazards and facilitated service delivery, while solar lighting in circulation areas and at WASH points mitigated protection risks, especially at night, and improved the sense of security.

Lastly, the national cluster endorsed the harmonized communal shelter design, with inclusive features such as access ramps, internal partitions for privacy and gender segregation, and lockable door shutters. Outcomes monitoring and exit interviews also indicated very high satisfaction with the shelter solution.



FURTHER READING ON SHELTER PROJECTS

On South Sudan crisis: [SP 15-16 A.23-25 / SOUTH SUDAN](#)

On site planning: [SP 17-18 A.09 / SOUTH SUDAN](#)

On communal shelters: [SP 17-18 A.08 / SOUTH SUDAN](#)



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The living conditions of returnees posed safety and privacy concerns (left). The project provided communal shelters using durable materials to the families on the move (right), also ensuring that clear agreements were in place with the host communities for handover of the facilities after the crisis.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Inclusive design.** Shelter partners developed and agreed on coordinated designs meeting recommended technical standards and tailored to context. Inclusive features prioritized accessibility for persons with disabilities, older persons, pregnant women and those with serious illnesses.
- ✓ **Community engagement and accountability.**
 - The project embedded Do No Harm and AAP principles across activities. Engagement with the host community paused works where necessary to allow meaningful dialogue, leading to a common understanding and minimized conflict.
 - Additionally, agreements included support to the host community (e.g., a dam/reservoir, hospital road upgrade), and training enhanced awareness of rights, entitlements and feedback channels.
- ✓ **Coordination and partnerships across levels.**
 - Planning was collaborative, bringing together local authorities, humanitarian partners and the host community, which helped mitigate potential conflicts and supported acceptance of the site plan and shelter typology. Strong coordination with those actors and the affected people produced timely, harmonized implementation and improved acceptance.
 - Utilizing local contractors supervised by technical staff combined contextual knowledge, market access and technical oversight. Partnerships at multiple institutional levels supported negotiation over land and alignment with authorities.
- ✓ **Durability and future use of shelter solutions.** Higher quality materials and improved designs enhanced durability and resilience. In addition, the project operationalized the humanitarian development peace nexus with an exit concept: temporary living conditions during the crisis, followed by handover to authorities for development benefits after the emergency phase.

WEAKNESSES

- × **Coverage and scale.** Renk continues to receive a higher proportion of South Sudanese returnees and refugees than other border points. Shelter needs remain acute and expansion of transitional options is warranted; however, insufficient funding constrains scaling and leaves future phases uncertain. Humanitarian partners continue focusing on Onward Transport Assistance so transit centers can serve as temporary accommodation for at least two weeks.
- × **A tight project timeline** did not fully account for contingencies such as land negotiations, seasonal changes, market access challenges or surges in arrivals—factors that could interrupt ongoing work when newcomers occupied unfinished shelters.
- × **High expectations from the host community** increased the scope of requested support tied to land access; unclear communication from local authorities to the community on exit strategy further contributed to delays in formalizing an agreement for using the land.
- × **Administrative and access complexities.** Managing multi stakeholder negotiation and compliance during a rapidly evolving cross border crisis added complexity and contributed to delays in implementation at times.

RECOMMENDATIONS MOVING FORWARD

- Hold regular community meetings prior to project start to address concerns and strengthen communication between the host community and implementing partners. Extend services, where feasible, to vulnerable host community members in the surrounding area to uphold Do No Harm and foster social cohesion.

LESSONS LEARNED

- Address land allocation and HLP issues early with local authorities and host communities; formalize agreements through a tripartite MoU before construction to prevent disputes.
- Involve local communities, returnees and refugees in construction to generate income and foster social cohesion among groups.
- Adhere to established, harmonized shelter designs to ensure consistency, manage expectations and minimize tensions among affected populations.
- Promote inter cluster coordination and collaboration to enable integrated outcomes and smooth delivery across sectors. Task forces can expedite technical exchanges and coordination with national inter-cluster group, government and other actors.
- Engage closely with government counterparts throughout to support acceptance, sustainability and collaborative problem solving in rapidly changing conditions.

CASE STUDY

SUDAN 2021-2023 / ETHIOPIAN TIGRAYAN CRISIS

CONTEXT / SETTLEMENT



SHELTER TYPE



SUPPORT METHODS



CRISIS Ethiopian Tigrayan Crisis (refugees in Sudan)

PEOPLE DISPLACED 69,790 refugees and asylum seekers from Ethiopia*

PROJECT LOCATION Gedaref state, Sudan

PEOPLE SUPPORTED BY THE PROJECT 10,587 individuals (3,290 households)
(incl. 5,971 males and 4,886 females)

PROJECT OUTPUTS 3,690 transitional shelters (Tukuls) built, with refugee and host-community labor contributions.

SHELTER SIZE 19.6-23.75 m² per shelter

SHELTER DENSITY 3.9-4.75 m² per person

DIRECT COST USD 2,000 per shelter (materials and labor)

PROJECT COST USD 2,500 per shelter (incl. supervision, logistics, site works, transport and overhead costs)

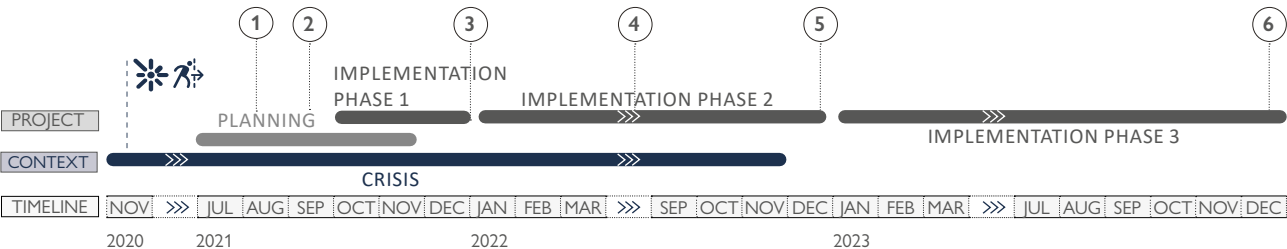


PROJECT SUMMARY

The project supported Ethiopian refugees who sought protection in Sudan following conflict and violence in Ethiopia's Tigray region. In planned camps in Gedaref State, tukuls, round shelters with mud-brick walls and thatched roofs, were used as a transitional shelter solution that combined Sudanese construction techniques, local materials and elements familiar to many refugee households.

Beyond shelter construction, the intervention strengthened the wider settlement through plot planning, roads, drainage, culverts, pedestrian bridges, water infrastructure, sanitation facilities, service areas, distribution points and multipurpose communal facilities.

The project constructed transitional shelters and site infrastructure for refugees from Ethiopia. * UNHCR Operational Data Portal



Nov 2020: Ethiopian Tigrayan Crisis start.

- Jul-Nov 2021:** Site assessments, beneficiary verification, technical designs, and procurement planning for tukul construction in Tunaydbah, Um Rakuba and Babikri refugee camps.
- Aug-Oct 2021:** Engagement of refugees and host communities regarding Tukul design, cultural preferences, and site layouts.
- Dec 2021:** Completion of 1,572 tukuls during the first phase. In 2021 and 2022, the organization conducted key training sessions for local labours, especially skilled labourers (refugees and host community) on sustainable Tukuls construction techniques.

- Mid 2022:** Completed site selection, planning, and community mapping for expansion into Babkri and Um Gargour camp.
- Dec 2022:** Completion of 1,972 tukuls, achieving approximately 96% of the planned shelter target across project locations.
- Dec 2023:** 146 Tukuls were constructed completing the total target of 3,690. Completion of 100% of planned tukul construction works in the targeted refugee camps in Gedaref State. Final inspections, beneficiary verification, handover of completed tukuls, and project closure completed.



Beyond the provision of tukuls as transitional shelters, the project adopted a settlement lens including the planning of roads, drainage, water and sanitation facilities.

BACKGROUND

Sudan was one of the largest refugee-hosting countries in Africa in 2020, already hosting close to one million refugees and asylum seekers alongside significant internal displacement. In November, conflict in Ethiopia's Tigray region triggered a new influx into eastern Sudan, increasing shelter needs in Gedaref State and placing further pressure on camps and host communities. High temperatures, recurrent flooding, economic pressures and a June to October rainy season regularly damaged shelters and infrastructure, making drainage, access and flood-resistant foundations central design considerations.

SITUATION DURING THE CRISIS

Following conflict and violence in Ethiopia, refugees from the Tigray region entered eastern Sudan through border points in Kassala and Gedaref states. Many walked for several days and were first received in transit or reception centres before moving to camps. Initial shelter support relied on family tents, emergency shelter kits and locally built rakoubas, but these had limited durability under successive rainy seasons and frequent high winds.

PROJECT DESIGN/STRATEGY

The response concentrated on four main refugee camps in Gedaref. The Government of Sudan, through the Commissioner for Refugees (COR), identified and managed camp land, while an international agency and partners supported site planning, basic infrastructure and shelter delivery. The tukul model was selected as part of a wider settlement approach, linking shelter construction with plot planning, roads, drainage, culverts, pedestrian bridges, sanitation, water infrastructure, service areas, distribution points, multipurpose centres and pre-positioned machinery for rapid works before and during the rains.

Tukuls use largely local materials, perform better in heat and wind, and can be adapted to flood-prone camp locations through elevated stone or burnt-brick foundations and internal and external backfilling. COR managed HLP arrangements, assigning plots through the camp management framework. Following initial shelter support, plots were demarcated and allocated to households for temporary occupancy rather than ownership or rental tenure.

Typical tukuls had an internal diameter of about 5–5.5 metres, 30 cm mud-brick walls and an overall area of about 19.6–23.75 m². Because routine maintenance was required, especially replastering and roof upkeep before the rainy season, skills transfer and household guidance were built into the design.

Beyond the 2021-2023 implementation, the international agency continued implementing this type of project across different locations.



The project adopted locally accepted construction typologies, the tukuls, built with local materials and adapted to the climate.

PROJECT IMPLEMENTATION

New sites were assessed through inter-agency processes before layout design, plot demarcation, emergency shelter support and the transition to tukuls. Implementation was labour-intensive, drawing on both refugee and host-community labour. More than 50 masons, 30 roofing workers and five carpenters were engaged, while beneficiaries and local labourers sourced and prepared red soil, danblab grass for mud reinforcement and roofing grass. This generated short-term income, supported social cohesion and strengthened construction skills.

Implementation modalities varied by camp and phase. In Tunaydbah, delivery included contractor-led implementation and a direct modality in which materials were contracted while refugee labour was engaged through Cash-for-Work. Different partners and contractors worked in different camps or sections. Civil engineers and technical staff supervised quality, materials and progress, resolving issues through structured follow-up. Plots were planned with WASH and settlement services, linking durable shelter delivery to sanitation, water access and wider camp infrastructure.

TARGETING

Beneficiary households were selected through vulnerability-based prioritization. Community leaders and representatives supported initial identification, which project staff verified. As needs exceeded available resources, priority was given to persons with disabilities, women-headed households, households facing socio-economic or protection risks, elderly-headed households and survivors of gender-based violence. (GBV)

To ensure physical accessibility and inclusion, site layouts and shelter positioning were adapted to accommodate individual with mobility limitations, additionally shelter designed features such as low-threshold entrances, wide door openings, and proximity to WASH infrastructures and service points were incorporated to reduce protection risks and easy access to vulnerable groups. Labour-based modalities and community support helped households unable to undertake physically demanding works.

COMMUNITY ENGAGEMENT

To foster peaceful coexistence between host and displaced, the project integrated host community engagement through the project lifecycle. Construction modalities deliberately paired refugee labor with local Sudanese masons, carpenters, and suppliers. By generating income opportunities and purchasing material directly from local markets, the project provided tangible economic benefits to the host populations.

The collaborative construction process strengthened social cohesion, reduced friction around the camp establishment, and supported building trust between displaced population and neighboring host communities.

The project team conducted consultations with women, adolescent girls, people with disabilities, and elderly, which informed details regarding the privacy, safe door locks, and well-lit main pathways and communal facilities to mitigate GBV risk. Refugee households contributed to selected tasks, while skilled workers carried out technical elements. Post-construction monitoring recorded that 97 per cent of respondents participated, supporting ownership, skills development and understanding of maintenance needs.

COORDINATION

Coordination brought together authorities, the international agency, implementing partners, contractors, technical teams and communities. Regular technical follow-up and feedback meetings helped harmonize standards, address issues with materials or workmanship and maintain quality across multiple delivery modalities and sites.



Raised reinforced foundations and backfilling protected from flooding.



The adobe walls provided good thermal insulation and security.



The roofs used local wood, the frame was assembled on the ground and completed with thatch to waterproof and improve thermal comfort.

DISASTER RISK REDUCTION

The project integrated DRR at both shelter and settlement scales. Raised stone or burnt-brick foundations, 30 cm backfilling and reinforced lower wall sections reduced flood exposure and improved durability. At site level, access and drainage works reduced seasonal flooding, recognizing that shelter performance during the rains depended on surrounding settlement systems as much as on the shelter unit itself.

ENVIRONMENTAL IMPACT

The model leveraged local materials and low-transport inputs, including mud bricks, red soil, grass, bamboo and wooden poles, as well as practices such as using old tires as ropes for roof assembly and rehabilitating clay extraction areas. Cement was used where reinforced foundations were needed, creating a trade-off between durability, flood mitigation and carbon footprint.

MAIN CHALLENGES

Seasonality was a recurring constraint. During the June to October rainy season, access to camps could deteriorate, roofing grass became less available, and heavy rains delayed mudbrick drying, reduced brick quality and slowed construction. Monitoring in Tunaydbah also identified delays linked to relocation, procurement, technical specifications and seasonal access constraints. These issues highlighted the need to adapt plaster mixes, roofing materials and foundation details to the local context, and to communicate routine maintenance tasks clearly after handover.

CROSSCUTTING ISSUES

Security of tenure and land access were handled through formal camp arrangements. Households did not purchase land or pay rent; assigned plots conferred temporary occupancy rights within the camp. Protection and dignity were supported through numbered plots, closable shelters, household sanitation facilities, roads, service areas and communal facilities. Future use after potential returns would require agreement between local authorities and communities on whether shelters are reused, reassigned or dismantled under camp management arrangements.

LINKS WITH RECOVERY

The tukul model supported a shift from emergency shelters to a more durable, locally familiar solution that households could maintain and improve. It also contributed to early recovery through paid labour, skills development and practical opportunities linked to construction. Settlement planning organized access routes, services and communal facilities, although livelihood areas such as small shops, market spaces and public areas could have been planned more explicitly from the outset.

TECHNICAL SOLUTIONS

The shelter design combined traditional construction knowledge with camp-specific adaptations: circular mud-brick walls; layered grass roofing; raised foundations; backfilling; reinforced lower wall sections; and closable doors and windows. Skilled workers handled technical tasks, while households contributed to simpler works so the model would remain maintainable and transferable.

MATERIALS AND SUPPLY

Most materials were sourced from local markets and surrounding communities. Local sourcing supported maintenance, provided labour opportunities and reinforced supply chains in and around the camps, while keeping the model linked to available construction practices.

EXIT/HANDOVER

Upon completion, tukuls were handed over to beneficiary households through implementing actors and local authorities. Handover certificates included maintenance clauses, assigning households responsibility for roof and wall upkeep and recognizing scope for incremental improvements. Local authority involvement in camp management also anticipates possible future settlement handover if refugees return to Tigray, although earlier refugee influxes have remained and integrated locally.

OUTCOMES AND WIDER IMPACTS

The shelters improved privacy, safety and protection from heat, wind and rain for vulnerable Ethiopian refugee households. In Tunaydbah, post-construction monitoring showed strong beneficiary satisfaction. The settlement approach generated wider benefits by improving access, drainage, sanitation links, water distribution and service organization. The project demonstrated a scalable transitional shelter model for protracted displacement settings, provided that maintenance, settlement planning, livelihood space and seasonal constraints are addressed from the design stage.



The shelters were soon expanded and maintained, a sign of acceptance.

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Despite the hazard mitigation measures introduced such as the raised improved foundations, issues like waterproofing of the plaster mixes and the need for improved roofing solutions emerged.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Tukuls constructed in flood prone areas were better able to withstand heavy rains** due to elevated foundations and backfilling, which reduced water ingress and improved internal habitability during the rainy season.
- ✓ **Post construction monitoring showed very high satisfaction** with shelter materials and construction quality; respondents also reported feeling safer thanks to stronger walls and closable doors and windows.
- ✓ **The project addressed settlement level risks** rather than treating shelters in isolation. Site layouts incorporated residential plots, numbered shelters, roads, service areas, drainage, latrines, showers, water distribution points and communal facilities. Flood risk was mitigated through roadside drainage, canals and access works, reducing risk around shelters and across the camp.
- ✓ **The shelter model was widely accepted** because it built on construction techniques already known in Sudan and familiar to many refugee households, while still being adapted to the specific climatic and soil conditions of the camps.
- ✓ **Coordination** between government counterparts, the lead agency, implementing partners, contractors and technical teams helped maintain implementation quality.

WEAKNESSES

- × **In some locations, mud plaster did not withstand strong rains sufficiently;** households unable to afford cement based finishes sometimes resorted to plastic sheet protection, which is neither durable nor environmentally sustainable.
- × **Roofing materials required frequent maintenance** in the Gedaref context. Locally available grass did not always last as long as roofing grass used in other parts of Sudan, so roofs could require annual maintenance, especially before the rainy season, reinforcing the need to test locally appropriate alternatives and provide clear guidance after handover.
- × **Seasonal constraints caused significant construction delays.** Heavy rains slowed the drying of mud bricks, reduced brick quality, limited access to camps and reduced the availability of roofing grass, altogether slowing shelter delivery.
- × **Roofing materials remained vulnerable to rodents and termites,** increasing maintenance requirements and reducing long term durability.
- × Where foundations were not sufficiently reinforced for local soil and flood conditions, **shelters needed more frequent maintenance** and performed less well over time.

LESSONS LEARNED

- Monitoring and technical documentation confirm that tukuls, when properly designed and built, can provide adequate covered living space and strong protection from sun, rain and wind, making them a relevant transitional shelter option in protracted displacement settings.
- The rounded shelter form, locally appropriate materials and inclusion of raised foundations and backfilling in flood prone areas improved performance against climate related risks.
- Refugee participation in construction increased shelter ownership, transferred practical skills and could be expanded through phased cash for shelter or labor based approaches where feasible.
- Fire safety, settlement planning and livelihood space are essential to longer-term shelter performance: keeping 2–4 metres between shelters, integrating drainage and access works, and planning public or market areas can help reduce risks and support greater self-reliance where displacement becomes protracted.
- Further research and adaptation of plaster mixes, roof protection and foundation design are necessary to improve durability across different soils, rainfall patterns and pest conditions.
- Maintenance requirements should be planned from the outset, particularly where local roofing grass has a short lifespan or where households may need support to protect mud brick walls before the rainy season. Clear maintenance guidance and phased coverage can help households transition effectively and sustain shelter performance over time.

RECOMMENDATIONS MOVING FORWARD

Moving forward, the project would place stronger emphasis on maintenance planning from the outset, especially roof-grass replacement, external wall protection and testing of locally appropriate plaster or roofing alternatives before each rainy season, and provide more structured support on annual maintenance. It would also plan more explicitly for phased coverage so that households remaining in emergency shelters have a clearer pathway to transition into tukuls as resources allow. Future settlement planning should also include livelihood and public spaces, such as small shops or market areas, to support self-reliance in protracted displacement settings, and should clarify how tukuls would be managed or reused if households return or relocate.

FURTHER READING ON SHELTER PROJECTS

On local materials and vernacular techniques:

SP 2008 / B.1 AFGHANISTAN / 2002; SP 15-16 / A.26 ETHIOPIA; SP 10TH ED. / A.01 MOZAMBIQUE and A.15 PAKISTAN.

On Ethiopian refugees in Sudan: SP 2008 / D.9 SUDAN / 1985



Beyond design features, the project learned that the need for maintenance should be incorporated from the outset in project considerations.



The round shelters were locally appropriate and improved significantly the thermal comfort of users in the harsh sudanese climate.

CASE STUDY

ECUADOR 2020-2024 / COMPLEX CRISIS

CONTEXT / SETTLEMENT



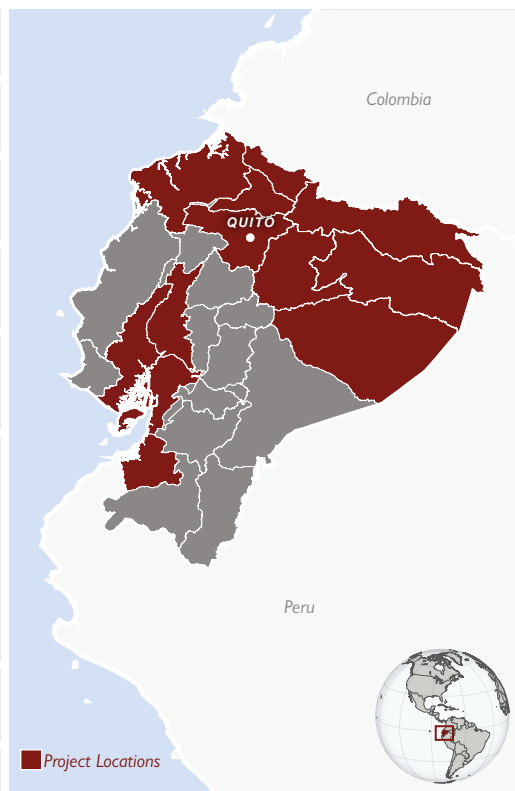
SHELTER TYPE



SUPPORT METHODS



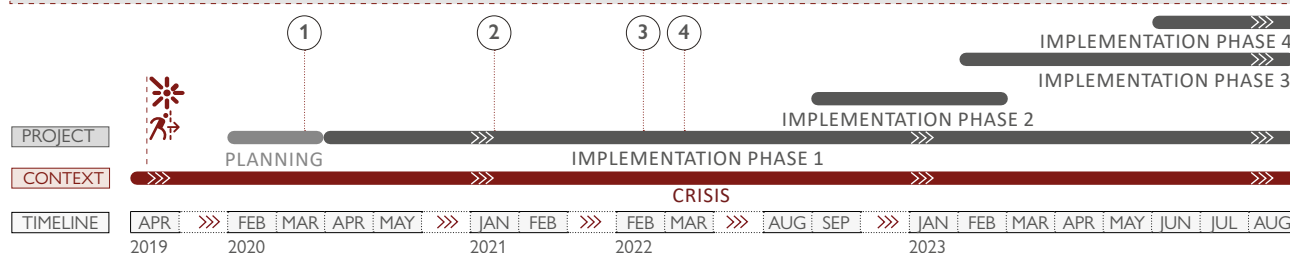
CRISIS	Complex regional migration dynamics
PEOPLE DISPLACED	366,596 ind. of Venezuelan nationality*
PEOPLE WITH SHELTER NEEDS	122,000 people in need of temporary accommodation as of 2020, the start of the project*
PROJECT LOCATION	El Oro, Carchi, Guayas, Sucumbios, Pichincha, Orellana, Esmeraldas, Imbabura, Los Rios, Napo and Pastaza
PEOPLE SUPPORTED BY THE PROJECT	31,951 individuals with rental assistance (approx. 9,411 households)
PROJECT OUTPUTS	12,491 people received essential household items. 507 homes included in the Landlord Network. Landlord engagement in human rights education, migrant rights and housing, land, and property issues. 4 multi-family dwellings renovated under the pilot phase, upgrading living conditions and communal spaces.
DIRECT COST	USD 450 per household (USD 150 monthly)
PROJECT COST	USD 540 per household (for the rental assistance) USD 15,000 for upgrade works on average



* R4V, 2020. <https://www.r4v.info/>

PROJECT SUMMARY

Since 2020, adequate housing has been one of the most pressing needs for refugees and migrants in Ecuador. The program provided up to three months of rental support through direct payments to landlords, enabling households to select their own accommodation, improve security of tenure and access safer, more suitable housing options. To consolidate gains, a network of landlords was established, pairing rights awareness and community participation with the evaluation and improvement of housing units and common spaces to build trust and cohesion among host and displaced communities.



Apr 2019: Venezuelan migration influx

- 1 Mar 2020: Decision to implement direct payments to landlords, a first-of-its-kind approach nationally.
- 2 Jan 2021: Introduction of housing evaluations based on habitability criteria, to reinforce dignity and tenure security.
- 3 Feb 2022: Creation of the Landlord Network to promote safe, decent rental housing and improve relations between host and migrant communities.
- 4 Mar 2022: Increased host-community interest and interaction around the Landlord Network, improving information flow on available units and common issues.



The project supported refugees and migrants via rental grants paid to landlords.

CONTEXT

Ecuador has hosted significant numbers of refugees and migrants in recent years, including a sustained presence of Venezuelan nationals. Since 2018, regional displacement has continued to shape needs across urban centers and border areas in Ecuador, with housing consistently ranking among the top three priorities in needs assessments, even further aggravated during the COVID 19 pandemic.

The program's geographic footprint reflected the dynamics of mobility and the practical reality that both host and displaced communities shared the impacts of constrained local rental markets. This multi city presence informed the program's design choices: align with market realities, strengthen protection, and pursue solutions that can scale in complex, fast changing conditions.

SITUATION BEFORE / DURING THE CRISIS

Prior to the current crisis trajectory (from 2019 with the influx of Venezuelans), Ecuador's urban areas already showed uneven access to affordable, adequate housing for low income households. The subsequent increase in arrivals magnified existing gaps, reinforcing the importance of cost effective, tenant centered approaches that could work with private rental markets while upholding safety and dignity.

As new arrivals accelerated, families often confronted barriers to renting: irregular income; documentation constraints; discrimination; and concerns about safety, privacy and overcrowding. The pandemic added operational constraints and protection risks, making in person processes risky and sometimes impossible.

PROJECT DESIGN

Within Ecuador's multi actor response to recent human mobility, housing assistance has been commonly delivered through market based modalities. The project's distinct contribution was to institutionalize direct landlord payments while reinforcing protection safeguards: verification of landlord ownership to reduce HLP risks, habitability checks to orient choices toward safer units, and engagement with landlords through a Landlord Network to normalize good practices and improve cohesion. Policies allowing Venezuelans with regular status to access formal employment also provided a critical enabling environment: when income stabilizes, households are better able to sustain their rental arrangements after subsidies end.

The modality provided up to three months of rent via direct payments to landlords for dwellings independently selected by beneficiaries. This preserved autonomy of location and housing type, while sending a clear signal to landlords that rent would be covered during the support period and therefore reducing a common barrier to access. Joint assessment of the dwelling by the household and the organization before assistance confirmation ensured a minimum standard of habitability and a basic alignment of expectations among landlord, tenant, and the organization.

From early 2022, **Living in Community: Network of Safe and Sustainable Landlords** became the second strategic pillar, designed to:

- incentivize safer, more dignified rentals;
- foster dialogue and trust among landlords, tenants, and local actors; and
- promote rights awareness and community participation.

The Network's development was phased, reflecting budget availability and the need to pilot, refine and scale tools and commitments with landlords across diverse neighborhoods and markets. Beyond outreach and rights awareness, the Network also introduced a practical housing improvement component and, in its final phase, piloted improvements to multi-family dwellings.

PROJECT IMPLEMENTATION

The program was launched in March 2020 with a remote operating model, developing procedures to verify identity and family composition across multiple online platforms to mitigate fraud and ensure accurate targeting. These adaptations were key as well later on: they enabled timely assistance during lockdowns and helped standardize remote casework practices for rent support.

While the earliest disbursements used cumulative rent payments, the project shifted to a monthly payment approach. The change helped teams monitor progress, support beneficiaries and landlords more closely, and resolve issues quickly. This new cadence also contributed to improved coexistence among communities: during the months covered, timely rent flow and regular contact stabilized relations and reduced tensions that were common when household finances and shelter options were less predictable.



A network of safe landlords was established to support dialogue and trust.

When households faced late payments or other difficulties beyond the subsidy, project staff used mediation to retain housing whenever possible. HLP checks, confirming that the landlord was the rightful owner, helped prevent future disputes and promoted transparency.

The Network complemented rent support by addressing issues that lie beyond short term subsidies. Through community meetings and one to one engagement, landlords learned about program criteria, good rental practices and basic rights and duties. The Network also became a forum for discussing price stabilization during and after support. Some landlords chose to subsidize 30–50% of rent during participation and kept rents more accessible after subsidies ended, enabling more families to remain in place.

In parallel, through the construction and upgrading component, the project evaluated housing units according to habitability standards, and selected properties received light repairs and infrastructure improvements to address deficiencies identified during assessments. These works focused on practical measures such as improving locks and partitions for privacy and safety, upgrading deteriorated elements in housing units, and rehabilitating common or communal areas where they affected the overall adequacy of the accommodation. Later on, a few pilot multi-family dwellings were completely renovated, and shared spaces were revitalized.

TARGETING AND COMMUNITY ENGAGEMENT

The project prioritized households facing acute vulnerability and protection risks, with a deliberate focus on girls, adolescents, women and LGBTIQ+ individuals. Targeting processes balanced urgency with due diligence, ensuring that assistance reached those most likely to be excluded from the rental market without support, while maintaining safeguards for them.



Selected properties were upgraded with light renovation works, which usually involved common spaces such as laundry areas (left photo) or courtyards (right photo).

The initiative surfaced local issues (e.g., information gaps on unit availability, misconceptions between neighbors), and gave landlords and tenants a structured channel to address concerns. As interaction increased, the host community's interest grew around the Network, improving communication about available housing and prompting collective conversations on coexistence standards.

CROSSCUTTING ISSUES

Crosscutting concerns, particularly gender, GBV risk mitigation, and security of tenure, were integrated throughout. Beyond targeting, practical safety measures included ensuring non shared spaces between genders where feasible and supporting the installation of locks in rental units, recognizing that basic physical safeguards are preconditions for dignity.

COORDINATION

Internally, operational coordination linked case management, HLP verification and landlord engagement to ensure that no single step became a bottleneck. Externally, the approach complemented broader market based practices in Ecuador's response to human mobility by focusing on tenant choice, HLP safeguards and community level engagement with property owners through an organized platform.

ENVIRONMENTAL IMPACT

The principal environmental consideration arose from enabling continued use of existing housing stock rather than promoting new construction. While not a dedicated environmental project, the modality's reliance on local rentals reduced the material footprint that accompanies physical shelter works. At the same time, the project's light repairs and upgrading approach extended the useful life of existing units and multi-family dwellings, avoiding more resource-intensive replacement. The project encouraged households to select units in areas not prone to specific risks, integrating basic risk filters into decision-making during the joint assessment of potential rentals.



EXIT/HANDOVER

At the outset, an economic analysis assessed affordability after subsidies, taking into account family size, location, and local rents. During the three month rental support, close monitoring supported early problem solving. Post subsidy follow up showed that many households remained in the same unit, supported by price stabilization commitments within the Landlord Network and by the broader legal environment that allows Venezuelans with regular migratory status to access formal employment.

MAIN CHALLENGES

- **Launching under COVID 19.** Starting a rental program in March 2020 demanded a rapid pivot to remote operations and a suite of fraud mitigation measures. These investments in procedure and verification were resource intensive but proved essential to maintain assistance and trust.
- **Payment cadence.** The shift from cumulative to monthly payments required retraining and process change, but improved monitoring, reduced disputes and supported healthier landlord-tenant dynamics.
- **Adapting to diverse rental market conditions across cities.** Implementing the same modality in Quito, Guayaquil, Manta, Lago Agrio and Huaquillas meant confronting different price levels, housing availability and market dynamics in each location. This required continuous adjustment of targeting and assessment criteria to keep the modality relevant and effective across highly heterogeneous local contexts.



Launched during the pandemic and implemented across a wide geographical area, the project faced several challenges, including for remote implementation.

OUTCOMES AND WIDER IMPACTS

Scale and reach. Rental assistance was extended to 9,411 households, each receiving up to three months of support through direct landlord payments. By centering tenant choice and verifying HLP conditions, the program improved access to safer, more dignified housing for families at risk of exclusion from the private rental market.

Tenure and stability. Through habitability checks, HLP verification and monthly payment oversight, the project helped stabilize tenancies during the support period and, in many cases, beyond. Follow up indicated that a significant share of families remained in their units after assistance ended, supported by landlords who kept rents accessible and by improved income prospects for those able to regularize their status.

Cohesion and landlord practices. The Landlord Network provided a platform for dialogue and collective action. Some owners voluntarily subsidized 30–50% of rent during the project and retained moderated pricing afterward. This contributed to coexistence and strengthened relations with tenants, demonstrating that structured engagement can shift local market behavior in ways favorable to vulnerable households.

Housing quality and shared spaces. The addition of light repairs, infrastructure improvements and pilot upgrading of multi-family dwellings broadened the project's impact beyond rent coverage alone. By improving selected housing units and communal areas, the intervention contributed to safer, more functional and more dignified living environments, while also showing that targeted investment in existing rental stock can support longer-term habitability for both displaced and host communities.

Operational learning. Remote casework, digital verification and the monthly payment cadence became enduring features of implementation, improving oversight and case resolution. These adaptations show how market based shelter programming can uphold protection standards while remaining agile under constraints.



The project ultimately supported nearly 32,000 people in finding decent and safer accommodation options.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Direct landlord payments** with tenant choice enabled rapid access to safer housing, improved tenure security during the support period and reduced a key barrier to market entry for vulnerable households.
- ✓ **Joint assessments and habitability criteria** ensured basic safety and dignity standards before assistance was confirmed, aligning expectations among tenants, landlords and program staff.
- ✓ **Protection mainstreaming** was operationalized through prioritization of girls, adolescents, women and LGBTIQ+ individuals, HLP verification of ownership, and practical safety measures such as locks and non shared spaces.
- ✓ **The shift to monthly rent payments** strengthened monitoring, supported timely problem solving and fostered healthier landlord-tenant relations.
- ✓ **The Landlord Network fostered social cohesion** and encouraged better rental practices, including price stabilization during and, for many, after the subsidy period.
- ✓ **Remote operating procedures**, such as beneficiary declarations, digital evaluation forms and identity verification, safeguarded program integrity during COVID 19 and standardized casework.

WEAKNESSES

- × **Early absence of payment guarantees** and defined channels for late rent risked undermining tenancy stability, requiring ad hoc mediation and flexible arrangements in the initial months.
- × **Sustained landlord engagement proved uneven:** developing and maintaining a communication platform that met varied expectations across cities remained a persistent challenge.
- × **Dependence on external market and legal conditions.** The sustainability of exit strategies relied partly on factors outside the project's direct control, such as rental price behavior after subsidies ended and beneficiaries' ability to regularize their migratory status and access formal employment. Clearer exit strategies could have been explored, as shifts in these external conditions could directly affect a household's capacity to sustain rent payments once assistance concluded.



FURTHER READING ON SHELTER PROJECTS

On Ecuador: [SP 9TH ED. / A.13 / ECUADOR 2020-2022](#)

On the Venezuela regional crisis: [SP 9TH ED. / A.11 / 2019-2023;](#)

On rental support: [SP 13-14 / B.02 OPINION PIECE;](#) [SP 9TH ED. / A.21 GREECE / 2019-2023;](#) [SP 10TH ED. / A.20 POLAND.](#)

LESSONS LEARNED

- **Establish landlord commitments early.** Clear explanation of roles, obligations and co responsibilities for Network members should precede admission; simple checklists and pre enrollment briefing can reduce drop outs and disputes later.
- **Use monthly payment cadence to enhance accountability.** Regular disbursements with caseworker follow up improve oversight, reduce misunderstandings and enable swift mediation when issues arise.
- **Integrate HLP verification systematically.** Confirming that the landlord is the rightful owner (and documenting that status) reduces downstream tenure disputes and increases both parties' confidence in the agreement.
- **Build remote casework capacity from the outset.** Digital tools, such as identity checks, declarations and evaluation forms, are vital to scale safely when in person access is constrained.
- **Link rental support to community level engagement.** Organizing landlords into a network helps address issues that cash alone cannot solve, including pricing norms, communication gaps and coexistence standards, thereby supporting longer term stability for tenants.

RECOMMENDATIONS MOVING FORWARD

A key change for future projects would involve strengthening the initial socialization process of the commitments of landlords who agree to join the Network. Despite the successful creation of the Landlord Network, challenges arose due to a lack of specific knowledge of their obligations. To improve, we would integrate a communication mechanism to ensure that landlords fully understand and commit to their roles within the Network. This could include more rigorous controls and co responsibility actions before admitting landlords into the Network, thus reducing problems related to landlord withdrawal and ensuring a higher housing standard for beneficiaries.

CASE STUDY

ECUADOR 2023–2024 / COMPLEX CRISIS

CONTEXT



SETTLEMENT TYPE



SUPPORT METHODS



CRISIS

Complex regional migration dynamics

PEOPLE DISPLACED

444,778 individuals of Venezuelan nationality
in Ecuador, as of 31 March 2024*

LOCATIONS

 Quito (Pichincha), Lago Agrio (Sucumbíos), Guayaquil
(Guayas), Manta (Manabí), Huaquillas (El Oro)
PEOPLE
SUPPORTED BY
THE PROJECT
785 individuals per month on average (30%
Venezuelans, 31% Colombians, 38% Ecuadorians, 1% other).
100 other individuals per month on average, accessing
services such as dining rooms, legal assistance and health care.

PROJECT OUTPUTS

 Improvements to accessibility, safety and comfort conditions
and reduced operational costs in **six communal shelters**
through an environmental and eco efficiency lens

SHELTER DENSITY

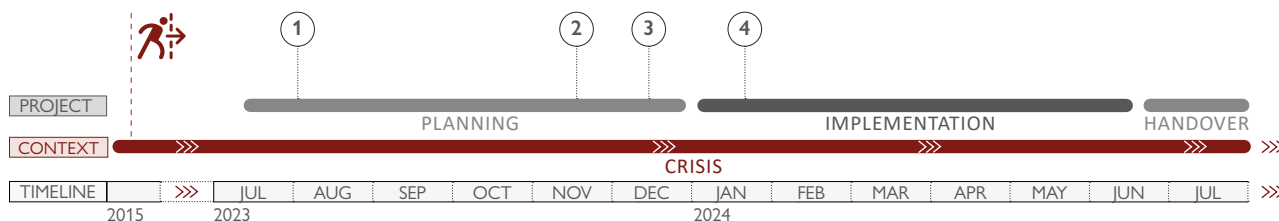
2.05 m² per person on average across the six shelters

PROJECT COST

USD 11,000-49,000 (range per shelter)
USD 608 per bed on average across the shelters
* <https://www.r4v.info/es/ecuador>

PROJECT SUMMARY

The project upgraded six communal shelters located in five provinces, addressing shared problems such as excessive internal temperatures, insufficient accessibility, and substandard safety. Solutions included solar photovoltaic generation, solar water heating, motion sensor LED lighting, passive ventilation (eco coolers, cross ventilation openings, raised ridge vents), green walls, drinking water purification, timed flow taps and rainwater harvesting. In parallel, sanitary facilities and common spaces were reconfigured to improve safety and accessibility. Together, these measures enhanced habitability and dignity while cutting water and energy consumption and lowering running costs for shelter administrators.



2015: First migratory movement recorded outside Venezuela.

- Jul-Aug 2023:** Site visits and information gathering on habitability, safety and accessibility of the communal shelters; mapping of priority deficits in basic services.
- Nov 2023:** Presentation of proposed solutions to shelter managers for feedback and approval.
- Dec 2023:** Memoranda of Understanding to formalize roles, maintenance responsibilities and training commitments.
- Jan 2024:** Implementation start, launch of works and monitoring/control of installations.



Interventions such as shading devices and green walls were implemented across six communal shelters, improving thermal comfort and reducing sun exposure.

© Pablo Mena / NRC



The project selected six communal shelters providing services to migrants, refugees and vulnerable host populations, with the aim to improve habitability.



Using a direct implementation approach, shading devices and green elements were included to mitigate climate effects and increase comfort for the users.

BACKGROUND

Ecuador experienced sustained inflows of people on the move from neighboring countries, which significantly increased demand for shelter and essential services. Communal shelters, often housed in repurposed buildings, assumed a key role in providing emergency accommodation and basic services for refugees, migrants and vulnerable host populations. These facilities faced recurrent constraints: climatic stressors (heat and high humidity), infrastructure wear, gaps in accessibility and safety, and escalating utility costs. The combined effect undermined habitability, increased maintenance burdens and strained operating budgets.

SITUATION BEFORE THE CRISIS

Prior to the recent peaks in regional migration, Ecuador already faced housing quality issues in urban, peri urban and rural settings, alongside uneven access to services. Communal facilities were not designed for surge demand and lacked eco efficient systems. Most of the collective centres allocated for the Venezuela crisis were repurposed buildings, not initially designed for accommodation. Poor ventilation and weak WASH infrastructure were common, contributing to poor thermal comfort and degraded sanitary conditions.

SITUATION DURING THE CRISIS

As arrivals increased, collective shelters operated above desirable capacity. Temporary sites and communal facilities required frequent repair and upgrades. People resorted to host communities and ad hoc arrangements, heightening protection risks—particularly for women, children, older persons and LGTBI+ individuals—amid privacy constraints and overstretched services. Operational pressures intensified pre existing weaknesses, underscoring the need for shelter solutions adapted to local climatic realities and to the protracted character of displacement.

NATIONAL SHELTER RESPONSE

Local authorities, foundations, NGOs and international organizations supported communal shelters to provide safe and dignified accommodation with basic services and child friendly and GBV sensitive spaces. However, the absence of a centralized, adequately resourced national shelter framework and limited funding windows restricted the scale, consistency and sustainability of responses. In this context, a networked, multi stakeholder approach underpinned the project, positioning communal shelters as essential nodes in a broader migration management and provision of protection for the most vulnerable.

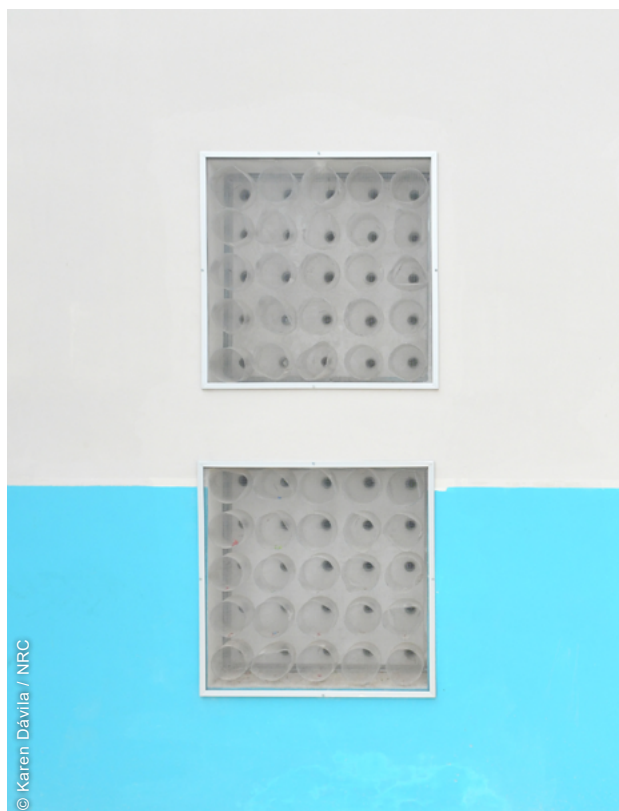
PROJECT DESIGN

The project's overarching goal was to transform six communal shelters into safer, more accessible and more sustainable environments through an integrated package of environmental and habitability improvements. The design approach was holistic and evidence based, starting from assessments of climatic exposure, protection risks and high cost operational hot spots or bottlenecks (notably water and electricity consumption), and progressing through solution design, user socialization, and tailored training for administrators and maintenance personnel.

An external consultancy team initially conducted technical visits and recommended measures such as green walls, renewable energy systems, wastewater treatment, dry toilets, composting, recycling and facade painting. The design team refined the proposals to fit the available budget, then reviewed the final package with donors and shelter administrators before execution. Consultations with communities continued throughout to ensure solutions addressed specific needs.

PROJECT IMPLEMENTATION

Activities were implemented directly by the organization, ensuring that site specific technical solutions were installed correctly and rapidly where most needed. For the construction works, local labor was recruited—both host and displaced—to support delivery and to catalyze acceptance, reduce xenophobic attitudes, and build shared capacities.



Eco-coolers were implemented to improve ventilation using a low-cost technique which utilises recycled plastic bottles and the so-called Venturi effect.

NATURE-BASED SOLUTIONS

- **Photovoltaic panels:** Solar PV panels, six solar water heaters and LED lighting reduced electricity use by about 3,600 kWh (around 10–15% annually), lowering operating costs. Seven panels were installed across two communal shelters, including one dedicated to powering a fan.
- **Eco-coolers:** Twenty eco coolers (10 per shelter) improved ventilation using a low cost system made from recycled plastic bottles. Bottles set into a narrow duct accelerate incoming air (Venturi effect), supporting cooler airflow indoors. Perforated masonry openings with a melamine panel aided intake, while perforated metal panels and mosquito nets protected the units. Raised roof ridges and wind driven extractors increased airflow, reducing indoor temperatures by an estimated 2–10°C without conventional mechanical cooling.
- **Rainwater harvesting:** Rainwater harvesting systems captured around 80,000 litres per year, improving water availability and easing pressure on municipal wastewater networks. Treated water was reused for irrigation and upkeep of green areas, helping cool the microclimate and reduce solar exposure on buildings. Collection drew from roughly 425 m² of roof area across four communal shelters.
- **Green walls:** Green walls installed on shelter façades reduced direct sun exposure and added shade, improving thermal comfort and limiting weathering of exterior surfaces. Around 140 m² of vegetated façades were installed across four communal shelters, contributing to lower indoor temperatures.
- **Grass and plants sowing:** Typical plants were sowed in three communal shelters in order to protect the soil and contribute to reducing the outside temperature.



Accessibility features were also implemented, such as ramps.

TARGETING

A comparative assessment covered 12 communal shelters in a strategic partner network. The analysis prioritized sites with the highest combined protection and sustainability risks: safety deficits (especially in WASH), thermal discomfort, degraded or insufficient facilities, water and energy inefficiencies, and limited accessibility. The profiling also considered the characteristics of the resident populations, such as the presence of GBV survivors, the proportion of women and girls, older persons and LGBTBI+ residents. A needs matrix ranked the shelters, enabling selection of the first six sites to prioritize for implementation, while fundraising efforts were launched for the following.

COMMUNITY ENGAGEMENT

Initial resistance among some administrators reflected unfamiliarity with non conventional technologies and a preference for traditional, high consumption systems (e.g., air conditioning). The team responded with practical sessions, demonstrating how passive ventilation, shading and eco efficiency measures work, what maintenance they entail and how to measure results. Acceptance grew following early installations, to the extent that two shelters requested additional eco coolers after project completion. Administrator insights were integrated from design stage through handover, and their leadership was critical to adapt solutions to internal workflows and local regulations.

COORDINATION

Site selection and solution tailoring required close coordination among municipal administrators, NGOs, foundations and international actors. Clear operating arrangements with shelter managers prevented duplication of efforts, smoothed access for contractors and ensured compliance with local regulations. By aligning environmental upgrades with protection, accessibility and safety, the coordinated approach leveraged resources across sectors and reinforced a comprehensive, multi actor response.



Solar panels were installed in some of the shelters, to reduce electrical bills.

ENVIRONMENTAL IMPACT

The project mainstreamed environmental management from design to handover. Waste segregation points and bins were added to foster recycling; roof and façade interventions reduced cooling loads; renewable energy and water efficiency systems decreased the carbon and water footprints of shelter operations. Debris was transported in jute sacks and deposited in certified municipal landfills to minimize contamination risks. Beyond technical metrics, administrators reported positive behavioral shifts, including increased care for planted areas and improved cleanliness in common spaces.

MATERIALS AND SUPPLY

Prioritizing local procurement accelerated delivery and buoyed nearby markets without creating distortions, as purchases were distributed across six locations and multiple suppliers. Logistics integrated environmental safeguards: debris handling using jute sacks and disposal to approved landfills. Where supply gaps existed for novel items (e.g., eco cooler modules), on site fabrication using recycled or readily available materials allowed the works to proceed, albeit with additional time for prototyping and testing.

EXIT/HANDOVER

Handover combined technical closure with knowledge transfer. Administrators received a maintenance manual, warranties and refresher training. Final evaluations, including temperature spot checks and consumption readings, were shared to evidence performance and clarify operating expectations. Shelter managers acknowledged the practicality of the alternatives—solar and passive ventilation in place of air conditioning; rainwater harvesting and timed flow taps to reduce water use—indicating intent to retain and, where feasible, expand these solutions within their facilities.



Affordable passive cooling interventions had a tangible impact on user comfort.



Water points and water filtration were installed across the centres.



To foster a culture of recycling, waste segregation points and bins were added.

MAIN CHALLENGES

- **Administrative processes:** Finalizing agreements that formalized maintenance commitments and participation in training took longer than anticipated due to internal procedures within shelters, delaying project start.
- **Data gaps:** Limited access to baseline building information (floor plans, historic consumption bills) complicated planning and slowed some interventions.
- **Suppliers and skills:** Securing specialized suppliers for PV, irrigation and planting—plus artisans for bamboo and eco cooler fabrications—required additional market sounding and coordination.

CROSSCUTTING ISSUES

Beyond environmental sustainability, Protection, GBV risk mitigation, and accessibility were integrated throughout. WASH blocks were re-organized with gender-segregated facilities; movement routes and common areas were better lit; and accessible bathrooms were added in three shelters. Consultations with women and older people informed priorities.



Toilets were improved both in terms of physical accessibility and sex-segregation.

OUTCOMES AND WIDER IMPACTS

- **Resource efficiency and service quality.** Energy demand declined following installation of LEDs with motion sensors, PV panels and solar water heaters. Water consumption decreased due to rainwater harvesting, grease traps and timed flow taps. In aggregate, shelters recorded measurable reductions in electricity and water use, lowering operating costs and smoothing budget pressures.
- **Habitability.** Passive ventilation and green façades yielded meaningful improvements in thermal comfort and humidity control in dormitories and common areas, reducing the perceived need for air conditioning and improving sleep quality and well being.
- **Skills and ownership.** Training for administrators and maintenance personnel strengthened in house capacity to operate and care for the systems. Engagement of local workers left practical skills in the surrounding communities and fostered stewardship of the upgraded spaces.
- **Social cohesion and protection.** Better lighting, more organized flows, and improved thermal comfort reduced the tendency of residents to congregate in public or private external areas in search of cooler, better lit environments, easing



FURTHER READING ON SHELTER PROJECTS

On Ecuador: [SP 9TH ED. / A.13 / ECUADOR 2020-2022](#)

On the Venezuela regional crisis: [SP 9TH ED. / A.11 / 2019-2023;](#)

On collective centres: [SP 13-14 / A.15 / LEBANON 2013;](#)
[SP 15-16 / A.30 / SYRIAN ARAB REPUBLIC 2017-2018](#)

On public spaces upgrade: [SP 9TH ED. / A.25 / JORDAN 2018-23;](#)

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **An environmental lens in the initial needs assessment** enabled prioritization of sustainable solutions from the outset, ensuring a tight fit between problems (thermal stress, consumption peaks) and remedies (passive ventilation, solar, water efficiency). This alignment maximized impact per dollar spent and advanced long term sustainability.
- ✓ **Administrators and maintenance teams received structured capacity building**, plus a digital maintenance manual detailing cleaning routines, checks, supplier contacts and warranty procedures. This strengthened day to day operations and de risked the handover period by clarifying roles and schedules.
- ✓ **Active community involvement and daily participation increased ownership** and care for the infrastructure, improving acceptance and long term prospects for maintenance. Engagement of local labor also seeded practical skills in the vicinity of the shelters.
- ✓ **A holistic approach combined environmental upgrades with safety, protection and accessibility.** The result was not only “greener” facilities, but also more practical and dignified environments aligned with user needs and protection standards.

WEAKNESSES

- × **Limited familiarity with innovative approaches generated initial resistance** among some shelter managers, slowing adoption and requiring additional sensitization to build trust in passive and renewable systems.
- × **Local supply constraints for specialized items and skills**—solar components, bamboo works, plant selection and installation—affected planning and sequencing. Additional consultations with specialists were needed to ensure appropriate species, treatments and installation methods.
- × **Lack of prior market analysis** for key components (eco coolers, rainwater harvesting assemblies) necessitated on site fabrication and prototyping with recycled materials and communicating vessels. While successful, these ad hoc solutions delayed testing and installation.
- × **Introducing unconventional systems increases the risk of maintenance lapses** over time (e.g., cleaning PV modules, eco cooler grilles, grease traps, filter changes). While training and manuals were delivered, the absence of a formal post implementation monitoring plan made it harder to verify that upkeep practices were consistently applied.

LESSONS LEARNED

- **Demonstrate to shift behavior:** Early skepticism toward eco-efficiency measures decreases when results are evidenced through simple metrics (e.g., temperature readings, energy bills). Embedding basic measurement in project communication supports a transition from “active cooling” to “passive-first” approaches.
- **Prioritize continuous capacity building:** Ongoing training and clear communication—targeting managers, administrators and end-users from the outset—reduce resistance, strengthen maintenance practices and ensure long-term sustainability, particularly in high staff turnover contexts.
- **Strengthen data for better decisions:** Systematic collection of pre-intervention baselines (energy, water, layouts, equipment) during the assessment phase is critical to objectively measure impact and improve design and corrective decision-making.
- **Engage users and adapt in implementation:** Early involvement of administrators, maintenance staff and residents fosters ownership, while iterative, on-site adjustments during works improve functionality, efficiency and hygiene outcomes.

RECOMMENDATIONS MOVING FORWARD

- **Start early with integrated outreach and training.** Engage managers, administrators and users from project inception to facilitate adoption of alternative technologies and reduce resistance to change.
- **Make baseline data mandatory before design.** To jointly identify with the shelter managers that the use of traditional technologies such as air conditioning or electric water heaters impacts the cost allocated to these services, with the aim of raising awareness from the outset about the use of more environmentally friendly alternatives.
- **Institutionalize continuous capacity building.** Replace one-off trainings with ongoing programs, including induction modules and maintenance tools, to address staff turnover and sustain operations.
- **Embed participation and adaptive implementation.** Systematize user engagement and incorporate light, real-time evaluation loops to adjust designs and optimize performance during implementation.

CASE STUDY

JAMAICA 2014-2019 / DISASTER RISK REDUCTION

CONTEXT / SETTLEMENT



SHELTER TYPE



SUPPORT METHODS



CRISIS

Disaster Risk Reduction in Portmore, Jamaica

PROJECT LOCATIONS

Naggo Head, Gregory Park and Newlands informal settlements in Portmore, St Catherine

POPULATION IN TARGET AREAS

260,000 individuals (As of 2004. 25,000 in Naggo Head, 23,000 in Gregory Park, and 212,000 in Newlands)

PEOPLE SUPPORTED BY THE PROJECT

6,386 individuals with Shelter and WASH support.
1,000 HHs with land tenure regularization support.

PROJECT OUTPUTS

100 people trained in carpentry/masonry and DRR.
250 houses retrofitted.
300 cash grants for housing repair.
Awareness campaign on hazard risk mitigation and emergency preparedness.
Training on Healthy Housing, Safer Housing.
Other outputs: 21 demonstration toilets built | 1 community resource centre built | 12 microprojects | 3 informal neighbourhoods regularized their land use | 3 community redevelopment plans | 500 households applied for land tenure regularization | 1 fast-track process for regularizing land tenure developed.

DIRECT COST

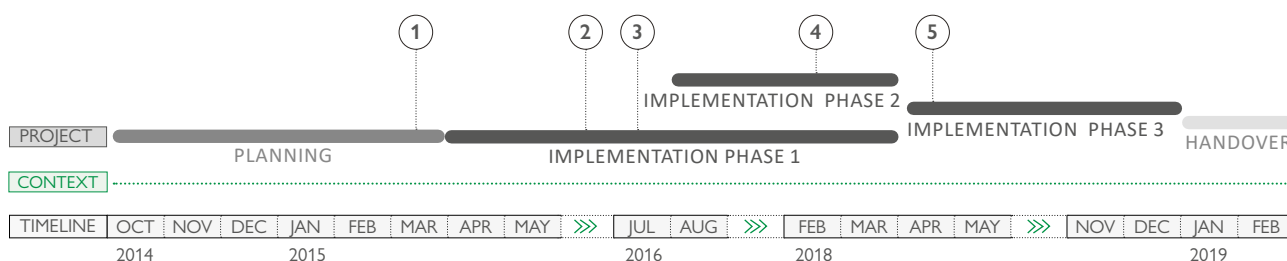
Varied, based on the following range:

USD 100 for light repairs**USD 2,000** for wall and roof repairs.

Project Location

PROJECT SUMMARY

This innovative four-year DRR program focused on vulnerable informal settlements, integrating awareness, physical improvements and legal support with community-driven initiatives to enhance resilience against hurricanes and flash floods. The program used a neighborhood-based approach, involving community mapping to identify vulnerabilities in housing, water, sanitation and urban planning, alongside capacity-building programs. Secure land tenure was emphasized as crucial for long-term resilience. Designed as a pilot, the project aimed to create a replicable model for slum communities throughout Jamaica and the Caribbean.

**Phase 1:** Community Mapping, Shelter and Basic Services.**Phase 2:** Land tenure at neighbourhood level.**Phase 3:** Land tenure at national level.

- ① **Mar 2015:** Registration of the NGO in the country allowing operations to start, after five months.
- ② **Jun 2016:** Mid-term evaluation flagged poor quality and delays in Shelter and WASH pilot projects.
- ③ **Jul 2016:** The project was extended to also cover land tenure issues within the neighborhood.
- ④ **Feb 2018:** The land tenure component expands its scope to change policies at national level.
- ⑤ **Apr 2018:** Final evaluation of phases 1 and 2 confirmed issues were resolved and implementation was successful.



The project promoted safe practices for hurricane resilience through various means, including the construction of model houses also used for training.

© Habitat for Humanity



The program was implemented across dense neighborhoods in Portmore.



The targeted informal settlements were underserved and exposed to hazards.

CONTEXT

Many of Jamaica's urban and peri-urban residents live in fast-growing informal settlements shaped by poverty, limited affordable housing and rapid urbanization. These dense neighborhoods often lack basic infrastructure and secure tenure, while homes are built with substandard materials. Exposure to hurricanes, flash floods and seismic events is compounded by poor construction quality. Land management and formalization are sensitive, with around 40 per cent of occupied land lacking formal registration. This increases insecurity, discourages household investment, limits infrastructure development and raises risks of eviction and disaster impacts.

NATIONAL HOUSING SCENARIO

Despite commitments to adequate, affordable and secure housing by 2030, weak enforcement of land-use designations leaves overcrowded, under-served and hazard-exposed neighborhoods highly vulnerable. Land-use management and formalization remain politically sensitive, especially where parcels are unmapped or unregistered. Policy and legislative reforms are under review, but enforcement of a modernized national building code remains limited.



The first phase of the program involved participatory mapping of the neighborhoods, including measurement of road widths for future planning.

PROGRAM PHASES

The program tested Shelter and Settlements and WASH interventions to reduce disaster risk in informal peri-urban settlements and inform more inclusive policies for vulnerable communities in the Caribbean.

- **Phase 1.** Participatory and digital mapping identified services, gaps, vulnerabilities and coping capacities. The program aimed to improve housing resilience through construction training, model retrofits and houses, a context-adapted hurricane-resilient housing manual, awareness on unsafe structures and promotion of low-cost self-retrofitting. It also supported community-prioritized micro-projects, water, sanitation and hygiene (WASH) improvements and emergency preparedness through training, awareness and response plans.
- **Phase 2.** Building on the participatory assessments, the program integrated land tenure security with settlement physical planning (community redevelopment plans), recognizing insecure tenure as a driver of risk. Plans were developed with a national university and included proposals such as widening streets, reserving land for buildings and public spaces, and planning basic service networks.
- **Phase 3.** Encouraged by the proven potential of tenure security to drive resilience, the donor extended the grant to refine a streamlined "fast track" land regularization process and collaborate on national policy.



Participatory planning was also used to identify hazards, including flooding and hurricane related risks, map vulnerable areas and propose solutions.

PROJECT IMPLEMENTATION

The project began with settlement assessments, household surveys and geo-referenced mapping. The Participatory Approach for Safe Shelter Awareness (PASSA) supported community risk assessment and action planning, identifying insecure tenure as a key barrier. Early model retrofits were weakened by limited technical guidance for informal construction practices. The team responded with a contextualized manual and training program, enabling more scalable rehabilitation works. Vocational training in masonry and carpentry upskilled community members, who were then recruited for construction through a learning-by-doing approach.

To deliver shelter repairs efficiently, the project pivoted from centrally purchased materials and project-run labor (an approach that created heavy administrative workload for limited output) to a voucher-based system in partnership with a local hardware store. Coupons were distributed directly to households; the vendor reported that many families co-invested by adding their own funds to achieve more substantial improvements.

In WASH, the team initially partnered with a national NGO, then transitioned to direct implementation to address capacity gaps. Elevated model latrines were installed to avoid flood inundation; a hygiene awareness campaign targeted healthy practices and reduction of open defecation.

The program also supported community-selected resilience micro-projects, including warning signs, emergency shelter improvements and drainage maintenance, and rehabilitated two community resource centers. Prioritization progressed slowly, making final implementation challenging, but helped build local ownership. As donor funding increased, the scope expanded. Plans to outsource tenure activities to a university were dropped due to cost; internal capacity was developed instead, while the university remained engaged on redevelopment planning.



The program also included a WASH component, including the construction of elevated flood-resilient latrines, which were implemented through contractors.

TARGETING

The selection of neighborhoods was based on exposure to natural hazards, population density and socioeconomic and physical vulnerability, with the local council involved. Household selection combined socioeconomic vulnerability and habitability criteria; prioritization was community-led and facilitated by the implementing organization.

COMMUNITY ENGAGEMENT

The project used a community-centred approach focused on capacity, empowerment and advocacy. Participation covered needs assessment, mapping and implementation, with community members taking leadership and advocacy roles. The neighborhood approach brought together local government, communities and nearby private actors through regular meetings. Volunteer groups in the three neighborhoods helped maintain dialogue and ownership, while youth documentation in the final phase showcased community perspectives and impact.

COORDINATION

- **Inter-agency collaboration.** The neighborhood approach fostered cooperation among Portmore municipal departments and national urban development agencies.
- **Public-private partnerships.** The program encouraged government and private sector partnerships to leverage resources and expertise.
- **Community-based organizations** played a critical coordination and implementation role, acting as intermediaries between the project and residents to facilitate communication and trust.
- **Advocacy strategy.** A standing advisory committee of government agencies, NGOs, universities and community representatives supported workshops and policy dialogue, with guidelines, settlement rehabilitation plans and the fast-track land methodology aimed at long-term systemic change.



In its subsequent phases, the program worked with multiple stakeholders, including CBOs and Universities, towards neighborhood redevelopment plans.



Model houses adopted hurricane-resilient features such as metal straps.



Diagonal bracing was one of the key low-cost features emphasized.

DISASTER RISK REDUCTION

The program aimed to strengthen resilience to high winds and flash floods through infrastructure improvements, safer shelters, neighborhood formalization and alignment with municipal redevelopment plans. Low-cost timber retrofitting measures included continuous load paths, wall and roof triangulation, timber protection against sun and insects, and improved roof nailing patterns.

LAND TENURE SECURITY

Participatory risk assessment identified tenure security as central to disaster resilience. The project combined land titling with community redevelopment planning, addressing risks linked to insecure ownership. Existing procedures were slow and costly, so collaboration with national agencies helped develop a faster and more affordable process.

An extension of the program refined a fast-track land process that shortened regularization to about 12–14 months at a cost of around USD 648 per family. The methodology included resident-led data collection, aerial mapping, application preparation, legal support through community hubs, agency coordination and title distribution.

More than 500 Portmore households applied for title deeds, strengthening security and encouraging resilient home investment. The approach reduced costs and offered a replicable model for Jamaica and other Caribbean contexts.



The correct use of roofing nails was implemented to prevent wind uplift.

MAIN CHALLENGES

- Obtaining government registration to operate took longer than expected, delaying the start of activities.
- Entering communities was initially difficult due to a history of unfulfilled promises from other agencies; partnering with a local NGO eased entry and, as visible progress accumulated, participation grew.
- A holistic program required specialized expertise across many disciplines. The plan to outsource activities proved less effective than anticipated; the team shifted to direct implementation, recruiting international experts where local capacity and timelines did not align.
- Local expertise in low-cost retrofitting was limited; a contextualized manual and “learning by doing” program for community builders addressed this gap.
- The socio-cultural context required careful transfer of international experience; a Caribbean national with extensive international background and strong public relations was appointed as project manager, and staffing favored partners and personnel receptive to innovation.
- Some activities experienced delays; a no-cost extension was obtained, and organizational funds were used to bridge administrative costs to ensure continuity.



Galvanised wire was used to secure roofing elements and as cross bracing.

OUTCOMES AND WIDER IMPACTS

HOUSING

- **Technical knowledge appropriation.** The 2018 final evaluation found that training laid the foundation for improved housing stock, and a 2024 post-project evaluation confirmed sustained impact. Community members showed greater awareness of technical standards and continued applying resilient techniques. Trained builders also supported neighbors, spreading practical knowledge.
- **Model retrofitted houses.** Five years after completion, Hurricane Beryl provided a stress test: no damage was reported to the retrofitted units. A structural engineer in the five-year post-evaluation confirmed the effectiveness of the low-cost improvements. The Jamaica shelter cluster coordination team observed these results and strongly recommended replication of the retrofitting techniques.
- **Livelihood opportunities.** The training component catalyzed external labor-market mobility. Most trained builders secured long-term private-sector employment, accelerated by high demand for masons during the Kingston Harbour infrastructure expansion.
- **Hurricane-resistant timber houses guide.** Based on Caribbean timber traditions, the guide was widely disseminated, adapted and translated, including in the Dominican Republic and Puerto Rico. It later served as an operational reference for communities and responders after disasters in Jamaica.

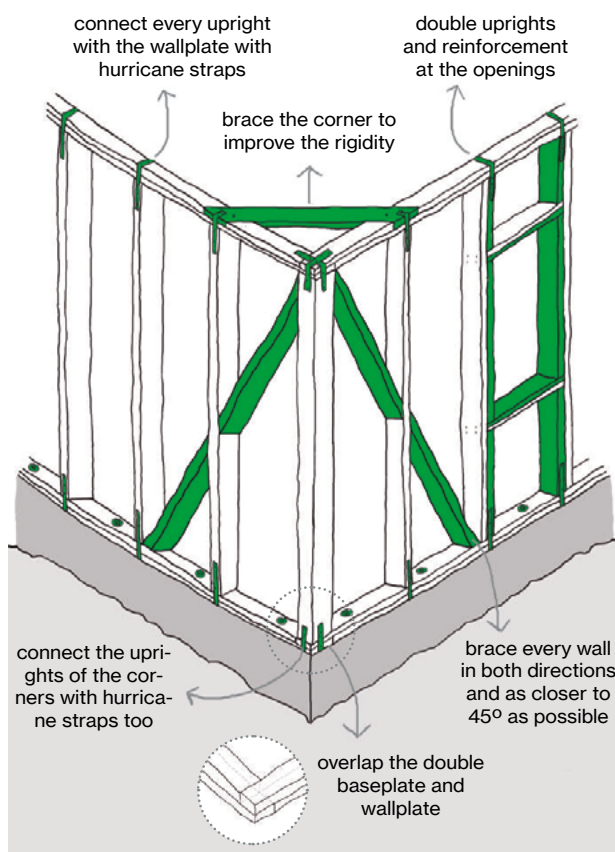
LAND REGULARIZATION AND SECURE TENURE

- **The neighborhood-level formalization approach improved prospects for infrastructure investment;** in one community, heavy machinery arrived within months to widen streets.
- **A fast-track, low-cost regularization procedure was developed.** Although a cadastre error prevented titles from being completed during the project, the methodology was validated and later used by a social enterprise to title 300 plots nearby. The project's piloting and advocacy coincided with the government's launch of a Systematic Land Registration program.

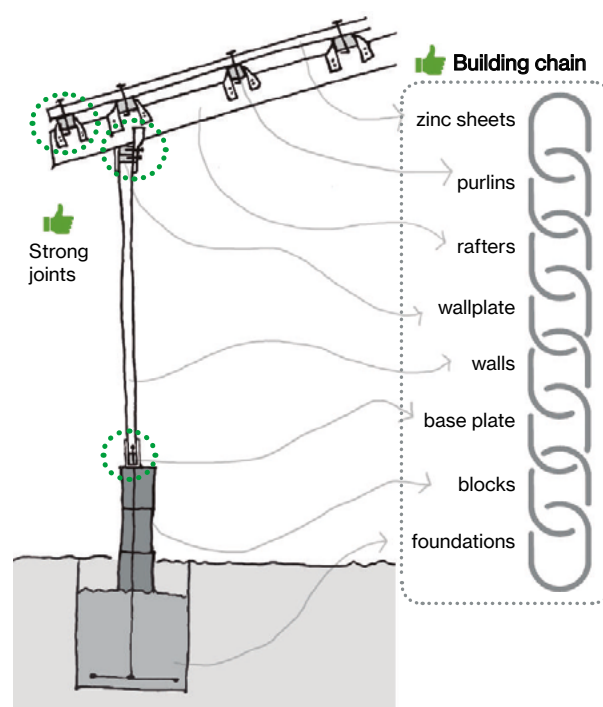
CAPACITY BUILDING

- **Local staff built significant expertise,** and many remained involved with project communities or continued in the development and humanitarian sector. Tenure specialists established a social enterprise that continues community services and government consulting.
- **Learning-by-doing** strengthened volunteer groups, leadership, pride and ownership.

How to brace the corners



Every element of our house must be linked to the others as a **CHAIN**, so if the wind comes, all the pieces of the house will resist together.



The hurricane-resistant timber house guide developed as part of this program included a comprehensive set of illustrations and guidance notes for low-cost building and retrofitting interventions. It was widely disseminated in the region.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **The holistic neighborhood approach anchored interventions in community realities.** A place-based, multi-sector strategy addressed housing, WASH, settlement planning and HLP together. Grounding decisions in local socioeconomic and physical conditions supported durable gains: tenure processes were advanced, resilient construction practices introduced and infrastructure planning aligned with risk profiles.
- ✓ **Participatory community approach.** Engagement was fully bottom-up, through street and community meetings, joint prioritization and “visioning”, and relied on local knowledge for beneficiary selection. The program also maximized local engagement in delivery, employing community members wherever possible; this strengthened ownership and the continuity of safe-building practices.
- ✓ **Engaging multiple stakeholders.** The project brought together academia, local government, politicians, national agencies, NGOs and private businesses. This strengthened institutional buy-in and resource mobilization. University leadership in Naggo Head redevelopment planning continued to inform national advocacy five years later.

WEAKNESSES

- ✗ **Limited country presence.** The entity’s limited prior presence and a previously closed affiliate led to delays registering to operate, building networks and understanding the context. Recruiting a new team was challenging, and once the project ended, lack of additional funding constrained follow-up with communities and government partners.
- ✗ **Regional support adjustment.** As the initiative scaled, the regional HQ moved from light-touch support to a more hands-on role to help meet technical standards and timelines. This required adjustment by the local team, but ultimately strengthened delivery.



FURTHER READING ON SHELTER PROJECTS

On projects in the Caribbean: [SP 2010 / A.3 GRENADA: SP 13-14 / A.4 CUBA and A.5 DOMINICAN REPUBLIC / 2012.](#)

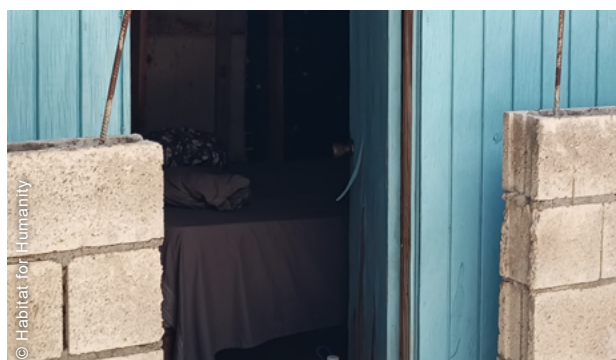
On DRR and PASSA: [SP 11-12 / A.03 COLOMBIA / 2010; SP 11-12 / A.13 HAITI / 2010; SP 8TH ED. / A.13 INDONESIA / 2018-2020; SP 9TH ED. / A.16 CAMBODIA / 2018-2021.](#)

LESSONS LEARNED

- **Increased private sector involvement in land regularization.** Establishing a social enterprise at close-out proved an effective exit strategy. In St. Elizabeth, more than 300 families obtained titles through the service, showing that private-sector participation can sustain tenure gains beyond project closure. Such mechanisms should be considered earlier in future programming.
- **Dissemination of plans must be inclusive and continuous.** Five-year findings highlighted the need for wider community dissemination of agreed plans, including door-to-door pamphlets, posters and onboarding of new arrivals. Modest, sustained financing for awareness-raising should be planned from the outset.
- **Community as the key enduring partner.** The project convened diverse stakeholders, but community leadership showed the strongest long-term commitment to neighborhood development. Investing in leadership and post-project contact mechanisms can preserve momentum and accountability.
- **Contextual protection considerations influence housing choices.** The five-year review found that some households added concrete block external walls to timber houses for ballistic protection. DRR housing guidance and settlement planning should consider context-specific protection risks alongside wind and flood performance.



A program review conducted 5 years (and a hurricane) later found that the retrofitted houses were still in good conditions.



Years after the project end, some houses had added concrete blocks to the timber walls as a bulletproofing measure.

CASE STUDY

MEXICO 2021-2024 / MIGRATION CRISIS

CONTEXT / SETTLEMENT



SHELTER TYPE



SUPPORT METHODS



CRISIS

Migration crisis

PEOPLE
DISPLACED

58,903 ind. with irregular migration status in 2021-24
(25,094 in 2021; 18,019 in 2022; 10,453 in 2023; and
5,337 in 2024)*

SITE
OCCUPANCY

128% capacity in 2021 (at the start of the project),
420% in 2022, 215% in 2023 and 124% in 2024**

PROJECT
LOCATION

Reynosa, Tamaulipas

PEOPLE
SUPPORTED BY
THE PROJECT**39,600 individuals**PROJECT
OUTPUTS

Migrant centre built in phases, including perimeter
fencing, toilets, tents (later upgraded to timber shelters),
common areas, playground and offices.

30 timber shelters constructed.

15,847 hygiene items distributed.

7,200 ind. have crossed the border from Mexico to
the U.S. regularly.

SITE DENSITY

5.1 m² per person on average across the site

DIRECT COST

USD 34 per household (construction costs)

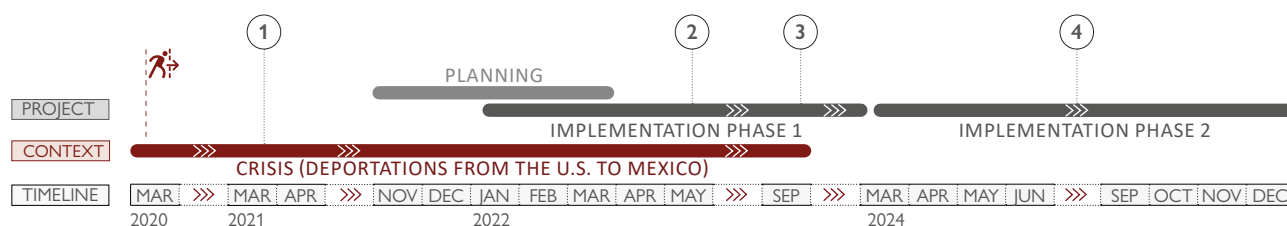


PROJECT SUMMARY

The project aimed to provide safe and dignified accommodation for migrants requiring extended stays in northern Mexico, in the context of large-scale migration flows toward the United States. The intervention focused on the progressive development of a planned shelter site through the provision of construction materials and technical support, enabling improved living conditions and site organization. A key feature of the project was the active participation of migrant residents in construction and site management, which fostered a strong sense of ownership, shared responsibility, and contributed to improved psychosocial well-being through engagement in meaningful daily activities.

* Secretaria de Gobernacion and IOM Mexico, interactive dashboard on Mobility and Migration.

** IOM Mexico monthly site occupancy monitoring.



Mar 2020: Announcement of the implementation of Title 42, a border restriction between Mexico and the U.S. aimed at preventing the spread of COVID-19. Under this measure, the U.S. expelled people entering by land, to Mexico and other countries.

1 Mar 2021: A makeshift camp sprung up in Reynosa, Tamaulipas, where more than 2,000 people (mostly from Honduras, El Salvador, and Guatemala) settled after being deported from the U.S.

2 May 2022: Movement from the spontaneous encampment in Plaza de la República to the Senda de Vida II centre.

3 Sep 2022: Entries were permitted under a new immigration process that stabilized the situation. Of the over 2.2 million people deported to Mexico via the U.S. southwest border from Mar 2020, 60.3% were Mexicans, followed by people from Northern Central America at 34.3%; South America accounted for 3.5%, and the Caribbean for 1.7%.

4 Jan 2022 - Dec 2024: Phased construction of the migrant centre, with restrictions on leaving the perimeter for security reasons, requiring remote technical oversight.



In challenging conditions, the project provided safe shelter to nearly 40,000 migrants deported from the U.S. after the enforcement of border restrictions.

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CONTEXT

Mexico has long been a transit country for people on the move toward the United States, but since 2018 the profile of migration shifted, with larger numbers of families, women, and children on the move. This shift has changed needs profiles, amplifying requirements for safe shelter, protection services, and dignified living conditions.

In March 2020, a border restriction known as Title 42 was implemented in the US in the context of COVID-19, triggering mass expulsions to northern Mexico. As people remained stranded for prolonged periods in border cities, spontaneous settlements grew, particularly in Reynosa, Tamaulipas. Urban insecurity and pandemic-related constraints compounded the challenge, calling for shelter solutions that were adaptable, progressive, and feasible with limited on-site technical supervision.

SITUATION BEFORE THE CRISIS

Before March 2020, Mexico was already experiencing significant migratory flows. In 2020, approximately 1.2 million migrants were in the country. Tamaulipas was a primary arrival area for those planning to cross into the United States. Reynosa itself faced high levels of insecurity: conflict among criminal groups shaped urban dynamics, as these actors competed for territorial control in one of the state's largest urban centers.

SITUATION DURING THE CRISIS

During the crisis, about 2,000 individuals lived in a spontaneous settlement in Reynosa. Families cobbled together makeshift shelters of plastic, cardboard, and wood, with limited access to basic services: only 18 shared sanitation facilities, no electricity, and no potable water.

The mass expulsions under Title 42 intensified overcrowding, lengthened stays, and placed additional pressure on scarce resources. Protection risks increased due to violence, territorial control by criminal groups, and restricted mobility.

OVERALL SHELTER RESPONSE

The humanitarian response was coordinated with a local shelter management as part of a broader inter-agency effort to expand accommodation capacity in Reynosa. Needs assessments, including routine shelter occupancy monitoring, highlighted severe overcrowding and critical gaps.

Strategy choices centered on relocating people from informal settlements to planned sites and expanding capacity through phased development. This guided programming decisions such as progressive site planning, the provision of construction materials, and the prioritization of protection, dignity, and core services (water, sanitation, healthcare).

PROJECT DESIGN

The project was framed as an emergency response with a strong protection lens, replacing precarious conditions in spontaneous encampments with a planned site designed to host up to 2,000 people in safer, more dignified conditions. Given prolonged displacement, insecurity, and restricted operational access, the team adopted a hybrid approach: immediate accommodation in emergency tents, coupled with transitional wooden housing units designed for family occupancy.

Tents were prioritized at the outset to meet urgent needs, but their limitations in privacy, durability, and climate performance required more suitable options for longer stays. Alternatives such as prefabricated modules and more permanent construction systems were considered and ultimately, wooden shelters were selected for their local availability, the ease of construction with non-skilled labor, compatibility with progressive development, and overall cost-effectiveness in a constrained setting. The family units were of approximately 16.50 m², aiming to achieve minimum standards for habitability, ensuring ventilation and structural safety.

Security constraints, limited market accessibility, and the need to ensure consistent quality led for the organization to choose the direct delivery of construction materials (in-kind modality).

The site layout integrated functional zones, shelter areas, sanitation facilities, medical services, kitchen and dining areas, child- and youth-friendly spaces, and a designated commercial area that was developed progressively to respond to evolving needs.



Largely implemented by the migrants themselves, the project used a phased approach, mostly because the site had been occupied before completion.

PROJECT IMPLEMENTATION

The planned site was built on land donated by municipal authorities to a local organization managing the accommodation service. Implementation included site preparation, temporary accommodation installation, basic infrastructure construction, and the development of community spaces, followed by the gradual replacement of tents with wooden shelters. Activities proceeded while the site remained fully occupied, requiring continuous adaptation of sequencing and safety measures to ensure uninterrupted services.

Construction and daily operations unfolded in parallel. Close coordination between site management and resident work teams allowed progress despite intermittent access restrictions and insecurity around the site. Material delivery and timelines required flexibility, with phased implementation and prioritization of critical works to expand infrastructure and shelter stock without disrupting site functionality.

Average stays ranged from four to six weeks, but the site functioned with a continuous flow of residents. Over roughly 36 months, the cumulative reach was estimated at around 39,600 people, with allocation prioritizing households with heightened vulnerabilities, especially families with children.

Due to insecurity and COVID-19 restrictions, continuous on-site technical supervision was not feasible. The team therefore established a remote-support model anchored in predefined technical guidelines, initial training of on-site teams, frequent communication with local coordinators, periodic visits, and milestone-based verification. Construction was primarily carried out by migrant residents organized into supervised work teams, which both sustained the build process and fostered community engagement and ownership.



To increase comfort, safety and habitability, the organization provided timber shelters to accommodate part of the migrant population at the centre.



The photos show the site in the early stages of the centre (above, July 2022) and after the construction of the timber shelters (below, April 2023).

COMMUNITY ENGAGEMENT

Community engagement was central to both design and implementation. Affected populations actively contributed to construction, maintenance, and daily site management. Migrant residents were organized into work teams handling assembly of wooden housing units, basic infrastructure works, and incremental site improvements under local supervision. Residents also supported essential services, like cooking, cleaning, security, childcare, and operated an internal market, drawing on existing skills and offering structured roles.

This participatory approach enabled construction to continue despite limited external access, reduced dependence on external labor, and improved cost-efficiency. It also strengthened ownership and shared responsibility, improving facility maintenance and site functionality over time, contributing to psychosocial well-being and reinforced social cohesion.

SAFETY AND HABITABILITY MEASURES

The project directly addressed risks linked to extreme heat, overcrowding, and inadequate sanitation evident in the initial spontaneous settlement. Improved spatial organization reduced congestion and enabled safer circulation across functional areas. Transitioning from improvised shelters to wooden units enhanced climatic protection and habitability, while ventilation measures helped reduce exposure to heat. Expanded WASH facilities reduced health risks associated with overcrowding and limited services. While broader environmental and security risks remained outside the intervention, the mentioned measures tangibly improved safety and overall habitability.

MAIN CHALLENGES

- Security constraints limited mobility for both residents and technical staff, restricting access to the site and reducing the feasibility of continuous in-person supervision. To address this, the team combined remote technical support with periodic site visits and delegated on-site supervision.
- Construction took place while the site was already occupied, which slowed progress and created operational complexity. Phased construction was therefore used to maintain safety, avoid disruption to essential services, and allow implementation to continue while residents remained on site.
- Pandemic-related restrictions affected logistics, causing delays in material transport and reducing the availability of technical personnel. The project mitigated these constraints by prioritizing locally available materials and strengthening local implementation capacity.
- High population turnover created constant pressure on capacity and planning, requiring flexible allocation strategies and the combined use of temporary and transitional shelter solutions. Although these challenges extended timelines and required continuous adaptation, they also fostered innovations in phased construction and remote monitoring.

ENVIRONMENTAL IMPACT

The use of locally available materials limited transport needs. Phased construction made resource use more efficient and minimized waste. Transitioning from short-lived temporary options to more durable wooden units reduced frequent material replacement. In sum, the chosen measures improved resource efficiency within the constraints of an emergency response.

OUTCOMES AND WIDER IMPACTS

The project transformed an informal settlement into a planned site capable of accommodating up to 1,760 people in significantly improved conditions. The shift from the previous improvised shelters improved access to basic services, enhanced spatial organization, and the establishment of community and support facilities collectively elevated the standard of living.

Beyond the physical improvements, the participatory approach strengthened social cohesion, improved psychosocial well-being, and enhanced operational sustainability through shared responsibilities in construction and site management. At a broader level, the experience proofed a phased and progressive shelter approach that was feasible in a complex urban context marked by insecurity, limited access, and high turnover.



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Beyond the family tents that were provided in the first phase, the project improved the general site infrastructure and included common areas and facilities.



A key for the project success and the site sustainability was the direct engagement of the residents, who contributed to construction, maintenance and management. This was essential both to foster a sense of ownership and also to enable the organization to manage the project remotely due to security and access restrictions.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **The project adapted effectively to a highly complex context** by combining phased construction with active community participation, allowing operations to continue despite insecurity, limited access, and fluctuating occupancy. This model sustained implementation and upheld protection and service standards in a challenging environment.
- ✓ **Involving migrant residents directly** in construction and site management reduced labor costs, accelerated timelines, and fostered ownership and responsibility for the shared space, improving maintenance and overall site sustainability. Coordination between humanitarian actors and local management supported context-sensitive decisions and timely adjustments throughout implementation.

WEAKNESSES

- ✗ **Earlier consideration of site-related protection risks** could have improved residents' mobility, access to services, and opportunities for self-reliance.
- ✗ **Completing more preparatory works** before occupancy, where feasible, would have reduced operational complexity, safety concerns, and implementation delays.
- ✗ **Stronger quality assurance arrangements**, including clearer supervision protocols and verification milestones, could have supported more consistent construction standards under access constraints.



FURTHER READING ON SHELTER PROJECTS

On the Venezuela migration crisis: [SP 9TH ED. / A.13 ECUADOR / 2020-2022;](#) and [A.11 VENEZUELA / OVERVIEW.](#)

On the migration crisis in Europe: [SP 15-16 / A.41-42 GERMANY;](#) [SP 17-18 / A.25 FRANCE;](#) [SP 9TH ED. / A.21 GREECE.](#)

LESSONS LEARNED

- Site selection critically affects protection outcomes and residents' access to services and opportunities; safer locations can reduce risk and support greater mobility and self-reliance.
- Sequencing matters in occupied sites: where occupancy precedes completion, phased construction must be tightly coordinated with daily operations.
- Remote supervision can sustain progress under access constraints but requires robust protocols, milestone-based verification, and periodic site visits to maintain quality.

CASE STUDY

PUERTO RICO 2017-2024 / HURRICANES

CONTEXT / SETTLEMENT

SHELTER TYPE

SUPPORT METHODS

CRISIS

Hurricanes Irma and María, Sep 2017

PEOPLE AFFECTED

3.4 million people (virtually the entire population)*

PEOPLE DISPLACED

200,000 people displaced outside the island **

HOMES DAMAGED / DESTROYED

250,000 severely affected ***
70,000 totally destroyed ***

PROJECT LOCATION

Puerto Rico, USA

PEOPLE SUPPORTED BY THE PROJECT

Over 20,000 individuals

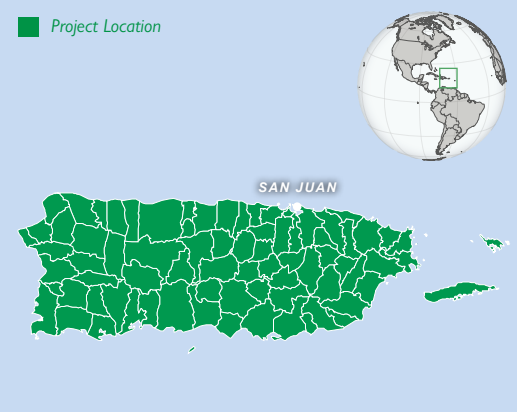
PROJECT OUTPUTS

3,000 shelter repair kits (2,000 for the 2017 hurricanes and 1,000 for Hurricane Fiona in 2022).
850 housing repairs and rehabilitations.
Capacity Building to 3,000 ind. (household & community level) and 2,100 ind. at workforce level.
618 households directly assisted with secure tenure.

DIRECT COST

USD 30,000 per HH on average for repairs

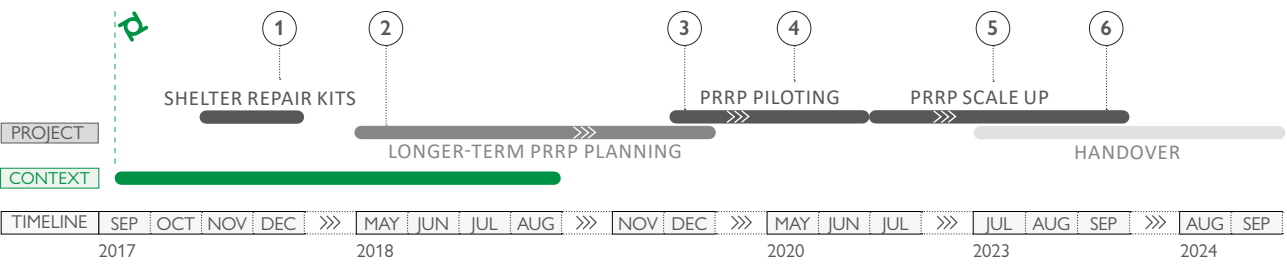
Project Location



PROJECT SUMMARY

Puerto Rico, prone to hurricanes and earthquakes, suffered two devastating hurricanes in 2017, prompting the establishment of the Puerto Rico Recovery Program (PRRP) by an international organization and its local affiliate, from 2018 to 2023. Backed by USD 63 million in private funding, the program aimed to provide safe, affordable and resilient housing, address vulnerabilities, and foster community resilience through a holistic, systems oriented approach. Key components included housing repairs of hundreds of homes, capacity building, secure land tenure, advocacy and knowledge sharing.

* National Library of Medicine, PreventionWeb, PewResearch. ** Boston College. *** Puerto Rico Builders Association.



-  Sep 2017: Hurricanes Irma and María.
- 1

Dec 2017: Over 2,000 shelter repair kits distributed.
- 2

May 2018: Majority of the program funding secured.
- 3

Dec 2018: Longer-term Repair Program pilots kick off in two municipalities.
- 4

Jun 2020: Program reforecast and additional programs launched following earthquakes and COVID-19 pandemic.
- 5

Jun 2023: End of land tenure program, with 618 HH assisted.
- 6

Sep 2023: Main programs completed (repair and capacity-building).



Storm-affected houses were temporarily covered with tarps prior to the repairs.



Many houses reported damage to roofing, as well as to indoor spaces. Beyond the building envelope, when possible, the project also supported households to repair kitchens and bathrooms.

CONTEXT

In September 2017, Hurricanes Irma and María struck Puerto Rico in close succession, causing catastrophic infrastructure damage, prolonged power outages and a breakdown of essential services across the island. The disruption effectively touched the entire population, with particularly severe impacts on older people, children, women and individuals with disabilities. Recovery timelines stretched far beyond typical disaster cycles, and by August 2018 full restoration of electricity was only achieved in some areas. Over subsequent years, additional shocks — a period of political unrest, earthquakes, the COVID 19 pandemic and later hazards — further complicated recovery.

Within this context, housing emerged as both an urgent humanitarian need and a long term development priority.

SITUATION BEFORE THE HURRICANES

Puerto Rico is highly exposed to Atlantic hurricanes and seismic activity. Prior to 2017, many households lived in dwellings constructed in concrete/masonry, timber or hybrid systems reflecting vernacular and code compliant practices. While building standards and authorities exist, uneven application, varying quality in older construction and the socio economic fragility of many households meant that the hurricane impacts translated quickly into widespread housing damage and loss of habitability.

SITUATION AFTER THE HURRICANES

The immediate situation was defined by severe damage to roofs and walls, water intrusion, loss of windows and doors, unsafe access and disrupted services. Entire communities required external support to stabilize dwellings and begin incremental recovery.

Early distributions of shelter repair kits addressed urgent needs in late 2017. Amid shifting needs and a recovery process challenged by multiple causes, the Puerto Rico Recovery Program (PRRP) was designed to sustain a multi year effort.



In the early stage of the response, the project organized large-scale distributions of shelter repair kits.

PROJECT STRATEGY

The program adopted a holistic, systems oriented approach to recovery, explicitly linking household level repairs with broader enablers of resilience. The strategic intent was to:

- Repair and reconstruct damaged housing at scale using safe, locally familiar construction systems.
- Build local capacity and workforce safety to expand the island's ability to carry out repairs and maintenance, nurturing both housing and economic outcomes.
- Address structural barriers to assistance, particularly tenure documentation, through targeted legal and technical support.
- Advance advocacy and knowledge sharing to inform policy, practice and future recovery efforts.

A key design choice was to focus housing works on strengthening the building envelope first, to ensure immediate gains in safety, while the program's legal and capacity components targeted systemic issues (e.g., tenure barriers, skills gaps) whose resolution would multiply housing benefits over time.

Financing, largely private, provided flexibility to support an adaptive, multi year intervention. While program goals were clear, the pathways to achieve them were deliberately flexible, enabling adjustments in response to changing hazards, logistics and household priorities.



The hurricanes severely damaged roofs, walls and openings, and left the entire island without reliable electrical power for many months.

PROJECT IMPLEMENTATION

Phasing and sequencing. The program's first visible action was the distribution of more than 2,000 shelter repair kits to stabilize exposed homes ahead of a longer recovery journey. Each shelter repair kit contained essential tools, fasteners, safety gear, and instructions to help clear debris, repair structures, and secure temporary tarps. An in depth needs assessment later informed the program design, and pilots launched in two municipalities to test, learn and refine.

In the following years, the program scaled housing repairs and supporting services across 30 communities in 22 municipalities until its full handover to the local affiliate in 2024.

Delivery model. Housing works were executed by local small and mid size contractors, who procured materials and carried out construction. The program's architects and engineers provided quality control and carried out inspections; local building authorities were involved to ensure compliance and alignment with local standards. This approach was found to balance speed, quality assurance and market engagement, channelling resources into the local construction economy while maintaining oversight.

Roles and partnerships. A collaboration between an international organization and its local affiliate underpinned implementation. While the international team managed large scale construction through a team of local professionals, the local affiliate led beneficiary identification, outreach and relationship management, anchoring the program in community realities and trusted local networks. Beyond these core roles, partnerships with specialist organizations were forged around targeted objectives (e.g., legal aid for tenure). These collaborations proved vital to reaching more families more quickly and to tackling challenges that lay beyond construction alone.

Adaptation under compounding hazards. Program reforecasting in 2020 responded to earthquakes and the COVID 19 pandemic. Adjustments included sequencing works to manage disruptions, revising engagement methods to respect public health guidance, and safeguarding supply chains and contractor operations. The program's flexible design allowed it to maintain momentum without compromising safety or quality.

TARGETING

The local affiliate's proximity to communities and municipal authorities enabled principled beneficiary selection and case management. Households with significant hurricane damage, heightened vulnerability and barriers to self recovery were prioritized. Coordination with tenure and legal assistance teams ensured that households at risk of exclusion from formal assistance schemes could be identified and referred for complementary support.



The shelter repair kits included tools and gear to help families recover quickly.

COMMUNITY ENGAGEMENT

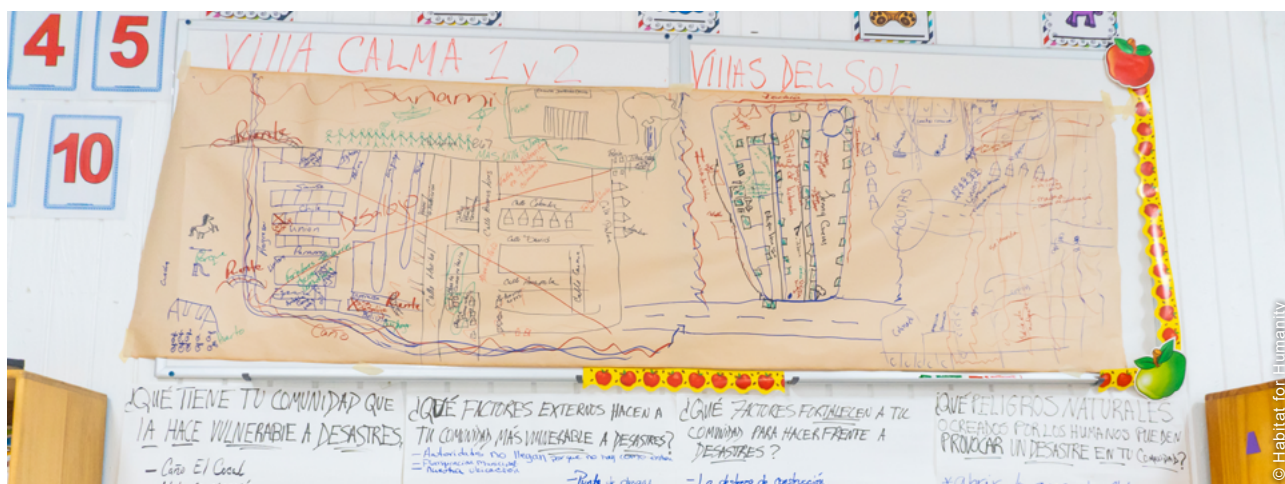
The program embraced intentional, community centred engagement. Outreach teams worked with community leaders and residents to identify needs, map risks and co design priorities. Practical tools included risk mapping workshops that facilitated collective diagnosis and planning. This engagement model strengthened trust, improved the fit of technical solutions and supported social cohesion as neighborhoods progressed through recovery.

LAND TENURE

Approximately 85,000 families had been denied federal assistance for lack of proof of ownership after the hurricanes. To address this, the program partnered with a leading legal aid foundation in Puerto Rico and around 50 attorneys were mobilized to provide direct legal and notarial services. Some cases were relatively straightforward, while others required court proceedings, which were time consuming and costly. This institutional partnership, combined with internal referrals from the repair program, enabled large numbers of households to formalize ownership more efficiently.

TECHNICAL SOLUTIONS AND DRR

The programme combined practical repair solutions with disaster risk reduction measures to make homes safer and more resilient. Repairs were carried out using concrete/masonry, timber or hybrid systems consistent with local practice, with priority works focused on the home envelope and safe access. Typical interventions included roof repair or replacement, wall rehabilitation, replacement of windows and doors for safety and weatherproofing, and improvements to access. Where budgets allowed, kitchens and bathrooms were upgraded to restore functionality and support health.



Community risk mapping workshops were organised to facilitate collective diagnosis of vulnerabilities and possible mitigation measures.

MAIN CHALLENGES AND ADAPTATIONS

- **Cascading shocks.** A period of political unrest, earthquakes and the pandemic required reforecasting and tactical shifts in sequencing, engagement and logistics, adding time and complexity to an already demanding recovery environment.
- **Administrative and operational hurdles.** Multi year, multi component recovery entails evolving frameworks, heavy coordination and rigorous oversight. Balancing quality, pace and compliance stretched management systems and called for ongoing refinement.
- **Tenure barriers.** Lack of proof of ownership blocked many families from accessing other assistance. While the program's legal partnership alleviated this for thousands, addressing such barriers at scale is inherently complex and sometimes lengthy.

EXIT/HANDOVER

A dedicated handover phase (July 2023–September 2024) consolidated results, completed outstanding works and closed the tenure component by mid 2023. By distributing roles between international and local actors, the program reinforced local systems for ongoing housing support. Documentation, knowledge sharing and advocacy aimed to inform future recovery and reduce the risk of exclusion for vulnerable households in subsequent disasters.



Over 800 houses were repaired, with priority given to walls and roofs, as well as access interventions. Local, safe construction practices were followed.

OUTCOMES AND WIDER IMPACTS

- **Safer, more dignified homes.** More than 800 households returned to safer dwellings with improved envelopes and habitability, reducing exposure to storms and restoring privacy and health.
- **Increased access to assistance via tenure.** By providing legal support to 618 households (and facilitating many more through broader legal partnerships), the program helped unlock access to public recovery resources and reduced systemic exclusion.
- **Strengthened human capital.** Training more than 1,400 people supported safer works and created livelihood opportunities in the housing sector, contributing to household income and community level resilience.
- **Community engagement and cohesion.** Risk mapping and participatory processes supported local ownership of recovery priorities and fostered trust in institutions, with positive spillovers for future preparedness.
- **Adaptive program management.** Reforecasting and flexible delivery preserved momentum under adverse conditions, offering a model for multi year recovery in hazard exposed contexts.



In addition to the repair component, the project assisted over 600 families with insecure tenure in the process of formalizing ownership.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Holistic, scalable approach.** The program linked housing repair with workforce development, land tenure, and advocacy, addressing immediate safety while tackling systemic barriers to recovery.
- ✓ **Community centred engagement.** Decision making was anchored in local needs through outreach, risk mapping and collaboration with community leaders, improving relevance and take up.
- ✓ **Flexible and adaptive implementation.** Clear goals but flexible pathways led by local professionals enabled reforecasting and responsive adjustments under earthquakes, pandemic measures and supply volatility.
- ✓ **Strong partnerships and private funding.** Collaboration with local organizations, government entities and private donors expanded reach and enabled components beyond construction, such as legal aid.
- ✓ **Advocacy and policy influence.** By demonstrating practice based solutions to tenure and repair challenges, the program contributed evidence to inform wider recovery policy.

LESSONS LEARNED

- **Embed a person centred, trauma informed approach.** Recovery work intersects with the psychological impacts of disaster; training technical and construction teams in empathy, trust building and shared decision making can make construction processes safer experiences that support holistic recovery.
- **Co create recovery plans with communities.** Jointly defining priorities and risk reduction measures improves fit, fosters ownership and strengthens social capital for future preparedness.
- **Secure flexible, adaptive funding.** Long term, less restricted funding allows programs to pivot as needs shift, reducing administrative bottlenecks and enabling continuity through cascading hazards.
- **Sustain secondary benefits.** Housing repairs drive knock on gains in health, mental well being and financial stability; programs should plan for follow up or connect families to local networks to maintain these benefits after handover.
- **Address tenure early and at scale.** Integrating legal aid through dedicated partnerships is essential where proof of ownership blocks access to assistance; internal referrals from repair teams help identify and prioritize cases efficiently.

WEAKNESSES

- × **Limited organizational readiness.** Staffing and deployment constraints delayed implementation, worsened by work-visa bottlenecks for Spanish-speaking personnel from Latin America. Additionally, recruiting specialists who combined institutional knowledge, mission alignment, and post-disaster construction experience proved highly time-consuming.
- × **Operational complexity.** Managing evolving frameworks, multi year logistics and cross cutting components created administrative strain and required ongoing improvements in planning and data management.
- × **Variable internal efficiency.** The breadth of activities (repairs, training, tenure, advocacy) occasionally led to competing priorities and documentation demands, risking delays without dedicated management capacity.



FURTHER READING ON SHELTER PROJECTS

On responses to hurricanes in the Caribbean:

[SP 2010 / A.3 GRENADA / 2004](#); [SP 13-14 / A.4 CUBA and A.5 DOMINICAN REPUBLIC / 2012](#); [SP 17-18 / A.11 DOMINICA / 2017](#); [SP 8TH ED. / A.8 BAHAMAS / 2019-2020](#).

RECOMMENDATIONS MOVING FORWARD

- Recognize and build on the added value of the global network and expand viable presence through local partners' expertise to extend impact at community level.
- Foster a learning culture capable of adapting procedures; keep objectives and budgets flexible to account for external challenges in changing disaster contexts.
- Invest in piloting and proof of concept to strengthen program design integrity and inform future local programming.
- Improve sustainability by integrating additional strategies as upgrades to repairs/rehabilitation (e.g., more robust waste management, lower emission transport options).
- Strengthen communication protocols in disaster and recovery settings and ensure that field assessments are comprehensive enough to prevent recurrent rounds of data collection for assessments.

CASE STUDY

AFGHANISTAN 2022-2024 / EARTHQUAKE

CONTEXT /
SETTLEMENT

SHELTER TYPE



SUPPORT METHODS



CRISIS Earthquake in Paktika and Khost

PEOPLE AFFECTED 100,000 people affected*

PEOPLE DISPLACED 21,000 people displaced*

PEOPLE WITH SHELTER NEEDS 100,000 individuals*
7,358 houses destroyed
8,027 houses partially damaged

PROJECT LOCATION Paktika and Khost Provinces

PEOPLE SUPPORTED BY THE PROJECT 4,959 HH through shelter repairs

PROJECT OUTPUTS 4,959 shelters repaired or reconstructed
83 skilled masons trained

SHELTER SIZE 30 m² Shelter repair or reconstruction

SHELTER DENSITY ~ 4.3 m² per person (average family size of 7)

DIRECT COST USD 2,620 for shelter reconstruction
USD 1,310 for shelter repair

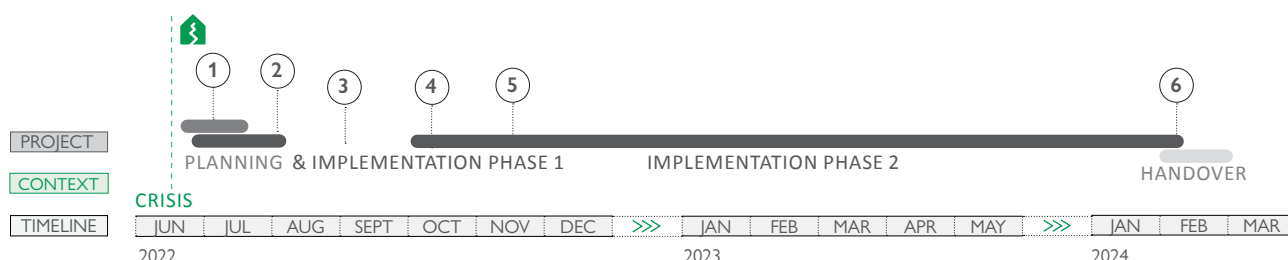
PROJECT COST USD 3,332 per HH (reconstruction)
USD 1,665 per HH (repair)

* Multisectoral Rapid Assessment Form (MSRAF)



PROJECT SUMMARY

The project supported earthquake-affected households to rebuild safer homes using locally accepted construction methods and materials. Through a coordinated cash-for-shelter approach, families reconstructed or repaired vernacular houses using Paskha and mud brick designs adapted to improve seismic performance and reduce future risks. The response combined technical guidance, standardized safer-construction details, and community-based rebuilding practices, enabling households and local masons to lead reconstruction while preserving cultural appropriateness and familiar compound layouts. The project demonstrated how vernacular architecture, combined with targeted risk-reduction measures and coordinated technical support, could provide culturally appropriate, scalable and more resilient shelter solutions in remote, resource-constrained environments.



Jun 2022: Major displacements following the earthquake in Paktika and Khost provinces.

1 Jul 2022: Funding approval.

2 Jun-Jul 2022: Multisectoral assessments and the provision of emergency shelter and NFI to affected families.

3 Sep 2022: Shelter technical assessment and beneficiary selection.

4 Oct 2022: Transitional shelter repair and reconstruction began; first instalment distributed to affected villages.

5 Nov 2022: Training for masons conducted.

6 Feb 2024: Transitional shelter repair and reconstruction completed; final instalment disbursed to beneficiaries.



© Shelter Cluster Afghanistan

An initial diagnostic following the earthquake revealed common causes of failure, such as rooftop overload and wall bonding issues, for both stone and mud masonry.

CONTEXT

On 22 June 2022, a 5.9 magnitude earthquake struck southeastern Afghanistan, causing widespread destruction across rural districts in Paktika and Khost. The event left 1,036 people dead and 2,949 injured, and it damaged or destroyed thousands of homes as well as essential local infrastructure. The urgency of the shelter response was shaped by extreme seasonality—very cold winters and hot summers—and by the geography and access constraints that limited movement and supply lines. In many locations, travel between provinces required crossing a riverbed passable only at low water or traversing steep, pine covered terrain along the international border with Pakistan. In parallel, the political environment demanded close coordination with de facto authorities to validate caseloads and authorize implementation.

SITUATION BEFORE THE EARTHQUAKE

Before the earthquake, housing in the affected districts was largely of vernacular construction, including mud and Paskha walls and stone masonry. Some buildings benefited from good construction practices and local craftsmanship, but many were self built without technical oversight, and the understanding of good building practices varied considerably across affected households. As a result, typical weaknesses, such as insufficient wall bonding, poorly executed connections and vulnerable roof assemblies, were common in the local housing stock. The area had experienced flooding and heavy snowfall in the years preceding the earthquake, but nothing approached the scale or severity of the seismic event. These pre existing conditions and construction patterns influenced both the nature of the damage and the strategy for recovery.

SITUATION AFTER THE EARTHQUAKE

The earthquake struck a social fabric organized around family compounds: multiple related households living within a walled enclosure. In these settings, privacy and the control of space are central to daily life, especially for women who are seldom present outside the compound. In this context, damage to boundary walls and house to wall interfaces disrupted more than structures; it disrupted social organization and daily routines.

Damage patterns were consistent, including collapsed wooden plank roofs; failure of boundary walls often built very high and long without lateral support; rooftops overloaded with thick waterproof clay that gave way;

weak connections between boundary walls and house walls which led to propagation of failures; and poorly bonded stone masonry and mud bricks without adequate overlaps contributing to widespread collapses. These failure mechanisms became the technical compass for reconstruction priorities.

In the immediate aftermath, no humanitarian actors were present in the area; neighbors and surrounding communities provided initial support. Many families, traumatized by the event and fearful of aftershocks, hesitated to return to affected homes. The scale of need, with 7,071 houses for repair and 7,715 for full reconstruction, required a strategy that was both technically robust and locally executable.

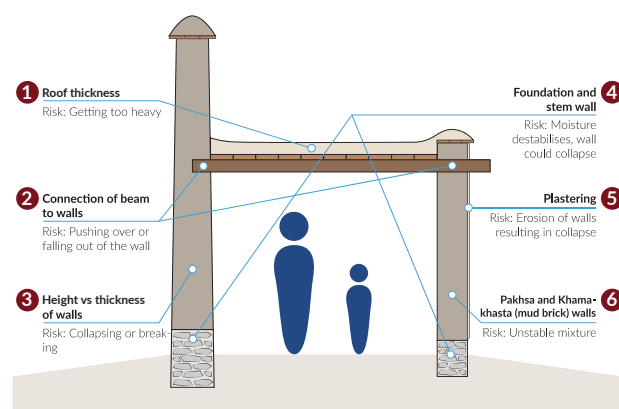
NATIONAL SHELTER RESPONSE

Joint multisectoral assessments conducted in June and July framed a two track response:

- Immediate relief through distributions of tents, tarpaulins, kitchen sets and shelter repair kits by implementing organizations under shelter cluster coordination.
- Early recovery planning through technical assessments to identify suitable longer term shelter solutions that aligned with local practice and were feasible to implement before winter.

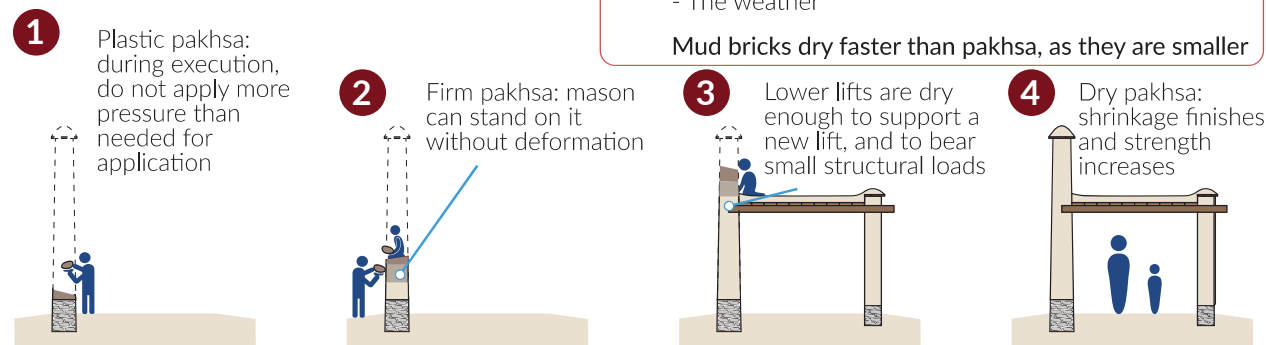
This approach balanced urgent lifesaving support with accelerated design and decision making for durable shelter, recognizing the short window before cold weather would severely limit construction.

Over 30 organizations operated from humanitarian hubs in three affected locations: Paktika, Barmal, and Khost, to facilitate humanitarian access and responses.



Pakhsa walls: water content and strength

Evolution and states of pakhsa:



Pakhsa drying time varies greatly depending on:

- The type of soil
- The water content
- Thickness of the wall
- The weather

Mud bricks dry faster than pakhsa, as they are smaller

Key messages were developed to standardise assistance and focus on the most important improvements based on the common failure mechanisms observed.

PROJECT STRATEGY

The shelter community, operating through the active cluster, anchored the design strategy in vernacular architecture. Actors analyzed houses that had performed comparatively better and developed a standardized, two room house using Paskha and mud brick walls. The decision to standardize around a familiar typology was deliberate: it preserved cultural fit, employed locally available materials and skills, and provided a common technical reference to guide consistent quality across implementers and districts.

Critically, the strategy hinged on markets. Once functional markets were confirmed, the cluster agreed to pair the standardized design with a cash for shelter package. Cash respected the self build tradition, leveraged the existing construction economy and supported early recovery by keeping expenditures local. At the same time, the common design functioned as a quality safeguard, focusing attention on the construction details most associated with observed failures, so that risk reduction could be practical, visible and locally achievable. These details were interpreted into key messages and technical training to local masons and engineers involved in the post-earthquake activities.

Pakhsa walls: Control tests

Pack the pakhsa well without air bubbles or big stones too close together

When cutting off the outer side layers, check if the pakhsa has dried underneath

If the pakhsa responds to weight as below, it has not yet dried enough



Vernacular techniques were supported through the project, accompanying simple instructions and illustrations for local masons and households.

PROJECT IMPLEMENTATION

Implementation proceeded in phases, integrating coordination, technical scoping and modality decisions:

- **Coordination and approvals:** Given the sensitive operating environment, multiple coordination meetings with de facto authorities were convened to confirm caseloads, formalize approvals and clarify implementation arrangements. This step was essential for safe, predictable access in remote localities.
- **Technical scoping and diagnostics:** Field teams documented structural damage, compound layouts and construction practices, gathering the evidence that shaped the standardized design. The same diagnostics that identified roof collapses, unsupported boundary walls and weak connections provided the priorities for improvement within the vernacular method.
- **Modality and supply chains:** With markets confirmed, cash for shelter was adopted to allow households to source materials and local labor under the standardized construction approach. This reduced logistical burdens in areas where roads, riverbeds and mountain crossings limited movement and made centralized supply risky or slow.
- **Phasing from relief to reconstruction:** Immediate distributions of temporary shelter items and essential household items, followed by the provision of three months of rental cash assistance stabilized families while reconstruction planning and resource mobilization advanced in parallel. The timeline for repairs and reconstruction aimed to complete as much as possible before winter.
- **Social fit and compound logic:** Implementation explicitly recognized the centrality of boundary walls and compound arrangements to habitability. Restoration of the compound together with the dwelling was framed as integral to a successful shelter solution, enhancing community acceptance and engagement.



Focusing on connections, wall bonding and roof assemblies – where failures concentrated – yielded safety gains through modest, locally achievable enhancements.

Upon the initial assessments conducted, 2,620 USD were assigned for reconstruction, and 1,310 USD for repair cash packages that were provided in three instalments:

- the first instalment (20%) covered foundations and stone masonry level;
- the second instalment (50%) for walls construction;
- the final instalment (30%) was provided for roofing and finishing of the shelter.

Percentages were later reviewed to ensure families met the required progress criteria to qualify for the next instalment.

Affected families, having lived on their lands for years, rebuilt on the same plots without significant land ownership issues.

The two implementing organizations offered technical and financial support, while communities managed material procurement, labor hiring, and proper use of cash assistance to complete their shelters.

TARGETING

Targeting followed an inter agency process aligned with the shelter cluster and engaged de facto authorities to validate caseloads. Prioritization hinged on the nature and

severity of housing damage, distinguishing cases feasible for repair from those requiring full reconstruction. This triage approach matched the technical solution and cash modality to the household's situation and aimed to ensure that works could be completed safely and appropriately before winter.

Further, main priority was given to severely damaged shelters, as well as to vulnerable groups such as persons with disabilities, low-income households, displaced families, and female-headed households.

COMMUNITY ENGAGEMENT

Community dialogue was essential in a context marked by trauma, aftershocks and hesitation to re-enter damaged homes. Shelter teams explained the sequencing from temporary assistance to safer reconstruction, emphasizing technical solutions rooted in local typologies and materials. Engagement highlighted how specific safer building details, especially at connections, roof assemblies and boundary interfaces, would reduce risk while preserving the familiar form and function of the compound.

This approach helped build confidence and acceptance, while positioning local masons and households as the principal actors in rebuilding.



The importance of the compound life was understood and supported by the project, which included boundary walls and clustered configurations in the reconstruction.



While community dialogue was essential to build trust, female participation in the project was limited, due to contextual norms as well as organizational limitations.

TECHNICAL APPROACH

VERNACULAR CONTINUITY

The two room house design used Paskha and mud brick and followed familiar layouts, enabling local builders to execute works and households to monitor quality. Cultural and practical continuity increased adherence to safer techniques.

TARGETED RISK REDUCTION

Damage diagnostics guided where improvements were most needed and most impactful, and these were specified to be achievable with local materials and skills. The main improvements focused on strengthening wall bonding, improving wall-to-wall and wall-to-boundary connections, and securing roof assemblies to prevent collapse.

SEASONAL FEASIBILITY

Works were scoped to meet winter deadlines, reflecting material availability, labor capacity and access conditions. The combination of cash and a standardized design supported rapid mobilization and consistent execution despite logistical constraints.

MONITORING, ACCOUNTABILITY AND LEARNING

Post-distribution monitoring reports were developed to continuously grasp the community feedback and allow course adjustments throughout the implementation. The documents consolidating the technical messages were designed aiming to standardize guidance across field teams and to translate the construction process into clear, actionable instructions for households and masons, which reinforced consistent implementation.

COORDINATION

Response coordination was established at multiple levels: Kabul (cluster), field (UN humanitarian hubs), and community (local/village shura). The shura gathered community feedback, relaying it to the field and Kabul clusters to address gaps, prevent overlap, and maintain a consistent, harmonized shelter strategy. Frequent site visits by various organizations were conducted to monitor construction quality, ensuring standards were met and providing onsite technical support and feedback.

The shelter cluster provided the forum to agree on technical standards, assistance modalities and timelines. The coordination platform helped avoid duplication, ensured a consistent technical message across organizations and districts, and linked operational decisions to the broader multi sector response. Simultaneously, engagement with de facto authorities ensured alignment on caseloads and approvals. These two levels were indispensable to timely delivery and quality control under access constraints.



The project also trained 83 local masons in vernacular construction techniques.

DISASTER RISK REDUCTION AND SAFER CONSTRUCTION

While the earthquake was the immediate hazard to be addressed, the affected provinces also faced regular flooding and heavy snowfall. The proposed construction techniques, though anchored in seismic learnings, targeted wall integrity, connections and roof performance that contribute to resilience in multiple hazard scenarios, with enhanced masonry levels protecting from floods. By focusing on details that local masons could execute and households could supervise, safer construction practices were more likely to be sustained in routine repairs and future works, enhancing multi-hazard resilience through the reconstruction process. Additionally, where applicable, the positioning of shelters was advised by the project organizations to avoid landslide risks.

Key messages and recommendations were developed in coordination with the Shelter Cluster, targeting both the community and implementing actors to address unsafe construction practices. These covered critical issues such as excessive soil loading on roofs, disconnected roof beams, improper wall dimensions, detached foundation stones, wall erosion, and inadequate soil work for walls and roof covers.

CHALLENGES

In terms of accessibility and logistics, physical access was limited, and basic facilities like schools, clinics, and markets were unavailable in the initial phase. There were no water supplies or access roads, movement was restricted to riverbeds, and relocations within mountainous areas were difficult due to the rugged terrain. Additionally, accessing stone for masonry was challenging because tribal and government land divisions restricted access to the building materials. Transporting materials on donkeys added further logistical difficulties.

Despite the wide presence of vernacular typologies in the project areas, communities lacked knowledge about construction of vernacular structures and risk awareness, which required significant sensitization efforts from the implementing organizations. Since the implementation started in October, winter conditions slowed progress, as Paskha walls and mud bricks needed a longer period to dry, while some families also had to wait for skilled masons to build their houses.

ENGAGEMENT OF WOMEN

The communities were conservative and restrictive regarding female participation, so extra efforts were needed to engage women. For instance, an additional assessment was conducted to gauge female household members' awareness and feedback on the shelter project. At the time, one of the project organizations lacked female shelter staff to interact with women, so the shelter team consulted female staff from other units and requested them to conduct a quick assessment. This aimed to

consult women at the household level to gather feedback on the layout and implementation and provide a platform for voicing concerns about the design. A key finding was that women were open to participating in construction or repair training, provided it aligned with local social and cultural norms. However, limited training opportunities for women had an impact on their participation, and was later exacerbated by the decree restricting women from working with NGOs and the UN, which came during the project period.

OUTCOMES AND WIDER IMPACTS

The primary outcome of the shelter strategy was to align actors and communities around a feasible pathway to safer reconstruction that households recognized as their own. The combination of a standardized vernacular design and cash for shelter in functional markets allowed families to mobilize quickly, using local supply chains and labor, while incorporating risk reducing details that directly addressed observed failures following a build-back-better approach.

By explicitly integrating compound restoration—particularly boundary walls—into shelter planning, the approach supported not only structural safety but also the restoration of privacy and social order foundational to daily life in the affected districts. The standardized design served as a common reference across agencies, which reinforced coherence and quality in a challenging operating environment.

HANDOVER AND SUSTAINABILITY

Sustainability was pursued by anchoring safer construction in familiar forms, materials and techniques, rather than introducing a novel typology. Because local masons and households executed the works with local materials, the safer details embedded in the standardized design are more likely to persist in routine practice after program handover. In districts with no pre earthquake humanitarian presence, this alignment between cluster standards and local building culture was fundamental to enduring impact: as households completed and maintained their homes, they and their builders carried forward safer techniques into future repairs and new construction.



The cash-based response enabled households to source materials and labour locally, while the organizations supported with technical assistance.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Cluster endorsed standardization rooted in vernacular practice.** The shared design provided a common technical reference across shelter actors and districts, preserving cultural fit while clarifying safer building details that addressed observed failures.
- ✓ **Cash for shelter aligned to functional markets.** Once markets were confirmed, cash enabled households to source familiar materials and hire local masons, accelerating early recovery, strengthening local economies and improving feasibility.
- ✓ **Compound oriented planning that restored privacy and social order.** Treating boundary walls and house to wall interfaces as integral to shelter solutions supported habitability in culturally appropriate ways, increasing acceptance and day to day use.
- ✓ **Diagnostics driven technical priorities.** Systematic attention to roof assemblies, wall bonding and connections, based on field observed failure patterns, focused resources on the highest impact improvements achievable with local skills and materials.
- ✓ **Phased delivery from immediate support to durable shelter.** Early distributions of temporary shelter and essential NFIs stabilized families while reconstruction planning advanced in parallel, reducing delays to winter ready solutions.
- ✓ **Documentation and learning tools in place.** The post distribution monitoring and codified technical messages stressed an intentional learning and accountability loop, reinforcing consistent field practice and informing adaptive management.

WEAKNESSES

- × **Uneven construction knowledge and self build variability.** Widespread self build without technical oversight meant variable execution quality, even under a standardized design, requiring sustained guidance and supervision to achieve safer details.
- × **Seasonal exacerbated challenges.** Starting implementation at the beginning of winter extended the project timeline, as constructing Paskha walls was difficult in cold weather. The decision to allocate funding for rental assistance came too late, since actual implementation only started after the peak winter months.
- × **Uncoordinated approaches.** Despite the strong role of one of the project organizations in the Cluster, some of the other shelter actors introduced new design packages and used contractors to build shelters. This caused confusion among communities about the most suitable designs for the area, and required multiple focus group discussions to explain the benefits and strengths of vernacular designs.
- × **Norms driving higher risk boundary walls.** Common practices of long, high, unsupported boundary walls increased structural risk; reconciling risk reduction with entrenched social expectations was complex and time consuming.
- × **Limitations on female work.** Despite some efforts, the lack of training opportunities for female community members limited their participation in response activities in many areas.



FURTHER READING ON SHELTER PROJECTS

On Afghanistan: [SP 2008 / B.01 / 2002](#); [SP 11-12 / A.01 / 2012](#).

On earthquake response: [SP 11-12 / A.12 / HAITI 2010](#); [SP 2010 / A.17 / MALAWI 2009](#); [SP 17-18 / A.18 / NEPAL 2016-17](#).

LESSONS LEARNED

- **Build safer reconstruction around what communities already know and value.** The choice of vernacular architecture proved suitable and appropriate, as many people reused old building materials like soil, doors, windows, and wooden planks to rebuild their shelters.
- **Pair cash with a clear, shared technical solution.** Cash for shelter leveraged local markets and skills, providing families with significant flexibility, allowing them to directly manage implementation, unlike approaches that relied on contractors.
- **Treat enclosure as a core requirement, not an accessory.** In compound settings, boundary walls are central to habitability. Planning and budgeting must accommodate their restoration alongside the dwelling fabric.
- **Decide early, to beat the season.** When winter deadlines loom, early consensus on modality, design and case-load is pivotal to avoid bottlenecks and to keep households on a viable reconstruction timeline. Advocate early for rental assistance to start as soon as possible to cover the winter months when construction is on pause. If planned earlier, it could have allowed communities to begin construction after the season.

CASE STUDY

BANGLADESH 2018-2024 / ROHINGYA CRISIS

CONTEXT / SETTLEMENT

SUPPORT METHODS

CRISIS	Rohingya Refugee Crisis (Aug 2017 onwards)
PEOPLE IN NEED	1,006,670 people (as of Nov 2024)*
PROJECT LOCATION	Cox's Bazar, Bangladesh
PEOPLE SUPPORTED BY THE PROJECT	509,375 individuals (51% female, 49% male; 53% children)*
PROJECT OUTPUTS	128,752 new packages of LPG (including 27,875 HH from the host community) 5,406,467 LPG refills (5% host community) 134,610 HH supported with porters (4% HC) 86,861 stoves distributed to refugee households
DIRECT COST	USD 140 per household annually (for LPG refill, canister, stove, accessories and training)
PROJECT COST	USD 162 per household annually

* Joint Government of Bangladesh - UNHCR Population Factsheet – November 2024.

PROJECT SUMMARY

Since 2018, this programme provided clean, safe cooking fuel to Rohingya refugees, reducing reliance on firewood and mitigating associated protection, health and environmental risks. Implemented under the Safe Access to Fuel and Energy Plus framework established in coordination with the Government of Bangladesh, the programme combined fuel provision with community training, safety measures and operational systems across all the Rohingya camps. Experience over multiple years underscored that sustained access to Liquefied Petroleum Gas (LPG) is essential to avoid negative coping strategies and to protect the natural environment and social cohesion around the camps.

PROJECT

CONTEXT

TIMELINE

1

2

3

4

5

6

7

8

PILOTING

IMPLEMENTATION PHASE 1

IMPLEMENTATION PHASE 2

CRISIS

2017

2018

2019

2020

2021

2022

2023

2024

Aug 2017 onwards: Rohingya influx and establishment of the Cox's Bazar camps in protected forest land, leading to deforestation to cover basic needs for fuel and shelter.

1 Sep 2018: Programme start in Cox's Bazar camps (initial blanket coverage with new LPG packages and refills, following a pilot).

2 Jan 2019: SAFE+ framework operationalized to coordinate fuel, environment and related actions. Launch of joint LPG program.

3 Jun 2020: Introduction of a porter support service to assist elderly, disabled, widowed, and child-headed households during distributions.

4 Apr 2021: Shelter design incorporates a plastered wall for the cooking area, to increase fire safety.

5 Mar 2021, Jan 2022, Mar 2023: Massive fires in camps, triggering the distribution of emergency LPG kits.

6 Mar 2023: Community-led stove repair programme launched in a pilot location to enhance local capacity and ownership.

7 Aug 2024: Initial discussions began across agencies to harmonize LPG tender processes and standardize cylinder and stove specifications; the joint tender approach was revisited one year later.

8 Sep 2024: A tracing system was introduced in the LPG distributions program to prevent the resale of canisters.

9 Oct 2024: Adaptation of the distribution tools for LPG distribution, in coordination with other agencies, to ensure better targeting and preventing duplication through biometric verification.



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The project distributed LPG canisters to a large refugee population. To assist the most vulnerable households who were unable to transport the heavy cylinders to their shelters by themselves, porters from the refugee community were engaged.

BACKGROUND

Bangladesh has hosted successive waves of Rohingya refugees from Myanmar for decades, but the largest forced displacement began in August 2017, when hundreds of thousands fled violence in Rakhine State and sought refuge in Cox's Bazar. For more information, see overview A.13 in Shelter Projects 2017-2018. By late 2024, more than one million Rohingya refugees were recorded in Bangladesh, making this one of the world's largest and most protracted refugee situations. Most refugees live in highly congested camps in Cox's Bazar and remain heavily dependent on humanitarian assistance for basic services and daily survival. Household cooking fuel quickly emerged as a major humanitarian and protection concern.

Before the introduction of LPG, many refugee households relied on collecting firewood or using biomass, which contributed to rapid deforestation around the camps, increased exposure to protection risks, particularly for women and girls while collecting firewood, and worsened indoor air pollution. The environmental degradation associated with firewood use also compounds erosion, flooding, and landslide risks in an area already highly vulnerable to extreme weather. National energy conditions also informed response choices: despite near-universal electrification, grid unreliability and the negligible uptake of electric cooking made large-scale e-cooking impractical in camps during this period.

Against this backdrop, the LPG programme in Cox's Bazar was established not only as an energy intervention, but also as a protection, environmental, and social cohesion measure, reducing tensions with host communities over natural resources and aligning with Bangladesh's broader clean-cooking pathway.

PROGRAM DESIGN

The assistance modality was predominantly in-kind, through the provision of 12 kg LPG cylinders, refills, stoves, and accessories, to ensure reliable access to a safe fuel and allow close technical oversight of safety standards. This choice was reinforced by the national system constraints. Over time, allocations were refined to match household size and consumption data, promoting both equity and stewardship of resources. The programme paired distributions with practical training, demonstrations on safe usage of LPG and storage, and clear messaging on kitchen layout, ventilation, and fire safety in the shelter context.

Strengthening energy efficiency was an explicit design choice. Pressure cookers were introduced and accompanied by training to reduce gas consumption and cooking time. Given that most Rohingya households had used firewood before displacement, training and demonstrations covered the basics of LPG use, safe ignition, and cylinder handling, and promoted safety practices at cooking areas. Behaviour-change messaging reinforced safe kitchen practices, and programme monitoring was used to assess adoption and optimize household LPG requirements over time.



© HASHI Nasrin Akter, IOM

LPG distributions were organized in large facilities built for the project.

PROJECT IMPLEMENTATION

Implementation proceeded as a coordinated, camp based operation aligned with Shelter/NFI and site management structures. Key steps included:

- **Needs identification and allocation rules:** Household energy and fuel use studies under the SAFE+ framework were used to determine initial refill frequencies and quantities, adjusted over time using PDM findings. Allocations were tied to household size bands (2+, 4+, 6+, 8+, 10+, 12+), with larger households receiving refills more frequently. Pressure cooker distribution enabled longer refill intervals without compromising cooking needs.
- **Procurement and stock management:** Procurement followed competitive procedures and quality requirements. Agreements with suppliers supported safe transport and handling, while the programme maintained a buffer stock outside distribution points equivalent to about one to two weeks of anticipated demand to minimize disruption. LPG was not stored overnight inside camps for safety; vendors retained contingency stocks off site. Price volatility and exchange rate fluctuations were managed through regular supplier engagement and long term agreements for accessories; fuel prices followed market indices at the time of procurement.
- **Safety and storage:** Cylinders were stored in well ventilated areas away from ignition sources, with spacing between stacks and clear access corridors. Regular checks for leaks and damage were combined with on site emergency equipment, staff training, and defined response procedures.
- **Community mobilization and distribution organization:** Periodic distributions were organized, and the day before, tokens were distributed to the households. On distribution day, tokens and time slots were used to smooth the flow and reduce crowding. Households returned empty cylinders to trigger the refill process. If a cylinder still contained more than 250 grams of gas when weighed, the household was advised to continue using it and return later; otherwise, verification and voucher transactions were completed, and the full cylinder was weighed in front of the beneficiary prior to handover.
- **Inclusive and dignified access:** Distribution points were equipped with separate queues for women and men; shading, seating, and breastfeeding corners were provided; and female staff were present at verification desks. Extremely Vulnerable Individuals, such as older persons, persons with disabilities, and other extreme vulnerabilities, received porter support to transport cylinders safely to their shelters, and children were not allowed to carry cylinders. Entry and exit routes were separated to reduce congestion, and basic services (water, toilets, handwashing) and fire safety equipment were in place.



At first-time distributions, the team provided demonstration on the safe use of LPG cylinders and stoves.

- **Complaint and feedback mechanisms:** A dedicated desk was available at distribution sites, complemented by site management, CWC (communication with communities), and protection partners. Feedback from PDMs informed action, such as the decision to continue porter support to the extremely vulnerable people so that beneficiaries did not have to return cylinders themselves.
- **Repair and replacement:** While initial phases provided full kits, stove life cycles created a replacement need. Donor contributions enabled replacement where necessary. In 2023, a community led stove repair center was opened: trained Rohingya participants, engaged on a rotating cash-for-work basis, repaired thousands of stoves, strengthening local ownership.
- **Staff composition and roles:** The operation was overseen by a dedicated lead, with 18 field staff coordinating roughly 80 third party personnel, a comparable number of Rohingya volunteers, and suppliers. Teams handled warehousing, cylinder handling and distributions in coordination with vendor staff; supervisors and IM personnel supported data and technical quality. Volunteers and community mobilizers disseminated information, helped with distribution-related messaging, and monitored fire safety in cooking areas.
- **Camp Infrastructure:** Through the set-up of the programme, a whole network of related infrastructure was established across the camps, with strategic plots specifically allocated for distribution sites which soon became constantly busy with the daily LPG deliveries and have further served for any other distribution. Roads were also paved with cooked bricks to allow LPG trucks access across.



In addition to LPG distributions, the project also included a community-led stove repair component.



The project had a concrete environmental impact, since the main cooking fuel source prior to its implementation was firewood, which had led to deforestation in and around the camp, as shown on the left (photo from 2019). The comparison (right-hand photo) after seven years of LPG distribution and reforestation efforts.

TARGETING AND COMMUNITY ENGAGEMENT

The programme applied blanket coverage within more than 50% of the Rohingya camps, with refill frequencies calibrated to family size and verified through digital registration and community validation.

Regular meetings, door-to-door visits, and training ensured that households understood the distribution cycle, safe handling, and kitchen practices. Focus Group Discussions, Key Informant Interviews, and the complaint and feedback system enabled data-informed adjustments, such as refining refill schedules, strengthening safety messaging, and identifying additional support needs for extremely vulnerable individuals. Refugee volunteers and cash-for-work participants assisted with mobilization, follow-up, and support to vulnerable individuals, reinforcing programme effectiveness and safety.

COORDINATION

The programme aligned with the SAFE+ mechanism and engaged through the Energy and Environment Technical Working Group, alongside shelter and camp coordination structures and authorities. Multi-stakeholder coordination enabled shared technical standards, operational coherence, and advocacy on safety, efficiency, and market harmonization. More broadly, energy coordination in the camps helped reinforce LPG as the core household cooking fuel, while ensuring that related guidance on safety, efficiency, refills, stove use, and complementary household energy needs was addressed within an integrated camp-energy approach.

DISASTER RISK REDUCTION

Fire is a major camp hazard (see case study A.15 from Shelter Projects 9th Edition). The programme's DRR approach combined:

- Training and mobilization on LPG and stove safety, cooking area layout, and ventilation, with assistance from community leaders to address initial misconceptions and build acceptance.
- Fire safety rings for walls behind stoves, produced locally from recycled drums via cash for work, to reduce wall ignition and spread.
- Successful advocacy for at least one plastered wall in shelters where cooking areas were located, incorporated in the shelter designs approved by the local authorities from 2021 onwards, and the construction/retrofit of Lime Stabilized Soil shelters to reduce the spread of fire.

By reducing firewood collection and pressure on surrounding forests, the programme complemented slope stabilization and plantation works that helped reduce erosion and landslide risk.

ENVIRONMENTAL IMPACT

Deforestation and environmental degradation around the camps—driven by firewood collection—had increased siltation, flash flood, and landslide risks, while straining relations with host communities. Replacing firewood with LPG in parallel with plantation programmes allowed the surrounding environment to recover gradually and helped ease tensions, contributing to improved social cohesion alongside environmental benefits such as reduced indoor smoke and soot.

MATERIALS AND SUPPLIES

The LPG supply chain, involving multiple intermediaries and transport stages, faced price volatility linked to energy markets and currency movements. The programme responded by:

- Establishing long term agreements for accessories (stoves, hoses, regulators, energy efficient equipment) while purchasing fuel at current indexed prices; maintaining quality through inspections and compliance checks.
- Working with national and international suppliers under safety and performance requirements; ensuring vendors transported LPG to distribution points and maintained off site contingency stocks.
- Contributing with partners to harmonize tender processes and standardize cylinder and stove specifications to increase efficiency and prevent monopolistic behaviours.

MAIN CHALLENGES

Securing predictable funding to maintain the “LPG pipeline” remained a central challenge. An estimated USD 21.3 million per year (based on the JRP 2024) was needed to cover more than 100,000 households in the targeted camps, amid signs of donor fatigue in a protracted crisis. Additionally, space constraints limited the number and location of distribution points: unable to construct a facility in every camp, the operation sometimes served multiple camps from a single site, obliging beneficiaries to travel longer distances with cylinders.

LINKS WITH RECOVERY

By reducing time spent on firewood collection and smoke exposure, LPG increased time for caregiving and other daily tasks and supported improvements to household well being. The programme's local engagement, including volunteer participation, community led repairs and safety production (e.g., fire rings), reinforced ownership and capacity, elements that are foundational for recovery in a protracted displacement setting.

EXIT/HANDOVER

Given restrictions on refugee livelihoods, identifying a full exit strategy for LPG was difficult. Partners therefore prioritized measures to reduce consumption through efficiency, lower management costs by sharing capacity with local actors, and explore alternative fuels and technologies that could complement LPG over time. Assessments of options such as briquettes, biogas, and e-cooking suggested that, in the short to medium term, these were more viable as complements than replacements at the camp scale, while alternative financing mechanisms such as carbon credits were also explored to support longer-term sustainability.



LPG cylinders were stored at the distribution point warehouse with adequate spacing between stacks prior to distribution. Vendor staff regularly inspected the cylinders to ensure safe storage.

OUTCOMES AND WIDER IMPACTS

The programme played a vital role in addressing urgent household energy needs in the camps. Households reported shorter cooking times, cleaner cooking fuel, lower out-of-pocket costs, improved safety, and fewer health issues associated with indoor smoke. By reducing reliance on firewood, the intervention lowered tensions with host communities over natural resources and supported environmental rehabilitation around the sites. Technical exchanges among partners also prompted work to harmonize CO2 offset methodologies by standardizing assumptions on baseline firewood use, incorporating the fraction of non-renewable biomass, and accounting for LPG emissions. Without continued LPG provision in this context, households would likely revert to firewood, with negative protection, health, environmental, and social cohesion consequences.



Safety awareness sessions were organized on the use of LPG and stoves.



The use of LPG as fuel had positive impacts on health, dignity and safety.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Integration:** Strong coordination with camp coordination/site management, protection actors and camp authorities enabled timely implementation, tailored support to extremely vulnerable households, and a do no harm approach that addressed the risk of child labour around distributions.
- ✓ **Systems:** Robust procurement and supply systems, a broad operational presence across camps, and dedicated distribution points underpinned the scale and consistency of the operation. Human resources (staff, third party contracted staff, and refugee volunteers) and clear SOPs sustained year on year continuity.
- ✓ **Community engagement:** Continuous engagement through FGDs, trainings, door to door mobilization, and inclusion of Rohingya volunteers enabled the programme to function during adverse conditions and adapt to feedback rapidly.



FURTHER READING ON SHELTER PROJECTS

On the Rohingya crisis: [SP 17-18 / A.13-A.15](#)

On fire response projects: [SP 9TH ED. / A.15 / BANGLADESH](#);
[SP 2009 / A.15 / SOMALIA](#)

On cooking stoves: [SP 17-18 / A.7 / SOUTH SUDAN](#)

WEAKNESSES

- × **Space constraints:** Insufficient land for dedicated distribution facilities in every camp forced multi camp operations from single sites, increasing the distances some beneficiaries had to travel.
- × **Limited alternative technologies:** Despite active exploration, there were no readily deployable alternative cooking technologies that could complement LPG for a mixed fuel strategy, lowering the dependency on LPG and the costs of the programme.
- × **Difficult exit strategy:** Identifying a viable exit or handover pathway remained challenging in a no livelihoods context; adjustments to accommodate reduced funding were constrained by ongoing needs and limited household purchasing power.



Despite having designed and built dedicated facilities for this project, which were then used for other kinds of distributions in the camp, the lack of space sometimes meant that beneficiaries had to travel long distances to access fuel.

LESSONS LEARNED

- **LPG distribution as the optimal near term solution:** In the specific conditions of Cox's Bazar, considering the scale and density, LPG proved the most feasible cleaner cooking solution at scale, addressing environmental degradation, protection concerns, and time poverty linked to firewood collection.
- **Efficiency, safety, and time savings matter:** Reductions in cooking time and cleaner operations improved safety and released time for other essential activities, especially for women. Simple, repeated safety messaging and visible precautions (e.g., weighing, separation of queues, fire rings) built trust and practical safety outcomes.
- **Inclusive delivery improved access:** Consistent porter assistance, female staffing at verification points, and tailored facilities made distributions more accessible and dignified for vulnerable individuals and women-led households.
- **Community engagement in operations and maintenance strengthened ownership:** Recruiting refugee volunteers and establishing community-led stove repairs strengthened ownership, lowered downtime, and cushioned the impact of procurement and replacement delays.
- **System calibration reduced diversion risks:** Cylinder tracing and periodic review of per-household allocations aligned supply with real needs and reduced resale risks. Continual monitoring and beneficiary feedback were critical to calibrating volumes and schedules.
- **Early planning for sustainability pathways was important:** Even when a full exit was not feasible, parallel workstreams helped reduce long-term costs and dependence on humanitarian funding.
- **Evidence-informed calibration sustained performance:** Routine monitoring, combined with structured qualitative engagement, supported iterative adjustments to refill intervals, safety messaging, and efficiency measures, and proved essential to sustaining performance in a dynamic context.

CASE STUDY

NEPAL 2021-2023 / EARTHQUAKE

CONTEXT / SETTLEMENT



SHELTER TYPE



SUPPORT METHODS



CRISIS The 2015 Gorkha Earthquake

PEOPLE AFFECTED 8 million people affected*

PEOPLE DISPLACED 188,900 people displaced**

PEOPLE WITH SHELTER NEEDS 1,355,657 individuals***

PROJECT LOCATIONS Kaski, Tanahun, Lamjung, Chitwan, and Makwanpur districts

PEOPLE SUPPORTED BY THE PROJECT 8,932 HH direct beneficiaries
(44,660 Individuals | 3,573 HH female, 5,359 HH male)

PROJECT OUTPUTS 4,000 safer homes supported for reconstruction:
3,218 HH with cash assistance;
482 HH with customized assistance (materials / labour);
300 HH with full house construction.
7,172 HH supported with livelihoods, of which 4,436 HH provided with in-kind agricultural inputs.
56 water systems rehabilitated.

SHELTER SIZE 26 m² (average shelter size)
20 - 93 m² (for shelters supported with cash)

SHELTER DENSITY 5.2 m² / person on average
4 - 18.6 m² / person on average (cash support)

DIRECT COST USD 5,210 - 6,700 per shelter (construction)
USD 372 per household (cash support)

PROJECT COST USD 5,782 per household (construction)
USD 765 per household (cash support)



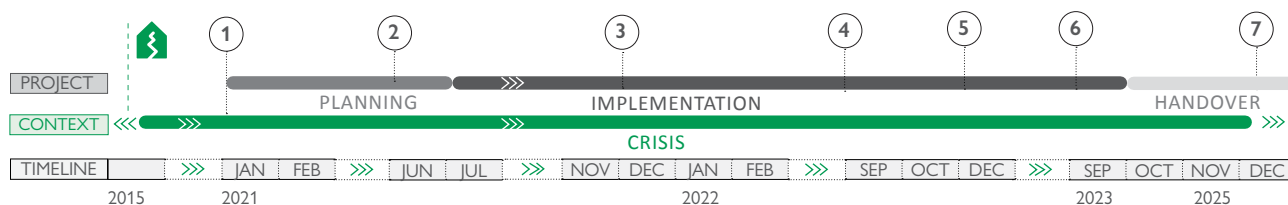
PROJECT SUMMARY

This was a three-year, USD 10 million initiative, aimed to support 8,932 vulnerable families in Nepal, addressing their recovery needs six years after the 2015 Gorkha Earthquake. Focusing on shelter, livelihoods, and water infrastructure, the project helped 4,000 families rebuild safer, earthquake-resistant homes, provided livelihood training to over 7,000 families, and supplied material inputs to 4,436 families. Additionally, by leveraging government and community contributions, the project repaired or constructed 56 water infrastructures, benefiting 2,127 families. Through its comprehensive approach in moderately affected districts, the project played a pivotal role in supporting long-term recovery and enhancing community resilience post-disaster.

*Gov of Nepal, National Planning Commission;

**UN OCHA;

***Central Level Project Implementation Unit, Department of Urban Dev & Building Construction (July 2020).



April 2015: Gorkha Earthquake.

1

Jan 2021: Project Launch.

2

June 2021: Initial Community Assessment to identify the needs and Community Feedback Mechanism Established.

3

Dec 2021: Year 1 Achievements - 900 HHs with shelter construction, livelihood input support to 1,000 HHs, and completion of 10 water infrastructures.

4

Sep 2022: Mid- Project Evaluation to assess progress and impact.

5

Dec 2022: Year 2 Achievements - 2,700 HHs with shelter construction, livelihood input to 3,500 HHs, training to 3,900 HHs and 40 water infrastructures.

6

Sept 2023: Year 3 Achievements - 4,000 HHs with shelter construction, livelihood input to 4,436 HHs, training to 7,172 HHs and 56 water supply systems.

7

Dec 2023: Project Closeout and Impact Assessment.



The project provided multisectoral support to households who, after six years from the earthquake, still hadn't been able to access reconstruction assistance.

BACKGROUND

In 2015, Nepal's Earthquake caused extensive loss of life and widespread destruction to housing and infrastructure, leaving millions of people affected and hundreds of thousands displaced. Following it, national recovery was anchored in a homeowner driven model that enabled many families to rebuild; however, six years on, significant gaps remained for households unable to navigate technical, financial or administrative hurdles. These households faced a sustained deficit in safe and dignified housing, coupled with persistent limitations in livelihoods and water services.

By the time this project began in 2021, many households still needed durable shelter solutions, reflecting both the scale of the original disaster and the uneven capacity of households to meet compliance requirements for tranche-based reconstruction grants. Local governments newly empowered during recovery were consolidating their roles in guiding and approving reconstruction activities, while partners sought to identify and unlock the barriers that continued to stall progress for the most vulnerable.

SITUATION BEFORE THE EARTHQUAKE

Pre earthquake, many rural communities faced chronic poverty, limited access to basic services and livelihoods grounded in small scale agriculture. Housing commonly relied on local materials and traditional construction techniques, with limited seismic-resistant detailing. Social inequities, including gender and disability related barriers, reduced access to information, finance and services. These underlying vulnerabilities not only magnified the impact of the earthquake but also complicated the recovery, as households with fewer resources struggled to muster the inputs needed for safe reconstruction.

SITUATION AFTER THE EARTHQUAKE

The earthquake displaced hundreds of thousands of families into temporary or substandard shelter solutions with minimal protection, sanitation or security. Damage to road, market and service infrastructure, especially in hill and mountain areas, slowed recovery and drove up the transaction costs of compliance for vulnerable families, creating a cycle in which those with the least capacity were the least able to move forward.

The subsequent COVID 19 pandemic added pressure on incomes and access to services, further delaying reconstruction and reinforcing the need for targeted and context appropriate support to transition households to safer, compliant homes.

NATIONAL RECONSTRUCTION STRATEGY

The Government of Nepal's Post Disaster Recovery Framework guided an owner driven approach implemented through the National Reconstruction Authority (NRA). Grants were disbursed in tranches against construction milestones verified by technical staff; minimum compliance standards ensured seismic safety through features such as horizontal bands and improved connections.

Over time, implementation authority transitioned to local governments to improve responsiveness and accountability. The approach was effective for many, yet it also left significant numbers behind. Households who lacked documentation, technical understanding or the liquidity to navigate procurement and labor markets. Partners complemented the national model with technical assistance, targeted procurement and livelihood support to address these gaps.



Targeted households were supported either with cash, in-kind materials or direct reconstruction for the most vulnerable cases.

PROJECT DESIGN

Launched in 2021, the project focused on households that had not started or completed reconstruction yet. Its objective was to secure for them compliant homes by calibrating assistance to their capacity and constraints, while simultaneously strengthening livelihoods and water services.

Three modalities matched the diversity of needs:

- Cash transfers to homeowners with the capacity to manage materials and labor, enabling them to complete works, reach compliance and unlock government tranches.
- In kind support (materials, labor, transport) for those unable to progress with cash alone, bridging technical and logistical gaps that prevented milestone achievement.
- Full construction support for households facing multiple, compounding barriers (such as disability, age, social exclusion or documentation hurdles) that precluded compliance without direct execution support.

Modality selection was grounded in socio economic profiling and household vulnerability assessments at registration. The program paired these modalities with technical assistance to guide decision making, sequencing and quality control, with the explicit aim of reducing the risk of non compliance and improving the pace and standard of reconstruction.

PROJECT IMPLEMENTATION

Implementation combined homeowner agency with structured technical guidance and, where necessary, direct construction. Six earthquake resilient typologies were approved and applied under full construction support:

- Brick Masonry in Cement Mortar (BMC);
- Compressed Stabilized Earth Blocks (CSEB) in cement mortar;
- Hollow Concrete Blocks in cement mortar;
- Stone Masonry in Mud Mortar with galvanised iron wire containment;
- Stone Masonry in Mud Mortar with concrete bands;
- Stone Masonry in Mud Mortar with timber bands.

Typology selection was guided by technical feasibility, homeowner preference, and local context rather than being prescriptive. Households were oriented on all options, and choices were often influenced by familiarity and cultural acceptance, particularly for commonly used types like BMC. Availability of local entrepreneurs and materials (e.g., CSEB producers or hollow blocks) was considered to accelerate construction. In remote areas, typologies using locally available materials such as stone and timber were prioritized to reduce transportation challenges, cost, and delays.

Each typology incorporated ductile detailing, including horizontal bands (plinth, sill, lintel and roof), vertical reinforcement at corners and wall junctions, and improved connections at openings, translating seismic principles into practical, locally executable measures.

Owner led cases were supported through mobile engineers who provided site visits, plan reviews, corrections and verification support to progress through tranche milestones. In in kind and full construction cases, the project managed procurement, transport and workmanship while engaging local artisans and laborers to embed skills in the community.

TARGETING & COMMUNITY ENGAGEMENT

Selection combined household surveys, vulnerability scoring and technical assessments. Data were disaggregated by household head gender, age and disability, alongside other vulnerability factors, to inform the modality and technical assistance needed for each case. Participatory assessments enabled communities to surface priorities and tailor shelter layouts within compliant typologies. Training and technical assistance were adapted to enhance accessibility and usability, including disability friendly features (ramps, handrails and appropriate WASH features). Monitoring incorporated gender sensitive indicators.



Multiple housing typologies and construction techniques were adopted, based on owner's preference, material availability and local context.

Community mobilization supported owner led construction, while training and on site coaching helped households supervise works and understand maintenance responsibilities. A feedback mechanism (including toll free numbers and meetings) allowed issues to be raised and resolved in real time, strengthening trust and accountability. Households and local artisans thereby became co producers of safer construction, with community members also engaged in the rehabilitation and stewardship of water systems.

TECHNICAL APPROACH

Technical assistance emphasized translating compliance requirements into step by step, feasible actions. Across typologies, key safety features included:

- Horizontal bands at plinth, sill, lintel and roof levels to ensure box action.
- Vertical reinforcement at corners and at wall junctions.
- Galvanised iron wire confinement for stone masonry in mud mortar where applicable.
- Consistent mortar quality and improved opening placement and sizing.
- Strengthened wall to roof connections.

Fully constructed houses averaged 26 m² of covered area across two rooms with a porch, while supported houses ranged from 20 to 93 m², reflecting site conditions, household needs and NRA compliance. These measures preserved cultural appropriateness and local material use while embedding resilient detailing into everyday construction practice.

COORDINATION

Implementation aligned with ward and municipal authorities to expedite technical approvals and tranche releases under NRA guidance. At national level, a housing and settlements platform co-led by the project organization (called HRRP) convened government bodies and partners to address systemic bottlenecks, such as inspection backlogs and documentation obstacles.

DISASTER RISK REDUCTION

In the housing component, compliance with seismic detailing reduced vulnerability to earthquakes; site selection and siting practices reflected government safety checklists to avoid landslide prone slopes, filled ground and flood exposed areas, reinforcing climate sensitive planning in reconstruction. For the water systems, the project prioritized resilient sources and equipped user committees with capacity for maintenance and fee collection, ensuring functionality through seasonal cycles and reducing post disaster health risks.

MATERIALS AND SUPPLY

Supply strategies were tailored to local market realities. Where markets functioned, cash allowed homeowners to procure materials and labor locally; where markets were thin or households lacked the capacity to manage purchasing, the project provided material inputs directly and organized transport. Community contributions (including labor and locally available materials) were facilitated where appropriate. This blended approach reduced delays, aligned with local norms and helped stabilize prices through predictable demand.

ENVIRONMENTAL CONSIDERATIONS

Technical options such as interlocking compressed stabilized earthen blocks and confined stone masonry reduced reliance on fired bricks, mitigating carbon emissions associated with kiln fired materials. Water quality testing and collaboration with local agencies guided the design of sustainable water systems that minimized ecological impacts. The promotion of local inputs, including seeds and livestock under livelihoods, further reduced transport burdens and supported climate sensitive recovery.



Ramps, handrails and accessible sanitation facilities were provided when needed by participants with disabilities.



Several technical solutions were identified for improved earthquake resistance, including for traditional construction techniques, such as including galvanised iron wires in stone masonry with mud mortar.

MAIN CHALLENGES AND ADAPTATIONS

Rugged terrain, weather disruptions and thin local markets increased logistics costs and risks of delay. The program responded with flexible procurement (switching between cash and in kind), mobilizing and rotating local masons to address labor gaps, and sequencing activities to leverage favorable weather windows. Where weather hampered construction, teams advanced administrative steps, including facilitating bank transfers for cash top ups, to maintain momentum.

Evolving technical guidance and delays in tranche disbursements challenged households' confidence and sequencing. The project mitigated these effects by working through ward and municipal channels, coordinating with all related stakeholders to expedite inspections and align households to requirements. Barriers for households lacking documentation were addressed through locally grounded guidance and case work with authorities, reducing rejection risk and maintaining pathways to compliance.

OUTCOMES AND WIDER IMPACTS

Beyond direct multisectoral support for 8,932 families, at systems level the housing and settlements platform helped unlock USD 10.68 million in government grants for project participants and catalyzed USD 8.25 million for an additional 39,067 families. This showed sector wide influence through policy engagement. The platform's approach also informed a later replication in Pakistan, where a similar mechanism was used to support large scale recovery from floods. By institutionalizing practical solutions to administrative and technical bottlenecks, the project contributed to more enabling reconstruction systems beyond its own implementation footprint.

HANDOVER AND SUSTAINABILITY

Owner led construction, supported by mobile technical assistance, positioned households to maintain and upgrade their homes over time. Skills transferred to local artisans through on site coaching promoted the continuation of seismic detailing in routine works. For the water systems component, user committees were trained and systems handed over with defined roles for fee collection and maintenance. Formal hand over with ward and municipal authorities consolidated responsibility and documentation, and post project feedback channels remained available to address residual issues. Together, these measures anchored outcomes in local capacities and governance, enhancing the likelihood of durable, scalable improvements.



FURTHER READING ON SHELTER PROJECTS

On Nepal earthquake: [SP 15-16 / A.3-A.7](#); [SP 17-18 / A.18](#).

On coordinated housing recovery: [SP 17-18 / A.17 NEPAL 2015-2019](#); [A.15 SP 10TH ED. / PAKISTAN](#).

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Participatory assessment, mobilization and feedback mechanisms** ensured that designs and sequencing reflected household realities, strengthening acceptance, accountability and long term use.
- ✓ **Integrated shelter–livelihoods–water approach.** Pairing safer housing support with livelihoods inputs and the rehabilitation of 56 water systems addressed interdependent barriers, improving habitability and enabling households to sustain gains.
- ✓ **Robust capacity building and Build Back Safer focus.** Training on safer construction, financial management and practical building techniques equipped households and local masons with actionable skills; 92% of participants later reported feeling safe in their homes.
- ✓ **Adaptable delivery to overcome access constraints.** Flexible procurement (cash, in kind, full construction) and labor rotation strategies mitigated rugged terrain, market thinness and weather disruptions, maintaining continuity without compromising standards.
- ✓ **Strong monitoring and responsive management.** Regular check ins and feedback enabled timely adjustments; joint monitoring and government endorsement reinforced transparency and compliance with safer building principles.
- ✓ **Effective government collaboration and policy leverage.** Engagement through a national platform mobilized CLPIU engineers and accelerated inspections and tranche releases, unlocking over USD 10 million for participants and catalyzing additional grants for tens of thousands more.

WEAKNESSES

- ✗ **Resource and accessibility limits in remote areas.** High transport costs and limited availability of materials and water infrastructure constrained coverage; some families in remote locations remained harder to reach within the project timeframe and budget.
- ✗ **Economic constraints undermined compliance for some.** Even with support, meeting construction standards was difficult for households with minimal liquidity, leading to delays or partial progress and highlighting the need for deeper, longer support in select cases.
- ✗ **Communication gaps and inconsistent follow up in a few cases.** Despite strong engagement overall, some participants were unclear about eligibility or procedures for subsidies, and occasional follow up gaps weakened feedback loops and satisfaction.
- ✗ **Bureaucratic hurdles and policy shifts.** Delays in disbursements, shifting regulations, land issues and variable local government capacity slowed execution, consuming time and effort to maintain household confidence and momentum.



Beyond housing reconstruction, the project supported entire villages with the rehabilitation of water systems.

LESSONS LEARNED

- **Ground design in local context and typologies.** Familiar, compliant typologies that use local materials and skills increase acceptance, improve build quality and facilitate replication by households and artisans after project end.
- **Pair technical training with financial and practical coaching.** Comprehensive training that includes construction, financial literacy and small enterprise skills helps households sequence works, supervise labor and sustain improvements.
- **Communicate clearly and often.** Simple, repeated communication on eligibility, steps and feedback channels reduces confusion and improves participation; ensure guidance is accessible to all literacy levels.
- **Strengthen follow up systems.** Consistent, structured follow up on community feedback fosters trust, improves outcomes and supports course corrections before issues become entrenched.
- **Plan for environmental sustainability from the start.** Adopt lower carbon materials where feasible (e.g., CSEB) and build resilience into water systems; integrate environmental screening in design to minimize ecological impacts.
- **Build coordination and advocacy into co funded, policy linked programs.** For programs tied to government subsidies, formal platforms and early coordination with authorities are critical to expedite inspections, tranche releases and approvals.

CASE STUDY

PAKISTAN 2023-2024 / FLOODS

CONTEXT / SETTLEMENT

SHELTER TYPE

SUPPORT METHODS

CRISIS	2022 flooding
PEOPLE AFFECTED	33 million people affected*
PEOPLE DISPLACED	7.9 million people displaced*
PEOPLE WITH SHELTER NEEDS	2.4 million households** with damaged homes 16.8 million individuals** with shelter needs
PROJECT LOCATION	Mirpurkhas district, Sindh, Pakistan
PEOPLE SUPPORTED BY THE PROJECT	489 HH (2,620 ind.) with Shelter Support
PROJECT OUTPUTS	14 villages supported with an integrated program 489 flood-resilient shelters built 148 latrines and 11 hand pumps installed 4 villages supported to build pathways, access roads and washing pads 546 people received construction training 104 semi-skilled labourers received mason training 66 Hygiene Promotion Sessions delivered
SHELTER SIZE	19 m²
SHELTER DENSITY	3.5 m² per person
DIRECT COST	USD 550 per HH (Cash for Shelter) USD 185 per HH (WASH) USD 142 per HH (Community Infrastructure)
PROJECT COST	USD 1,500 per HH for Phase 1

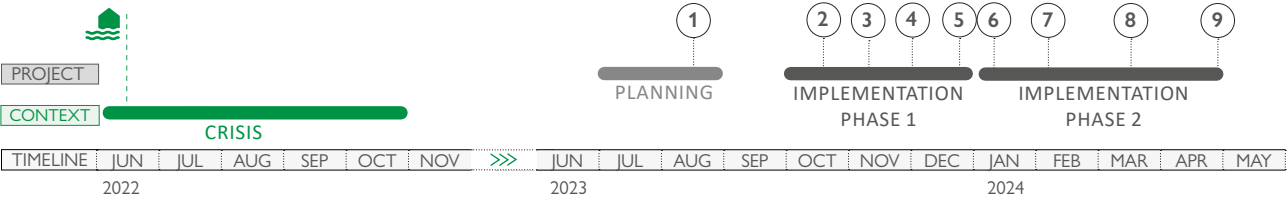


PROJECT SUMMARY

This project provided integrated Shelter, WASH and CCCM support to flood affected communities in rural Sindh, enabling households to rebuild their homes, restore WASH services and implement priority community infrastructure. It adopted a Settlement Approach and a “collective milestone” methodology to accelerate construction, reduce costs and strengthen participation and accountability, with cash for shelter, technical training and HLP support at its core. The project piloted low cost, low carbon, flood resilient shelter designs rooted in local typologies.



* OCHA Revised Pakistan 2022 Floods Response Plan Final Report. ** PDMA Sindh and Balochistan.



- Jun-Oct 2022: Floods**
- 1 Aug 2023: Typical shelter designs were produced based on vernacular typologies.
 - 2 Oct 2023: Start of phase 1 implementation across four villages.
 - 3 Oct-Nov 2023: Community Action Planning and HLP due diligence for phase 1.
 - 4 Nov-Dec 2023: Construction of shelter, WASH and community infrastructure, plus training conducted, under phase 1.

- 5 Dec 2023: Phase 1 completion.
- 6 Jan 2024: Start of phase 2 implementation in 10 villages.
- 7 Jan-Feb 2024: Community Action Planning and HLP due diligence for phase 2.
- 8 Feb-Apr 2024: Construction and training for phase 2.
- 9 Apr 2024: Phase 2 completion.

CONTEXT

The project was implemented in Sindh, southern Pakistan, where temperatures range from hot to extremely hot, and the annual June–October monsoon brings heavy rain and recurrent flooding. During 2022, exceptionally high rainfall fell over Sindh, causing widespread flooding and extensive damage to homes and basic services. Large parts of the country were submerged at the peak of the floods.

SITUATION BEFORE THE FLOODS

Rural Sindh faces chronic development challenges, including widespread poverty, low literacy, limited services and high malnutrition. Most households live in one room “kacha” mud houses, which are unable to withstand even minor flood events and require extensive repairs every year. Many households do not own land, living instead under sharecropping arrangements with local landlords. Latrines are rare and open defecation is common. Livelihoods are primarily casual labor in agriculture and smallholder farming. The population is predominantly Muslim; however, the project targeted specifically minority Hindu communities.

SITUATION AFTER THE FLOODS

During the 2022 floods, entire communities relocated for weeks to higher ground, typically along raised roadways. By late 2023, floodwaters had receded and communities had returned, but many were living in makeshift shelters since the original houses were damaged or destroyed; hand pumps had also been damaged and were non functional.

NATIONAL SHELTER STRATEGY

At onset, a Shelter Sector was established, incorporating a CCCM Working Group, and a Common Pipeline was created to provide emergency shelter kits (tarpaulins, poles, ropes, pegs), NFI kits (blankets, mattresses, etc.) and toolkits to local organizations for distribution to flood affected communities, both in displacement and on return. The pipeline was later expanded to include WASH items (Hygiene and Menstrual Health Management kits).



During the first phase of the project, stabilised mudbrick shelters were constructed, but were later discontinued in the subsequent phases.

In 2023, the government of Sindh, with support from International Finance Institutions, launched the Sindh Peoples Housing for Flood Affectees (SPHF) to support 2.1 million households to build masonry, flood-resilient, one-room shelters through cash grants. The project aligned with this plan, while piloting adaptations and integrated components intended to inform and complement the government programme.

PROJECT DESIGN

The location of Mirpurkhas served as a pilot to identify practices that the SPHF platform could adopt: accelerating construction; stretching available funding; reducing reconstruction’s carbon footprint; and better meeting community defined needs. The government scheme focused exclusively on housing, while this pilot demonstrated an integrated approach, adding WASH and community infrastructure alongside shelter within a comparable per household budget envelope.

To make this viable, the organization developed masonry versions of indigenous “kacha” typologies—a pitched roofed house and a circular “chonra” with conical roof—requiring fewer bricks than the flat roof model promoted by SPHF. This is because the flat roof design had taller walls and the roof structure was more expensive, while the circular design had a shorter perimeter than rectangular designs. Households wishing to build the costlier flat roof shelter could supplement support through salvaged materials or savings. Savings from the lower cost typologies funded WASH and community infrastructure.

The project also adopted a “collective milestone” approach, whereby households were only eligible for the next tranche when all households had reached the milestone, to increase construction speed, reduce logistical costs and allow stage-by-stage construction training.



The project studied the local typologies, such as circular houses with thatch roof, to propose alternative, more affordable solutions than the flat roof model.

PROJECT IMPLEMENTATION

An integrated field team for Shelter, WASH and CCCM worked with communities to conduct Community Action Planning (CAP) in each village with male and female groups, mapping priority challenges, interlinkages and feasible actions. Community identified projects (such as all-weather pathways, access roads and laundry areas) were implemented through Cash for Work teams. To share benefits widely, participation was limited to one person per household.

Village Reconstruction Committees (VRCs) and WASH Committees were formed—later evolving into Village Disaster Management Committees—comprising male and female members chosen by the community in a facilitated and inclusive process. VRCs helped identify Cash for Work participants, prioritizing the most vulnerable. A village mobilizer tracked daily attendance and progress. A multi channel Complaints and Feedback Mechanism was set up (direct to staff, a village focal person, hotline and complaints boxes). Engineers developed technical designs and BoQs; on the job training was provided to Cash for Work laborers, including on future maintenance. Tools were handed over to VRCs to maintain new assets and encourage further CAP implementation.

Shelter support combined cash for shelter and technical assistance. Low-cost, low-carbon, flood-resilient designs translated vernacular “kacha” forms into brick masonry, adding elevated plinths for enhancing flood-resilience.

Cash grants were provided in four tranches, conditional on achieving construction milestones and meeting quality standards:

- foundation excavation;
- construction to plinth level;
- to roof level; and
- completion.

Under the “collective milestone” approach, each household became eligible for the next tranche only when all households had completed the previous stage. This produced multiple gains: faster construction through mutual support and peer pressure; village level bulk procurement lowering material and transport costs; leaner staffing and logistics; and training sessions tailored to the upcoming construction stage for the entire village.

WASH support included pour-flush latrines, water supply installation or rehabilitation, and hygiene promotion. Because saline groundwater was widespread in the area, local knowledge guided borehole siting; women and girls were consulted on hand pump locations given their traditional water collection roles. Individual household latrines were not affordable within budget and communal latrines were culturally and operationally unsuitable; the project therefore provided latrines to groups of two to three closely related households—a common local practice. Considering that households were occupied in building their houses and that latrine construction is more technically challenging, a contractor was engaged to build the latrines.

DISASTER RISK REDUCTION

Shelter DRR measures included using brick masonry, elevated plinths, reinforced concrete lintels, damp proof courses, and set dimensions for key elements such as openings, including maximum spacing between the door and return wall. Construction of community infrastructure such as brick roads and pathways supported year-round access—vital during the monsoon for evacuation and for daily mobility to markets, health facilities and livelihoods—especially benefitting people with disabilities, older people, pregnant women and children.



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The project adopted local typologies and a “collective milestone” approach which ensured that the entire village progressed together in the reconstruction efforts.

ENVIRONMENTAL IMPACT

Fired brick masonry has a significant carbon and environmental footprint. The approach balanced strong community preferences for “pukka” (durable) construction and the SPHF programme requirement for masonry, with mitigation through low carbon designs that used 20–50% fewer bricks than the standard SPHF design. In Phase I, the team piloted cement stabilized mud bricks with training, on site immersion testing and a demonstration shelter. This option did not gain traction with households beyond the demonstration, so it was not repeated in later phases.

CHALLENGES AND MITIGATION

- Saline groundwater complicated water source development. Communities' local knowledge helped locate sweet water, often necessitating boreholes outside village perimeters connected by lead lines—raising costs.
- Limited local experience in latrine construction/ maintenance demanded extra training investments.

CROSS-CUTTING ISSUES

Security of tenure was addressed through systematic HLP due diligence and, where relevant, written agreements between landlords and village committees, which protected beneficiaries from eviction and clarified ownership of the housing asset. Women's participation and leadership were supported through consultations on hand pump siting, WASH committee membership and hygiene promotion activities. Inclusive infrastructure, such as all weather pathways, enhanced safe mobility during monsoon seasons for people with reduced mobility and other at risk groups.

HANDOVER AND LINKS WITH RECOVERY

The project's handover strategy was embedded in community ownership and capacity. Committees took on responsibility for maintaining community infrastructure; construction tools were transferred to VRCs to support maintenance and further planning actions; and on the job training strengthened local skills for ongoing shelter and infrastructure upkeep. Additionally, HLP documentation protected investments at household level. By upgrading local infrastructure and practices alongside housing, the intervention bridged relief and recovery phases and left behind governance structures, skills and assets under community stewardship.

OUTCOMES AND WIDER IMPACTS

The project pursued three aims: support recovery from the floods; enhance flood resilience; and identify best practices for SPHF and others. An independent research found that recipients reported a 64% increase in overall resilience to severe floods and storms as compared to the control group.



Initially, cement stabilisation in mudbricks was used, accompanied by testing and training. However, it was later abandoned based on household preference.



To protect from eviction families living on other people's land, written agreements were co-signed by the village committee following tenure verification.



Community Action Planning was conducted across the 14 targeted villages, to define priority challenges and identify proposed community interventions.

The study also reported positive economic impacts due to the safety of new shelters:

“Before the shelter, I was not able to go to the city for work because I was always at risk and afraid of what would happen to my wife and children at home without shelter. Now I feel free and safe to go to the city to work.”

While the project's influence on SPHF's core design was limited, the team successfully advocated for inclusion of the alternative low cost, low carbon shelter typologies in the Mason Training Manual, improving prospects for wider adoption. Moreover, the documented success in recovery and resilience helped the organization secure funding to support 1,000 households in Punjab using the same model following the 2025 flooding.



The project included shelter, WASH, site management and community-level interventions, mostly thanks to the savings made by adopting affordable housing designs.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Intensive community engagement across decision making and delivery.** The project consistently used inclusive processes: action planning to identify priorities; community selected committees to verify housing and land tenure status; joint siting of shared latrines and water points; and community problem solving during implementation.
- ✓ **Low-carbon, culturally rooted design choices.** Rendering vernacular typologies in brick masonry (with elevated plinths and other DRR features) improved flood resilience while cutting cost and carbon relative to standard designs, aligning with strong local preferences for “pukka” construction.
- ✓ **Informed choice and dignity in housing.** Offering three typologies and clear guidance on cost and implications empowered households to select what fit their resources and identity, avoiding a one size fits all approach that could undermine cultural expression.
- ✓ **Strategic reallocation to collective goods.** Lower per shelter funding (via cheaper typologies) freed resources for community infrastructure, enabling mobility and access during the monsoon.
- ✓ **All weather access as an inclusion measure.** Pathways and road surfacing quickly proved essential during the monsoon, particularly for people with mobility issues.

WEAKNESSES

- ✗ **Cash levels and coping strategies in early phases.** The cash support provided for housing construction was sufficient only for the cheapest typology; some households sold assets to build costlier options.
- ✗ **Community budget reallocation not realized.** Although communities could reallocate community infrastructure funds to shelter, none chose to do so. Many community members were unfamiliar with exercising such decision making power and may not have fully recognized their latitude to challenge proposed allocations.
- ✗ **Contractor built sanitation limited capacity gains.** Time constraints necessitated contractor delivery of latrines; beneficiary led construction would have reduced cost and increased community skills for long term maintenance.



FURTHER READING ON SHELTER PROJECTS

On Pakistan: [SP 2010 / A.22-A.25 / FLOODS](#)

On floods response: [SP LESSONS FROM FLOODS](#)

On integrated programs: [SP 10TH ED. / CS.23 NEPAL 2021-2023](#)
[SP 15-16 / A.13 PHILIPPINES 2013-2015](#)



When chosen, local conical thatched roofs were adopted in the project.



The design choices, including the circular shape and conical roofs, helped reduced the amount of bricks and contributed to budgetary savings.

LESSONS LEARNED

- **The “collective milestone” approach reduced construction time and costs.** Collective milestones generated peer support and pressure, enabled bulk procurement savings and allowed targeted technical trainings aligned to the next construction step.
- **The Settlement Approach improved relevance and efficiency.** Multi sector teams working across a village produce a more holistic, flexible, community led response that reduced duplicative assessments and meetings and streamlined monitoring. A single, integrated Shelter WASH CCCM team reduced staffing, logistics and transaction costs, while improving coordination quality.
- **Strategic diversion of funds towards public goods can multiply benefits.** Cash invested in community infrastructure recirculated via Cash for Work into household economies and shelters. Even so, additional support may be required for households unable to participate in Cash for Work.
- **Flexible budget lines were essential in settlement programming.** Collapsing rigid lines for shelter, latrines and community works into broader post flood reconstruction envelopes allowed allocations to follow community priorities and evolving needs.

MOVING FORWARD

- As the project was extended into 2025-26, several early shortcomings were being addressed in the subsequent phase. This includes adding Disaster Risk Management activities, increasing the value of cash-for-shelter support provided to each household, and shifting more of the responsibility for the latrine construction to the households. The organization also introduced innovations in the foundation and roof design to reduce costs and free up more funding for community infrastructure.
- With additional funds, the team would invest more in community infrastructure and broaden the scope of the project to include livelihoods support and ecosystems restoration and linking to partners to provide health, nutrition and education support. With more time, the project would strengthen the Community Planning and Disaster Risk Management activities, including building stronger links to local government.



Pier foundations with sandbag infill were introduced following project extension.



The project also implemented community works such as pathways, using cash for work, which proved essential to improve accessibility especially during floods.

CASE STUDY

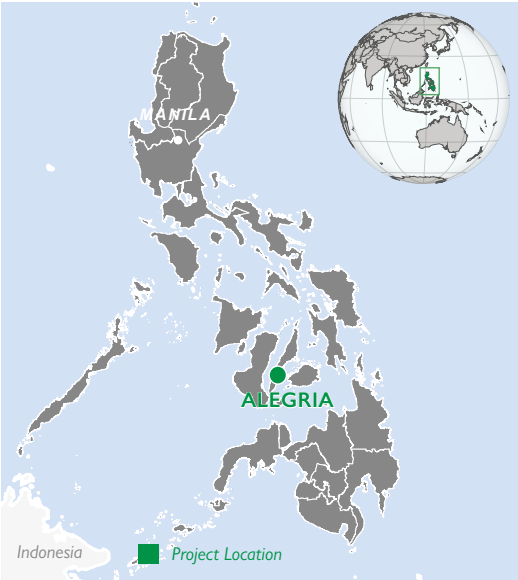
PHILIPPINES 2023-2024 / TYPHOON ODETTE

CONTEXT / SETTLEMENT

SHELTER TYPE

SUPPORT METHODS

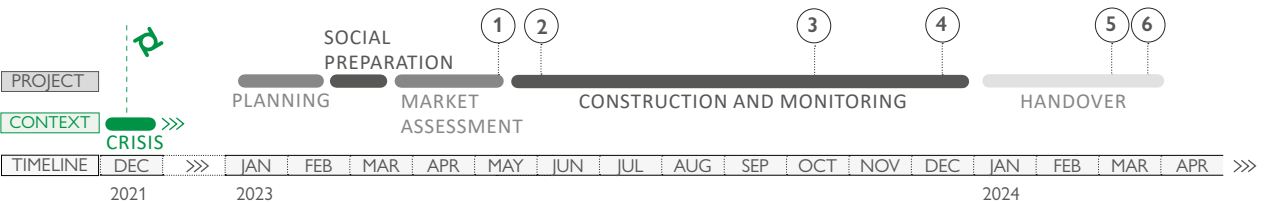
CRISIS	Typhoon Rai (Odette), Dec 2021
PEOPLE AFFECTED	11 million people affected*
PEOPLE DISPLACED	93,655 people displaced*
TOTAL HOMES DAMAGED	2,108,858 houses (with 404,653 destroyed)*
PROJECT LOCATION	Municipality of Alegria, Cebu
PEOPLE SUPPORTED BY THE PROJECT	355 individuals / 71 households
PROJECT OUTPUTS	71 permanent houses built with wind-resistant features, electrical installations and solar panel kit. Site level interventions: concrete retaining walls, water system.
SHELTER SIZE	24.3 m ² / household
SHELTER DENSITY	4.86 m ² / person
DIRECT COST	USD 6,810 per house
PROJECT COST	USD 10,875 per household



PROJECT SUMMARY

The project supported the permanent relocation of 71 vulnerable households following Typhoon Odette. Implemented in support of government recovery efforts, it provided permanent housing for families whose homes had been completely destroyed and were located in coastal and landslide-prone areas designated as no-build zones after the disaster. The relocation site was developed on public land donated by the Local Government and prioritized households with limited capacity to recover independently, including female-headed households, older persons, and persons with disabilities. The intervention aimed to restore safe and dignified living conditions while reducing future exposure to natural hazards and displacement.

* DROMIC DWSD Disaster Response Operations Management, Information, and Communication.



- Dec 2021: Typhoon Rai (Odette).**
- May 2023:** Signing of MoA between Alegria local government and the project organization.
 - May 2023:** Beneficiary-led construction of concrete shelters begins.
 - Oct 2023:** Provision of livelihood assistance to each beneficiary.
 - Sep-Dec 2023:** Implementation of DRR activities in the community.
 - Mar 2024:** Installation of solar panel, retaining walls, protective railings and water lines.
 - Mar 2024:** Handover of shelter assistance to the beneficiaries.



The project supported the safe resettlement of 71 families after a typhoon.



Permanent houses and site infrastructure were built on a slopy site using locally procured resources and labour.

BACKGROUND

Super Typhoon Rai (Odette) struck the Philippines on 16 December 2021, causing widespread damage across the central and southern Philippines. By February 2022, nearly three million families had been affected, more than 400 people had died, and over 2.1 million houses had been damaged, including more than 400,000 that were completely destroyed..

SITUATION BEFORE THE TYPHOON

Before the typhoon, many affected households already lived in vulnerable conditions, informal or low-quality housing, often in hazard-prone coastal environments with limited access to services. These pre-existing vulnerabilities magnified the impact of the storm and reduced the capacity of the worst-affected families to recover without targeted external support.

SITUATION AFTER THE TYPHOON

Typhoon Rai severely damaged or destroyed homes and livelihoods, forcing thousands to seek shelter in evacuation centers, with host families, or in improvised structures. For many families from no-build zones and highly exposed coastal areas, including in Alegria, Cebu, safe return and reconstruction on original plots were not feasible, reinforcing the need for a relocation-based approach for those with the least capacity to recover independently.

NATIONAL SHELTER RESPONSE

The wider response combined emergency shelter assistance, safer building awareness, technical guidance and targeted recovery support. The implementing partners distributed essential household items to 5,000 households and emergency shelter assistance to 10,138 families. More than 10,000 recipients and builders received Build Back Safer orientation and technical guidance. In Alegria, recovery programming then focused on Full Shelter Assistance for 71 households in a permanent relocation site, complemented by livelihoods, WASH and community-based recovery activities. This component of the assistance is covered in this case study.



The project targeted households who could not safely return and rebuild on their original plots of land, as they were located on no-build zones.

PROJECT IMPLEMENTATION

Implementation was structured around municipal land donation, cash-based construction, technical design, community validation and continuous technical oversight. The implementing team worked with local authorities to validate the relocation site, prepare individual plots and agree administrative arrangements. Targeting criteria were developed through planning workshops and community engagement and validation. The project then moved from social preparation and technical planning to procurement, site development and housing construction, with daily monitoring by technical staff and volunteers until handover.

The construction approach combined cash-based implementation with strong technical oversight. Rather than requiring vulnerable households to physically build their own houses, the project used cash to enable local procurement, payment of skilled labour and adjustments to site-specific needs. Beneficiaries contributed mainly through validation, decision-making and community coordination, while trained workers carried out the construction under daily technical supervision. This allowed the project to use local capacity and adapt to market and terrain constraints, while maintaining fixed safety standards, quality checks and final inspections before handover.

PHASE 1: TECHNICAL SITE DEVELOPMENT AND HAZARD MITIGATION

The plot of land provided by the local government was considered suitable for relocation, with low landslide susceptibility, but required substantial terracing and site infrastructure before construction could begin. The steep and uneven terrain made site development a major technical component, including terracing, drainage, access works and retaining structures. During excavation, hidden boulders and variable ground conditions required additional equipment and adjustments to the construction sequence.

PHASE 2: VULNERABILITY MAPPING AND SPATIAL ZONING

Households were selected based on verified total housing loss, the need for relocation and socio-economic vulnerability. Priority was given to families from no-build zones, active landslide areas or coastal wave-shock areas who had limited capacity to rebuild independently. This included child- and female-headed households, older people and persons with disabilities. Plot allocation also considered accessibility, with older persons and persons with disabilities prioritized for flatter, lower-tier plots closer to roads and services.



The housing component was part of a broader settlement approach.



Due to the terrain, unforeseen presence of large boulders and varying soil conditions, site works required heavy equipment and longer than expected.

PHASE 3: COMMUNITY CONSULTATIONS AND ARCHITECTURAL CUSTOMIZATION

Community engagement took multiple forms: planning workshops, neighborhood consultations, beneficiary validation, and structured feedback channels. The Barangay Recovery Committee (BaReCom) represented the community, supporting prioritization, transparency, and coordination of on-site activities. While structural safety standards, such as the reinforced concrete frame, foundation depth, and roof anchorage, remained fixed, households influenced non-structural preferences, including choices about sanitation placement outside the main house footprint.

PHASE 4: DECENTRALIZED PROCUREMENT AND MATERIAL LOGISTICS

Procurement and logistics were adapted to local conditions and sources. Technical staff, volunteers, and contractors supported delivery, stock handling, and quality control. As large boulders were found during site preparation, equipment requirements were revised and jackhammers procured to meet the terrain constraints. Settlement-level elements, including solar panels, retaining walls, protective railings, and water line connections, were included to ensure that permanent structures functioned as complete homes within a livable settlement.

PHASE 5: HOUSING CONSTRUCTION

Local skilled workers conducted housing construction under daily technical monitoring by engineers, technical staff, local authority representatives and volunteers. The structural system comprised single-storey reinforced concrete post-and-beam frames aligned with the National Building Code, with emphasized frame continuity, roof-to-wall connections, anchorage, and wind-resistant roof ties to reduce uplift risk. Quality assurance included daily workmanship checks, pre-pour inspections, reinforcement and roof-frame supervision, and punch-listing prior to handover to ensure defects were corrected. Off-grid solar kits were integrated at unit level to address the absence of municipal power.

COMMUNITY ENGAGEMENT AND COORDINATION

The community recovery committee and neighborhood-level sessions were used to validate targeting, review plot allocation, identify accessibility needs, and shape non-structural design preferences. Structured feedback mechanisms and public processes improved transparency and acceptance, while technical standards for structural safety remained fixed.

Strong coordination between the implementing team, local authorities and community structures underpinned implementation. The community recovery committee served as the central community coordination mechanism, ensuring participation and accountability. Technical support contributed to consistent quality assurance and documentation throughout.

MAIN CHALLENGES

The main challenge was the underestimation of front-end site development requirements on steep, terraced land with hidden boulders and variable soils. This affected equipment needs, procurement, logistics and sequencing, and extended the displacement period for some households. Labour availability, material deliveries and delayed water-supply arrangements added further pressure to the construction timeline.

PROTECTION, GENDER AND INCLUSION

Women and men had equal access to information, resources and decision-making spaces, and women were represented in leadership roles. Accessibility considerations also informed plot allocation, as mentioned above.

LINKS WITH RECOVERY

the shelter component was complemented by household-level Livelihood Assistance, providing small capital for re-establishing or repairing income-generating activities; settlement-level WASH works, solar energy, retaining walls, protective railings, and targeted DRR activities were included to strengthen recovery beyond housing structures.

EXIT/HANDOVER

Following structural completion and quality verification, responsibilities were transitioned to local authorities through an agreement that defined administrative, maintenance, and operational roles for the settlement. The municipality was in charge of overseeing water-supply follow-up and potential improvements, such as recreational areas, greening, access roads, and wastewater solutions, which are critical for long-term sustainability of a permanent settlement.

OUTCOMES AND WIDER IMPACTS

Direct outcomes included:

- Improved safety and protection: households reported feeling more secure against hazards thanks to stronger construction and relocation to a safer site.
- Restoration of adequate housing: families moved from damaged or destroyed shelters into permanent homes with upgraded materials and basic services, including solar power.
- Enhanced dignity and well-being: beneficiaries described the assistance as restoring dignity, pride, and a sense of normalcy.
- Support to recovery and livelihoods: coupling shelter with livelihood inputs facilitated greater household stability and income recovery prospects.



Construction was overseen by project technical staff, local authorities and volunteers.



While structural features were fixed, households had a degree of customization on other things, such as the location of the bathrooms.



Solar panels were also installed to ensure energy supply in areas with limited electricity infrastructure.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Community engagement and accountability mechanisms** supported transparent selection, public validation and participation. The community recovery committee, neighborhood consultations and feedback channels helped maintain acceptance and kept decisions visible to households and local stakeholders.
- ✓ **The project treated shelter as part of a wider recovery package.** Permanent housing was combined with livelihoods, WASH, off-grid solar energy, retaining walls, protective railings and DRR activities, helping the relocation site function as a livable settlement rather than a set of stand-alone houses.
- ✓ **Perceived quality of the houses was high.** Beneficiaries consistently described the shelters as safe and durable compared with their pre-disaster homes, and features like solar power and site infrastructure were linked to improved daily living and greater satisfaction.
- ✓ **Coordination with local authorities underpinned sustainability.** Land donation, site validation, formal agreements, and clear post-handover responsibilities for service follow-up and settlement management embedded municipal ownership from the outset, strengthening prospects for long-term maintenance and improvement.
- ✓ **Practical inclusion measures were incorporated.** Older persons and persons with disabilities were prioritized for lower-tier plots with easier access to roads and services, while gender equality and women's representation were integrated into decision-making and leadership roles during implementation.

WEAKNESSES

- ✗ **Front-end site development requirements were underestimated.** Initial assessments did not fully capture hidden boulders, terracing requirements, drainage needs, water-supply constraints or realistic heavy-equipment costs, leading to budget, equipment and sequencing adjustments during implementation.
- ✗ **Construction duration extended beyond the original plan** due to compounded challenges (labour availability, material deliveries, delayed water-supply arrangements), which prolonged the displacement period for some targeted households.
- ✗ **The focus on permanent, high-quality relocation support limited household coverage** compared with overall needs, reflecting a deliberate trade-off between depth and breadth.



FURTHER READING ON SHELTER PROJECTS

On resettlement following disasters:

SP 11-12 / A.27 PHILIPPINES / TS WASHI; SP 13-14 / A.02 COLOMBIA / FLOODS; SP 8TH ED. / A.14 PHILIPPINES / HAIYAN; SP 9TH ED. / A.7 MOZAMBIQUE / COMPLEX CRISIS.

On temporary assistance in No Build Zones:

SP 13-14 / A.25 PHILIPPINES / TYPHOON HAIYAN



Site preparations were underestimated and required several adjustments.

LESSONS LEARNED

- **Integrated assistance is critical.** When permanent shelter is paired with livelihood inputs, WASH, energy, DRR, and community engagement, households report stronger recovery trajectories than with shelter-only approaches.
- **Perceived quality matters for recovery.** Beneficiaries associated durable construction, safer locations, and features like solar power with safety, satisfaction and dignity, key drivers of psychosocial recovery and sustained use.
- **Community trust and visible accountability are non-negotiable.** Targeting transparency, public validation, clear grievance routes, and consistent engagement mechanisms help maintain acceptance, especially when resources allow support for only a limited number of households.
- **Secure permanent housing can support wider recovery when it is linked to services, livelihood inputs and community engagement.** In this case, settlement-level works and livelihood support helped households move beyond physical shelter assistance towards safer living conditions and more stable recovery pathways.

RECOMMENDATIONS MOVING FORWARD

- **Prioritize earlier and deeper technical site due diligence** before finalizing budgets, timelines and staffing, particularly where terraced or sloping land is proposed. Minimum checks should include topography, geotechnical conditions, drainage strategy, access, service availability, slope stability and realistic site-development costing.

CASE STUDY

VIETNAM 2020-2021 / TROPICAL STORMS

CONTEXT / SETTLEMENT



SHELTER TYPE



SUPPORT METHODS



CRISIS

Four tropical storms
(Linfa, Nangka, Saudel and Molave)

PEOPLE AFFECTED

1.5 Million people affected*

PEOPLE
DISPLACED

392,000 people displaced*

PEOPLE WITH
SHELTER NEEDS

154,000 individuals*

PROJECT
LOCATION

Trieu Phong and Cam Lo District, (Quang Tri Province)
Nghia Hanh District (Quang Ngai Province)**

PEOPLE
SUPPORTED BY
THE PROJECT

1,787 individuals / 561 HHs with Shelter support
9,122 individuals / 2,465 HHs with NFI support

PROJECT
OUTPUTS

2,465 unconditional cash grants for essential household items.
561 cash for shelter conditional grants
1,864 individuals supported with technical assistance, safe shelter and building-back-safer awareness. In addition: Community-led Guidelines developed and National Review Workshop conducted.

SHELTER
SIZE

48 m² / household

SHELTER
DENSITY

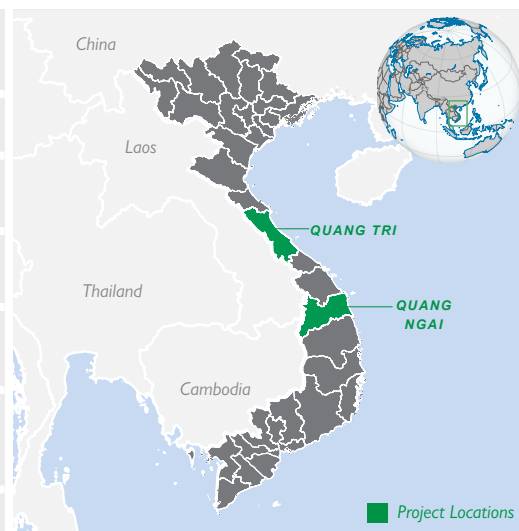
12 m² / person

DIRECT COST

USD 433 for houses damaged less than 30%
USD 865 for houses damaged 30% - 50%
USD 1,300 for houses damaged 50% - 70%

PROJECT COST

USD 1,357 per household on average
(USD 652 for less than 30% damage; USD 1,304 for 30-50% damage; USD 1,957 for 50-70% damage)

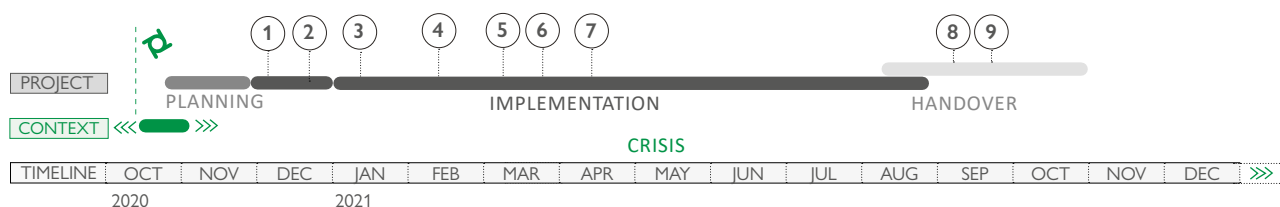


PROJECT SUMMARY

A two-phased, cash-based response supported storm-affected households in Quang Tri and Quang Ngai to address immediate priorities and carry out safe, resilient home repairs. Multipurpose cash covered urgent needs, while conditional cash for shelter, released in two tranches against Bills of Quantities, enabled quality-assured repairs supervised by engineers and technicians trained in Build Back Safer practices. The project was adapted to the COVID-19 context and coupled assistance with guidelines development and capacity-strengthening, and helped formalize national modalities for humanitarian cash through engagement with government and financial service providers.

* Vietnam Floods Response plan

** Due to the administrative reform in Quang Ngai Province in July 2025, many districts and communes were merged into different administrative units and therefore some names are no longer applicable.



Oct 2020: Tropical Storms

- 1 Dec 2020: Rapid market assessment & protection risk analysis.
- 2 Dec 2020: Beneficiary Targeting and Selection for MPCA and shelter support.
- 3 Jan 2021: MPCA cash distribution via FSP & on-site monitoring.
- 4 Feb 2021: Post distribution monitoring.

- 5 Mar 2021: Training and mobilization of local technicians and communities.
- 6 Mar - Aug 2021: Household inspection, Implementation of Repairs, Monitoring and Verification.
- 7 Apr - Aug 2021: Conditional cash distribution via FSP, On-site monitoring and Post Distribution monitoring.
- 8 Sep - Oct 2021: Development of technical materials.
- 9 Sep 2021: Learning and sharing workshop.

	Partial (< 30%) - 1	Heavy(30-50%) - 2	Severe(50-70%) - 3	Destroyed (> 70%) - 4
 Permanent	 P1 Repair Cost : N/A	 P2 Repair Cost : N/A	 P3 Repair Cost : N/A	 Not yet recorded P4 Estimated Reconstruction Cost : N/A
 Semi Permanent	 S1 Repair Cost : 15.4 million VND	 S2 Repair Cost : 19.7 million VND	 S3 Repair Cost : 27.5 million VND	 Not yet recorded S4 Estimated Reconstruction Cost : N/A
 Less Permanent	 L1 Repair Cost : 17.2 million VND	 L2 Repair Cost : 28.8 million VND	 L3 Repair Cost : 33.2 million VND	 L4 Estimated Reconstruction Cost : N/A
 Temporary	 T1 Repair Cost : 15.2 million VND	 T2 Repair Cost : 19.3 million VND	 T3 Estimated Reconstruction Cost : N/A	 T4 Estimated Reconstruction Cost : N/A

Overview of housing categories, damage levels and cost estimates. The project supported three categories of damage using conditional cash grants.

BACKGROUND

Vietnam's geography exposes its population to frequent hydro-meteorological hazards and climate extremes. The country ranks among the world's most recurrently disaster-affected, with substantial storms, floods and landslides causing often loss of life and sustained economic impacts. In 2020 alone, disasters left 357 people dead or missing and led to economic losses of nearly VND 40,000 billion (about USD 2 billion). Over the past three decades, annual disaster-related losses have averaged 1-1.5% of GDP and approximately 300 fatalities or missing persons per year. Central provinces face seasonal storms and floods with growing intensity and unpredictability.

SITUATION BEFORE THE STORMS

Before the 2020 storms, the target provinces were already contending with high poverty rates and significant exposure to hydro-meteorological hazards, especially during the monsoon season. The provinces were heavily reliant on agriculture, and access to clean water was limited for large portions of the population. Local vulnerabilities were compounded by issues such as deforestation and weakened dyke systems, while limited community preparedness further reduced coping capacity. Households often lacked the resources to strengthen their homes against repeated seasonal shocks.

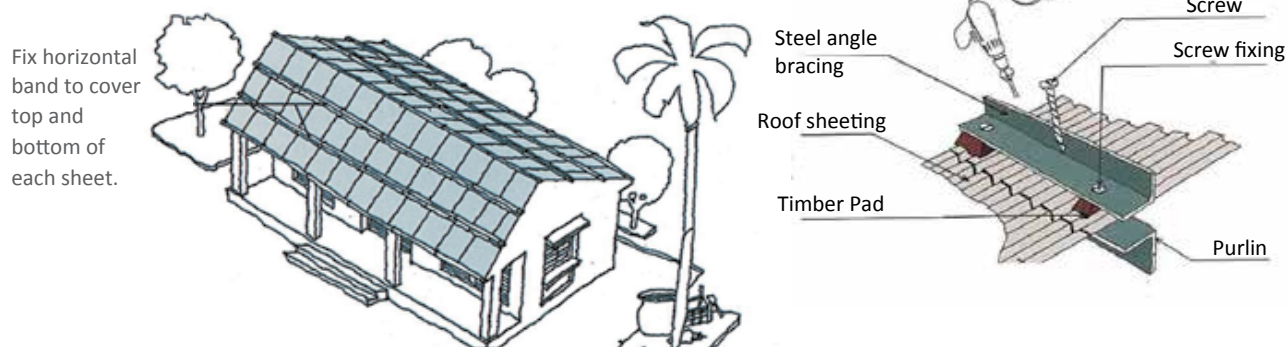
SITUATION AFTER THE STORMS

In October 2020, four tropical systems brought widespread flooding, landslides, storm surges and strong winds to central Vietnam. Authorities reported 214 people dead or missing. An estimated 7.7 million people were affected by flooding from multiple storms; around 1.5 million were directly impacted by the storms across nine provinces, and roughly 380,000 houses were completely flooded, damaged or destroyed. The severity and scale of the impacts, combined with the cumulative effect of back-to-back events, underscored the need for rapid, flexible assistance that could bridge immediate needs and early recovery for households returning to damaged dwellings.

NATIONAL SHELTER RESPONSE

The national response emphasized meeting acute needs among the most vulnerable (including women and girls, older persons, people with disabilities and children), while sustaining safe housing and preparedness for future hazards. The approach unfolded in two phases: first, emergency measures (evacuations, in-kind support and priority shelter repairs); second, early recovery interventions (facilities, services, trainings, cash assistance, and further repairs). These efforts were implemented under COVID-19 constraints, which required adherence to public health measures and adaptive modalities for fieldwork and coordination.

L1. Tie down roof cover (sheet roofing)



Labour in days

1

2

3

4

5+

Skill level

Low

High

Materials needed

Low

High



Typical house of 5.5 m x 7.5 m requires

Approx. 36 m length of steel angles

Costs (VND)

0-1m

1m – 3m

3m –15m

15m – 30m

>30m

Build Back Safer messaging was created to support technical assistance efforts and included detailed sketches of practical solutions with different cost and complexity.

PROJECT STRATEGY

The project's strategy emerged from a joint rapid assessment that fed into the national Flood Response Plan. Consultations with households, assessments of evacuation centers and focus groups highlighted immediate needs for food, safe water and sanitation, dignity kits, housing repairs, and restored household assets. The project proposed a nine-month program supporting 2,465 households in Quang Tri and Quang Ngai, designed around two separate cash modalities: One-off, multipurpose cash addressed urgent priorities; and a separate conditional cash-for-shelter component, released in two tranches and targeting a smaller caseload, enabled the most affected households to undertake safe, quality repairs. The cash-based model aligned assistance with local markets availability, while the conditional structure safeguarded construction quality.

The project also embedded capacity building and quality assurance along the cash-for-shelter component. Partners were trained in emergency preparedness, safeguarding and program quality standards, and the project reinforced these competencies around financial management, procurement and technical supervision.

By coupling household-led repairs with technical oversight and Build Back Safer (BBS) messaging, the approach balanced flexibility and technical guidance, giving families ownership and choice while targeting safer outcomes.

Establishing cash partnerships and SOPs with the financial service provider required intensive coordination; preparedness for such arrangements would have reduced lead times.

PROJECT IMPLEMENTATION

The project drew on local expertise, including a team of more than 20 staff and a network of partner organizations. Due to travel restrictions during the pandemic, most of the implementation was conducted by local implementing partners.

For the cash-for-shelter component, two full-time engineers developed the BoQs for each household before any disbursement. A financial service provider released the first tranche against the agreed scope; the second tranche followed only after on-site verification confirmed completion to standard. While field technicians documented results with photographs and geo-tagged locations, the project engineers conducted regular inspections and reviewed information sent from the field before authorizing second-tranche payments. In parallel, additional project staff used quality-control checklists to conduct spot checks.

During cash distributions, the target population was informed of COVID-19 precautionary methods recommended by the Ministry of Health. Additionally, information was disseminated through posters, leaflets, radio systems, and community public information boards.

The Monitoring, Evaluation, Accountability and Learning (MEAL) team surveyed households before, during and after repairs to assess satisfaction with both process and outcomes. The feedback and response mechanism remained open for communities to raise concerns, including fraud-related issues.

This layered supervision (including field engineering, documentation protocols, MEAL surveys and community feedback), helped sustain construction quality and supported equitable and transparent use of resources.

TARGETING

The selection of the two provinces reflected the scale of damage and disruption to livelihoods and water and sanitation infrastructure. Within project areas, the targeting process prioritized households facing the most acute shelter needs and constrained coping capacity. The national social protection database was used as a starting point to select project participants. Based on this, the implementing partner, local government authorities and target communities agreed to consider “pregnant women, children under 5 years-old within the household, and low-income female-headed households” as additional prioritization criteria.

COMMUNITY ENGAGEMENT

To embed participation and skills transfer, the project repaired five houses with varying damage levels in strategic locations and used them as live training hubs. These structures became focal points for community-level learning: local construction workers and community leaders trained together on storm-resilient techniques, reinforcing practical understanding of BBS and ensuring that decision-making centered on households preferences and cultural norms. The approach promoted local ownership and strengthened bonds within and between communities as they advanced towards safer rebuilding.

COORDINATION

The project team worked alongside provincial and district institutions, sharing program scope and results, and highlighting ongoing shelter and basic needs to inform follow-up support. The Project Manager liaised directly with government counterparts to advocate adoption of BBS techniques. At inter-agency level, the organization engaged through the Disaster Management Working Group, the national clusters task force and an NGO network, maintaining communications with UN entities via the disaster response cluster system. Regular information-sharing on plans, progress and gaps helped avoid duplication, and enabled peer learning on good practices.



Roof escapes were created to allow quick exit during heavy floods.

DISASTER RISK REDUCTION

The project supported government-led efforts through the national Community-Based Disaster Risk Management Program 553, with a vision to 2030. The DRR strand focused on building the capacity of local authorities and communities to identify and prioritize both short- and long-term risk reduction measures, and to integrate DRR into socio-economic development planning. By linking resilient construction messaging to formal DRR planning, the project reinforced the adoption of practical solutions, such as mezzanines, roof escapes, and raised floor levels, which aimed to reduce harm in future floods and storms.

MAIN CHALLENGES

COVID-19 restrictions impeded travel and routine field monitoring, shifting much of the day-to-day implementation to local partners under remote supervision. Partners had to adapt to online coordination platforms and virtual trainings, a transition that required time and support but later became a useful complement to in-person engagement.

In parallel, harmonizing cash distribution with a national financial service provider presented a learning curve, as it was the first time the implementing partner used such a modality at that scale. Building agreements and standard operating procedures with financial service providers was therefore a programmatic priority to facilitate future cash responses.



Specific safety measures, such as mezzanines, were incorporated in the project.

CROSSCUTTING ISSUES

The crisis heightened protection risks for women and men in different ways. Rapid assessments were conducted using a gender lens at the outset to identify intra-household dynamics, GBV risks and barriers to participation specific to each gender. The Women's Union – which represents and defends the rights and interests of women in targeted areas – played a key role in targeting and oversight, by participating in project boards and monitoring shelter repairs, thereby providing a trusted channel for women to share feedback and influence decisions. All data collection was disaggregated by sex. This combination of representation, safe feedback channels and gender-sensitive criteria helped tailor assistance to households experiencing intersecting vulnerabilities.

EXIT/HANDOVER

The project oriented beneficiaries and community leaders to resilient shelter guidelines and trained local workers in resilient construction techniques, to sustain BBS practices beyond the programs life. A national learning workshop, co-hosted with the Disaster and Dike Management Authority (VDDMA) and partners, convened approximately 125 representatives from 48 organizations

to review effectiveness, relevance and lessons from the 2020 response, and to agree practical recommendations for national, sub-national and humanitarian actors over the following 12 months. This process also helped consolidate partnerships among DRR platforms, government counterparts and humanitarian agencies.

OUTCOMES AND WIDER IMPACTS

Firstly, the project contributed to standardizing safer house repair and preparedness through the creation of Community-led Housing Preparedness, Recovery and Reconstruction guidelines. These materials, embedded in Program 553's national training, provided clear procedures for pre- and post-disaster phases, a framework for damage assessment, and guidance on integrating resilient construction features into DRR plans. Secondly, the project engaged government and financial service providers in formalizing humanitarian cash delivery. A multi-party memorandum of understanding was signed to create favorable conditions for cash transfers, including preferential service fees and an SOP for humanitarian cash. Together, these outcomes strengthened the enabling environment for rapid, scalable cash and safer shelter repair in future emergencies.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Effective cash distribution via a national financial service provider.** The cash delivery process was adapted to the context, using community facilities as secure, convenient distribution points and providing clear communication throughout. Beneficiary feedback indicated full satisfaction with the transparency and suitability of the transfer process.
- ✓ **Gender-sensitive beneficiary identification and registration.** Beyond use of the social protection database, the process explicitly considered specific vulnerabilities in targeting, which had not been systematically prioritized in the database before.
- ✓ **Multi-stakeholder engagement and transparent selection.** Collaboration among local authorities, community representatives and implementing partners yielded a credible beneficiary list, minimized overlaps and ensured timely support to those most in need.
- ✓ **Standardization and capacity building.** The development of Community-led guidelines, coupled with training for local masons and technicians, strengthened the consistency of safer repair practice at community level and supported replication.

WEAKNESSES

- ✗ **Limited pre-crisis market and risk data.** The absence of pre-existing market and risk assessments constrained early program design and required additional resources during start-up to fill information gaps and validate assumptions.
- ✗ **Limited in-house experience producing BoQs at scale.** Regional technical support had to be mobilized to develop and adapt Bills of Quantities to the variety of local house types and repair scopes, adding steps to the set-up process.
- ✗ **First-time adoption of the cash modality took long,** as the organization had to establish partnerships and SOPs with the financial service provider.



The project was primarily cash-based, which allowed contextual adaptation.

LESSONS LEARNED

- **Use and complement national systems.** Leveraging the governments social protection database as a starting point for targeting, and deliberately adjusting it to include specific vulnerabilities, improved fairness and relevance of beneficiary selection.
- **Build skills before repairs.** Early training for local partners, masons, contractors, suppliers and beneficiaries in resilient repair and construction techniques enhanced construction quality and embedded BBS practices in communities.
- **Standardize guidance for replication.** Clear procedures and practical guidance, such as damage assessment frameworks, data collection steps, and resilient features, supported integration of safer construction into community DRR plans and national training curricula.
- **Formalize cash pathways.** Pre-agreed SOPs and MoUs with government and financial service providers enabled faster and more efficient cash delivery, reducing transaction delays and facilitating large-scale transfers during the response.
- **Maintain flexible coordination modalities.** The accelerated shift to virtual coordination during COVID-19 ultimately complemented field engagement and can remain a useful tool for rapid information-sharing and partner support.



Raised foundations were built to reduce future flooding risks.

RECOMMENDATIONS MOVING FORWARD

- **Plan pre-crisis market and risk assessments with coordination platforms.** Working with Disaster Management Working Group members to complete market analyses, risk assessments and price monitoring in advance would optimize preparedness and enable faster, better-calibrated support when disasters strike.
- **Further integrate gender considerations throughout the project cycle.** Encourage both women and men to participate in household expenditure decisions for shelter repairs, and invite both to meetings where design, implementation and documentation are discussed and signed, to strengthen inclusivity and shared accountability.
- **Institutionalize and expand pre-arranged cash delivery frameworks,** by maintaining standing agreements with financial service providers at both national and sub-national levels, ensuring readiness for rapid scale-up in future emergencies.
- **Continue strengthening local technical networks.** Broaden the pool of trained local technicians and masons familiar with the BBS checklist and documentation protocols so that quality assurance remains robust even when access is limited.
- **Institutionalize learning events.** Periodically convene multi-stakeholder workshops to review outcomes and refine guidance, reinforcing national ownership of resilient shelter practices and cash response modalities.

FURTHER READING ON SHELTER PROJECTS

On Vietnam: [SP 2010](#) / [A.31 2009](#) / [Typhoons Ketsana and Mirinae](#)

On diverse response approaches following typhoons: [SP 15-16](#) / [A.8-A.13 PHILIPPINES 2013-2017](#) / [Typhoon Haiyan](#)



The project was implemented during the COVID-19 pandemic, which shifted more responsibility towards local partners who were managed remotely.

CASE STUDY

IRELAND 2022-2024 / UKRAINE CRISIS

CONTEXT LOCATION



SHELTER TYPE



SUPPORT METHODS



NFI

CRISIS

Housing of Beneficiaries of Temporary Protection in Ireland following the escalation of armed conflict between Ukraine and Russia

PEOPLE AFFECTED

106,703 people had been granted Temporary Protection Status in Ireland (as of April 2024)*

PEOPLE IN STATE ACCOMMODATION

66,268 people were living in state-sponsored accommodation (including pledged accomm.)*

PROJECT LOCATIONS

across Ireland

PEOPLE SUPPORTED BY THE PROJECT

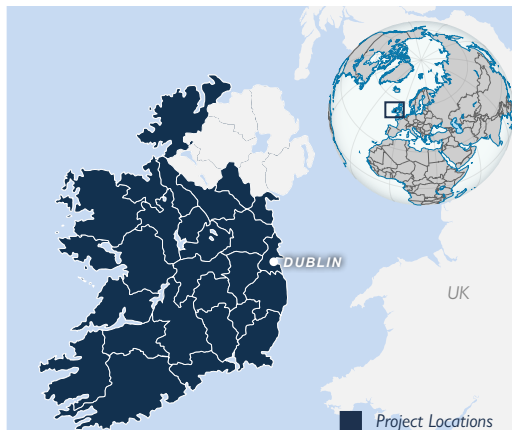
12,900 individuals (Beneficiaries of Temporary Protection) in **5,872 properties**

PROJECT OUTPUTS

The Register of Pledges offering a large-scale host accommodation pipeline across the country.

PROJECT COST

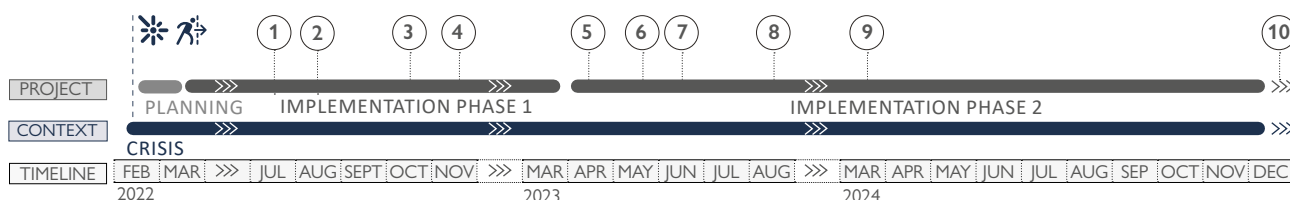
USD 433-866 monthly per property
The Accommodation Recognition Payment (ARP), was a monthly tax-free Government-issued payment to hosts, paid per eligible property (not per person hosted) and ranging at different times from EUR 400-800.



PROJECT SUMMARY

The displacement of people from Ukraine into Ireland was met with exceptional public solidarity. The organization's existing Register of Pledges became the primary mechanism through which residents offered rooms and vacant homes to people displaced from Ukraine, with over 21,000 pledges made in the first three months of the response. A Consortium of partners coordinated the pledge response, demonstrating that hosting can be delivered safely and effectively at scale when comprehensive support for both hosts and guests are in place.

* Sources: Department of Children, Equality, Disability, Integration and Youth (DCEDIY) and the Central Statistics Office (CSO)



Feb 2022: Russian invasion of Ukraine

- 1 **Jul 2022:** The Accommodation Recognition Payment (ARP) was announced at EUR 400 by the Irish Government.
- 2 **Aug 2022:** 3,967 displaced people living in hosted accommodation.
- 3 **Oct 2022:** Informal partnership of Consortium Partners launched and Customer Relationship Management tool (CRM) initiated.
- 4 **Nov 2022:** ARP raised to EUR 800 per month, and Offer a Home programme launched.
- 5 **Apr 2023:** Consortium of Partners officially launched.
- 6 **May 2023:** CRM data sharing platform launched to Consortium Partners and Local Authorities.
- 7 **Jun 2023:** 18,850 displaced people living in hosted accommodation.
- 8 **Aug 2023:** Safe Homes Research Started.
- 9 **Mar 2024:** End of Safe Homes research period. 22,879 displaced people living in hosted accommodation.
- 10 **Dec 2024:** 34,867 displaced people living in 18,676 hosted properties.



The program helped people arriving from Ukraine to find accommodation with host families who were willing to offer a home or spare room they owned.



Through matching, follow up and casework, as of December 2024 the program enabled 12,900 individuals to find safe accommodation in private homes.

BACKGROUND

The escalation of the armed conflict in Ukraine in February 2022 triggered mass displacement across Europe. In Ireland, the Temporary Protection Directive (TPD), activated on 4 March 2022, granted displaced people immediate access to work, healthcare, education, and suitable accommodation; access to housing and healthcare were the most challenging aspects of Ireland's implementation, reflecting pre existing pressures. Ireland's hosting infrastructure was shaped by the Register of Pledges (ROP), an online system used to collect offers of spare rooms or vacant homes from the Irish public to house displaced people. The register was created in 2015 to support programme refugees and remained active prior to the Ukraine response (but unfunded since 2018), as it was not designed for large scale emergency use. Concurrently, Ireland's wider accommodation system for international protection applicants was under strain.

SITUATION DURING THE CRISIS

Arrivals from Ukraine were received at a national reception centre to apply for Temporary Protection and initial support. Those without pre arranged accommodation were transferred to emergency centres (such as sports or community halls) and then to longer term placements in hotels, holiday villages, and rest centres; the latter were initially intended for short stays of two to three weeks, but many people remained significantly longer. Within these centres, displaced people sought more stable options, including hosted accommodation, and local authorities also used rest centres to identify households interested in entering hosting arrangements. As arrivals increased, the emergency accommodation system came under sustained pressure. Hosting emerged as a key component of the national response, supported by national and local actors.

NATIONAL SHELTER RESPONSE

Ireland's accommodation response combined emergency provision with rapid expansion of pledged housing (i.e., houses or apartments offered by the Irish public). The online register described above, managed by the organization leading the hosting program, was scaled up to manage offers of accommodation, expanding call centre capacity and developing a Customer Relationship Management (CRM) system to triage and manage pledges. Local authorities and partner organizations supported matching and placement processes. Policy measures included the Accommodation Recognition Payment (ARP) for hosts and the Offer a Home (OAH) scheme led by local authorities. In April 2023, a multi agency Consortium was formed, at the request of the government, to coordinate matching, placement, and support activities across the hosting system. By April 2024, 28 per cent of displaced people in state sponsored accommodation were living in pledged homes, rising to 32 per cent when private and direct matches were included.



The program was reactivated and scaled up from an existing system that had been established in 2015, though it had not been designed for large volumes.

PROGRAM DESIGN

The hosting program was designed as a community based accommodation solution supporting new arrivals under temporary protection. Its goals were to provide safe, suitable, and immediate accommodation; reduce pressure on emergency and long term housing systems; and enable dignified, community integrated living arrangements. The design leveraged the existing (but small scale) online register infrastructure that could be rapidly expanded, combined with strong public willingness to offer their properties or spare rooms. Casework and safeguarding were central: hosting involves shared living arrangements and requires structured screening, matching, and ongoing support. The caseworker model was built around four core functions: matching, follow up support, extensions beyond the initial term, and high needs casework for complex situations. The model ensured placements were safe, appropriate, and sustained.

Additional support measures were determined by policy. The two different policy measures mentioned above (the ARP and OAH) helped sustain placements recognizing the contribution of those providing accommodation, as well as supported the creation of a complementary entry route through local authorities. Intended outcomes were increased availability of safe and affordable accommodation, structured support for hosts and guests, reduced reliance on emergency centres, and embedding hosting within a coordinated, multi agency response.

PROJECT IMPLEMENTATION

PARTNERSHIPS AND OPERATIONAL CAPACITY

Government funding enabled rapid scaling. To process high volumes of pledges from homeowners, a commercial call centre was contracted to triage pledger details, supplemented in the early days by surge support from national services and volunteers. Professional bodies supported safety assessments of hosted properties. As arrivals increased, local authorities and multiple partners began placing people into pledged accommodation using shared data. This expansion increased capacity but introduced coordination challenges and slowed early placements. In April 2023, the creation of the multi agency Consortium clarified roles, improved coordination, and enabled more efficient use of resources across transport, casework, and on the ground support.

DATA MANAGEMENT AND SYSTEMS

The jointly administered pledge system and the new CRM tool (launched October 2022) became critical to receive, manage, and report on triaged data. Prior to its introduction, organizations relied on spreadsheets, which made verification slow and inconsistent. The CRM improved speed, accuracy, and coordination across agencies involved in matching and allowed management of multiple entry routes (reception centres, local authority referrals, community contacts, direct approaches) with greater transparency.



Hosts could offer vacant houses, apartments or even spare rooms, and were vetted by the organization staff and the local police, where necessary.

CASEWORK MODEL

Casework was delivered through the four function model: matching, follow up, extensions, and high needs casework. Initially, each caseworker carried out all four functions. In October 2023, the model was scaled to a rotating team structure to reduce burnout and improve consistency. Dedicated teams were assigned to each function, supported by an escalation pathway and an initial needs assessment conducted by the casework lead. This improved workload distribution and strengthened follow up with hosts and guests.

SAFEGUARDING

Safeguarding requirements were integrated throughout. A Safeguarding Manager oversaw processes, supported caseworkers, and managed more complex cases. Hosts with children in the home underwent police vetting, and vacant properties received safety assessments. Displaced people were supported through needs assessments, information provision, and facilitated introductions; caseworkers provided ongoing support to both hosts and guests to help resolve issues and maintain safe, appropriate placements.



Matching potential hosts and guests was the first step of the process.

TARGETING

The program targeted people displaced from Ukraine under Temporary Protection who required safe, immediate accommodation. Matching served as a core targeting mechanism: caseworkers assessed personalities, preferences, and needs of both hosts and guests, managed expectations, and ensured suitability and safety. Durable placements typically depended on this third party facilitation and ongoing support. While due to the conflict dynamics in Ukraine many displaced people were women and children, who were generally easier to match with hosts, the program also had a significant number of men, for whom it was more challenging to find accommodation.

COORDINATION

OPERATIONAL COORDINATION

With hosting accounting for a substantial proportion of state sponsored accommodation, strong coordination was essential. The Consortium met bi weekly to align operations, resolve issues, and plan jointly. Core activities, such as transport, casework, on the ground support, were streamlined, reducing duplication and improving consistency. The Consortium also coordinated public campaigns and awareness raising at national and local levels to support host recruitment and consistent messaging.

ADVOCACY COORDINATION

The Consortium provided a structured mechanism for joint engagement with government. Shared messaging and coordinated recommendations strengthened advocacy and improved clarity in communication with central authorities.

LOCAL AND COMMUNITY COORDINATION

Partners worked closely with local authorities and community actors to raise awareness about hosting and the use of vacant homes. Community roadshows showcased host experiences to recruit new hosts; informational clinics explained steps for accessing hosted or shared accommodation. Local authority-led coordination networks known as Community Response Fora brought civil society, volunteers, and service providers together to support people under Temporary Protection, with comprehensive integration supports in several counties.



Guests ended up staying for different periods of time, even beyond one year.

MAIN CHALLENGES

- Lack of a clear exit pathway. The program was built for short to medium term accommodation, but Ireland's severe housing shortage meant hosting became longer term without a defined route to independent housing. This created pressure on hosts, guests, and services.
- Coordination with the government in early phases. While operational coordination was strong, policy changes were at times communicated with short notice, requiring rapid adaptation and influencing the number of people presenting for accommodation. Communication subsequently improved significantly.
- Uncertainty inherent to temporary protection. The nature of temporary protection limited the ability to plan for long term integration.
- Integration challenges in rural areas. Limited transport, childcare, and services in some rural areas constrained employment opportunities for displaced people and increased reliance on casework.



The program was implemented across varying contexts in the country. In some rural locations, where access to services and employment opportunities were scarce, integration for Ukrainian guests was challenging.



The program was built on the exceptional level of solidarity shown by the Irish public, with over 21,000 offers of homes and spare rooms in just the first 3 months.

OUTCOMES AND WIDER IMPACTS

DIRECT OUTCOMES

- National mobilization of community based accommodation. Exceptional public offering of properties and spare rooms enabled rapid expansion of safe, and affordable housing.
- Positive hosting experiences when properly supported. Structured casework and safeguarding contributed to high satisfaction, with 92 per cent of hosts who described their experience as good or better than expected; and 80 per cent of guests who reported being satisfied or very satisfied.
- Improved coordination and matching. The Consortium model strengthened communication and operational alignment, leading to more efficient matching and better on the ground support.
- Increased awareness of hosting. Public campaigns and public spaces such as clinics helped promote hosting as a valid shelter option within the national protection response.

WIDER IMPACTS

- A scalable model for community based accommodation. With adequate supports, private home offers can be mobilized at scale and integrated into a national response.
- Improved multi agency coordination. The Consortium strengthened civil society capacity and provided a template for coordinated crisis response across NGOs, local authorities, and government, improving readiness for future displacement.
- Community mobilization and social cohesion. Hosting activated local networks and community groups, contributing to social cohesion and local integration.

UNINTENDED CONSEQUENCES

- Variable experiences by timing and location. Outcomes differed by arrival period, matching process, and rural/urban context.
- Structural limitations in the wider housing system. Crisis driven measures highlighted systemic housing gaps affecting displaced people and Irish society more broadly.



FURTHER READING ON SHELTER PROJECTS

On the Ukraine crisis: [SP 9TH ED. / A.22-A.23 / UKRAINE](#)

On host family support:

[SP 2009 / A.4 DEM. REP. CONGO](#); [SP 11-12 / A.17 LEBANON](#);

[SP 9TH ED. / A.3 ETHIOPIA](#); [SP 10TH ED. / A.20 POLAND](#).

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Strong national and local collaborative partnerships.** Coordinated partnerships between government agencies, civil society, local authorities, and communities enabled national reach, consistent messaging and an effective response to displaced people's needs.
- ✓ **Hosting, when accompanied by appropriate support for both host and guest households, provides a stable basis for displaced people to adapt to their new circumstances.** High satisfaction among hosts (92%) and guests (80%) demonstrated that, when adequately resourced, hosting provides a safe and stabilizing environment.
- ✓ **Robust mediation and casework support.** Caseworkers were central to host–guest communication, conflict resolution, and expectation management; partnership with a professional mediation organization strengthened this function and staff development.
- ✓ **Financial support enabling sustainability.** The Accommodation Recognition Payment provided essential support to hosts, helping sustain placements and reducing early exits.
- ✓ **Flexibility and adaptability.** Partners regularly reviewed and adapted casework models and services as needs evolved and the policy environment shifted.

WEAKNESSES

- × **Crisis driven design without long term planning.** Hosting became longer term without a clear exit strategy due to wider housing constraints, creating pressure for all parties.
- × **Maintaining consistent assessments of housing options offered by the public.** Variations in standards and assessment practices across organizations led to inconsistent decisions.
- × **Caseworker pressure and conflict resolution demands.** High caseloads and complex interpersonal dynamics increased stress and limited proactive support.
- × **Urban/rural divide affecting integration.** Rural placements often lacked transport, childcare, and services, limiting employment opportunities and integration.
- × **Variability in partner capacity and ethos.** Differing organizational cultures and capacities made it challenging to maintain consistent standards across processes such as property assessment and matching.

LESSONS LEARNED

- **Foster national–local partnerships from the outset.** Collaborative partnerships across government, NGOs, local authorities, and communities are essential to deliver coordinated, effective hosting at scale.
- **Define roles and responsibilities early.** Multi stakeholder hosting requires clear roles, expectations, and responsibilities across partners and levels.
- **Build flexibility into the model.** Casework and services must adapt continually to changes in needs and policy context.
- **Support mediation and regular communication.** Caseworkers are critical mediators; access to professional mediation and tailored training strengthens conflict resolution. Periodic communications to all hosts help sustain commitment.
- **Financial support for hosts is necessary for sustainability.** The government-sponsored Accommodation Recognition Payment played an important role in sustaining arrangements; hosting without financial support is difficult to maintain long term.

RECOMMENDATIONS MOVING FORWARD

- Invest early and continuously in shared data and case management systems with sufficient capacity for high volumes; sustain this investment during quieter periods to ensure readiness and improve accountability.
- Establish clear pathways to durable housing solutions from the start, planning and communicating routes from hosting to longer term accommodation options.
- Build comprehensive support systems into the model from day one, including adequate staffing and training for casework, safeguarding, conflict resolution, and expectation setting.
- Standardize accommodation assessments while respecting local diversity through shared minimum standards, clear suitability criteria, and consistent refurbishment guidance.

CASE STUDY

MOLDOVA 2022-2024 / UKRAINE CRISIS

CONTEXT LOCATION



SUPPORT METHODS



CRISIS

Russia's full-scale invasion of Ukraine in 2022 – influx into neighbouring countries

PEOPLE AFFECTED

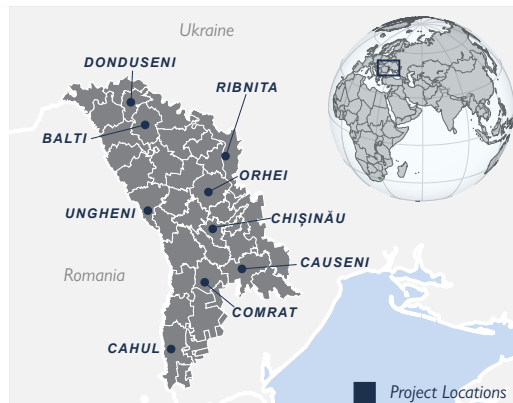
1,165,421 people affected (arrivals from Ukraine)*

PEOPLE WITH SHELTER NEEDS

124,493 Ukrainian (individuals)*
100,000 Moldovan (individuals)*

PROJECT LOCATIONS

Causeni, Comrat, Cahul, Ungheni, Donduseni, Balti, Orhei, Ribnita and Chisinau



PEOPLE SUPPORTED BY THE PROJECT

Direct beneficiaries:
50,000 Ukrainian refugees; **6,000** Moldovans
Indirect beneficiaries:
100,000 Ukrainian refugees; **40,000** Moldovans

PROJECT OUTPUTS

10 Community Service Centres in 9 regions, including complete and partial renovation of publicly owned facilities, as well as equipment.

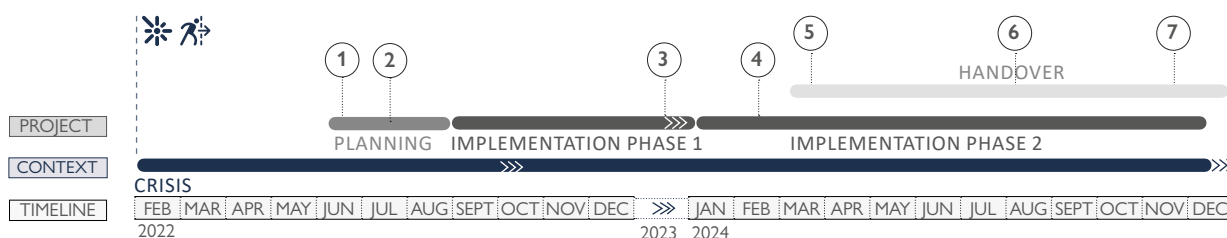
PROJECT COST

USD 267,412 for full renovations on average
USD 193,060 for partial renovations on average
USD 29,445 for equipment/furniture on average

PROJECT SUMMARY

Community Service Centres were established as inclusive, accessible public spaces co-designed with municipalities, civil society organizations, refugee groups, and local communities to deliver multi-sector services and strengthen social cohesion. By rehabilitating or equipping existing public facilities and embedding them in local systems, the program enabled safe, dignified and inclusive spaces for learning, recreation, information, protection, psychosocial support, and referrals. The centres operationalized a community-based protection approach and supported the transition from emergency response to inclusion, backed by formal agreements with local authorities to foster sustainability and gradual handover.

* UNHCR data portal



Feb 2022: Russian invasion of Ukraine -

Large number of refugees arriving to Moldova through the northern border in Otaci and the southern border in Palanca.

- ① Jun 2022: Identification of locations for establishing Community Service Centres and negotiations with local authorities.
- ② Jul 2022: Launch of the first CSC in Chisinau.
- ③ Jul-Aug 2023: Selection of building location and development of technical documentation and project layout for the Ungheni CSC.
- ④ Feb 2024: Final inspection and official opening of Ungheni CSC.
- ⑤ Mar 2024: Signing of the first MoC with the Ungheni City Hall.
- ⑥ Jul-Aug 2024: Development of technical documentation and project layout for Balti CSC.
- ⑦ Oct-Dec 2024: Implementation of renovation works in Balti CSC.



Ten community service centres were rehabilitated through the project, including spaces for learning and recreational activities for refugees and locals.

CONTEXT

Moldova, one of the countries most immediately affected by the 2022 escalation in Ukraine, received over 1.4 million arrivals seeking safety. While many transited onward, more than 124,000 refugees remained in the country by August 2024, a large share of whom were women, children, and older persons. Moldova's response was complicated by structural constraints: pre-existing poverty, the lingering effects of COVID-19 and a gas crisis, a high degree of informality in the economy, and limited fiscal space to expand public services at pace with needs. In spite of this, the Government and communities showed remarkable hospitality and extended broad access to services and rights for refugees, including work, education, and primary health care. In 2023, the macroeconomic picture showed tentative improvement, yet vulnerabilities persisted and the protection environment required robust, localized support.

SITUATION BEFORE THE CRISIS

Prior to 2022, Moldova's economy had endured a succession of shocks and the population had been steadily declining; approximately 42% resided in urban areas and 58% in rural areas, with negative natural growth since 2020. Moldova's asylum caseload was small before 2022, with just 437 individuals in the asylum system. Protection expertise and institutional mechanisms existed, but the scale of subsequent displacement far exceeded prior experience.



Selected public facilities were rehabilitated to provide multisectoral services to refugees and locals, alongside energy efficiency upgrades.

SITUATION AFTER THE CRISIS

By late 2023 and into 2024, displacement dynamics stabilized, but a growing number of refugees opted to remain in Moldova, equivalent to about 4% of the population. Around 68% of refugees lived in urban areas and 32% in rural settings. Half of them lived in the capital city Chişinău. The majority reported living in private accommodations, though collective centres, hotels, and shared arrangements remained part of the shelter landscape. Among those renting, most could maintain their housing for at least six months, but a sizeable proportion remained uncertain about duration. This underscored the importance of predictable support and tenancy safeguards, but also the need for pathways out of collective centres. Authorities and partners prioritized single female-headed households, Roma refugees, persons with disabilities, and older people, while also including vulnerable Moldovans to reduce perceptions of inequity and foster social cohesion.

NATIONAL SHELTER RESPONSE

Moldova's overall refugee response emphasized a whole of society approach aligned with commitments made at the 2023 Global Refugee Forum, with social cohesion identified as one of four pillars of the 2024 Refugee Response Plan (RRP). RRP partners committed to localized, participatory, evidence-based, and gender- and diversity sensitive programming, implemented in close cooperation with national ministries (including Education and Labour and Social Protection), civil society, and local public authorities. Through community-based planning and decision-making, the response sought to: improve community and public infrastructure; facilitate service access for refugees and vulnerable Moldovans, including cultural and sport events; and create inclusive, safe communal spaces which fostered refugee-host interactions and peaceful coexistence. The community-based protection model informed the design of the Community Service Centres (CSCs) and ensured that the centres remained integrated within municipal systems.



The design of centres, integrated within municipal systems, was informed by a community-based protection model.

PROJECT DESIGN

The project aimed to reduce vulnerability and protection risks and promote inclusion by identifying, rehabilitating, and operationalizing CSCs as municipal hubs for outreach, services, and community development. The design aligned with the Cities of Solidarity initiative, which sought to strengthen collaboration and partnerships with cities across Moldova led by local authorities and communities. Centres were intended as safe, welcoming, and accessible spaces supporting individual and community well being for diverse groups—women, men, older persons, adolescents, children, and persons with disabilities.

Key design features included:

- Multi sector services available: legal aid, child protection and youth activities, gender based violence (GBV) prevention, mental health and psychosocial support (MHPSS), education and vocational training, employment and social assistance linkages, and information/referrals to specialized services.
- Age-, gender-, and diversity inclusive layouts with private rooms for confidential services, safe programming for at risk groups, and barrier free access for people with disabilities.
- Energy efficiency measures (thermal insulation for facades and roofs, replacement of windows, and heating system repairs), to improve comfort and reduce recurrent costs, where feasible.
- Clear role definitions and handover pathways to local authorities, anchored by formal agreements and built on existing public facilities to minimize costs and duplication.

The CSCs also served as community-level platforms to share information on a time bound rental assistance program implemented by various partners under common guidance. While rental assistance was not a core CSC output, the centres acted as hubs for information, outreach, and referrals. Key considerations for the rental support included: incentives for partial self payment of rent to avoid dependency; criteria linked to all components of the right of adequate housing: security of tenure, services, affordability, habitability, accessibility, location, and cultural adequacy. This approach, which the CSCs facilitated, aimed to support transitions from collective centres and reinforce the protective environment in both urban and rural areas.

PROJECT IMPLEMENTATION

LOCATIONS & COLLABORATION WITH LOCAL AUTHORITIES

Three months into the emergency, the project team identified priority cities with significant refugee presence across a range of living arrangements—collective centres, private rentals, host families, relatives. Selected municipalities included Chişinău, Bălţi and Donduşeni in the north, Ungheni (near the border with Romania), and Căuşeni, Cahul and Comrat in the south.

The approach sought to empower local authorities to support refugees, asylum seekers, stateless persons, and host communities through co ownership and joint planning. In several municipalities, authorities provided rent free premises and covered utilities; elsewhere, dialogue on cost sharing and maintenance continued during the course of the project.



The centres provided a variety of services, and were located within existing public facilities such as youth centres, schools and cultural venues.

Principles agreed with authorities included avoiding duplicating existing services and strengthening established institutions to enable smooth transfer of service delivery to local systems. For example, this meant embedding centres within youth facilities, cultural venues, and schools, catalyzing increased municipal participation, youth volunteerism, and inter departmental engagement (e.g., social assistance, employment offices).

IDENTIFICATION OF PUBLIC FACILITIES

While locations were identified in 2022, shortlisting specific facilities remained iterative into 2024. Candidate sites were assessed with partners, local associations and NGOs, refugee representatives, and authorities, using criteria such as ownership, accessibility, proximity to services, and presence of activities. Facilities with grassroots leadership or strong civic engagement were prioritized. A multi-functional team reviewed each site, and consensus among stakeholders was sought prior to construction.

CO-DESIGN AND CONSTRUCTION

Of ten facilities selected for CSCs, seven underwent full or partial renovations and three received equipment and furniture. For eight centres, co-design workshops with refugees, locals, and authorities shaped room configurations and privacy needs. Three centres incorporated enhanced outdoor areas for sports and events, co created with the community. Typical construction spanned four to six months per centre, with handovers (including financial inspection and quality certification by municipal technical departments) adding roughly two months depending on complexity. At the end of 2024, already ten centers were fully operational.



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The centres functioned as multi-service hubs and were managed by NGOs who also linked users to a network of service providers.

OPERATIONALIZATION: SERVICE MIX AND MANAGEMENT

Once operational, CSCs functioned as multi service hubs, with activities fully aligning with those mentioned in the project design section. Local coordinators—often NGOs with community development expertise—managed day to day operations, liaising with a network of service providers (typically up to ten per centre, excluding authorities and community representatives) to maintain a balanced, multi sector offer. The centres brought together municipal departments, UN agencies, national and international NGOs, and community groups, with a deliberate focus on building local capacity for sustainability and progressive handover.

COMMUNITY ENGAGEMENT

Both refugees and Moldovans were consistently engaged in planning, implementing, assessing, monitoring, and evaluating the services provided in the CSCs. Their role included:

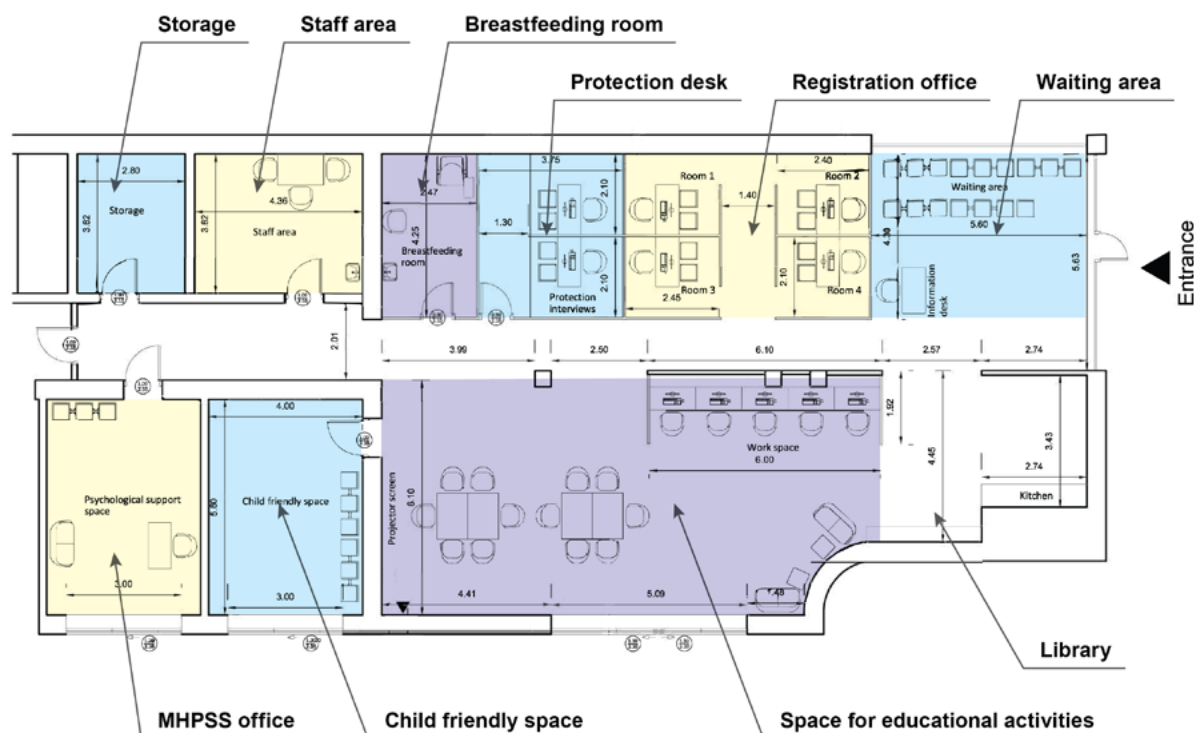
- Identifying protection risks, service gaps, and community capacities;
- Planning, implementing, and monitoring CSC activities to strengthen resilience, social cohesion, and peaceful coexistence;
- Taking ownership of the protection response through community committees and outreach volunteers;
- Using and strengthening feedback and complaints systems to improve service quality and effectiveness;
- Participating in activity planning by youth councils, refugee organizations, and informal groups, and helping establish these associations where not already present.

This participatory model improved relevance and accountability, cultivated civic ownership, and embedded the centres within local social ecosystems.



© Eugenia Ciurca, UNHCR

The facilities were co-designed with authorities, locals and refugees through participatory workshops.



The centres included age-, gender-, and diversity inclusive layouts with private rooms for confidential services and safe programming for at risk groups.

MAIN CHALLENGES

Administrative decentralization and the need to coordinate across multiple government layers created variation in procedures for negotiating and approving Memorandums of Cooperation (MoCs). In some regions, MoCs encompassed both CSC operations and Cities of Solidarity initiatives; elsewhere, they covered only one component or split responsibilities between city and district authorities. These differences increased transaction costs and lengthened decision timelines. In response, the project team adapted documentation to local standards, maintained continuous dialogue with municipal leadership, and aligned centre mandates with existing institutional strategies to secure buy in.

A second operational challenge was the need for stronger infrastructure guidance at launch. Starting work late in the first year under urgent timelines and with minimal standardized documentation led to cost increases and follow on works in some sites. In 2023–2024, the team developed an operational technical guideline to standardize steps, templates, and quality assurance expectations, improving scoping accuracy and easing municipality implementer coordination.

A third challenge lay in sustaining maintenance and utility costs. While several municipalities committed premises and utilities, others faced fiscal constraints. The project addressed this through progressive cost sharing discussions, energy efficiency upgrades to reduce running costs, and embedding CSC programming within existing municipal plans and budgets to align resources over time.

EXIT/HANDOVER

Sustainability centered on transitioning management and maintenance from international partners to local authorities and communities. The Cities of Solidarity initiative provided the framework for localization, with MoCs formalizing municipal roles (e.g., space provision, support for service providers, joint initiatives, and a plan to transfer centre management). The signing of MoCs—such as the Ungheni agreement in March 2024—served as key milestones toward full local stewardship, clearer accountability lines, and durable inclusion of the centres in civic life.

OUTCOMES AND WIDER IMPACTS

The conversion of abandoned or under used public facilities into vibrant CSCs revitalized community assets and increased access to inclusive, accessible spaces. Energy efficiency measures improved comfort while reducing utility costs, and accessible layouts expanded participation. Protection referrals were streamlined: individuals receiving counseling could be linked to specialized services via standardized local pathways. Service providers also deployed mobile teams from the centres to reach remote villages, improving geographic equity. Community led activities enhanced interaction among youth and adults, promoted healthy lifestyles, and strengthened community ties. For example, a co-created mural in Donduşeni encouraged shared ownership between residents and refugees, ultimately promoting social cohesion. Lastly, as of August 2024, ten centres were operational, reflecting institutionalization of the approach and anchoring of the centres within municipal systems.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Strong engagement of local authorities**, with close coordination and consultation with host communities, was instrumental in establishing CSCs across multiple regions.
- ✓ **Renovating existing public facilities** minimized costs and allowed authorities to repurpose sites that had been abandoned for years, demonstrating effective resource utilization and long term impact.
- ✓ **A participatory design process** throughout identification, planning, and implementation fostered a sense of ownership among refugees and hosts, improving acceptance and outcomes.
- ✓ **The activation of CSCs acted as a catalyst** for new ideas and programming that promoted social cohesion.



Users and local authorities were engaged in the design and operation of the centres. Agreements were signed to formalize municipal roles.

WEAKNESSES

- × **Some municipal institutions** foundational for CSCs **struggled to independently sustain maintenance costs**, requiring additional cost sharing measures
- × **In certain locations, limited stakeholder engagement** during design stages led to decision making challenges and perceptions of disproportionate influence by particular actors.
- × **The urgency to commence implementation** meant the first year started late with minimal infrastructure guidance; this necessitated the development of an operational guideline for infrastructure implementation in 2024.
- × **After completing works** per agreed Bills of Quantities, **unforeseen additional tasks emerged** in some centres, increasing costs and prompting plans for follow up phases; subsequent efforts focused on improving scoping and estimation accuracy.



FURTHER READING ON SHELTER PROJECTS

On the Ukraine crisis: [SP 9TH ED. / A.22-A.23 / UKRAINE](#)

On multisectoral services for refugees and migrants: [SP 9TH ED. / A.13 / ECUADOR 2020-2022](#); [SP 8TH ED. / A.10 / VENEZUELA 2020](#).

LESSONS LEARNED

- Establishing CSCs should be collaborative, grounded in consultations and active engagement with local communities, refugees, and local authorities. This improves relevance, strengthens accountability, and supports inclusive governance.
- Involving refugees, municipal actors, and host communities across identification, design, and implementation fosters shared ownership and facilitates smoother transitions to local management.
- CSCs provide meaningful roles for community committees and outreach volunteers, enabling structured feedback on service quality and impact, as well as constructive engagement with local authorities.
- Signing Memorandums of Cooperation with municipalities is a critical component of the exit strategy.
- Given the multi sectoral nature of CSCs and the diversity of actors, robust, multi level communication and reporting mechanisms are needed to manage roles and expectations.

RECOMMENDATIONS MOVING FORWARD

- Secure a signed MoC before initiating a CSC. Early interventions experienced disparities when municipal leadership changed mid project and incoming officials were unfamiliar with previous commitments. This was addressed in 2024 with MoCs in Ungheni and Bălți.
- From an infrastructure perspective, adopt a standardized operational guideline to clarify steps, roles, and quality standards for authorities and implementing partners, including templates to strengthen accountability and transparency. Maintain continuous, clear communication with Mayors and municipal teams from the outset to ensure alignment and continuity.

CASE STUDY

POLAND 2022-2024 / UKRAINE CRISIS

CONTEXT / SETTLEMENT



SHELTER TYPE



SUPPORT METHODS



CRISIS

Russia's full-scale invasion of Ukraine in 2022 – influx into neighbouring countries

PEOPLE AFFECTED

950,000 people (refugees from Ukraine)*

PROJECT LOCATIONS

Warsaw city and Silesia province

PEOPLE SUPPORTED BY THE PROJECT

≈ 51,000 individuals (approx. across components)

PROJECT OUTPUTS

3,500 people provided with short-term accommodation.
5,000 people provided with information via a hotline.
1,090+ people provided with rental support.
100+ vacant spaces renovated.
9 Social Rental Agencies (SRAs) established.
Policy Impact: Advocated for and secured the approval of new government legislation supporting social rental models.

SHELTER SIZE

20-30 m² for short-term (hostel).
40 m² for rental apartments on average.

SHELTER DENSITY

10 m² per person on average (4 people per apartment)

DIRECT COST

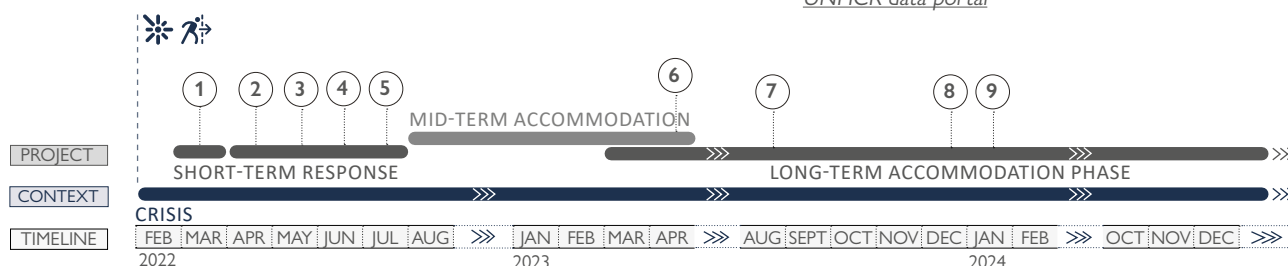
USD 240 per household on average
USD 280 / HH for short-term accommodation
USD 5,875 / HH for one-year rental support
USD 620 / HH for support to rental agreements
USD 6,490 / HH for one-year rental support via the SRA



PROJECT SUMMARY

The organization, member of a global housing network that had been present in the country for almost 30 years before the crisis, quickly responded in partnership with local municipalities, facilitating short-term shelter with host families and hostel stays, as well as supporting the improvement of collective centres managed by third parties. To meet the refugees' medium-term housing needs, the organization leased apartments or helped families negotiate with landlords and finance rent payments. In the long term, two innovative pilot programs were scaled up: a social rental program and the renovation of vacant buildings. The intervention included a strong advocacy component for legislative change on social rental housing.

* [UNHCR data portal](#)



✱ Feb 2022: Russian invasion of Ukraine.

1 Mar 2022: National staff immediately offers support to families arriving in Warsaw. The international network leads a surge response.

2 Apr 2022: Reception kiosk set up at the train station to support newly arrived refugees and connect them with host families; Social Rental Program work in Warsaw is significantly scaled up.

3 May 2022: Free information hotline established for refugees.

4 Jun 2022: Appointment of Minister for social integration.

5 Jul 2022: Social Rental Programme launched in Gliwice to operate in the Silesia province, where an SRA had not yet been established.

6 Apr 2023: First national call for proposals is launched to support vulnerable communities, incl. refugees from Ukraine through, among others, the development of SRAs and renovation of vacant dwellings.

7 Aug 2023: National organization back in the driver's seat; each country in the region adapts to local needs.

8 Dec 2023: At least 9 municipalities announce the launch of SRAs.

9 Jan 2024: Programme adds component of retrofitting entire buildings.

OVERALL CONTEXT

Russia's invasion of Ukraine triggered a major regional displacement. By June 2022, more than 6.8 million people had fled Ukraine, most of them women and children. Poland received the largest share, registering nearly 1 million Ukrainian refugees or asylum seekers by December 2023 and more than 17 million border crossings overall. The scale and speed of arrivals strained national and municipal systems for reception, housing, and integration.

SITUATION BEFORE THE CRISIS

Poland already faced a shortage of affordable housing, especially in major urban centers. Rising demand, limited land, and high construction costs had pushed rents upward, restricting access for low-income households and young adults. Even before arrivals from Ukraine, rental markets in large cities were tight and costly, with few affordable and adequate options.

SITUATION AFTER THE CRISIS

The sudden influx into Poland put heavy pressure on reception and accommodation systems. Newly arrived families initially relied on collective sites such as sports halls and convention centers, or stayed with Polish host families. The surge worsened long-standing housing shortages, reducing availability and affordability for both refugees and residents. Some temporary solutions, especially hostels and adapted institutional buildings, effectively became long-term housing, highlighting the protracted nature of needs.

NATIONAL SHELTER RESPONSE

Polish authorities, supported by international assistance, rapidly assessed needs and established temporary collective shelters in repurposed buildings such as sports halls, vacant commercial premises, schools, and hostels. While the government led the response complemented by a strong civil society effort that included a host family programme and integration services, the absence of an official longer-term national shelter strategy constrained coordination and data-driven planning.



A hotline was set up by the organization to support new arrivals in the country, and guide through the immediate housing options available.

PROJECT PHASES

Anticipating a protracted crisis, the organization avoided a purely reactive model. It designed a multi-year, multi-track intervention that balanced immediate reception support with pathways to sustainable, affordable housing and integration.

SHORT-TERM – EMERGENCY ACCOMMODATION

During the first months, the organization partnered with the Warsaw municipality to run a reception kiosk at the main train station, helping newly arrived refugees access temporary accommodation. The initial hosting model relied on volunteer host families, then added short-stay hostels as safe, suitable offers declined and caseloads grew. This option was more expensive but became indispensable and ultimately prevailed during the emergency phase, as humanitarian partners providing similar options decreased. The project also supported upgrades to collective centers managed by third parties and established a free hotline to guide arrivals through immediate housing options.



Initially, host families received refugees and asylum seekers voluntarily. After some time, this model was not sufficient to meet the demand.



Given the increased caseload of Ukrainians coming into Poland, the organization started using hostels for short-term accommodation.

MEDIUM-TERM – INTERIM SHELTER SOLUTIONS

In this phase, the team mobilized owners to lease vacant apartments to the organization for 6–12 months and used its second-hand furniture shop as a logistics hub to repair and furnish units. A flexible subsidy model encouraged self-reliance by gradually increasing tenant contributions while fully covering costs for the most vulnerable households. The hotline also helped resolve landlord–tenant issues. Over time, an additional modality – the nationwide “Step Into Your Home (Krok do Domu)” initiative – emerged as a guarantor model to facilitate independent tenancies. It bundled rental payment and property-damage insurance, deposit and gradual rental subsidies, search and negotiation support, contract templates, legal and translation assistance, and handyman services, thereby reducing risk for landlords and barriers for tenants.

LONG-TERM – HOUSING SOLUTIONS

This component focused on expanding access to affordable rental housing by increasing supply through the renovation of vacant flats and buildings and by supporting the establishment of social rental agencies managed by the organisation or other actors.

- **Social Rental Agencies (SRAs):** Prior to the project, building on foundational research on social rental schemes (2015–2017) and a pilot in Warsaw (2016–2019), SRAs were formally codified in 2021 as a policy tool allowing municipalities to partner with NGOs—a historic integration of civil society into the formal housing system. Leveraging the refugee crisis to accelerate the rollout of SRAs, the organization delivered comprehensive support through capacity-building for municipal authorities and NGOs on establishment and best practices, free technical consultations covering documentation, budget drafting, and legal resolutions. Additionally, the organization directly managed the SRA in Dąbrowa Górnicza (Silesia), which served as a replicable model for other municipalities.
- **Revitalization of Empty Buildings:** Simultaneously, the organization expanded another pilot project to rehabilitate vacant multi-residential structures. By upgrading these properties and reintroducing them to the market via SRAs, the initiative addressed local accommodation deficit. The government subsequently embraced this model, incorporating it into broader support schemes for municipalities and non-profits assisting vulnerable groups, including refugees.

The project also promoted legislative changes to improve refugees’ access to affordable housing and complemented these efforts with non-housing support, including language courses, childcare, and vocational training.

Although beneficiaries did not have to move through every stage, a planned progression from supported social rental schemes to independent tenancy proved highly effective. 80 per cent of households successfully transitioned, facilitated by intensive social work.



The organization second hand furniture shop was expanded and used as a logistics hub to furnish vacant apartments leased by the organization.



The program included legal assistance, insurance, gradual rental subsidies and handyman services, to reduce obstacles for tenants.



At the start of the crisis, some owners of empty apartments in Warsaw offered them to the organization free of charge for around six months to host women and children who had recently fled Ukraine. In some cases, subsequent arrangements were made with landlords to pay rent.

TARGETING

The intervention focused on Warsaw (short-, medium-, and long-term) and Silesia (medium- and long-term), building on the organization's existing presence. Beneficiary selection prioritized vulnerable individuals and families from conflict-affected Ukrainian provinces, including single parents, older people, and people with disabilities or chronic illnesses. Two income groups were distinguished: households able to contribute part of the rent and those unable to afford 20 % of the rent.

COMMUNITY ENGAGEMENT

Community integration and social cohesion were promoted through events, workshops, and volunteer engagement. For example, in June 2024, an interactive theatre-and-circus “Ciałobajka” event was held for families in the Social Rental Programme, creating an opportunity for peer connection, communication with staff, language practice, and celebration around Children's Day and the end of the school year. In 2023, 30 volunteer initiatives took place in six cities, engaging 532 people. Corporate and international volunteer groups supported repainting, furniture recycling and assembly in rented apartments, as well as refreshing social service spaces .

MATERIALS AND SUPPLY

Market impact was limited, aside from a brief early shortage of mattresses. To meet increased demand for furniture and appliances, the second-hand furniture shop was adapted to accept and manage donations: warehouse space was expanded, additional delivery vehicles were purchased, and extra staff and volunteers were mobilized for distributions. Private-sector donations of basic furniture and appliances helped equip previously empty rented apartments.

EXIT/HANDOVER

An explicit exit strategy guided transitions after the 12-month social rent support period. The team interviewed tenants and landlords to review intentions, financial sustainability, and barriers. Common obstacles included language, legal concerns, market unfamiliarity, social stigma, and affordability gaps. Drawing on these lessons, the “Step Into Your Home” modality was developed to provide insurance products, deposit and gradual rent support, search and negotiation assistance, legal and translation help, and standard templates—enabling direct leases between landlords and tenants and reducing perceived risk. For the most vulnerable families unable to sustain costs after 12 months, referrals to alternative solutions or extended social rental support were envisaged. The programme also emphasized continuity and systemic uptake so that social rental initiatives and Empty Spaces repurposing could continue beyond the immediate response and remain accessible to the wider population.



In the long-term phase, the project also renovated vacant buildings such as this one, which were then occupied through the Social Rental Programme. Volunteering played a key role throughout the project, both by participating in social cohesion initiatives and by actively contributing to upgrades and furnishing the apartments.



Entire apartments were renovated and furnished through the project.

MAIN CHALLENGES

- **Organizational capacity and staffing.** At crisis onset, the organization had limited humanitarian experience and a small national footprint, with more than 20 staff in place. Rapid recruitment was difficult in a competitive market; the team eventually expanded to over 80 staff, including of Ukrainian origin. This growth was supported by early surge assistance from the international network.
- **Host-family limitations and safety.** The initial host-family scheme with the city faced several hurdles: risks for unaccompanied women, mismatches between single-room offers and family needs, and a shrinking pool of suitable hosts. Pre-screening mitigated some issues, but the model was ultimately replaced by the hostel accommodation.
- **Accommodation market volatility and safety.** Inflation and seasonal demand increased hostel prices, triggering contract renegotiations. Safety incidents required strengthened risk mitigation, clearer house rules, and dedicated caseworkers for routine monitoring.
- **Rental market complexity.** For newcomers, Poland's rental market—with multiple contract types and varying tenant protections—was difficult to navigate. Legal ambiguity discouraged both tenants and landlords. The programme therefore integrated legal expertise, standardized guidance and contracts, and advisory support to increase confidence and protection on both sides.
- **Sustainability for the most vulnerable.** Households receiving full rent subsidies (e.g., people with disabilities, limited employability) often struggled to transition after 12 months. The organization responded with tailored exit strategies, targeted extensions, and closer links to social support centers and NGOs to identify alternative solutions.
- **Institutional integration of SRAs.** Embedding SRAs within municipal structures increased trust, policy relevance, and long-term impact, but reduced some flexibility and required stronger municipal capacity. Scaling depended on political will, stable financing, and ongoing technical support, partly addressed through a national support programme for municipalities.

OUTCOMES AND WIDER IMPACTS

- **A stronger national actor.** The response significantly strengthened the organization institutionally. From a smaller development-focused footprint, it expanded staffing and operational capacity, built humanitarian competencies, and later applied them in other domestic responses.
- **Systemic expansion of affordable housing models.** Affordable housing approaches moved from local pilots to a coordinated national strategy. The SRA model gained momentum through a government programme and a major government funding allocation of nearly USD 25 million, enabling new agencies and renovation of vacant properties. Municipalities that integrated SRAs with social services demonstrated effective local pathways to scale. The “Empty Spaces” program also demonstrated a viable approach to converting unused buildings into liveable housing, increasingly generating strong government interest for broader adoption in post-crisis recovery plans.
- **Policy influence grounded in practice.** Scaling social rental models during the crisis generated strong evidence that informed national policy. Technical training and advisory services, alongside continued advocacy, helped institutionalize SRAs in municipal structures, with national bodies providing ongoing support.
- **Sustainable legacy.** Renovated apartments and buildings continued to meet housing needs. Embedding SRA mechanisms within municipal systems provided a durable, scalable channel for affordable housing and integrated social support beyond the immediate response.



Once renovated, the flats remained as part of the affordable housing stock for the local municipalities, linking post-crisis efforts to durable outcomes.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Presence in the country prior to the crisis.** Existing operations in Warsaw and Silesia enabled a quick start-up and immediate coordination with municipal services.
- ✓ **Existing pilot programmes.** Pre-crisis pilots in social rental and vacant-building rehabilitation were repurposed and scaled to meet refugee housing needs and to inform national policy.
- ✓ **International network's support.** Early surge support provided strategic capacity, specialist staff and funding during the initial phase.
- ✓ **Scale-up capacity.** The programme grew rapidly—expanding staffing and overall portfolio—while tapping corporate and community volunteer engagement, including recruitment of staff of Ukrainian origin.
- ✓ **Advocacy capacity.** The entity effectively mediated on behalf of refugee tenants, influencing policy and practice around social rental and affordable housing.
- ✓ **Comprehensive assistance.** The Social Rental Programme combined housing with enablers such as language, IT, vocational and other skills courses, supporting stabilization and integration.

WEAKNESSES

- ✗ **Initial capacity to respond.** Despite an existing national presence, limited humanitarian experience posed early operational challenges. Adjusting to the directive, time-critical demands of emergency management took time for a development-focused team.
- ✗ **Staff well-being.** Sustained workload and exposure to distressing situations affected staff mental health, requiring additional support measures.



The social rental programme included direct assistance such as subsidies and renovations with activities like legal support, vocational and language courses.

LESSONS LEARNED

- **Leverage existing pilots for rapid scale.** Pre-existing affordable housing pilots can be quickly adapted and scaled in crises, accelerating transitions from temporary relief to durable solutions.
- **Integrate legal expertise from the outset.** Embedding legal support and standardized contracts increases confidence and safety for both tenants and landlords in complex rental markets.
- **Adopt a holistic, trauma-informed approach.** Housing assistance should be paired with enabling services—education, health, community-building and psychosocial support—to restore stability.
- **Prioritize beneficiary-led livelihoods and enablers.** Flexible vocational support and structural enablers such as childcare help households move from dependence to self-sufficiency, complementing the transition from supported to independent tenancies.
- **Empower dedicated domestic entities.** Investing in specialized national organizations during crises strengthens long-term sector capacity, policy influence and institutional resilience.

RECOMMENDATIONS MOVING FORWARD

- **Move more quickly from emergency response to early recovery activities,** aligning with the organization's strengths in durable housing solutions.
- **Work more intentionally on partnerships** with organizations from other sectors to ensure a holistic response, while maintaining focus on the housing mandate.
- **Strengthen internal management** by enhancing interdepartmental communication, holding regular Q&A with staff, conducting periodic process reviews, and organizing routine learning exercises every three to four months.



FURTHER READING ON SHELTER PROJECTS

On the Ukraine crisis: [SP 9TH ED. / A.22-A.23 / UKRAINE](#)

On rental support: [SP 10TH ED. / A.XX / ECUADOR](#)

On responses in neighboring countries:
[SP 10TH ED. / A.XX / MOLDOVA](#); and [A.XX / UKRAINE](#)

CASE STUDY

UKRAINE 2023-2024 / CONFLICT

CONTEXT / SETTLEMENT



SHELTER TYPE



SUPPORT METHODS



CRISIS Russia's full-scale invasion of Ukraine in 2022

PEOPLE WITH SHELTER NEEDS 7.9 million people in 2024*

PEOPLE DISPLACED 4 million people internally displaced*

TOTAL HOUSING DAMAGE 1.4 million residential properties*

PROJECT LOCATIONS Mykolaiv and Kherson oblasts, southern Ukraine

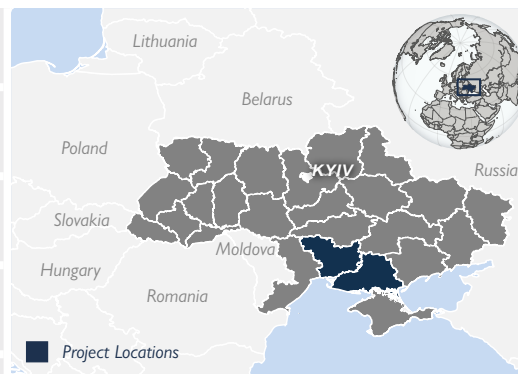
PEOPLE SUPPORTED BY THE PROJECT 1,350 HH / 3,000 individuals

PROJECT OUTPUTS 1,350 damaged houses repaired
(through cash and voucher support)

SHELTER SIZE 42 m² for apartments or private houses, on average.

DIRECT COST USD 2,500 per household on average

PROJECT COST USD 2,700 per household on average

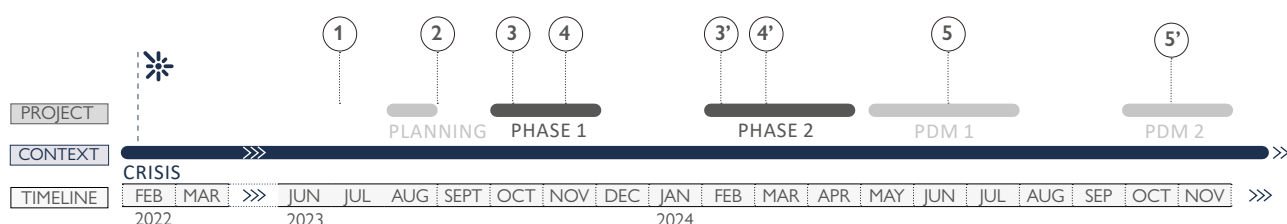


PROJECT SUMMARY

The project provided cash and voucher assistance to support conflict-affected households in Ukraine with light and medium shelter repairs, enabling them to restore damaged housing conditions. The intervention applied a market-based and digitally supported modality, allowing households to procure construction materials through local vendors and engage labour for repairs based on individual needs. Through flexible delivery mechanisms and monitoring systems, the project improved efficiency, strengthened users' choice, and supported local market actors and skilled workers in conflict-affected areas.

* Sources:

- Ukraine Humanitarian Needs and Response Plan 2024.
- Shelter and Non-Food Items Cluster Ukraine
- Rapid Damage and Needs Assessment (RDNA2).



Feb 2022: Russian invasion of Ukraine.

- Jun-Jul 2023:** Needs assessment conducted in coordination with local authorities and available secondary data sources.
- Aug-Sep 2023:** Technical assessment to determine the scope of repairs and prepare Bills of Quantities for eligible households.
- Oct 2023 and Feb 2024:** Beneficiary selection based on eligibility criteria, vulnerability and feasibility considerations (incl. accessibility to vendors). Communication channels established with beneficiaries.
- Oct-Nov 2023 and Feb-Mar 2024:** Distribution of vouchers and cash assistance, implemented through digital systems.
- May-Jul 2024 and Oct-Nov 2024:** Post-distribution monitoring conducted through household-level data collection and beneficiary feedback.



The project supported families living in their own or rented properties to conduct repairs through a digital voucher and cash modality.

© Stanislaw Kalach, IOM Ukraine



Dwellings with light and medium damage were selected. Typical damage included windows and doors, roofing, and exterior walls.

CONTEXT

Since the escalation of the war in February 2022, widespread attacks on civilian infrastructure and residential areas caused extensive housing damage, particularly in eastern and southern oblasts near the front line. The impact was severe: 1.4 million homes damaged or destroyed, and millions of people facing severe or extreme shelter needs. Repeated shelling, disruptions to energy and basic services, and prolonged displacement reduced households' ability to restore adequate living conditions without external support. Shelter needs were most acute in winter when damaged roofs, windows, and walls exposed families to cold and damp. Older persons, people with disabilities, women-headed households, and low-income families faced additional barriers to independently conducting repairs. For more background on the crisis, see A.22 in Shelter Projects 9th edition.

SITUATION BEFORE THE CRISIS

Before the escalation of the war in February 2022, Ukraine's housing and construction sectors were broadly functional. Households could generally access basic services, repair materials, and skilled labour through established private-sector networks, while national retail chains and local suppliers maintained strong coverage across both urban and rural areas, including in the southern oblasts. This pre-existing market capacity provided an important basis for considering a market-supported shelter repair response once conflict-related damage increased.

PROJECT DESIGN

The project aimed to meet the shelter repair needs of non-displaced persons, as well as IDPs and returnees, whose owner-occupied dwellings were partially damaged and no longer provided adequate safety and protection from the elements in war-affected oblasts. The intended outcome was to improve shelter conditions through household-led, market-supported repair solutions.



The vouchers could be redeemed either in person at selected stores, or online. They were restricted only to items that could be used for the intended repairs.

A mixed modality combined restricted vouchers for construction materials with cash assistance to cover labor for repairs. Typical works included replacing damaged windows and doors, repairing roofs, installing insulation, restoring external building elements, and limited rehabilitation of internal systems affected by conflict-related damage. The restricted vouchers enabled control over the use of assistance for construction materials while allowing choice among locally available options. The cash component acknowledged that many households lacked the physical capacity, skills, or available family labor to conduct repairs themselves. Cash provided was tailored to the Bill of Quantities (BoQ), scope of works, and damage level, not a flat lump sum, and covered labor costs only. Costs for construction waste handling and disposal were also included within cash component.

The voucher product list was restricted to predefined categories appropriate for emergency repair. These included, among others, roofing materials; windows and fittings (including installation); doors and fittings; insulation; dry building mixes; bricks/blocks; cement and civil construction materials; paints; electrical items; water supply and sanitary systems; heating systems and radiators; non-electronic and electronic tools; and delivery service.

Vendors' ability to stock and supply needed items was assessed in targeted locations, and they were informed in advance of the expected caseload, product groups, and geographic coverage. This allowed pre-ordering and positioning of materials, such as roofing sheets, in regional warehouses and designated stores to meet demand. Implementation proceeded only in areas where vendors could safely deliver, where beneficiaries could access shops if needed, and where banking, communications, and mobile networks remained operational. The response model was intentionally remote: after technical assessments and verification, voucher distribution, redemption tracking, beneficiary communications, and elements of monitoring were conducted primarily through digital tools and mobile channels, enabling assistance to large numbers of households with reduced field exposure.

PROJECT TEAM

The project team was compact and multidisciplinary. It included 2–4 engineers for technical assessments and verification, a project manager, a data manager, a supply chain assistant, and a call-center team to provide beneficiary support and manage voucher/cash delivery.

Assessments and BoQs were carried out by a partnering organization's engineers and a specialist engineering firm, with project engineers reviewing BoQs, damage categorization (light/medium), and eligibility, and confirming that repairs were feasible under the voucher value range. This also included validating proximity to vendor shops and cellular coverage, and confirming that the dwelling was the household's sole, currently occupied residence.

PROJECT IMPLEMENTATION

Vouchers were generated by the contracted vendor and delivered via SMS as unique barcode links, redeemable in physical stores or online. Activation and redemption required two-factor authentication through a one-time password, strengthening identity verification and minimizing misuse. Minor deviations were permitted when items remained within eligible categories, within the voucher value, and consistent with the objective of reinstating habitability. For example, purchasing a radiator in response to an urgent heating need instead of a plaster mixture for wall repairs indicated in the BoQ. Vendor delivery to the beneficiary's home was included, enabling door-to-door supply.

To ensure accountability and track utilization, beneficiaries completed an electronic self-reporting form accessed via SMS link, with mandatory upload of photos of purchased materials and receipts. Submission of this interim verification was linked to eligibility for the subsequent cash transfer for labor. Transfers were made to beneficiaries' bank accounts where available; in locations with limited banking access, alternate financial service providers were used.

Safeguards for the use of the unrestricted cash included tight targeting, limiting selection to households living in damaged properties with no alternative housing, and verification. Final self-assessments via an SMS form asked households to report on completed works; in-person spot checks by project staff were conducted on a random sample to verify completion and gather feedback. This combination improved the quality of works and encouraged full use of voucher-procured materials in repairs.



Where possible, project staff assisted beneficiaries in selecting the needed items, according to BoQs developed by third-party engineers.

TARGETING AND COORDINATION

Within selected locations, beneficiary selection focused on owner-occupied private housing requiring light or medium repairs. Eligibility was confirmed via self-applications to local authorities, supported by Housing, Land and Property documentation and technical assessments. Priority went to households still residing in damaged dwellings who needed repairs to restore safe and adequate living conditions.

Activities were coordinated through the Shelter Cluster's system for beneficiary tracking, de-duplication, and reporting. Local authorities regularly submitted data to the Cluster, which cross-checked for households that had already received financial assistance from government programs, helping ensure appropriate targeting and preventing duplication.



Common repairs included insulation and replacement of doors and windows. Beyond the vouchers, the project provided cash to cover for the labour part.



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The voucher plus cash modality enabled the project to reach a large number of households simultaneously, also allowing them to progress based on their own schedules and capacities.

TECHNICAL SOLUTIONS

Digital tools underpinned implementation and monitoring. Engineers used Kobo Toolbox for technical assessments and field verification, allowing near-real-time consolidation. The vouchers were SMS-based with a barcode link redeemable at participating vendors or for online purchases. The project also required an interim electronic self-verification before cash disbursement and a final self-verification after voucher expiry, reinforcing accountability and enabling remote progress tracking.

The project's voucher-based approach for shelter materials, supported by a defined methodology, was distinctive at the time of implementation and was later adapted by other programs. For example, within economic recovery interventions, small and medium-sized enterprises with damaged facilities were supported through similar vouchers to procure construction materials for rehabilitation and business continuity.



Monitoring visits were conducted with the use of digital tools. Due to weather-related and other constraints, post-assistance monitoring had to be extended.

OUTCOMES AND WIDER IMPACTS

Household-level assistance catalyzed wider local benefits. The voucher modality stimulated steady demand for construction materials, providing consistent business to vendors and reinforcing market functionality. The cash component created short-term livelihood opportunities for local skilled and unskilled workers. Involving local residents and small businesses in repair works generated additional income and supported community-level recovery dynamics. By enabling households to remain in repaired, safer homes, the intervention also reduced pressure on local authorities and social support systems by limiting reliance on collective centers or temporary accommodation.



As the project targeted households who were still living in their damaged dwellings, it reduced pressure on social support systems and promoted resilience.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Needs-based flexibility through a combined modality.** By pairing restricted vouchers for materials with cash for labor, households could prioritize repairs according to specific damage, household composition, and local market availability, while the program maintained assurance that funds were directed to essential shelter items.
- ✓ **Operational reach via remote implementation.** Digitally enabled processes, assessments, voucher distribution, self-verifications, and support, allowed the project to operate in insecure, geographically dispersed areas while reducing exposure of field staff.
- ✓ **Scalable delivery across many households.** Unlike contractor-led repairs often implemented sequentially in batches, the approach enabled parallel support to large caseloads, reducing bottlenecks and allowing beneficiaries to progress according to their own priorities and capacities.
- ✓ **Cost-efficiency and use of local markets.** The intervention leveraged existing supply chains, reducing warehousing, transport, and procurement costs while sustaining local economic activity and preserving beneficiary choice and dignity.
- ✓ **Strong beneficiary participation and ownership.** Households selected materials, organized labor, and managed timelines, leading to context-appropriate solutions and better alignment with actual needs.
- ✓ **High operational coverage within conflict-affected areas.** The modality supported a significant number of households across southern Ukraine despite insecurity and damaged infrastructure.

WEAKNESSES

- ✗ **Management of voucher underspending.** Contractual arrangements with a large national vendor resulted in unspent balances from individual vouchers being aggregated into a single voucher to the organization, rather than reimbursed or deducted from final payments. While the consolidated balance could be used within program categories (e.g., to procure items for rapid distribution), the arrangement limited financial flexibility and required careful planning to ensure full utilization.
- ✗ **Dependence on vendor coverage and market access.** Implementation was constrained by vendors' geographic reach and delivery capacity; in some high-risk or rapidly deteriorating areas, vendors could not ensure safe delivery, limiting assistance to locations with severe needs.
- ✗ **Variable completion timelines and extended monitoring.** As households organized their own labor and schedules, repairs were sometimes delayed by weather, contractor availability, or household financial constraints, extending post-distribution monitoring and verification timelines.



FURTHER READING ON SHELTER PROJECTS

On the Ukraine crisis: [SP 9TH ED. / A.22-A.23 / UKRAINE](#)

On vouchers for repairs: [SP 13-14 / A.9 IRAQ / 2013;](#)
[SP 17-18 / A.27 IRAQ / 2017-2018.](#)

On repairs in conflict areas: [SP 2009 / A.7 GEORGIA / 2008;](#)
[SP 15-16 / A.30 SYRIAN ARAB REPUBLIC / 2015-2016.](#)

LESSONS LEARNED

- **Vendor network accessibility is critical.** Voucher-based repairs are most effective where functional vendor networks exist within reasonable distance (e.g., 30 km), particularly for the elderly and people with limited mobility or digital access. Early vendor engagement should include customer support and troubleshooting planning.
- **Monitoring must reflect phased repairs.** Many households complete works progressively due to labor availability, security dynamics, and resource constraints. Post-distribution monitoring should accommodate this reality, with verifications preferably 60–90 days after the cash transfer to capture actual outcomes.
- **Voucher validity periods should be flexible.** Longer validity (beyond three weeks) can help households navigate stock fluctuations, transport disruptions, and evolving security contexts, enabling procurement of appropriate materials without undue pressure.
- **Clarify eligible categories and repair planning.** Providing more detailed guidance to beneficiaries on eligible product categories and basic repair planning can reduce delays and improve effectiveness of assistance utilization.
- **Strengthen coordination for data quality and de-duplication.** Sustained use of national systems and regular exchanges with local authorities can improve beneficiary data quality, target verification, and support in hard-to-reach locations.
- **Anticipate contractual and accounting constraints with large vendors.** Where unspent voucher balances cannot be reimbursed or offset, pre-agree practical mechanisms (e.g., rapid procurement of pre-identified items in short supply) to ensure full, timely utilization aligned with program objectives.

CASE STUDY

JORDAN 2018-2022 / SYRIAN CRISIS

CONTEXT LOCATION



SETTLEMENT TYPE



SUPPORT METHODS



CRISIS Syrian Crisis

PEOPLE DISPLACED **655-675,000** Syrian refugees in Jordan between 2018 and 2022*

PROJECT LOCATION Amman Governorate, with implementation in Southern and Eastern Amman and other rural areas

PEOPLE SUPPORTED BY THE PROJECT **780 HHs (3,900 ind.)** with home rehabilitation (55% Syrian refugees, 45% Jordanians; over 10% included persons with disabilities; 20% female-headed households). **120,000 people** overall, incl. 14% Syrian refugees.

PROJECT OUTPUTS **780 homes rehabilitated**
52 community facilities

SHELTER SIZE **70 m²** on average

SHELTER DENSITY **12 m²** per person on average

DIRECT COST **USD 1,400** per household on average

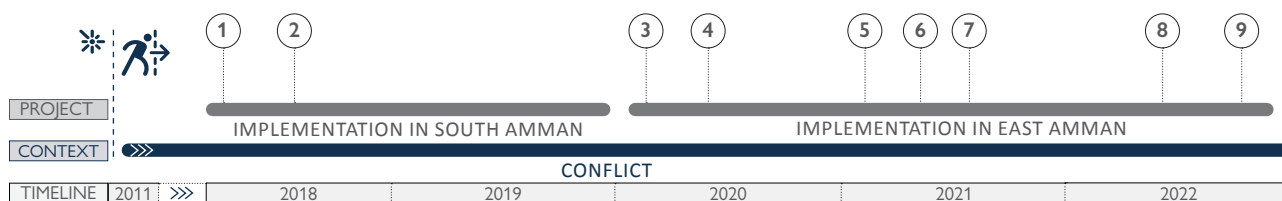
PROJECT COST **USD 1,820** per household on average

* UNHCR data portal (<https://data.unhcr.org/>)



PROJECT SUMMARY

Since 2018, the program rehabilitated more than 780 homes and 52 public spaces in Amman. Beginning with a homeowner-driven approach, the intervention expanded to serve Syrian refugee households and transitioned into a contractor-driven modality. Continued funding enabled growth and the integration of sustainable green practices, underscoring adaptability and a sustained commitment to improving living conditions for vulnerable households and communities.



2011: Unrest and conflict in the Syrian Arab Republic.

- 1 **2018:** Community needs assessment in Al Jezah;
- 2 **2018:** Commencement of activities in South Amman. Within three years, 252 homes and 13 public spaces were rehabilitated.
- 3 **2020:** Area of operation moved to East Amman to serve refugees and host community;
- 4 **2020:** Transition from owner-driven to contractor-driven implementation.
- 5 **2021:** Community needs assessment in Marka;
- 6 **2021:** Expansion to 18 community service projects;
- 7 **2021:** External funding secured for energy efficiency and "Green Homes" interventions (6 new green homes and 42 rehabilitations with energy and water efficiency over 3 years).
- 8 **2022:** Satisfaction survey in Marka;
- 9 **2022:** Program evaluation.



The project rehabilitated homes and public facilities in urban areas of Amman, serving both Syrian refugees and local Jordanians.

BACKGROUND

Jordan's development has been shaped by an arid climate and constrained natural resources. Predominantly Muslim with a significant Christian minority, Jordan has a longstanding tradition of hosting refugees from regional conflicts. It has remained a relatively stable monarchy, though periodic pressures have affected domestic conditions. After the Syrian crisis began in 2011, Jordan became a principal destination for those fleeing violence. The population increase strained infrastructure, services and social systems, while reinforcing Jordan's role as a key refugee-hosting state.

SITUATION BEFORE THE CRISIS

Prior to the Syrian crisis, Jordan's population was primarily urban, centered in cities such as Amman. While poverty existed, overall living standards were comparatively higher than in some neighboring states. The government sought to improve housing and essential services, but structural constraints persisted. Jordan ranked among the most water-scarce countries globally, compounding vulnerabilities linked to aridity and resource scarcity. Energy security was similarly constrained by heavy import dependence.

SITUATION AFTER THE CRISIS

The rapid influx of Syrian refugees intensified pressures in urban centers, further stretching service systems. Competition for limited resources raised the cost of living and tested social cohesion, while the need for sustainable urban planning and infrastructure investment grew more urgent. Rural areas were less directly impacted, but experienced secondary effects, such as competition for agricultural labor and resources. Refugees represented about one-third of the population, creating profound pressure on public services and housing. Nearly two million people, including 30% of Jordanians and 48% of Syrians, lacked access to affordable housing, and 1.36 million lived in substandard conditions. Rising rents heightened vulnerability and increased risks of eviction and repeated displacement. East Amman, especially the Marka district (with 43,000+ refugees), exemplified these dynamics, including early coordination gaps among local actors.

NATIONAL SHELTER RESPONSE

In collaboration with humanitarian actors, the Government of Jordan pursued a multi-pronged strategy that included the establishment of refugee camps, rental subsidies and temporary shelter solutions. Joint needs assessments informed both immediate and medium-term programming decisions across the shelter sector. The overall shelter response combined government-led initiatives with NGO programming and international financing, providing a framework within which area-based and urban-focused interventions could be adapted and implemented.

PROJECT STRATEGY

The program sought to enable dignified, stable and inclusive living environments for vulnerable populations, operating at two complementary levels.

HOUSEHOLD LEVEL: Rehabilitating homes to address safety, privacy and health, with culturally appropriate adaptations responding to each family's needs. Interventions commonly included ensuring privacy (e.g., doors on toilets), creating separate spaces for spouses, and providing separate rooms for girls and boys over 12 years old. Socio-economic and technical assessments prioritized families in substandard dwellings, identifying urgent needs and ensuring that upgrades met humanitarian standards. Security of tenure was enhanced through rental agreements—facilitating stability for tenants—and environmental awareness was promoted, including practices for responsible disposal of non-reusable materials.

COMMUNITY LEVEL: The intervention upgraded public facilities—such as schools, medical centers, community halls and WASH services—to reinforce inclusive service delivery and safety. Community consultations and focus groups shaped priorities; partners were engaged through agreements with commitments for long-term sustainability of improved spaces; supervisory visits and final inspections safeguarded quality and enabled timely disbursements.



Households were targeted based on socio-economic status and living conditions.



Beyond household interventions, public facilities and spaces were also upgraded.



PROJECT IMPLEMENTATION

The program operated with approvals from relevant government agencies and was coordinated through the Shelter workgroup to mitigate duplication. Implementation workstreams followed the two mentioned project pillars:

At the household level:

- Inter-agency coordination via the Shelter workgroup.
- Standardized works planned through Bills of Quantities and Scopes of Work.
- Beneficiary agreements, structured tendering, tenure security measures, quality assurance and post-completion assessments.
- Technical support with one-to-one construction guidance to households; contractor supervision through site monitoring; formal handover with completion certificates and documentation.

At community level:

- Technical assessments to identify public spaces requiring rehabilitation.
- Focus group discussions to agree on rehabilitation priorities.
- Partnerships with government bodies, Community-based Organizations (CBOs) and contractors to address post-crisis demands and ensure sustainability.
- Technical assessments, partnership agreements, tendering, implementation supervision and handovers.

Examples of repair works included: steel works (doors, handrails, bars; galvanized or sandwich panel roofing), construction and demolition (block/gypsum partitions; floor/wall removal for finishes), carpentry (doors with frames and fittings), aluminum works (doors, windows, kitchen cabinets; fly screens and glazing), plumbing and drainage (fixtures, tanks, heaters and drainage systems), electrical works (lighting, sockets, panels, fans), accessibility works (ramps, grab bars, accessible basins) and building finishes (plastering, painting, waterproofing insulation).



Among the upgrades, greywater reuse systems were installed, for instance to irrigate trees and gardens and reduce the pressure on local water systems.

The project staffing and roles evolved across phases, balancing strategic oversight and field-level technical capacity:

- Program Manager – Shelter and Infrastructure (1): overall management and strategic direction, with close coordination with the country program.
- Community Engagement Coordinator (1): bridge to partners; baseline and partnership assessments to understand beneficiaries, services, and community needs.
- Social Researchers (1–3): home visits, socio-economic assessments, eligibility verification and referrals to other services.
- Project Engineers (2–4): technical assessments for homes and communal projects; diagnosis and specification of rehabilitation measures; contractor supervision and compliance with safety/quality standards; training to contractors on green interventions and expected benefits.

Through the course of the project, the approach transitioned from an owner-driven modality to a contractor-driven one. The shift arose from quality assurance needs and beneficiary protection concerns, particularly where households had limited technical capacities and faced risks of incomplete works, misuse of funds, or exploitation. Contractor selection followed robust technical and financial evaluations in line with contracting policies, improving quality, user satisfaction and implementation efficiency.

TARGETING

Locations were identified through a combination of UN numerical analysis and fact sheets to pinpoint areas with high concentrations of Syrian refugees. Primary field surveys then prioritized highly overpopulated zones with limited humanitarian support and poor habitability conditions, with compromised access to markets and essential services.

Target groups included persons with disabilities, female-headed households, orphans, and other vulnerable Jordanian and Syrian refugee families. Entry pathways included direct applications from families and referrals from humanitarian partners.

The process entailed:

- Household assessments to determine needs and eligibility, incorporating socio-economic status and living conditions.
- Technical feasibility analysis to ensure interventions would deliver meaningful, durable impacts.

COMMUNITY ENGAGEMENT

At household level, vulnerable families—including persons with disabilities, orphans and female-headed households—contributed to socio-economic and technical assessments to define interventions aligned to their priorities. Community consultations identified public-space upgrades, reinforcing alignment with local expectations. This participatory model fostered ownership, strengthened maintenance commitments, and increased beneficiary satisfaction. Communities also participated in monitoring, reinforcing accountability and smoothing implementation.

TECHNICAL SOLUTIONS

Eco-friendly and context-adapted measures were introduced or reinforced to improve habitability while reducing recurrent costs. The combined impact included lower utility expenses, enhanced comfort, and a reduction in environmental footprints.

- **Sustainably sourced materials** (including low-carbon concrete, sustainable bricks and chemical-free substances).
- **Thermal measures:** foundation insulation (e.g., foam boards) to reduce heat transfer and water absorption; double-layered brick walls to enhance thermal mass and strength; polystyrene panels for wall insulation; sloped roof slabs to avoid water pooling; roof tiling to improve durability and reflect sunlight.
- **Openings and lighting:** upgrade from single-pane to double-glazed windows to reduce heat exchange and noise; transition to LED lighting to cut electricity consumption and maintenance costs.
- **Water and WASH-related conservation:** low-flow fittings; water-saving plumbing repairs; greywater reuse systems (in selected locations) for irrigation; rainwater harvesting (e.g., in Irbid) to reduce dependence on municipal supply.



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MATERIALS AND SUPPLY

Most construction inputs were procured through local markets using existing supply chains; while some materials were locally produced, many were imported due to national market dynamics. Procurement emphasized cost-effectiveness, availability and environmental performance (favoring recyclable or reusable materials where possible). Local sourcing strengthened small and medium-sized businesses and contributed to local economic activity. Supply chains responded effectively overall, with occasional delays linked to import procedures or logistics. Transport primarily relied on local distributors, minimizing emissions; where possible, suppliers were encouraged to adopt sustainable packaging and transport practices.

EXIT/HANDOVER

Although the project remained ongoing and lacked a formal exit strategy at the time of reporting, structured measures were instituted to sustain outcomes:

- Households received training on maintenance of weatherproofing and structural improvements to strengthen long-term resilience.
- For rehabilitated homes, a tripartite memorandum of understanding (entity–family–landlord) clarified that maintenance work listed in annexes was provided as a grant; all rehabilitation work carried an 8 month warranty from final receipt, obligating the contractor to address any defect within the period.
- Rent stability was reinforced by renegotiating and rewriting contracts (typically 18 months), including reductions or adjusted rates relative to area benchmarks and, in some cases, landlord concessions on overdue utilities, thereby preventing rent hikes post-rehabilitation and enhancing tenure security.
- For public projects, agreements with local/national administrations assured continued maintenance and ownership (e.g., schools, medical centers, public parks), ensuring resource allocations and responsibilities for long-term upkeep.



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Interventions at the household level included upgrades of kitchens and water facilities. Materials were mostly procured through local small and medium businesses.

MAIN CHALLENGES

Maintaining consistent compliance with housing quality standards demanded sustained effort. In the owner-driven phase, households lacking technical expertise, particularly women and older persons, encountered difficulties managing contractors and supervising repairs. Risks included partial or delayed completion and, in some cases, misuse of funds or exploitation. This necessitated increased site visits to verify materials and completed works before disbursements. The transition to a contractor-driven approach improved quality and satisfaction, as vetted contractors were engaged through technical and financial evaluations aligned with institutional policies.

CROSSCUTTING ISSUES

ENVIRONMENT

- **The program integrated practical energy- and water-efficiency upgrades within available budgets:** double-glazed windows, roof and wall insulation, waterproofing of external surfaces, improved doors and windows to reduce air infiltration, heat- and moisture-resistant tiling, plumbing leak remediation, low-flow fixtures and energy-saving lighting.
- **Climate-tailored solutions were context-specific:** in sun-rich Azraq, interventions emphasized daylighting, insulation and greywater reuse; in rain-impacted Irbid, rain collectors and storage addressed seasonal water availability; in Derallah, insulation strategies were emphasized to mitigate extreme heat. Community involvement in environmental stewardship helped cultivate ownership and long-term sustainability.

GENDER AND GBV RISK MITIGATION

- **Female-headed households were prioritized** for home rehabilitation and upgrades to mitigate vulnerabilities associated with unsafe housing and GBV risks.
- **Public-space upgrades focused on safety and accessibility** (e.g., adequate lighting, clear pathways, secure access to essential services), including improvements in inclusion centers and shelters for vulnerable groups.
- **Women's participation in decision-making** was supported through community consultations, ensuring that safety, security and privacy considerations were explicitly integrated into both household and community-level interventions.
- **Awareness-raising and education activities** equipped residents with knowledge of shelter safety, available social services and rights related to housing and tenure security.

LINKS WITH RECOVERY

The project connected immediate repairs to mid-term housing-tenure measures and long-term sustainability through community projects:

- **Housing:** Rapid repairs stabilized unsafe dwellings—e.g., roof strengthening and weatherproofing—so families could safely remain in place while longer-term solutions were planned.
- **Housing-tenure and skills:** Rental agreements (and, where feasible, extensions for female-headed households) enhanced stability; beneficiaries received maintenance training, thereby extending the lifecycle of improvements and reducing future dependency.
- **Community infrastructure:** Critical communal spaces (e.g., inclusion centers, shelters) were upgraded to improve accessibility, safety and functionality; in one case, a community center was designed to serve dual functions as an inclusion hub and an emergency shelter.
- **Partnerships:** Collaboration with the Department of Palestinian Affairs and the Ministry of Social Development aligned outputs with national recovery priorities and integrated project results into broader development frameworks.

DISASTER RISK REDUCTION

DRR components addressed flooding, winter storms and structural vulnerabilities by raising habitability, reinforcing structural integrity and weatherproofing, and improving safe access to shelter. At site level, drainage and flood-resistant materials were integrated in public spaces to reduce hazard exposure and service disruptions.



Insulation panels were installed where possible to improve indoor comfort.

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OUTCOMES AND WIDER IMPACTS

DIRECT OUTCOMES

- **Improved living conditions:** Rehabilitation improved health, safety and privacy; beneficiaries reported better mental and physical well-being and easier maintenance.
- **Reduced utility expenses:** Water- and energy-efficiency upgrades (e.g., LED bulbs, efficient plumbing) lowered household bills.
- **Social cohesion:** Improved living spaces enabled families to host relatives and friends, fostering stronger family and community ties.
- **Accessibility and inclusion:** Upgraded community facilities—schools, medical centers, public spaces—provided safer, more accessible services for children and persons with disabilities.
- **Livelihood spillovers:** In at least one instance, well-digging skills developed during home improvements became an income-generating activity.

INDIRECT OUTCOMES

- **Capacity building:** Community-based organizations gained implementation skills and stronger relationships with communities and referral networks.
- **Referral mechanisms:** A structured referral system effectively linked beneficiaries with complementary services beyond the project scope.
- **Policy influence:** The project contributed to national dialogues on housing/public space rehabilitation and sustainable urban development.
- **Scaling of green interventions:** Demonstrated reductions in utility costs and improved comfort spurred interest in energy-efficient housing.

WIDER IMPACTS

- **Replicable model:** The integrated approach—home rehabilitation, community engagement and green interventions—provided a framework for expansion to other contexts with similar challenges.
- **Government and stakeholder engagement:** Achievements encouraged authorities and partners to invest in sustainable rehabilitation.
- **Community empowerment:** Workshops and skills-building activities enhanced beneficiaries' and contractors' capacities to continue adopting green practices independently.

UNINTENDED POSITIVE OUTCOMES

- **Economic empowerment:** Skills acquired during improvements led to new livelihood opportunities (e.g., well digging).
- **Strengthened trust and collaboration:** Deepened relationships among the entity, CBOs and community members enhanced social cohesion.
- **Increased demand for green homes:** Observable cost savings and improved comfort created momentum for wider adoption of green technologies in housing.



FURTHER READING ON SHELTER PROJECTS

On Jordan: [SP 8TH ED. / A.20 / 2018-2020](#)

On Turkey: [SP 17-18 / A.32 / TURKEY 2017-2018;](#)
[SP 8TH ED. / A.27 / TURKEY 2017-2020.](#)

On Lebanon: [SP 15-16 / A.31 / LEBANON 2015-2016](#)



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The project aimed to increase privacy and dignity of target families living in urban areas. Interventions included partitions, doors / windows and new kitchens.



Upgrades such as damp-proof paint and tiling were installed to improve indoor living conditions. After initial challenges, the project shifted to a contractor approach.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Comprehensive, multi-dimensional strategy.** Home rehabilitation, infrastructure upgrades and green interventions were combined into a coherent shelter solution that addressed immediate needs and longer-term sustainability.
- ✓ **Strong stakeholder collaboration.** Partnerships with government bodies, NGOs and community organizations increased reach and effectiveness, linking households to complementary services (healthcare, social support, livelihoods).
- ✓ **Flexibility and continuous learning.** The team adapted strategies based on assessments and feedback, including the integration of cash assistance with technical support to improve effectiveness and scalability.

WEAKNESSES

- × **Budget constraints and underestimation of costs.** Price inflation and logistics increased expenses for home and infrastructure works; future budgets should integrate contingencies and more accurate cost forecasting.
- × **Complexity of scaling cash-plus-technical-support approaches.** Some households required more oversight than anticipated; concerns about spending efficiency and quality control highlighted the need for clearer beneficiary guidance, vetted contractor networks and strengthened technical support.
- × **Inconsistent fit for regional conditions.** Standardized interventions at times did not match localized cultural and environmental needs; future programming should prioritize regional assessments and climate-appropriate, culturally sensitive solutions.

LESSONS LEARNED

- **Holistic, community-centred approaches improve relevance and ownership and should be maintained and expanded.** Early and continuous engagement with communities and CBOs, combined with baseline and socio-economic assessments, ensures interventions reflect actual needs and local priorities.
- **Cash-plus-technical assistance is effective but requires stronger structure to scale.** While flexible financial support improved household outcomes, future programming should include clearer technical guidance, vetted contractor networks, and stronger oversight to ensure quality and efficiency.
- **Targeting approaches must be continuously refined to reduce exclusion.** Combining social data, community validation and feedback mechanisms can improve fairness, while tailored support is needed for vulnerable households with limited capacity to manage works.
- **Sustainability and green practices should be further integrated and scaled.** Energy- and water-efficient solutions reduce long-term costs and environmental impacts but require greater awareness, affordability measures and incentives to increase uptake.
- **Capacity building is critical for quality and long-term impact.** Training local contractors, technicians and households strengthens implementation and supports replication beyond the project and should be expanded as a core component of future interventions.

CASE STUDY

SYRIAN ARAB REP. 2022-2023 / COMPLEX CRISIS

CONTEXT / SETTLEMENT



SHELTER TYPE



SUPPORT METHODS



CRISIS Syrian Crisis and 2023 earthquakes

PEOPLE AFFECTED 15.3 million people* (as of Dec 2022)

PEOPLE DISPLACED 6.8 million internally displaced persons (IDPs)*

PEOPLE WITH SHELTER NEEDS 5.7 million people in need of shelter assistance*

PROJECT LOCATION Kili, Maaret Tamsrin, Idlib governorate, northwest Syria

PEOPLE SUPPORTED BY THE PROJECT 5,521 individuals (1,413 girls, 1,550 boys, 1,171 men, 1,387 women, 262 person with disabilities)

PROJECT OUTPUTS 1,000 shelters built and delivered to IDPs.
Site level interventions include: road levelling, graveling, paving; installation of sewer system and drinking water network; street lighting; rainwater drainage; fire points; boundary wall and geo-fencing; gates; registration area (men and women); site management system established; community committees formed and trained.

SHELTER SIZE 37.5 m² (including two rooms, kitchen, latrine, foyer)

SHELTER DENSITY 7.5 m² of living space per person (incl. facilities) based on the average HH size. 3.6 m² counting the rooms only.

DIRECT COST USD 2,100 per household

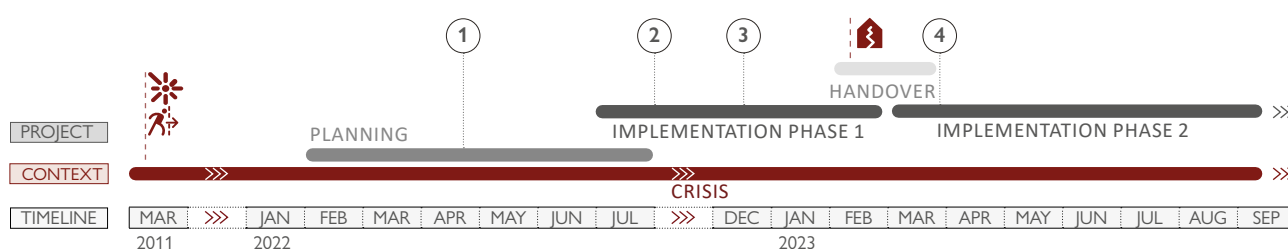
PROJECT COST USD 2,400 per household



PROJECT SUMMARY

The Al Zohoor IDP site project delivered safe, durable shelters for 5,521 displaced individuals in northwest Syria, constructing 1,000 housing units designed for resilience. The intervention met urgent shelter needs while delivering essential settlement infrastructure, including drainage, roads, water supply and sewage systems. The February 2023 earthquake took place at the completion of the project, which reprioritized the targeting for the most earthquake-affected families in an already high need area.

* Syrian Arab Republic: 2023 Humanitarian Needs Overview.



Mar 2011: Syrian civil war begins.



1 Apr 2022: Project inception completed, including needs assessment, settlement planning, land allocation, technical design preparation, resource mobilization, and obtaining the required approvals.



2 Jul-Aug 2022: Site preparation completed to make the land construction ready; Shelter construction initiated on prepared plots.



3 Dec 2022: Water and sanitation infrastructure implementation, including drinking water and sewage networks.



Feb 2023: Major earthquakes affected Syria and Türkiye, triggering reprioritization to the most affected and vulnerable households.



4 Mar 2023: Handover of completed shelters to families, with occupancy documentation signed.



The project provided housing blocks built with durable materials alongside a road and sewer network, ensuring more dignified solutions and immediate usability.

© Human Appeal Türkiye

BACKGROUND AND CONTEXT

Please refer to previous editions of Shelter Projects (including A.22 SP 8th ed. or A.27 SP 9th ed.) for more background on the Syrian complex crisis. A.24 in this edition also provides more background on the situation before and after the 2023 earthquakes.

NATIONAL RESPONSE AND PROJECT DESIGN

After 14 years of conflict, the shelter response in North West Syria prioritized multi sector approaches integrating site planning with shelter and WASH, as well as protection mainstreaming and specialized services, acknowledging seasonal stresses (winterization needs, flooding) and the protracted nature of displacement.

Within this wider framework, this project aligned with the drive toward more durable outcomes, complementing immediate humanitarian assistance with community infrastructure. Programming decisions emphasized cost effective investments to reduce the need for recurrent emergency shelter support within a protracted displacement, and targeted families that lived for years in emergency camps, with intermittent access to services and significant economic vulnerability.

Given market disruptions and constrained household capacity to self build, as well as the need for a consistent quality across 1,000 shelters, the project opted for a contractor-approach for the construction of infrastructure and shelters. It integrated a non permanent framework for site management and service provision, to be still run as a planned IDP site for the transition phase.



Following site preparations, the organization focused on the main services, including drainage, water and sewer systems, before shelter completion.

PROJECT SCALE AND LAND ALLOCATION

Through the protracted period of the Syrian conflict, assessments conducted in coordination with government authorities identified many households whose homes had been damaged or destroyed and who lacked access to adequate shelter. Based on the severity of needs, available resources, and the capacity of the allocated site, the project was designed to accommodate 1,000 of the most vulnerable families through a planned settlement approach.

The site was established on public land, with access and use arrangements agreed through local authorities. Occupancy documentation was provided at handover, and conditions allowed families to reside in the shelters on an open ended basis as long as agreed terms were respected. Required documentation was maintained to facilitate transparent handover and long term use and tenure security.

The site's location close to existing communities and service areas aimed to reduce isolation commonly associated with informal camps, facilitate access to markets, and improve links to healthcare, education and livelihood opportunities.

COORDINATION

The intervention was implemented in close coordination with local authorities and shelter sector mechanisms. Key project parameters, including beneficiary targeting criteria, shelter size, technical specifications, and indicative cost per household, were aligned with the agreed shelter response standards in the area. This coordination helped ensure consistency with other shelter actors' interventions while allowing project-specific adaptations based on available resources, site conditions, and identified needs.

The project required coordination among multiple stakeholders, including local authorities, shelter organizations, engineering and infrastructure teams, service providers, community representatives, and implementing partners. These stakeholders contributed to decisions related to beneficiary targeting, settlement planning, technical standards, infrastructure design, service provision, and implementation sequencing.



Shelter units were equipped with 1,000 liters water tanks and a small garden space by the entrance. An open air foyer led to the main living spaces.

DESIGN AND PLANNING CONSIDERATIONS

The layout incorporated organized road networks, primary drainage, and the installation of drinking water and sewage networks. The design also included space and mechanisms for site management and community engagement, building channels for residents to flag service and maintenance issues after relocation.

The site planning was developed by the organization's engineering team in coordination with local authorities and relevant stakeholders. The layout included designated areas for future community services based on projected needs, while decisions regarding the establishment and operation of specific facilities were made separately by the responsible authorities and service providers.

Over time, and following community priorities, additional social services were established at the site, including a health center and a school, to ensure access to basic services and support the long-term sustainability of the settlement.

PROJECT IMPLEMENTATION

Construction relied on local contractors and labor drawn from both the host community and the displaced population. The main implementation phases included:

- **Site preparation and primary infrastructure:** clearing, leveling and drainage works preceded the installation of water and sewage networks and the grading of roads within the site.
- **Shelter construction:** once plots were serviced, shelter units were erected to agreed standards, enabling faster, safer occupation.
- **Handover and occupancy:** after completion of shelters and core services, families relocated to the site and signed occupancy documentation.

COMMUNITY ENGAGEMENT AND SITE GOVERNANCE

Community committees were mobilized progressively during construction and before handover. These groups became the main conduit for communication with residents, flagging service issues, liaising with providers, and supporting coordination within the site. Orientation for residents focused on reporting and resolving common maintenance issues (drainage blockages, wastewater overflow, minor shelter repairs, solid waste management). This approach built local capacity to sustain the site's basic functionality and hygiene, strengthen accountability, and identify priorities for follow up.

CHALLENGES

- **Earthquakes and reprioritization:** The project pivoted to prioritize newly displaced and highly vulnerable families affected by the disaster, revising the beneficiary selection criteria and reorganizing the sequencing to accelerate completion of critical components before relocation. The reprioritization also meant fewer overall individuals than initially targeted, reflecting both the urgency of the situation and larger household sizes among those most affected.
- **Community expectations:** Adjusting targeting after the earthquakes raised expectations among families who had initially anticipated inclusion. These were addressed through additional community communication and awareness sessions explaining the emergency reprioritization process and the criteria used to identify the most vulnerable households.
- **Logistics and market conditions:** The team faced market price volatility, intermittent availability of construction materials, and cross border logistical constraints, all of which affected procurement timelines. To cope, the project used flexible operational management, continuous coordination among technical teams and contractors, and more agile purchasing strategies.



1,000 shelters were built on the site for IDPs affected by the earthquake. The project had already targeted families displaced by the Syrian crisis, but was rapidly adapted following February 2023. The site was chosen with local authorities and due to the proximity to other existing communities, ensuring it would not be isolated.



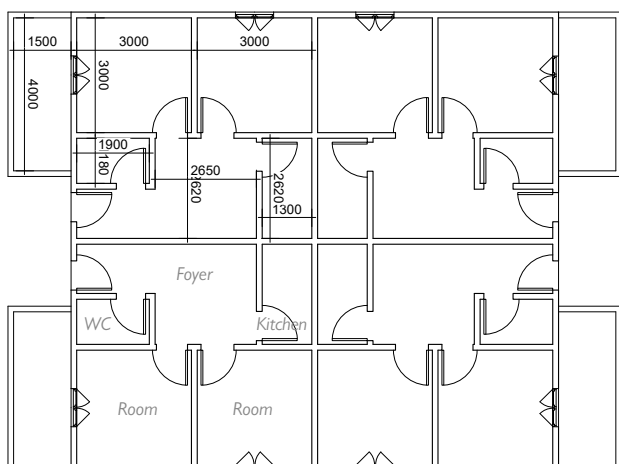
The project was implemented through contractors, while community participation was ensured by establishing site committees with various responsibilities.

CROSS CUTTING ISSUES

Protection mainstreaming and GBV risk mitigation were integrated into site planning and management, with an emphasis on safer movement through organized roads, improved lighting and clear pathways, and community committees acting as focal points for reporting safety or service concerns. Accessibility and habitability guided shelter layout and infrastructure design, while environmental considerations informed the drainage and wastewater systems.

EXIT/HANDOVER

Handover to households included occupancy documentation and orientation on rights and responsibilities. In parallel, coordination mechanisms with local councils and service providers were established to enable follow up on operational issues and continuity of services after project completion. Community committees assumed a progressively central role in communicating residents' concerns, reporting infrastructure and service issues, and prioritizing maintenance needs. Subsequent complementary interventions supported the site's management capacity and expanded community engagement structures.



Upon handover, families were supported with the relocation and were provided open-ended occupancy documents, to protect them from possible tenure issues.

OUTCOMES AND WIDER IMPACTS

- **Local economic engagement:** Contracting local firms and workers created employment opportunities and supported market activity during implementation.
- **Public health benefits:** Proper sanitation and drainage reduced the risk of disease outbreaks, improving conditions for residents and neighboring communities.
- **Social services over time:** Following occupancy, the addition of a health center and a school within the site expanded access to services and strengthened the settlement's social infrastructure.
- **Demonstration effect:** By adopting a durable, integrated settlement approach within a humanitarian site, the project offered a model for responses in similar high displacement contexts, emphasizing quality and resilience alongside the temporary character of an organized site.

SHELTER BILL OF QUANTITIES

Item	Unit	Quantity
Concrete for floor (200 kg/m ³)	m ³	3.75
Reinforced concrete - 350 kg/m ³ with 8 mm diameter of steel bars.	m ³	3.1
Backfilling with raw materials from quarries	m ³	7.5
Hollow block [15 cm] with cement mortar 250 kg/m ³ (with plastering for two faces)	m ²	75
Sinks (laundry)	unit	1
Provide and install electrical system	point	8
PVC-HDPE pipes 4 inch	m	10
Provide and install W.C. (Arabic type)	unit	1
PPR pipes drinking water system	m	14
Faucets for WCs & Kitchen	unit	3
Water tank 1,000 liters	unit	1
PVC for Doors and windows	unit	7
Metal wrought iron	kg	27.5
Mosaic kitchen table	unit	1
Limestone foundation for base shelter	m ²	8.9
Clay agricultural soil for gardens	m ³	3.75

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Durable, integrated settlement approach.** Combining robust shelters with water, sewage, drainage and roads reduced recurring emergency support, while improving habitability from day one of occupancy.
- ✓ **Agile reprioritization after the earthquakes.** The team revised beneficiary criteria to focus on newly displaced and highly vulnerable families, delivering completion and handover with limited interruption despite the shock.
- ✓ **Community governance and accountability.** Establishing and empowering community committees created clear communication channels for reporting service and maintenance issues, improving accountability and responsiveness after handover.
- ✓ **Tenure arrangements that supported stability.** Using public land with occupancy documentation at handover, and open ended use conditions contingent on agreed terms, strengthened security of tenure and minimized eviction risks for the most vulnerable families.

WEAKNESSES

- × **Early stakeholder alignment under time pressure.** Compressed planning cycles and the number of actors involved created coordination challenges at the outset, highlighting the need for clearer phasing and early convergence on technical and operational decisions.
- × **Limited scope relative to overall needs.** Despite its scale, the project reached a small proportion of the caseload; balancing per household investment in durability with coverage will require continued strategic choices in similar contexts.
- × **Social and communal facilities phased in later.** The initial layout prioritized core shelter and infrastructure; some social functions (such as health and education) were introduced only after occupancy, suggesting the benefit of reserving and defining communal/service zones earlier.

LESSONS LEARNED

- **Plan for pivoting from the outset:** Pre agreeing shock responsive targeting criteria, resequencing options and communication protocols enables faster, clearer reprioritization without compromising quality when an emergency hits mid implementation.
- **Build governance into design, not only into exit:** Defining committee roles, reporting pathways, and simple maintenance responsibilities during design and construction builds a culture of site stewardship and smoother post handover operations.
- **Secure tenure early and document it well:** Early HLP due diligence, clarity on land status and occupancy terms, and issuance of handover documentation reduce eviction risk and disputes, enabling families to further invest in their new homes.
- **Reserve and phase social infrastructure:** Even in a humanitarian site, designating and protecting space for future health, education and communal functions helps sequence services more smoothly as the settlement stabilizes.

RECOMMENDATIONS MOVING FORWARD

- Establish joint planning mechanisms with local authorities and service providers from the outset to ensure timely integration of education, health, and other essential services within new settlements.
- Strengthen livelihood and economic integration components alongside shelter interventions to improve long-term self-reliance and reduce dependency on humanitarian assistance.
- Introduce formal governance and management structures for settlements early in the project lifecycle to support sustainability, maintenance, and community participation.
- Promote multi-sector funding approaches that allow shelter, infrastructure, education, and health services to be planned and implemented as an integrated package rather than through separate phases.



FURTHER READING ON SHELTER PROJECTS

On responses to the Syrian crisis: [SP 8TH ED. / A.22-26](#)

On site planning: [SP SITE PLANNING: 16 CASE STUDIES](#)

On a project of similar scale using mud bricks in Idlib: [SP17-18 / A.28 / SYRIAN ARAB REP. 2015-2017](#)

CASE STUDY

SYRIAN ARAB REP. 2023-2024 / COMPLEX/MULTIPLE

CONTEXT / SETTLEMENT



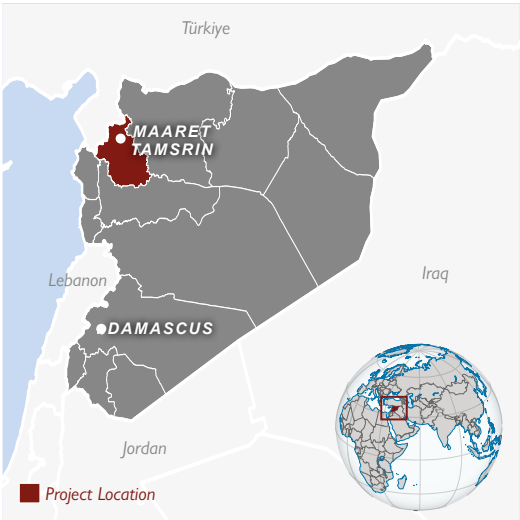
SHELTER TYPE



SUPPORT METHODS



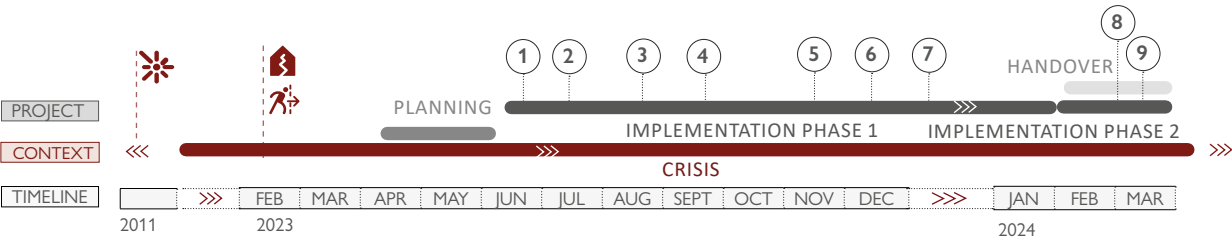
CRISIS	Syrian Crisis and 2023 earthquakes
PEOPLE AFFECTED	8.8 million people affected*
PEOPLE DISPLACED	2.8 million people displaced*
PEOPLE WITH SHELTER NEEDS	265,000 individuals* lost shelter 225,000 individuals* with moderate damage 632,000 individuals* with minor damage
PROJECT LOCATION	Shekh Bahr, Maaret Tamsrin subdistrict, Idlib governorate
PEOPLE SUPPORTED BY THE PROJECT	962 individuals (473 female, 489 male)
PROJECT OUTPUTS	200 shelter units installed Site level interventions include: 1 water station, 3,500m of network constructed, 1 ARP system/circulation pump installed, 800 m ³ of solid waste desludged monthly, 30 m ³ solid waste collected monthly, 40 garbage bins distributed.
SHELTER SIZE	45 m ² First shelter 55 m ² Second shelter
SHELTER DENSITY	9 m ² per person based on the average HH size
DIRECT COST	USD 2,480 per household
PROJECT COST	USD 3,100 per household



PROJECT SUMMARY

The project delivered transitional shelter and essential services to earthquake-affected and displaced households in Northwest Syria, improving safety and living conditions in a fragile context. Insulated shelter units were installed alongside water networks, sanitation facilities, drainage systems, and solar lighting to create more functional and risk-aware settlements. The approach integrated household shelter with site-level services, addressing protection risks and supporting dignified living conditions beyond immediate emergency needs. Community engagement and coordination with local councils and clusters informed design, implementation, and handover, strengthening ownership and sustainability. The project demonstrated a practical model for bridging emergency shelter and recovery, combining risk reduction measures with adaptable solutions suited to high-density displacement settings.

* HNRP 2024



Feb 2023: Earthquake (while the Syrian crisis is still ongoing).

- Jun 2023:** Preparatory stage and stakeholders/community outreach and authorities' approval.
- Jul 2023:** Housing and land property (HLP), and establishment of Community Representation Committee (CRC).
- Aug 2023:** Sites planning, technical design and study.
- Sep 2023:** beneficiary verification process.

- Nov-Dec 2023:** Site preparation began: levelling and graveling, drainage system, and lighting.
- Nov-Dec 2023:** Implementation works of WASH infrastructure.
- Dec-Feb 2024:** Implementation works of shelters.
- Feb 2024:** IDPs transition from tents to dignified shelters; hand-over signed.
- Feb-Mar 2024:** Operating and maintaining the water systems.

CONTEXT

By 2023 the Syrian Arab Republic (Syria) had entered a thirteenth year of crisis, marked by protracted displacement, economic decline, disrupted services and intermittent hostilities. The February 2023 earthquakes in Türkiye and northern Syria deepened this multi layered emergency. In Syria alone, almost 6,000 people were reported killed and more than 12,800 injured, while the wider impact compounded fragility across already overstretched systems.

Pre existing damage to infrastructure and public services limited capacity to absorb the shock. In the north, damaged roads, constrained healthcare, and degraded emergency systems made delivery of assistance more difficult. The earthquakes increased the scale and urgency of shelter and basic services needs in a region where livelihoods had already eroded and poverty remained extensive.

SITUATION BEFORE THE EARTHQUAKES

Before the earthquakes, Northwest Syria was characterized by severe humanitarian needs driven by the conflict. As of 2022, the country had around 6.8 million internally displaced people, with many living in overcrowded and makeshift arrangements, such as camps and unfinished or damaged buildings, with limited access to basic services. An estimated 53% of people had access to clean water, approximately half of health facilities were non functional, and close to 90% of the population lived below the poverty line. Many homes were unsafe or partially destroyed, with widespread damage to infrastructure and services compounding protection risks and food insecurity. The crisis left millions reliant on aid, including at least a fifth of the country's population in the northwest.

SITUATION AFTER THE EARTHQUAKES

Following the earthquakes, precarious housing units were destroyed or rendered uninhabitable, and large numbers of families were displaced into informal camps, public spaces and unfinished structures. The primary driver was safety: structural failure or the fear of collapse under aftershocks forced evacuations, while economic distress and disrupted markets further constrained options. Geographically, many movements remained local due to scarce safe alternatives; families frequently shifted within the same localities to informal sites and temporary shelters. In some cases, households returned briefly to salvage belongings or protect land rights, but dwellings were often unsafe for continued occupancy. The combined impact of earlier conflict and new earthquake damage sharply increased immediate shelter needs and underlined the urgency of risk aware, dignified solutions.

NATIONAL SHELTER RESPONSE

The response in Northwest Syria aligned with inter agency coordination through the Shelter/NFI (SNFI) and WASH clusters and with local councils, focusing on stabilization of living conditions, reduction of protection risks and integration of essential services. Coordination emphasized harmonized selection criteria, minimum standards for shelter and WASH, and settlement scale risk management (e.g., drainage, flood mitigation and safer siting). The response sought to deliver solutions feasible under constrained access and supply chains, while embedding participation in planning, delivery and handover.



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Following the earthquakes, many homes had been destroyed or rendered precarious, and families found shelter in different locations, such as informal sites like this one, where the organization later implemented this project. Displaced people set up tents and makeshift structures and had little to no access to water and sanitation.

PROJECT STRATEGY

The project was designed to bridge immediate humanitarian shelter needs with safer, more habitable conditions at settlement scale. At its core were dignified, transitional household units made of insulated sandwich panels installed on concrete structures. This typology, developed within the SNFI cluster, balanced speed of delivery, thermal performance and durability relative to tents or ad hoc self builds. At site level, the shelter package was integrated with essential WASH and infrastructure services to create a safer, more functional environment. These included water networks and a station, septic tanks and latrine blocks, household sanitation facilities, drainage to reduce flood risk, surface water management and solar street lighting.

Risk reduction and environmental measures were embedded in the approach. Site selection and preparation aimed to avoid or mitigate flood prone conditions; land leveling, surface water control, and durable construction for critical components supported safer occupancy. Solar lighting reduced reliance on diesel generators and improved safety in shared areas.

PROJECT IMPLEMENTATION

Implementation occurred in phases, delivered by contracted firms and overseen by a specialized technical team comprising civil, architectural, electrical and WASH engineers. The team finalized shelter designs and site layouts, aligned targeting and standards with the SNFI and WASH clusters, and secured agreements with local councils. Works were sequenced for safety and efficiency: site preparation and environmental risk mitigation came first (e.g., leveling, drainage, access routes), followed by installation of shelters, WASH infrastructure, solar lighting and solid waste systems.

Supply chains and access were managed adaptively. Cross border dependencies, route disruptions and market volatility were addressed by diversifying suppliers, staging deliveries, and re sequencing construction activities to align with windows of access and material availability. Security incidents and weather also affected productivity; the team adjusted schedules and staffing, increased engineering oversight, and worked through local partners to sustain implementation.



200 shelter units were installed following site planning and infrastructure works.



The project commenced with large grading and levelling works.



Sewer pipes were installed along the main roads of the new settlement.



Water and sanitation services were installed to make the site habitable.



Shelter units and sanitation blocks were installed following site preparations.



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The units had a standard design and versions adapted for people with special needs. The standard unit included two rooms and an external courtyard to access the bathroom area. The portion hosting the two rooms was built using insulated prefabricated sandwich panels, which allowed speed of implementation.

TARGETING

The project prioritized households with acute shelter needs attributable to earthquake damage and displacement, in alignment with cluster guidance and local council coordination. The primary groups were families in temporary settlements (camps, reception and collective centers), families in damaged buildings without the means to repair, and households in unsafe or informal conditions with limited income. Vulnerability based prioritization further weighted female and child headed households, large families, persons with disabilities or chronic illness, older persons, and pregnant or lactating women.

COMMUNITY ENGAGEMENT

A Community Representation Committee (CRC) was established to link households, the project team and local authorities, providing a channel for preferences on shelter layout, siting, service locations and site rules. Community engagement also included information sessions on shelter use, sanitation and risk awareness, and supported local authority capacity to manage and maintain infrastructure after handover. This participatory approach strengthened trust, informed practical adjustments during implementation and ensured ownership of shared facilities.

COORDINATION

The project's delivery relied on alignment with SNFI and WASH clusters, local councils and operational agencies in the same locations. Coordination harmonized targeting and standards, reduced duplication, and ensured that shelter and WASH interventions were mutually reinforcing at site level. Joint situational awareness on access, security and logistics supported realistic planning and adaptive delivery, helping maintain pace despite periodic disruptions. Coordination also facilitated handover arrangements consistent with agreed occupancy terms and local site management capacities.

DISASTER RISK REDUCTION

DRR was integral to siting, design and material choices. In addition to avoiding flood prone areas where feasible, land shaping and drainage were used to limit waterlogging and erosion. Concrete was specified for critical components such as latrine blocks, and insulated panel envelopes reduced exposure to heat and cold, diminishing reliance on unsafe, ad hoc modifications. Together with household sanitation and on plot facilities, these measures reduced protection risks associated with shared infrastructure and improved resilience relative to tents or substandard shelters.

ENVIRONMENTAL IMPACT

The project applied a practical environmental lens to settlement design. Solar powered street lighting substituted for diesel powered lighting, cutting fuel use while improving night time safety. Drainage and surface water control limited runoff and contamination of living areas, complementing safe water and sanitation layouts. Solid waste collection and bin distribution reduced environmental health risks, while durable components lowered maintenance burdens over time. These measures aimed to reduce the settlement's environmental footprint and contribute to safer, healthier occupancy.

MATERIALS AND SUPPLY

Shelter units combined concrete (for stability and durability of critical elements) with insulated sandwich panels (for thermal performance and speed of assembly). Procurement balanced quality, price and availability through local and cross border suppliers. Given the context of disrupted routes and variable stock levels, deliveries were staged and work packages sequenced to keep construction progressing despite partial shipments. This adaptive procurement strategy was essential to meeting timelines without compromising quality.



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The site was planned with major roads following the natural slope of the land. Units of different sizes (45 or 55 sqm) hosted a total of 200 families.

CROSS CUTTING ISSUES

Protection and inclusion were mainstreamed in the design of units and services. Household level sanitation (latrine, washing area and cooking space) improved privacy and safety, while solar lighting enhanced safety in communal spaces after dark. Targeting criteria and community validation addressed the needs of female and child headed households, large families, older persons and persons with disabilities or chronic illness. The CRC and two way information channels enhanced accountability and supported informed occupancy and maintenance.

MAIN CHALLENGES AND ADAPTATIONS

Operational delivery faced a convergence of constraints. Material flows were delayed by cross-border issues and route closures; market volatility forced quick price changes and substitutions; security and weather disruptions caused scheduling delays. The team mitigated these through diversified suppliers, re sequencing of activities, recruitment of additional engineering capacity and tighter contractor management.

Targeting presented challenges amid overwhelming needs, requiring careful coordination with local councils and partners to balance vulnerability criteria and geographic coverage.

Environmental hazards at selected sites necessitated added earthworks and drainage before shelter installation. Despite these hurdles, an integrated shelter and services package proved feasible and replicable within the operational envelope.

HANDOVER

Handover included technical inspection of completed works, documentation for site management and a site level MoU that granted beneficiaries a five year, rent free right to reside. The MoU framed mutual responsibilities for use and care of units and services and provided a clear reference for dispute resolution. Handover timing and procedures were coordinated with the CRC and local councils, and support focused on aligning site management responsibilities with local capacity. The settlement layout, concrete works and services were conceived to allow potential future upgrades when resources and security conditions improve.

OUTCOMES AND WIDER IMPACTS

By completion, families had transitioned from tents or unsafe structures to insulated, dignified household units integrated with functioning WASH services, drainage and solar street lighting. CRC engagement and collaboration with local councils helped institutionalize stewardship of infrastructure, while site level risk reduction measures supported safer occupancy over time. The project demonstrated a workable bridge from emergency tents to more durable, transitional conditions that can be sustained for several years.

The intervention also contributed to practice in complex, high density, multi hazard settings. It showed how household level shelter of adequate size and performance can be paired with settlement scale services to improve habitability and reduce protection risks. Documented procedures and occupancy agreements (including a five year rent free right to reside) provided predictable tenure during recovery and set a baseline for future upgrades as conditions permit.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Strong planning and vulnerability-based targeting improved relevance and equity.** Clear criteria, community validation and coordination helped prioritize households affected by earthquake damage and displacement, while balancing pre-existing vulnerabilities and protection concerns.
- ✓ **Public land allocation enabled rapid siting, formal agreements and more predictable tenure.** Working with local councils helped secure land use approvals and occupancy arrangements, and supported planning for infrastructure development, operation and maintenance.
- ✓ **Specialized technical capacity and contractor oversight safeguarded quality and safety standards.** Engineering, WASH and protection inputs strengthened designs and sequencing, including early site preparation and durable concrete components alongside insulated panel units.
- ✓ **Adequate resources and adaptive procurement supported timely delivery and durable outputs.** Reliable funding, materials and staffing reduced delays and enabled completion of both household units and essential services, despite periodic access and market disruptions.
- ✓ **Integrated shelter, WASH and site infrastructure improved safety, dignity and settlement functionality.** Coordinated implementation with the SNFI Cluster, WASH Cluster and other actors reduced duplication and supported a more functional, risk-aware settlement environment.



Compared to their previous accommodations during the emergency, the shelter units represented a dignified solution for families impacted by the earthquake.

WEAKNESSES

- ✗ **Compressed timelines increased pressure on staff and contractors.** Fast delivery requirements limited contingency time for procurement and sequencing, increasing workload peaks and reducing flexibility when access, weather or markets shifted.
- ✗ **Some infrastructure components lagged behind shelter installation.** Delays in connecting the water network and completing drainage reduced functionality during the initial occupancy period and required additional follow-up to reach minimum service levels.
- ✗ **Sandwich panel shelters raised long-term durability concerns.** While quick to assemble and thermally efficient, the units may require more frequent maintenance and monitoring under Northwest Syria's harsh seasonal conditions to preserve performance.
- ✗ **Multi-stakeholder coordination was uneven at times.** Working across local authorities, clusters and other actors occasionally led to misaligned timelines and slower decisions, creating minor disruptions to sequencing and handover arrangements.
- ✗ **Targeting still left some highly vulnerable households underserved.** Given the scale of needs, selection criteria and communication could have been further refined using feedback and complaints data to better capture overlooked vulnerability profiles.



Household activities such as cooking and washing were taken into account and incorporated in the design of the units. Privacy was also an essential feature.

LESSONS LEARNED

- **Engage beneficiaries early and consistently through a representative structure.** Using the Community Representation Committee and two-way communication channels helped validate priorities, incorporate practical site-layout preferences, and strengthen trust and accountability. Regular feedback checkpoints also supported quicker course-corrections during implementation.
- **Offer diversified shelter typologies to match household size and specific needs.** Applying multiple unit designs (e.g., two-room, three-room and accessible options) improved fit and reduced the need for risky, ad-hoc extensions. Future programming should also plan for the maintenance and performance limits of sandwich panels over time, including clear user guidance on safe modifications.
- **Design for seasonal extremes and longevity, not only rapid delivery.** Material specifications and detailing should anticipate harsh winter and summer conditions (insulation, weatherproofing and ventilation) to keep shelters viable for several years. This includes budgeting for routine upkeep and defining minimum technical checks before handover.
- **Continuously refine targeting to reduce exclusion errors in high-need contexts.** Harmonized, transparent criteria—combined with community validation and analysis of feedback/complaints—can help identify overlooked vulnerability profiles and improve perceived fairness. Where feasible, periodic re-verification can account for changing household circumstances and new displacement.
- **Clarify coordination, roles and decision-making early to protect sequencing.** A shared implementation plan with clear roles, communication channels and timelines across local authorities and clusters can reduce handover friction and keep shelter and infrastructure delivery aligned. Simple joint milestones (e.g., “site ready”, “water on”, “drainage complete”) help prevent shelters being occupied before services are functional.



Solar panels and water tanks were installed over the sanitation blocks of the units. Site level interventions also included a water network and waste bins.



Shelter units were installed over concrete plinths. This typology balanced speed of delivery, thermal performance and durability.

RECOMMENDATIONS MOVING FORWARD

- Adapt shelter designs and site planning to better support larger households and privacy, including adequate living space, slightly increased distances between units, and integration of green areas, trees and child-friendly spaces.
- Allocate more time for detailed site technical studies before finalizing layouts, covering ground stability, flood risk and seismic considerations to reduce rework and improve long-term safety of shelters and infrastructure.
- Explore sustainable wastewater solutions to support greening and reduce operating costs, including treated wastewater for irrigation and solar-powered pumping where feasible.
- Plan shared community facilities and essential services from the outset, including a covered community space and basic service points (e.g., education, health and small shops) to strengthen social cohesion and access to daily needs.



FURTHER READING ON SHELTER PROJECTS

On responses to the Syrian crisis: [SP 8TH ED. / A.23-26](#)

On site planning: [SP SITE PLANNING: 16 CASE STUDIES](#)

On earthquake response: [SP 10TH ED. / A.12 / AFGHANISTAN: SP 2010 / A.04-A11 / HAITI 2010.](#)

CASE STUDY

TÜRKİYE 2022-2025 / COMPLEX CRISIS

CONTEXT / SETTLEMENT



SHELTER TYPE



SUPPORT METHODS



CRISIS

Syrian Crisis and 2023 earthquakes

PEOPLE
DISPLACED

3.65 million people (Syrian refugees in Türkiye)*

PROJECT
LOCATION

Sanliurfa, Gaziantep, Kilis and Adana

PEOPLE
SUPPORTED BY
THE PROJECT

37,868 individuals (18,693 male, 19,175 female)
including approx. **10,230** with shelter rehabilitation,
and **27,638** with access to upgraded buildings.

PROJECT
OUTPUTS

1,144 homes rehabilitated
150 communal buildings upgraded (including
schools, homeless shelters, primary health centres,
cancer shelters, and orphan shelters).

SHELTER SIZE

Various sizes between **20–80 m²** (45 homes of
<20 m², 354 homes of 21–40 m², 594 homes of 41–60 m²,
126 homes of 61–80 m², and 25 homes of >80 m²)

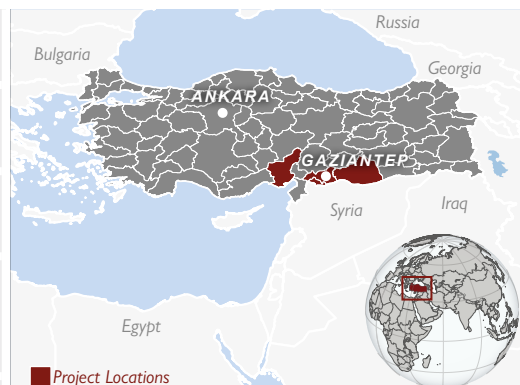
SHELTER DENSITY

4-12 m² per person (or 7.6 m² per person on average)

DIRECT COST

USD 700 per household (for housing rehabilitation)
USD 3-5,000 per building upgraded (on average)

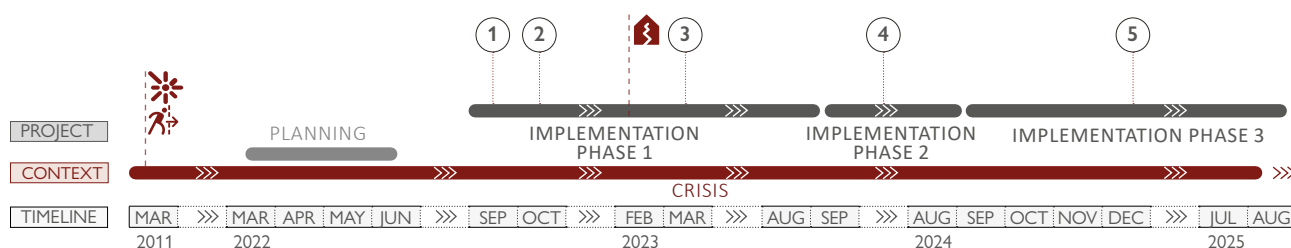
PROJECT COST

USD 1,600 per household on average

PROJECT SUMMARY

The shelter rehabilitation project in Türkiye aimed not only to address shelter needs in underserved communities but also to promote social cohesion between Syrian refugees and host communities in border regions. Using an area-based approach, the project supported household-level shelter rehabilitation through cash assistance for repairs to rented apartments, alongside the rehabilitation of communal buildings used by both Syrian refugees and host communities. Shelter, protection, and livelihoods interventions were delivered within the same neighborhoods to promote integrated community recovery. Following the February 2023 earthquakes, the project adapted the ongoing interventions to respond to emerging needs while maintaining its community-based approach.

* UNHCR Data Portal, as of Sep 2022.



Mar 2011: Syrian civil war begins.

- 1 Sep 2022:** Project and Year 1 implementation started. Needs and market assessment conducted.
- 2 Oct 2022:** Selection of communal buildings and facilities for rehabilitation. Development of Bills of Quantities.
- 3 Mar 2023:** Following the earthquakes, the intervention was adapted to respond to the new needs, with a stronger focus on earthquake-affected households and adjustments to the scope of repairs and rehabilitation costs.
- 4 Mar 2023 - Aug 2024:** During Year 2 implementation, coordination with local authorities is strengthened and additional communal facilities are targeted to impact women's economic empowerment.
- 5 Dec 2024:** Project Evaluation and Lessons Learned.



The project rehabilitated homes with light interventions such as covering cracks and repainting, particularly targeting vulnerable households.

NATIONAL SHELTER STRATEGY

Throughout 14 years of displacement from Syria into Türkiye, particularly into southeastern provinces, the increasing refugee caseload added substantial pressure to local housing markets and services. In response, national authorities encouraged shelter actors to prioritize longer-term, sustainable rehabilitation in high-pressure communities. After the 2023 earthquakes, both government and the shelter sector further emphasized the need to upgrade the housing stock in affected areas to enable safe return where possible.

PROJECT DESIGN

The project was designed as a three-year intervention to address shelter needs linked to the large influx of refugees and to the pre-existing strain on urban infrastructure in the southeast. It concentrated on improving safety and quality in substandard, rented apartments in densely populated neighborhoods, while also rehabilitating communal buildings that served both refugees and host communities. The approach was area-based and multisector, with established internal referrals to link shelter with protection and livelihoods support where needed.

The selection of project participants combined assessments of the housing habitability conditions with the socio-economic vulnerability of the household; homes requiring minor rehabilitation were prioritized over those with structural issues, as any structural intervention required certified engineering assessment and approval by local authorities through a process that was left outside the project's remit. Cash modality was chosen based on its flexibility and capacity to stimulate local markets, already functional, and offer opportunities for semi- and unskilled labor, particularly for Syrian workers, while fostering links to the host community. For communal buildings, a contractor-led modality was used to ensure quality control.

Participation was built into design and delivery. Households were engaged to determine the type of rehabilitation needed in their rented apartments. In parallel, local authorities collaborated with the team to identify communal buildings whose rehabilitation would provide wider community benefit.



Rehabilitation works included WASH facilities and kitchens, and were implemented with a cash-based modality in two tranches.

PROJECT IMPLEMENTATION

A multidisciplinary team of shelter specialists, engineers, and monitoring staff implemented the activities, with staff trained on protection mainstreaming and related reporting pathways. Data on shelter conditions and vulnerability were gathered through field assessment and analyzed via an internal scoring tool to produce the final participant lists. For each household, engineers developed a customized Bill of Quantities (BoQ) focused on practical needs, plumbing, plastering, repairing or replacing doors and windows, and accessibility improvements. Women and people with disabilities were specifically consulted to ensure features such as designated cooking areas, grab bars, and seated toilets were included where relevant.

Implementation used a clear agreement and verification process. Memorandums of Understanding (MoUs) were signed with project participants to formalize the agreed BoQ and timeline. Cash was disbursed in two tranches into participants' bank accounts, 75 per cent upfront to initiate works, and 25 per cent upon completion and verification. Households were generally given 15 days to complete repairs. A dedicated channel via an instant messaging app provided ongoing technical support and follow-up. A final technical visit verified the completed works against the BoQ, with a technical committee reviewing any justified variations; once quality and quantity were confirmed, a completion report signed by the committee and the participant authorized the second tranche.

Post-activity monitoring and case committee records reinforced this quality assurance process: completed cases were reviewed against the agreed BoQ, safety checklist status, implementation progress, and eligibility for the second payment before final closure.

The project also supported communal buildings, such as schools, health facilities, women's centers, and community centers, with selection criteria oriented to maximizing community benefit and creating economic opportunities for women (for example, rehabilitating women's markets). Design focused on enhancing access and functionality, with BoQs developed collaboratively by center management, local authorities, and the technical teams. MoUs clarified responsibilities and scope of work, and handover followed completion verification.



Beyond shelter rehabilitation, the program renovated 150 communal buildings such as schools and health facilities, using an area-based approach.

Adaptations followed the 2023 earthquake. With many team members also personally affected, the project shifted field practice to maintain continuity. Plastering to fill and cover cracks became a major line of work, modest in technical impact but critical in helping families cope with the psychological trauma associated with visible earthquake damage. Where access was constrained due to damaged roads or safety restrictions, the team implemented remote BoQs using the instant messaging app, with residents sharing photographs to support assessment and supervision.

TARGETING

Areas were prioritized in coordination with local authorities and rest of shelter actors, based on needs assessments and the presence of refugees. After the earthquake, the focus narrowed to affected neighborhoods. Participant selection combined shelter condition and vulnerability scoring, with particular attention to women-headed households, households with people with disabilities or chronic illness, older persons without working-age adults, people at risk of protection concerns, and other highly vulnerable groups. Monitoring samples confirmed that both Syrian refugee and Turkish host community households were included, supporting the project's social cohesion objective while prioritizing humanitarian need. Most supported repairs were undertaken in rented apartments; involving landlords was often difficult because many owners lived elsewhere and were hard to reach or reluctant to sign formal documents. Given the light nature of works, often including plastering and simple door or window repairs, tenant consultations were prioritized and the average unit cost was capped at approximately USD 700 per household.



Works also focused on accessibility improvements for people with disabilities.

COMMUNITY ENGAGEMENT

Engagement with affected people was continuous and practical. Households participated in defining and agreeing the BoQ and were supported to make decisions on what to prioritize and where to procure materials. Monitoring findings indicated that most households felt their views were taken into consideration and that many managed the rehabilitation process themselves, reinforcing ownership and accountability. The cash modality increased choice and control, enabling families to select vendors, negotiate prices, and, when possible, undertake additional minor improvements beyond the BoQ. This approach strengthened ownership of the process and allowed for personalization, even down to choices such as tile colors, so that completed works reflected households' preferences and contributed to a stronger sense of home.

COORDINATION

The project was implemented within a coordinated framework aligned with national and local shelter strategies. Collaboration with local authorities and humanitarian actors guided area selection and participant targeting and helped ensure complementarity and efficient resource use. This coordination also provided a platform to balance household-level rehabilitation with improvements to communal infrastructure, in line with national shelter priorities and area-based programming.



Sources of leaks and humidity, as well as external insulation, were addressed by the renovation interventions, to improve living conditions.



Following the earthquake in 2023, some of the activities were adapted.



© CARE Türkiye

Among the interventions conducted in communal buildings, the organization installed railings along staircases, such as this one in an orphanage that was renovated.

ENVIRONMENTAL IMPACT

Environmental considerations were integrated into both household and communal works. At household level, repairs targeted common sources of inefficiency and deterioration, fixing leaks, addressing humidity, improving sealing of doors and windows for better insulation, and upgrading locks for security. At community level, the project emphasized green initiatives such as rehabilitating parks, installing solar energy systems where appropriate, and improving waste management through the placement of recycling bins, supporting local environmental objectives and energy efficiency.

MAIN CHALLENGES

- **Tension between landlords and project participants.** Improvements sometimes led owners to seek higher rents or to reclaim units, occasionally resulting in eviction risks. The organization's legal team followed up these cases, though incidents were not always formally reported. Including property owners in MoUs with clear provisions against rent increases or eviction due to repairs was identified as a potential way forward and would have required agreement with local authorities and sector leads.
- **Increasing shelter needs and limited resources.** Post-earthquake demand for rehabilitation far exceeded available resources, underscoring the need for additional funding and partnerships. The project confined itself to minor, non-structural works that safely complemented larger-scale recovery led by other actors.

- **Field visits and BoQ verification.** In-person assessments and supervision were resource-intensive and required more staff time than anticipated, even though they were essential for quality assurance and accurate costing.
- **Challenges in cash distribution.** The two-tranche model sometimes faced delays in releasing the second tranche. Contributing factors included households using some funds to meet other urgent needs, unexpected emergencies, and misunderstandings about the BoQ. Additional follow-up and support were required in these cases.
- **Accountability and feedback follow-up.** Although most participants knew how to provide feedback, monitoring showed that not all beneficiaries were aware whether suggestions or complaints had been followed up. This highlighted the need to close the feedback loop more visibly and communicate follow-up actions more consistently.



© CARE Türkiye

Water taps were installed in schools and other communal buildings.



© CARE Türkiye

Educational and community facilities were renovated in coordination with local authorities, with interventions including painting and waste recycling.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Relevance:** rehabilitation activities addressed **substandard living conditions** among both refugees and host communities, with particular attention to women, children, older persons, and people with disabilities. By focusing on practical home improvements, the program directly improved housing quality and everyday safety where people lived.
- ✓ **Effectiveness:** project participants reported **high satisfaction** with improvements such as better locks, lighting, privacy features, doors, windows, and WASH-related repairs, which translated into safer, cleaner, and more dignified living environments. Monitoring also confirmed high satisfaction with the timing and overall rehabilitation process. Opportunities remained to strengthen accountability, particularly around transparency in needs assessments, resource allocation, and feedback follow-up.
- ✓ **Impact:** household-level works delivered **immediate improvements** in safety, hygiene, privacy, weather protection, and overall well-being, while rehabilitation of communal facilities supported community well-being more broadly. The combination of household and communal interventions reinforced stability and contributed to social cohesion.
- ✓ **Sustainability:** many repairs, especially permanent upgrades, were expected to benefit families over the long term by making homes safer and more durable. Continued maintenance remained a challenge that extended beyond the project's scope.
- ✓ **Coherence with an area-based approach:** integrating shelter rehabilitation with protection and livelihoods support within the same neighborhoods ensured complementarity and helped avoid duplication. Coordination with local authorities ensured that the most pressing needs were addressed and that benefits were shared by both refugees and host communities.

WEAKNESSES

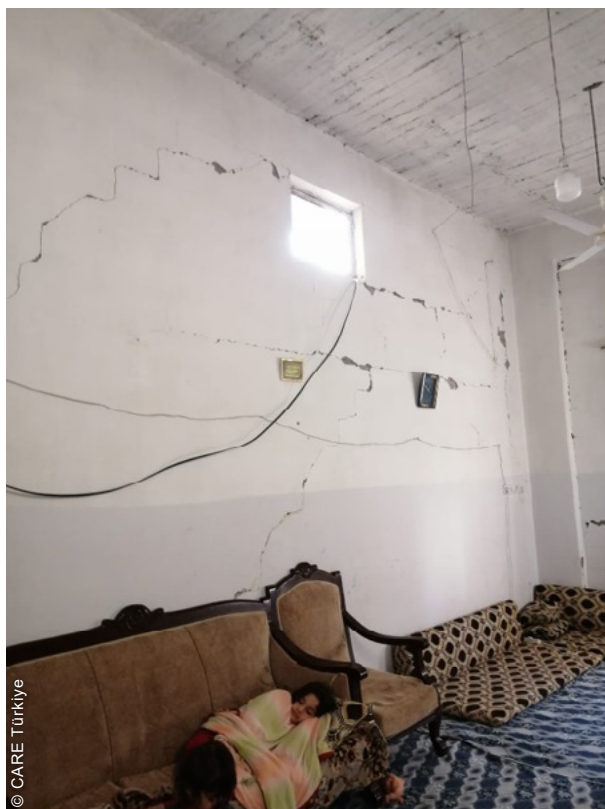
- × **Limited scope for major repairs and long-term recovery needs.** Government regulations and earthquake damage classifications limited assistance to non-structural works. The project achieved its objective of improving safe and habitable living conditions for affected households. However, many communities continued to face wider housing recovery challenges that could not be addressed through this intervention alone, highlighting the need for complementary structural rehabilitation and reconstruction support.
- × **Increased housing costs and risk of eviction.** Post-earthquake market tightening led to higher rents in some locations. After upgrades, some landlords attempted rent increases or reclaiming units, creating risk for already vulnerable households.
- × **Insufficient support for vulnerable groups within the shelter scope.** Despite prioritization of vulnerable participants and referrals to protection, legal assistance, case management, and livelihoods services, some needs required longer-term or more specialized support beyond what shelter rehabilitation alone could provide.
- × **Feedback follow-up and communication gaps.** While feedback channels existed, some participants were not aware whether suggestions or complaints had been acted upon, indicating a need for clearer response tracking and communication with affected households.



FURTHER READING ON SHELTER PROJECTS

On Türkiye: SP 17-18 / A.32; SP 8TH ED. / A.27.

On housing rehabilitation: SP 17-18 / A.27 IRAQ;
SP 15-16 / A.31 LEBANON; SP 8TH ED. / A.24 SYRIA;
SP 10TH ED. / A.22 JORDAN.



Choosing to repair cracks and cover the signs of the earthquake was an important step in helping affected households move on after the disaster.

LESSONS LEARNED

- **Strengthen community roles in communal upgrades.** Transferring more responsibility to community members for verifying needs, implementing works, and monitoring delivery could deepen local ownership and support sustainability.
- **Collaborate across sectors at neighborhood level.** Expanding multisectoral assessment and response to cover the full range of community challenges could reinforce the area-based approach and the impact of combined shelter, protection, and livelihoods activities.
- **Engage homeowners earlier and systematically.** Securing owner consent and participation from the outset could reduce HLP risks. This required harmonized approaches among shelter actors and closer coordination with sector leads and authorities to mitigate eviction and rent-increase risks and to clarify responsibilities of owners and tenants.
- **Close the accountability loop.** Feedback systems should not only have collected complaints and suggestions but also communicated what action was taken, when, and why. This would have strengthened trust and helped participants understand how their views influenced implementation.

RECOMMENDATIONS MOVING FORWARD

- **Develop measurable indicators for social cohesion and integration.** Defining specific, practical indicators to track how shelter works influenced social cohesion and integration outcomes, using regular monitoring, could have guided adaptations and evidenced results for stakeholders.
- **Prepare transition arrangements earlier.** Developing practical exit and handover plans for each activity stream, including documentation, local capacity building, and clear responsibilities for maintaining gains after external support ended, could have strengthened transition planning.
- **Promote women's leadership in communal projects.** Creating structured opportunities for women to lead small-scale communal upgrades where context allowed could have built networks, technical skills, and leadership capacity as part of community resilience.

CASE STUDY

YEMEN 2023-2024 / COMPLEX CRISIS

CONTEXT / SETTLEMENT



SHELTER TYPE



SUPPORT METHODS



CRISIS

Armed conflict and Seasonal flooding

PEOPLE AFFECTED

18.2 million people affected*

PEOPLE WITH
SHELTER NEEDS

6.7 million (individuals)*

PROJECT
LOCATIONS

Ma'rib, Ta'izz, and Al Hudaydah governorates

PEOPLE
SUPPORTED BY
THE PROJECT

8,507 Households (48,499 Individuals, including 10,497 women, 13,760 girls, 9,563 men, and 14,679 boys)

PROJECT
OUTPUTS

3,370 HH supported with cash for shelter repair/upgrade

5,649 HH supported with cash for NFI

As part of the upgrade efforts, 1,548 households used the cash assistance to construct separate kitchens outside or beside their shelters.

SHELTER
SIZE17 m² on averageSHELTER
DENSITY3.5 m² per person (based on the average HH size)

DIRECT COST

USD 300 per HH for Cash for Shelter repair/upgrade
USD 200 per HH for Cash for NFI

PROJECT COST

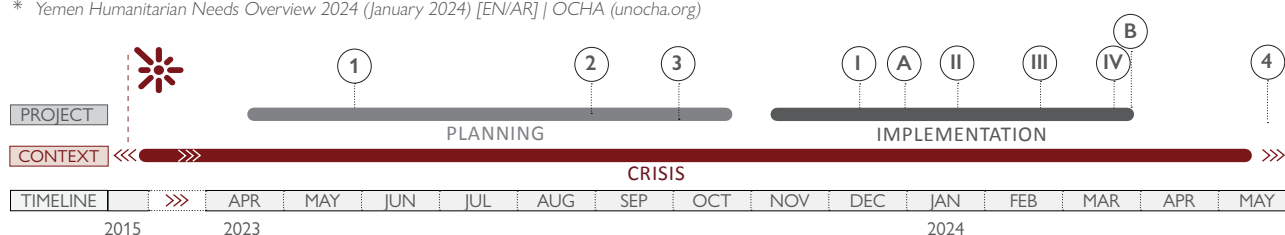
USD 420 per HH



PROJECT SUMMARY

Conditional cash assistance enabled displaced and vulnerable households in Yemen to repair or upgrade their homes and purchase essential household items according to their specific needs. The project combined phased cash transfers with technical guidance and milestone verification to support safer, more durable shelter improvements while leveraging local markets and services. Household-led implementation, informed by community and women's consultations, improved living conditions, supported local economies, and helped address tenure sensitivities in displacement settings.

* Yemen Humanitarian Needs Overview 2024 (January 2024) [EN/AR] | OCHA (unocha.org)



2015: Saudi-led coalition launched a military intervention to restore the government after the Houthis took over the capital and forced the president to flee the country.

- 1 Apr-Jul 2023: Planning and Coordination meetings.
- 2 Jul-Oct 2023: Door-to-door Verification and Registration.
- 3 Nov 2023 - Mar 2024: Implementation of Activities - Distribution of the cash instalments and follow up on the implementation.
 - I-IV: completion of four different batches of cash for NFI;
 - A, B: completion of two batches of cash for shelter.
- 4 May 2024: Post-distribution monitoring exercises to determine the efficiency and effectiveness of the project.



The project supported families across sites to repair or upgrade their shelters.



© IOM Yemen

Displaced families in Yemen lived in different types of makeshift shelters, built using locally available materials and based on cultural and contextual factors.

CONTEXT

Yemen's protracted conflict began in 2014 and escalated into civil war, prompting a broad humanitarian crisis with large numbers of people displaced and severe impacts on services, infrastructure and livelihoods. A UN brokered truce in 2022 reduced hostilities temporarily, but tensions, sporadic clashes and chronic economic deterioration persisted.

Against this backdrop, shelter needs remained acute: in 2024, an estimated 6.7 million people required shelter/NFI assistance, with 2.7 million living in catastrophic or extreme shelter conditions, particularly in Al Hodeidah, Ta'izz and Ma'rib, and a further 1.3 million in shelters below standards of habitability. Women and children constituted two thirds of people in need.

Beyond conflict, Yemen experienced recurrent seasonal floods and other hazards that intersected with the displacement patterns of the hostilities. This multi hazard environment, together with economic pressures, limited the availability of public services and raised the overall living costs, constraining families' ability to maintain safe, dignified shelter.

SITUATION BEFORE THE CRISIS

Prior to the current crisis, Yemen faced as well deep rooted social vulnerabilities: high poverty, limited access to safe water for significant portions of the population, and weak public systems. Housing conditions were diverse and often precarious, ranging from straw huts along the hot coastal belt to basic stone or brick structures in the highlands, leaving lower income households particularly exposed to shocks. Political fragmentation and longstanding regional divisions compounded these challenges.

SITUATION DURING THE CRISIS

As the conflict evolved, displacement became protracted, with many families unable to afford rent or secure adequate housing even temporarily. According to the 2024 humanitarian needs overview, two thirds of 4.5 million displaced people were in rentals or hosting arrangements, while the remainder resided in informal settlements exposed to floods, landslides, fire risks and explosive

hazards; 83% of displaced people surveyed reported shelter/NFI support as their priority need. These trends magnified pre existing vulnerabilities and placed additional strain on host communities.

After nearly a decade of conflict, many IDPs experienced multiple displacements and there is great diversity between different areas in the country due to cultural differences, resource availability, weather conditions, and accessibility. These factors have led to the development of various shelter types, including mud shelters, plywood shelters, plastic sheeting shelters, iron net shelters, and many others.

LAND TENURE ISSUES

IDPs in Yemen faced the constant threat of forced eviction due to precarious tenure arrangements, with many IDP sites situated on private land owned by the host community or tribal groups. The agreements between landowners and IDPs varied significantly from one location to another. For instance, some IDPs paid rent to the landowners, while others worked for the landowners in exchange for free accommodation. In some cases, landowners offered shelter to IDPs as an act of charity until the conflict would subside. However, a prevailing concern among many landowners was the fear that IDPs will not vacate the sites, hindering efforts by both IDPs and organizations to provide sustainable shelter support.

NATIONAL SHELTER STRATEGY

The Shelter/NFI Cluster set three strategic objectives for the 2022-2024 cycle:

- Provide life saving emergency shelter and NFI support to people newly displaced by conflict and disasters.
- Improve living conditions for people affected by protracted crises, returnees and vulnerable host communities through more sustainable shelter/NFI solutions and a greener response.
- Ensure protection from natural hazards and promote relative security of tenure.

These priorities informed project choices on modality, targeting and technical assistance, and aligned with the wider Humanitarian Response Plan's focus on principled, inclusive and integrated assistance.

PROJECT DESIGN

The project aimed to deliver shelter/NFI solutions to displaced households and vulnerable host community members across three governorates. Cash was adopted as the main modality due to market functionality, participant preference and the need to tailor assistance to diverse contexts (mountainous, coastal and desertic regions), cultural issues and household priorities. This choice was also due in part to the significant variations that exist in terms of shelter typologies, which meant that there could not be a single standardized shelter upgrade model that would work for all. Instead, conditional cash was complemented with technical guidance to improve quality, ensure that funds were used for intended purposes, and also allow the required flexibility for tailoring the intervention to the specific needs of each household and shelter.

Recognizing the tenure and social sensitivities of working on privately owned land, the team prioritized an approach that allowed households to implement improvements themselves. This reduced landlords' concerns over agency led construction, which could be perceived as semi permanent or may induce displaced families to stay longer on their land. In parallel, inclusive consultations, especially with women, surfaced priorities such as separate kitchens or safer cooking spaces. These were integrated into the cash for shelter scope where relevant.

Integration with other sectors (CCCM, WASH, health and protection) was a core principle, ensuring that shelter/NFI support prioritized protection referrals, and locations identified by site management teams, complementing basic services, and preventing duplication while addressing the most severe needs.

PROJECT IMPLEMENTATION

Market assessments confirmed local availability of materials and informed transfer values. The amounts were set based on a standardized list of materials commonly used for shelter repair and household items, and an assessment of their current market prices before each distribution. In addition, the amounts aligned with cluster guidelines. Technical teams then developed Bills of Quantities in coordination with the project participants and shared recommended lists for essential household items and shelter upgrading works.

Cash assistance was disbursed in three instalments through a financial service provider and mobile banking to maximize reach and accountability.

- The first tranche followed enrolment and agreement on the scope of works or NFI priorities;
- the second tranche was released upon confirmation of purchases and technical compliance; and
- the final tranche after verification that the repair or upgrade was completed to agreed standards.

Daily field visits with technical teams and milestone checks supported quality assurance.

Additionally, skilled workers were hired to support families during repair/upgrade works or procurement of household items. To further strengthen decision making and execution by households, the technical team provided guidance on structural damage types, repair or upgrade options, material selection, installation and basic safety and maintenance practices. For instance, they gave advice on foundations based on soil conditions, on mix ratios and application of mortar, on appropriate brick bonding and wall thicknesses, as well as on roofing connections using metal straps and bracing techniques against windloads. Where beneficiaries proceeded without consulting technical staff, suboptimal choices occasionally occurred; this highlighted the importance of continuous on site coaching and phased disbursements tied to verification.

TARGETING

Targeting combined comprehensive needs assessments, vulnerability criteria aligned with Shelter/NFI Cluster standards and technical assessments. Community engagement and coordination among authorities and partners was maintained through the project. Priority was given to displaced households with severe shelter needs in informal sites, and included vulnerable host households living within or near the sites, who received the same level of assistance as IDPs to support fairness and reduce tensions between communities. Specific attention was paid to single parent families, households with persons with disabilities, older persons and families affected by floods or other shocks, with door to door verification to confirm eligibility.



Shelters were upgraded using a cash modality, so that families could implement the works themselves, which built trust with landowners.

© IOM Yemen



The project provided USD 200 cash grants to be used for the purchase of essential household items.



Based on findings from consultations, the organization also supported families with elderly people to acquire locally made beds.

COMMUNITY ENGAGEMENT

Community engagement began at design stage with focus group discussions held with both displaced and host community members, to validate the cash modality and to identify context specific priorities. Under the shelter component, women raised the need for separate kitchens and safer cooking spaces, while under the NFI component, the organization guided households to procure locally made beds suitable for the elderly and special mattresses for people with disabilities.

During door to door assessments, staff explained BoQs, specifications of the items included, indicative costs and the available technical support during implementation. Awareness sessions throughout the project cycle strengthened understanding of the modality, proper use of cash assistance and the availability of channels for support.

A complaints and feedback mechanism via suggestion boxes, hotlines and help desks at each distribution site, ensured accountability and responsiveness. Project participants were informed of such feedback channels from the outset, during the door-to-door assessments.

MATERIALS AND SUPPLY

Because assistance was cash based, the project leveraged local markets for shelter materials and essential non food items. Recommended lists shared with households included frequently purchased items such as kitchen sets, cooking pots, gas stoves or cylinders, blankets, mattresses, solar panels and locally made primitive beds for older persons in hot areas. The market approach supported local vendors and services while allowing households to sequence purchases according to priority and availability.

MATERIALS LIST

Shelter materials		Shelter repair tools
Iron sheets	Insulation rolls	Hand saw
Mud bricks	Insulation sheets	Utility knife
Wooden poles	Plastic sheets	Hammer
Plywood sheets	Metal pegs	Pick axe
Wooden plates	Steel bar	
Iron nets	Ropes	
Cement / sand	Nail box	

MAIN CHALLENGES

- Risk of misuse or diversion of cash was mitigated by awareness sessions, phased instalments and field verification. A small percentage of beneficiaries still chose to prioritize food and medical expenses over shelter and NFI due to their critical conditions; in such cases, those who misused funds were not eligible for subsequent tranches.
- Liquidity constraints, inflation and exchange rate volatility occasionally delayed transfers and affected purchasing power; the organization reviewed market prices and adjusted as feasible.
- The dispersed caseload and some documentation issues increased the effort needed to complete verification and follow up. Post-distribution monitoring also faced challenges due to population mobility. A significant proportion of targeted households could not be reached during follow-up because they had relocated or returned to areas of origin, highlighting the operational difficulties of sustaining monitoring in highly mobile displacement contexts.
- Sensitive tenure dynamics and landlords' fears of permanent occupation required ongoing negotiation and close alignment with authorities and site stakeholders.



In some cases, the support was used to convert tents to metal sheet shelters.



In some locations, families built traditional structures using local materials such as thatch and stone masonry.



In other locations, households opted to rebuild or complete their unfinished structures using concrete blocks available in the local market.



The support was also used to protect plywood from heavy rain with metal sheets.



Windows and doors were installed thanks to the assistance received.



Some families used the cash to rebuild their roofs and complete their shelters.

OUTCOMES AND WIDER IMPACTS

Direct outcomes included improved living conditions and more appropriate NFI coverage for targeted households, with cash enabling tailored responses to immediate and diverse priorities. Programme evaluations found that respondents most frequently reported improved comfort, safety and privacy following repair or upgrade works. Technical guidance and milestone linked cash generally increased the quality and safety of works. For women and caregivers, separate kitchens and safer cooking spaces addressed practical and protection concerns identified through consultations. However, the evaluation findings also highlighted uneven access to technical guidance and variations in implementation quality.

By involving households in decision-making processes, the project promoted self-reliance, dignity and accountability among participants. Community participation throughout implementation contributed to a stronger sense of responsibility for project outcomes and encouraged more active engagement in improving household and community living conditions.

Lastly, the project served as a model for other humanitarian organizations to consider cash as a modality over the regular in-kind assistance. By demonstrating the effectiveness of cash-based interventions in meeting diverse needs efficiently, the project has influenced future humanitarian strategies and policy decisions in the country.

EXIT/HANDOVER

Handover was integrated into the cash cycle through final tranche verifications and completion checks by technical staff. Post distribution monitoring assessed effectiveness and areas for adjustment, feeding back into partner coordination fora. Because improvements were implemented by households themselves, ownership and maintenance responsibilities were already internalized by the time cash cycles concluded.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **The cash modality enabled tailored assistance to the specific requirements of each household/shelter.** Beneficiaries prioritized expenditures based on their own needs, improving relevance and satisfaction while preserving dignity and agency.
- ✓ **Inclusive consultations shaped practical case-by-case solutions.** Women's feedback as well as the needs of elderly and people with disabilities were integrated in project scopes where appropriate.
- ✓ **Cash purchases stimulated vendors and services** near displacement sites, creating small multipliers and easing supply constraints compared with in kind delivery.
- ✓ **The project was cost-effective,** as the chosen modality reduced logistical costs of procurement, storage, and transportation.
- ✓ **Beneficiary led works helped build trust and mitigate eviction risks.** Allowing households to implement improvements reduced landlords' concerns about semi permanent, agency installed structures.
- ✓ **Integrated programming strengthened impact.** Linkages with CCCM, WASH, health and protection ensured coherent support at site level and helped address diverse households' needs.

WEAKNESSES

- ✗ **Monitoring demands were high.** To prevent misuse and ensure quality, teams needed frequent field visits, stretching staff time across dispersed locations.
- ✗ Despite the organization's efforts, **inflation and liquidity shocks undermined predictability** and created budgetary challenges to some project participants.
- ✗ **Documentation gaps were not anticipated and slowed delivery.** Missing or incorrect ID documents required extra steps in verification and follow up, delaying assistance for some households. This risk could have been included in assessment and planning stages.
- ✗ **Technical guidance did not consistently reach all households.** Post-distribution findings indicated gaps in the delivery or retention of shelter construction guidance among over 40% of participants, which may have contributed to uneven implementation quality and suboptimal shelter outcomes. Where beneficiaries proceeded without consulting technicians, purchases or installations were sometimes suboptimal, affecting outcomes.



FURTHER READING ON SHELTER PROJECTS

On Yemen: [SP 9TH ED.](#) / [A.28](#); [SP 17-18](#) / [A.33](#); [SP 15-16](#) / [A.37](#)

On Cash in Shelter: [SP SHELTER AND CASH: 16 Case Studies](#)

Case studies in Arabic: [SP Translations](#) and [SP Essentials: Arabic](#)

LESSONS LEARNED

- **Active involvement of beneficiaries in the decision-making process was vital.** It ensured that interventions aligned with the beneficiaries needs, preferences, and cultural considerations, leading to increased ownership.
- **Regular monitoring and follow-up** throughout the project implementation enabled the identification of challenges, gaps, and areas for improvement, allowing for timely adjustments and ensuring project targets were met.
- **The use of a beneficiary led approach enabled the project to navigate HLP sensitivities.** In contexts of informal tenure and landlord concerns, household executed works were more acceptable than contractor-led operations, which in some cases had led to eviction risks.
- While the project was conducted using a single financial service provider, the challenges encountered showed that **establishing Long-Term Agreements with multiple providers can enhance flexibility and ensure continuity** in the provision of financial services.

RECOMMENDATIONS MOVING FORWARD

- **Develop simple, illustrated guidance materials** with step-by-step instructions for common shelter repairs and household upgrades to support safer, more consistent implementation by beneficiaries.
- **Prepare standardized Bills of Quantities and technical specifications** for frequently used shelter solutions to improve planning, support households requiring additional technical assistance, and strengthen quality control during implementation.
- **Expand vocational and on-the-job construction training** for both IDPs and host communities to strengthen local technical capacity, promote collaboration, and create longer-term livelihood opportunities linked to shelter repair and upgrading activities.
- **Plan for dispersed caseloads.** Staffing, routing and verification protocols should account for high travel time and the need for frequent, short visits to sustain quality and timeliness.



CASE STUDY

MOROCCO 2023-2024 / EARTHQUAKE

CONTEXT / SETTLEMENT



SHELTER TYPE



SUPPORT METHODS



CRISIS 2023 earthquake

TOTAL HOMES DAMAGED 60,000 houses damaged or destroyed

PEOPLE WITH SHELTER NEEDS 240,000 ind. in need of immediate shelter

PROJECT LOCATION Al-Haouz, Chichaoua and Taroudant provinces

PEOPLE SUPPORTED BY THE PROJECT 6,656 direct beneficiaries (as of Dec 2024)
27,943 indirect beneficiaries, including 1,464 individuals (394 HH) from affected communities 5,112 individuals through educational activities Future uses included for the Ministry of Health and for the civil protection.

PROJECT OUTPUTS 785 Transitional Shelter Units installed (including 396 as temporary accommodation; and 389 for educational purposes).
221 fire extinguishers and emergency response kits distributed.
25 community toolkits provided.
7 Technical trainings delivered to volunteers on TSU installation and maintenance.

SHELTER SIZE 17.5 m² for the Transitional Shelter Units.

SHELTER DENSITY 3.5 m² per person or more (based on HH size, with one unit for families of up to 5 members and extensions added for larger households).

DIRECT COST USD 1,765 per shelter (incl. materials cost and transport to Morocco)
USD 2,859 per shelter (incl. labour & add-ons)

PROJECT COST USD 3,564 per shelter on average



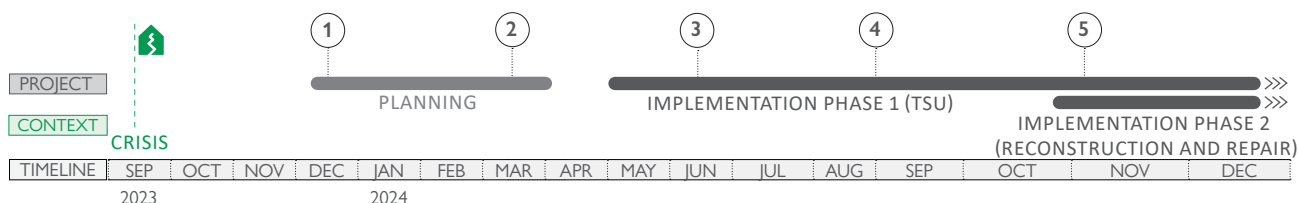
Project Locations

PROJECT SUMMARY

The project provided Transitional Shelter Units (TSUs) as temporary shelter solutions and community facilities for earthquake affected communities in Morocco, complementing the governmental reconstruction program and supporting access to safer and more dignified living conditions during recovery. In parallel, a Repair and Reconstruction Support (RRS) program was mobilized to help eligible households complete priority works or carry out technically feasible, para seismic repairs of vernacular homes. Together, these interventions reduced prolonged reliance on emergency tents and helped families remain close to their original villages, livelihoods, and social networks while permanent housing recovery progressed.



The project supported earthquake affected families in remote areas.



Sep 2023: Earthquake struck the High Atlas Mountains and emergency shelter response began.

1 Dec 2023: Launch of the project. TSUs were identified as a more durable temporary shelter solution to support households affected by prolonged displacement and delays in permanent reconstruction.

2 2024: Staff and volunteers received technical training on TSU assembly, installation procedures and site preparation.

3 2024: Introduction of technical adaptations to the standard unit, following field observations, community feedback, and climatic challenges in mountainous areas.

4 2024-ongoing: Expansion of the use of the units for community-level functions beyond shelter

5 2024-ongoing: Preparations for the launch of the Repair and Reconstruction Support (RRS) across three provinces.



The 2023 earthquake affected many villages located in the High Atlas Mountains near Marrakesh, damaging or destroying approx. 60,000 homes.



In hard-to-reach areas, humanitarian actors complemented the government reconstruction efforts. This project targeted families who needed a transitional solution before the reconstruction could be completed.

BACKGROUND

On 8 September 2023, a magnitude-6.8 earthquake struck the High Atlas Mountains near Marrakesh, followed by a magnitude-4.9 aftershock. It affected Al Haouz, Taroudant, Chichaoua, Azilal, and surrounding mountainous areas, causing widespread damage in remote rural communities. Around 3,000 people died, nearly 6,000 were injured, and approximately 60,000 homes were damaged or destroyed. Schools, health centres, water systems, and other essential infrastructure were also affected, compounding response challenges in isolated villages with difficult access.

SITUATION BEFORE THE EARTHQUAKE

Before the earthquake, many High Atlas communities lived in isolated rural areas connected by narrow roads over difficult terrain. Housing was predominantly vernacular and non-engineered, using adobe, rammed earth, stone masonry, timber, and mud mortar, with limited seismic-resistant features. Livelihoods depended largely on agriculture, livestock, seasonal labour, and remittances, while harsh winter conditions made housing essential for protection from the cold.

SITUATION AFTER THE EARTHQUAKE

Immediately after the earthquake, many families sheltered in tents and makeshift structures distributed through national authorities and humanitarian partners or self built from salvaged materials. Exposure to strong winds, cold temperatures, snowfall at higher elevations, and seasonal rains affected privacy, safety, and habitability, while damaged infrastructure disrupted access to services and isolated many small villages. Communities also needed temporary spaces to keep services functioning, including classrooms, accommodation for teachers, kitchens, and communal spaces for social and recreational activities.

NATIONAL SHELTER RESPONSE

The Moroccan government launched a reconstruction and recovery program with financial grants for affected households, structured by damage category and disbursed in tranches linked to construction milestones. Standard layouts followed Moroccan seismic standards, with commune technical agents overseeing compliance before tranche release. Reconstruction was slowed by damaged roads, limited skilled labour, large contractor caseloads, scams affecting some households, and market inflation linked to simultaneous demand for materials and labour. Humanitarian shelter efforts complemented the national program in hard-to-reach mountain communities where recovery lagged.

COORDINATION

While the formal cluster system was not activated, authorities coordinated the response at national, provincial, and local levels. Humanitarian actors aligned their support to defined geographic Areas of Responsibility to avoid duplication and strengthen coverage. Within selected communes in Al Haouz, Taroudant, and Chichaoua, humanitarian actors focused on households that still lacked adequate temporary shelter while awaiting reconstruction progress.

TARGETING

Targeting prioritized households whose homes had collapsed or were severely damaged and who were living in tents or improvised shelters since the grants were not enough for a full reconstruction, so a transitional solution was needed in-between. Vulnerability criteria considered household composition, age, disability, income, and socio-economic conditions within designated geographic areas. Local authorities and community structures helped validate information, confirm residency and family ties, and reduce opportunistic and un-eligible claims.

PROJECT DESIGN

The programme, which was implemented by a local organization with the support of an international one, combined two complementary strands:

- **Transitional Shelter Units (TSUs):** selected to reduce exposure to harsh weather during a longer-than-anticipated transitional period and to keep households close to homes, livelihoods, agricultural land, social networks, and services. A market assessment found that local shelter options were insufficient in quantity and quality, supporting international procurement of a modular flatpack model already approved for import. As mentioned, the units supported households unable to return home and temporary community-service functions. A small pilot confirmed suitability, after which a larger batch was ordered and later adaptations were refined through field observation and community feedback.
- **Repair and Reconstruction Support (RRS):** designed to be implemented through two tailored pathways. Reconstruction focused support, to be provided in staged grants to households already rebuilding but unable to complete priority works to reach habitability; and repair focused support, to target technically repairable vernacular homes through household specific Bills of Quantities and closer technical follow up. Both pathways were set according to the same process flow (authority data, verification, assessment, MoU, staged assistance, QA/QC, completion checks), with the type of support determined by housing conditions and recovery stage. This component was planned towards the end of 2024 and piloting and implementation only commenced in 2025.



Staff and volunteers received training on TSU installation, and over time could install two or three units daily, compared to one unit per day at the start.

PROJECT IMPLEMENTATION

TSUs were procured internationally and shipped from Poland (production factory) to Morocco, then moved to target areas via multi stage logistics. Final delivery to dispersed mountain villages used trucks, smaller vehicles, and, where access demanded, donkeys for the last mile.

Implementation relied on staff, volunteers, and local workers trained in TSU assembly, with technical support from the organization specialists. As the operation scaled, installation efficiency improved markedly: a team of four trained volunteers moved from nearly one full working day for a single unit at the outset to approximately two or three installations per day once proficiency increased. Staff, volunteers, and local workers also gained practical experience in assembly, maintenance, and technical upgrades. Community participation was essential for site preparation and final installation, facilitating faster deployment in dispersed and hard to reach settlements. WASH facilities (toilets and hammams with showers) were implemented by dedicated teams in parallel to TSUs.

TECHNICAL ADAPTATIONS

The standard unit required adaptation to mountain conditions. Field observation and community feedback led to some adjustments on the original model, such as: wooden flooring, secondary doors, supplementary rockwool insulation protected by tarpaulin, and reinforced anchoring through concrete pockets, slabs or double anchoring where required. Please refer to the table on the next two pages for more details on the adaptations. A temperature comparison test recorded an internal difference of about 12°C between insulated (rockwool protected by tarpaulin) and non-insulated units under comparable conditions.

COMMUNITY ENGAGEMENT

Dedicated engagement teams and volunteers worked alongside shelter technicians, holding community sessions, focus groups, and regular meetings in affected villages to explain the approach, eligibility, installation steps, household responsibilities, and expected timelines. Local structures and associations aided outreach and helped validate household information. Continuous consultations, a feedback line, and field level feedback channels enabled households to raise installation, adaptation, or usability concerns, which informed contextual improvements and supported transparent communication.

EXIT/HANDOVER

As households progressed in rebuilding or repairing their homes, TSUs enabled safer living conditions and continuity of essential services during the interim period. After households returned to their homes, many kept the TSU rather than dismantling it, repurposing units for storage, as guest annexes, or for poultry, an outcome noted during field follow up.

MAIN CHALLENGES

- **Difficult terrain, seasonal conditions, and dispersed settlements:** remote mountain locations, uneven ground, damaged or difficult access routes, and seasonal weather increased transport time and complicated TSU installation, monitoring, and coordination.
- **Reconstruction delays:** national reconstruction was slowed by capacity constraints (contractors, skilled labor) and market pressures (simultaneous demand, inflation), with some households facing scams or unfinished works.
- **Planning and standardization:** some technical adaptations were introduced progressively rather than built into the initial design and installation SOPs; future responses would benefit from standardized assessment of site, foundations, anchoring, and thermal measures before scale up.
- **Restricted TSU options and procurement timelines:** import restrictions and limited availability of suitable local products reduced procurement options and influenced delivery pacing under access constraints.



Regular meetings were conducted in the affected villages to explain the project approach, timeline, eligibility criteria and implementation steps.

OUTCOMES AND WIDER IMPACTS

- **Reduced exposure and improved habitability:** TSUs reduced reliance on tents and makeshift shelters exposed to wind, snow, cold, and moisture. Thermal and stability adaptations, coupled with timber flooring, improved indoor comfort and safety.
- **Continuity of basic services:** adapted TSUs helped maintain education, health, Civil Protection, kitchen, communal, and recreational functions during recovery.
- **Local capacity:** staff, volunteers, and local workers gained practical experience in TSU assembly, maintenance, technical upgrades, tool handling, teamwork, quality control, and adaptation techniques. These skills supported installation quality and can also inform future shelter repair and maintenance tasks.



After repairing their houses, many people repurposed the TSUs, including as house extensions, or for storage.



The imported shelter units, which costed around USD 1,765 including transport to Morocco, had to be adapted to the mountainous conditions, with add-ons and adjustments that costed on average an extra USD 1,000 per unit. One of the adaptations had to do with safe anchoring of the foundations against the wind.

TECHNICAL CHALLENGES	ADAPTATIONS & DRR	PROJECT IMPLICATIONS
A Extreme temperatures inside standard TSUs, particularly during winter nights and summer days in the High Atlas Mountains	Additional insulation using rockwool covered with tarpaulin and protective layers Temperature testing demonstrated an internal improvement of 12–12.5°C compared to non-insulated TSUs, enhancing habitability during prolonged occupancy	• Additional procurement of insulation materials. • Increased transportation volume. • Additional labour required for installation. • Additional volunteer training required. • Increased unit cost per shelter.
B Variations in soil conditions and rocky terrain complicated installation of TSUs in some communities	Concrete foundation pockets/slabs Improved load distribution, long-term stability, and shelter integrity under challenging terrain conditions	• Additional concrete works required. • Additional labour and technical supervision. • Increased material and transportation costs.
C Strong winds and exposure to severe weather conditions in mountain locations threatened shelter stability, requiring a stronger anchoring system	Reinforced anchoring systems combined with concrete pockets/slabs. Double anchoring techniques in selected locations Improved structural stability and resistance to strong wind loads	• Additional materials required. • Increased labour requirements and installation time. • Additional technical supervision required. • Increased shelter cost.
D Uneven terrain, moisture accumulation, cold ground conditions, and insect exposure affecting living conditions	Installation of OSB wooden flooring platforms Improved thermal comfort, reduced moisture, provided protection against insects, and improved overall habitability	• Additional procurement and transport requirements. • Increased installation time. • Additional labour required. • Increased shelter cost.



A - Insulation using rockwool covered with tarpaulin and protective layers



B - Concrete foundation pockets/slabs



C - Reinforced anchoring systems combined with concrete pockets/slabs.



D - Installation of OSB wooden flooring platforms

TECHNICAL CHALLENGES	ADAPTATIONS & DRR	PROJECT IMPLICATIONS
E Accessibility challenges for elderly persons and persons with disabilities	Construction of ramps and adapted site layouts Enhanced safety, accessibility, and inclusion of vulnerable groups and individuals	• Additional site preparation works. • Additional materials required. • Increased labour requirements.
F Fire risk between adjacent TSUs and other constructions	Improved shelter spacing, distribution of fire extinguishers and emergency response kits, and provision of community maintenance toolkits Reduced fire risk and improved community preparedness and emergency response capacity	• Additional planning requirements. • Procurement of fire safety equipment. • Community training and awareness sessions required.
G Household sizes exceeded the capacity of a standard TSU in some cases	Extension of TSUs by approximately one-third for larger families, or for other functions like classrooms Improved dignity, privacy, and compliance with standards for m ² per person	• Additional materials required. • Increased installation time. • Increased shelter cost per household.
H Standard TSU design provided a single entrance and exit point	Addition of a second door Improved evacuation, ventilation, and usability of the shelter. Adopted in selected TSUs to improve accessibility and functionality. It also supported privacy and dignity, especially for larger HHs or specific gender considerations.	• Additional materials required. • Additional installation works. • Additional technical supervision required. • Increased shelter cost.

**E** - Construction of ramps and adapted site layouts**F** - Improved shelter spacing, distribution of fire extinguishers and emergency response kits, and provision of community maintenance toolkits**G** - Extension of TSUs for larger families, or for other functions like classrooms**H** - Addition of a second door

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **More durable transitional shelter option.** TSUs provided a safer and more climate-appropriate alternative to emergency tents for households expected to remain displaced for an extended period, improving privacy, protection from weather, and overall living conditions.
- ✓ **Continuity of community services.** The use of TSUs for public and communal activities helped maintain essential services and supported wider community recovery while permanent reconstruction progressed.
- ✓ **Contextual adaptations improved habitability and safety.** Field observations, testing, and community feedback led to several adaptations to mountain conditions, improving safety, usability and comfort.
- ✓ **Location choice supported uptake and use.** Installing TSUs near original villages, livelihoods, agricultural land, social networks, and local services improved acceptance and reduced the risk of vacant or underused shelters.
- ✓ **Community engagement and feedback channels underpinned delivery quality.** Early and continuous engagement clarified eligibility, timelines, and responsibilities, especially site preparation, while creating feedback loops for installation, adaptation, and usability improvements.
- ✓ **Flexible logistics and local participation enabled reach.** Combining multi stage transport with community site preparation, final installation support, and volunteer assembly teams made it possible to serve remote mountain communities despite access constraints.

WEAKNESSES

- ✗ **Design adaptations were not fully front loaded.** Some site-level, foundation/anchoring, and thermal measures were introduced progressively rather than integrated from the start, increasing follow up needs.
- ✗ **Site assessment detail varied.** More systematic pre installation assessments would have anticipated terrain related challenges and reduced later technical modifications.
- ✗ **Assembly training needed earlier standardization.** Without early, common procedures and refreshers, initial installation time was longer; standardized training packages can shorten learning curves at scale.
- ✗ **Maintenance support mechanisms were limited.** For households expected to remain in TSUs for extended periods, more structured maintenance guidance or support would have reduced wear and improved user experience.
- ✗ **Procurement choice carried timeline trade offs.** The decision to import units was considered a planning weakness because it influenced delivery pacing under access constraints.



FURTHER READING ON SHELTER PROJECTS

On projects in North Africa: [SP 2009 / C.2 ALGERIA 1980;](#) [SP 11-12 / A.31 TUNISIA \(CONFLICT IN LYBIA\).](#)

On earthquake response: [SP 2008 / B.9-B.11 PAKISTAN 2005;](#) [SP 2008 / C.2 PERU;](#) [SP 2010 / A.4-A.11 HAITI;](#) and [A.29 TAJIKISTAN;](#) [SP 15-16 / A.3-A.7 NEPAL;](#) [SP 10TH ED. / A.12 AFGHANISTAN.](#)

LESSONS LEARNED

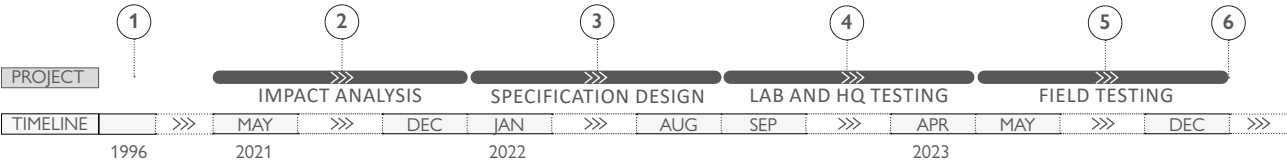
- **Plan technical adaptations from the outset.** In mountainous contexts with wind, snow, and unstable soils, integrate reinforced anchoring/foundations, timber flooring, and insulation into the initial design, installation SOPs, and BoQs rather than adding them reactively.
- **Standardize assessment and training.** Adopt a common site assessment checklist (terrain, subsoil, exposure, spacing, fire breaks) and a standardized assembly curriculum for volunteers and partners to accelerate safe, consistent installation.
- **Keep shelters close to origin and services.** Proximity to original villages, livelihoods, agricultural land, social networks, and local services is critical for sustained use.
- **Build maintenance into the offer.** Where transitional shelter is likely to last multiple seasons, plan simple maintenance mechanisms (toolkits, guidance, community repair rosters) so households can keep units safe and habitable.
- **Clarify roles for exit and reusability.** Since many families retain TSUs as storage, guest rooms, or small annexes, define with authorities and communities, at the outset, what re use is appropriate and who is responsible for any relocation, re assignment, or recycling when permanent housing becomes available.

CASE STUDY

GLOBAL 2021-2023 / ECO-DESIGN TARPAULIN

CRISIS	Within a global initiative, field testing was carried out in areas affected by floods and conflict-related displacement	PROJECT SUMMARY The project revised the standard humanitarian tarpaulin specification to reduce environmental impact while maintaining the durability, safety and performance required for emergency shelter use. Through life cycle assessment, market review, laboratory testing and field validation in Niger, the project confirmed that a lighter tarpaulin with recycled content and improved UV resistance could perform well in real shelter conditions. If adopted at scale, the revised specification could reduce emissions, resource use, toxic pollution and repeat distributions of one of the most widely used shelter items globally.
PROJECT LOCATION	Global, with field testing in Diffa, Maradi and Tillabery, Niger	
PROJECT OUTPUTS	Validation and release of a revised eco-design tarpaulin specification for humanitarian use	

For more information on this project, access the video at this link: <https://sl1nk.com/1wkcweh>



- 1 **1993–1996:** The original standard humanitarian tarpaulin was developed through inter-agency work and became a common reference for major humanitarian organizations.
- 2 **May-Dec 2021:** The project reviewed the environmental footprint of the existing product and identified where improvements could be made.
- 3 **Jan-Aug 2022:** Life cycle assessment, market review and stakeholder consultation informed the revised technical specification.
- 4 **Sep 2022 - Apr 2023:** Produced batches were tested for key performance requirements, including strength, durability, UV resistance and fire behaviour.
- 5 **May-Dec 2023:** The revised tarpaulin was tested in real shelter conditions through structured household use and blind distribution.
- 6 **Dec 2023:** The validated eco-design tarpaulin specification was released for wider humanitarian use.



Good quality, shelter-grade tarpaulin can last decades. In this photo, a 14-year old tarp is being shown in Ethiopia.

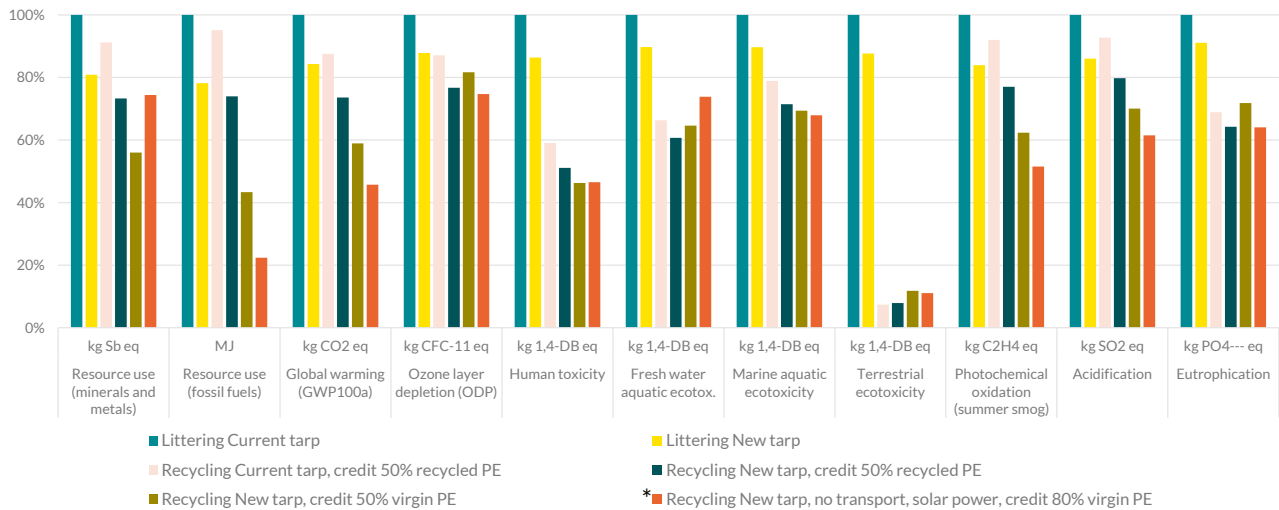
BACKGROUND / RATIONALE

Humanitarian agencies distribute millions of plastic tarpaulins every year, so even small improvements to this standard shelter item can significantly affect resource use, emissions, waste and the quality of assistance provided. The project aimed to determine whether the existing humanitarian tarpaulin specification could be revised to reduce environmental impact while maintaining the durability, safety and operational reliability required in emergency shelter responses.

The work built on the inter-agency tarpaulin development process of the 1990s, when a common standard was established and adopted by major humanitarian organizations. For more information on that process, see case study B.02 from Shelter Projects 2017-2018. As of 2021, that standard had proved effective over several decades, but it had not been comprehensively revisited through a reduced environmental-impact lens.

The project therefore sought to update a proven product rather than replace it, using life cycle assessment, material screening, laboratory testing, manufacturer engagement and field validation to identify improvements that could be adopted at scale.

Environmental impact was considered in several dimensions. Raw materials and production represented the largest share of carbon emissions, while end-of-life management was the largest concern when broader environmental criteria were considered. The project also recognized that poor-quality tarpaulins can degrade rapidly and require recurrent distributions on top of the environmental impact of the fragmented microplastics. By contrast, a durable product with strong UV resistance could remain useful for longer, support reuse and repurposing, and retain value for future waste collection and recycling.



Comparison of environmental impact of current and new PE tarpaulin with different end of life scenarios (highest value set to 100%).

STAKEHOLDERS CONSULTATIONS

More than 90 stakeholders were consulted, including humanitarian practitioners, manufacturers, laboratories, research bodies and specialists in product design, procurement and quality assurance. These consultations helped test assumptions, review findings and ensure that proposed changes remained feasible for manufacturing and field use. Earlier user surveys in Mali and the Democratic Republic of Congo, involving 140 tarpaulin recipients, showed how the existing product was used and which performance features users valued most, helping guide the improved design before field validation in Niger.

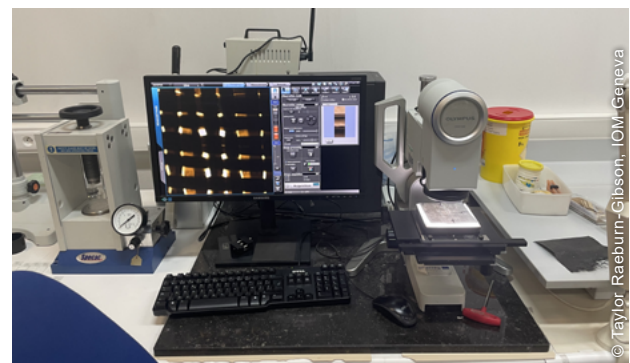
LIFE CYCLE ASSESSMENT

A life cycle assessment, including investigation of biodegradable, biosourced and recycled materials, compared the existing polyethylene tarpaulin with possible alternatives across raw materials, manufacturing, use and end-of-life scenarios. It showed that the largest gains would come from a combination of lower weight, recycled content, extended service life and improved end-of-life potential:

- **Biobased polyethylene** was not retained because of market scarcity, higher costs, possible competition with food production and higher impacts in most of the Life Cycle Assessment categories reviewed.
- **Biodegradable plastic** was also not retained because current technologies are not suited to products expected to last for long periods in varied and unpredictable climatic contexts, and because appropriate end-of-life treatment could not be guaranteed.
- **Recycled polyethylene** was identified as the most viable option, provided that it could be integrated without reducing durability, safety or manufacturing feasibility.

LONG-TERM UV RESISTANCE TESTING

Laboratory testing equivalent to 10 years of real-life exposure was carried out to assess UV resistance, a critical parameter since sunlight degradation is a major factor in tarpaulin failure. The results showed that the revised product retained very high resistance compared with lower-grade products commonly available on the market. This supported the design logic of a lighter but more durable tarpaulin: if the material remains stable for longer, it can reduce the need for recurrent replacement and remain suitable for collection, reuse or recycling rather than fragmenting into microplastics.



The gaps between the fibers were analysed using microscopes.



UV testing was essential for the new specification development, as durability largely depends on the capacity of the tarps to withstand solar radiation.

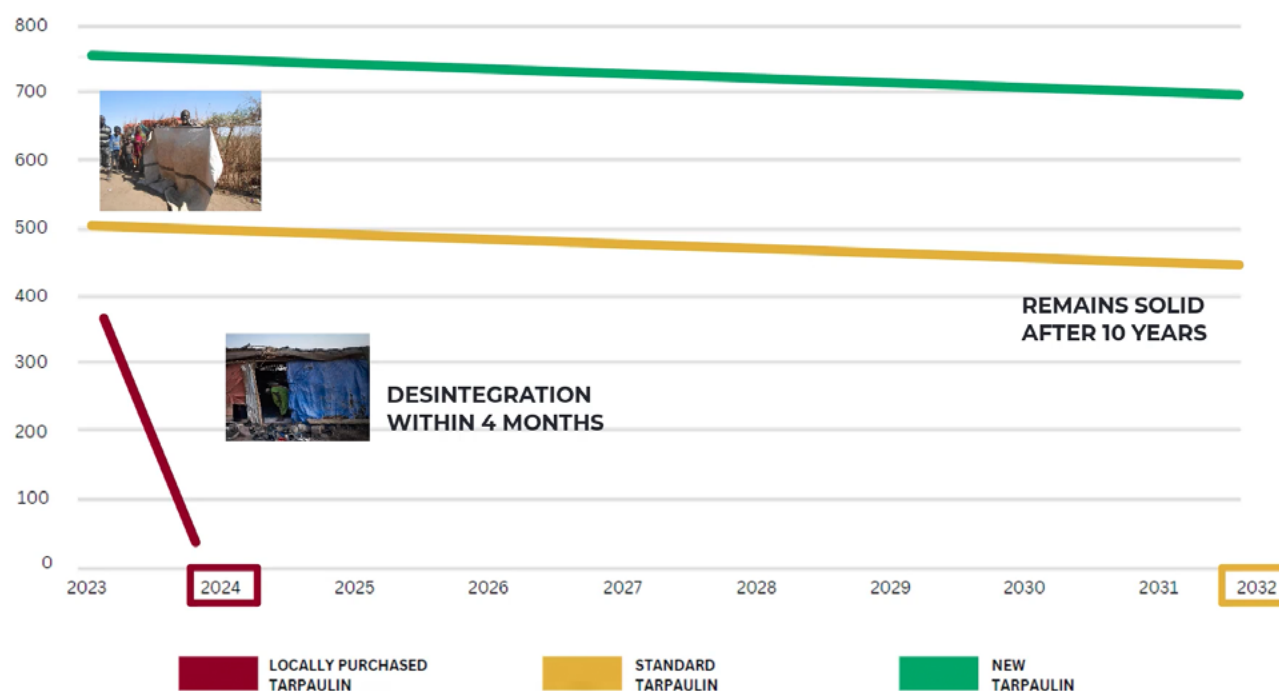


Chart showing the remaining tensile strength of different types of tarpaulins after UV degradation over eight years. Access [this video](#) for more information.

ALTERNATIVE PRODUCT DESIGN

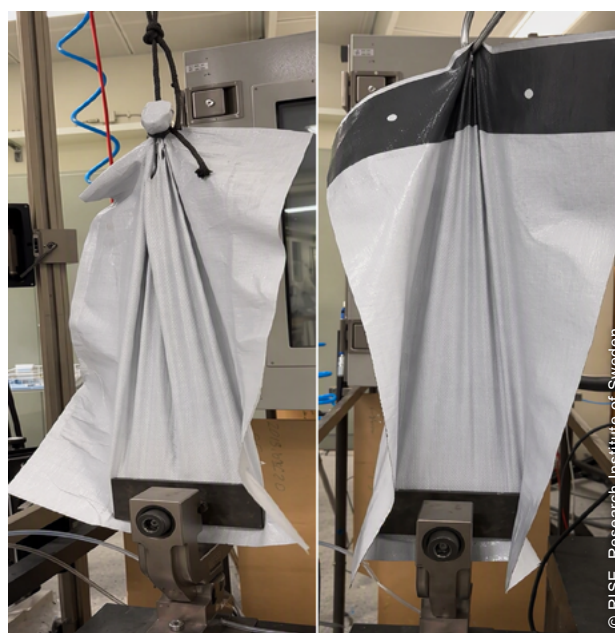
By September 2022, the project steering committee had validated a proposed alternative specification based on consultation, market review, life cycle assessment and laboratory evidence. Industry partners were then invited through a request for proposals to design and produce batches of tarpaulins using the revised specification.

This stage was designed to test whether the proposed changes could be manufactured consistently and at the level required for humanitarian procurement.

LAB TESTING OF THE PRODUCED BATCHES

The produced batches were tested at headquarters and in laboratories focusing on key technical parameters linked to operational performance and safety, including mechanical strength, durability, UV resistance and fire behaviour. Results confirmed that the revised specification was feasible and supported final refinements before field validation.

The tests also showed that the required level of fire safety could be achieved without toxic chemical fire-retardant additives: comparative tests on large samples with and without such additives showed similar reactions to large fire, a finding also supported by real-size tests on polyethylene tents.



The produced batches were laboratory tested, including for tensile strength.



Fire resistance testing showed the feasibility of the new specification, even without the use of fire-retardant additives.

FIELD TESTING IN NIGER

Conducted in 2023, the field test assessed whether the eco-design tarpaulin could match or improve the performance of the standard product under real shelter conditions. The test took place in Niger, in areas affected by floods and armed conflict-related displacement. It combined two complementary approaches: a structured field assessment with 30 volunteer households across three locations, and a blind distribution test in which 100 tarpaulins were distributed to 50 beneficiaries without identifying which was the revised product. The results were highly positive, with 94 per cent satisfaction reported.

NEXT STEPS

The results from the field test were consolidated with final technical adjustments from the laboratory assessment. The revised specification was released at the end of the project and adopted as a standard by the Quality, Social and Environmental (QSE) Working Group, whose members include major humanitarian agencies involved in emergency relief item specifications. The next phase is dissemination and uptake: the benefits of the new design will depend on whether procurement and operational teams understand the specification, apply it consistently and maintain quality control during large-scale purchasing.

COMMUNITY ENGAGEMENT

Although this was not a conventional community-based shelter project, end users played an important role in the field validation stage. Households in Niger tested the tarpaulins in realistic shelter applications and provided feedback on handling, installation, thermal comfort, robustness and usability. The blind distribution approach helped reduce response bias by ensuring that users assessed the product through experience rather than expectations linked to a new or environmentally improved item.

COORDINATION

The project relied on coordination between humanitarian agencies, research bodies, laboratories, manufacturers and field-testing partners. The work combined environmental analysis, product design, laboratory verification, manufacturing feasibility and user validation. In Niger, the field test was directly linked with the Shelter/NFI and CCCM coordination structures, supporting the selection of relevant operational sites and ensuring that field testing was grounded in coordinated shelter practice.

ENVIRONMENTAL IMPACT

- The revised tarpaulin includes 15 per cent recycled polyethylene, reducing reliance on new fossil-based raw material while maintaining the strength needed for humanitarian use.
- The product is 14 per cent lighter, reducing the amount of plastic produced, transported and eventually discarded. At the scale of millions of tarpaulins per year, this reduction can translate into meaningful savings in resources and emissions.
- Improved durability is the most important environmental gain. A longer-lasting product reduces the need for replacement distributions and therefore avoids repeated production, transport and waste.
- High UV resistance helps prevent rapid degradation and fragmentation into microplastics. This makes reuse, repurposing and collection for recycling more realistic after the first shelter use.
- The project showed that transport impacts are relatively limited when long-distance movement is by sea freight, reinforcing that product durability and end-of-life management are central to reducing the overall footprint.



The newly developed eco-tarpaulins were tested in the field in two locations in Niger, using a blind distribution approach whereby beneficiaries did not know which type of plastic sheeting they had received. 30 families were included in the field testing and the result proved very positive, with 94 per cent satisfaction rate.

MAIN CHALLENGES

- Maintaining consistency at scale: The environmental and technical benefits of the improved specification depend on procurement systems being able to verify products reliably across suppliers.
- Market availability remained limited, particularly for reliable sources of recycled polyethylene. As a result, recycled content could be encouraged but not guaranteed in all future procurement.
- End-of-life recycling: the largest environmental gains depend on waste collection systems that are difficult to organize in many humanitarian contexts.



During the field testing phase, following community consultations, the new tarps were distributed and installed in displacement sites in Niger.

LOCAL VS GLOBAL SUPPLY

The project showed that material choice and supply-chain feasibility must be considered together. While local purchase is often encouraged in humanitarian responses, tarpaulin quality varies widely and reliable manufacturers are not available in many regions. Without long-term support to manufacturers to meet the required standard, local procurement may result in lower-grade products degrade rapidly and contribute to microplastic pollution while offering very limited assistance to people in need. For large emergencies, global sourcing and harmonized specifications remain important to ensure that the right quality can be procured in sufficient quantities. For an example of this concept at scale, see case study A.03 from this edition of Shelter Projects, on the Common Pipeline in South Sudan.



Locally procured tarps, such as the ones in this photo, degrade rapidly in harsh climates, reducing the durability for users and polluting the environment.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **The project built on decades of operational experience** with humanitarian tarpaulins, which gave the revised specification a credible starting point for practitioners and procurement teams.
- ✓ **Rather than relying on one source of information**, the project combined practitioner knowledge, manufacturer input, laboratory evidence and user feedback.
- ✓ **Wide consultation** helped keep the revised design realistic for procurement, manufacturing and field use, while also providing peer review at key stages.
- ✓ **User surveys** in Mali and the Democratic Republic of Congo, followed by field validation in Niger, helped ensure that the product remained relevant to end-user needs and shelter realities.
- ✓ **The step-by-step process**, from life cycle assessment to prototype production, laboratory testing and field validation, built confidence that environmental improvements would not reduce performance.
- ✓ **As an inter-agency effort**, the result has wider relevance and can influence wider humanitarian procurement practice and footprint reduction.

WEAKNESSES

- ✗ Improving the specification was only one part of the solution; the **expected benefits still depend on consistent quality control** during procurement and production.
- ✗ **Reliable testing, verification and follow-up remain demanding** when an improved product is procured at large scale across multiple suppliers.
- ✗ **Some of the largest environmental gains**, especially those linked to recycled content and end-of-life recycling, **depend on conditions beyond the specification itself**, including market supply, user practices and waste collection systems.
- ✗ **Reliable sources of recycled polyethylene were limited**, meaning that recycled content could not yet be guaranteed across all future supply.
- ✗ **Harmonized specifications can create supply-chain bottlenecks** if demand rises quickly during large emergency operations.
- ✗ **Field feedback collection required significant planning** and could have been organized more efficiently from the start to support easier comparison across locations.



Three months after the installation of the tarps, a questionnaire was conducted to analyse the level of acceptance of the tarps in field conditions.

LESSONS LEARNED

- Environmental improvement in humanitarian products works best when treated as a full design and testing process, not as a simple material substitution.
- Durability, weight, user acceptance and procurement feasibility need to be considered together, since improving one feature in isolation can create trade-offs elsewhere.
- Quality management is as important as product innovation, because a better specification will have limited impact if delivered products do not meet the intended standard.
- Joint research and development across agencies can produce stronger results than isolated organizational efforts, especially for standard relief items used at global scale.
- Global sourcing remains important for products that require consistent quality and large quantities during major emergencies.
- Long-lasting products can bring major environmental gains by reducing the need for replacement distributions and limiting repeated production, transport and waste.
- End-user feedback remains essential, even for highly technical products, because field experience can confirm or challenge assumptions made in design and laboratory testing.
- Reuse, repurposing and recycling need to be considered early if the full environmental value of a durable item is to be realized.

RECOMMENDATIONS MOVING FORWARD

- Setting up a more structured user-feedback system from the start, so that field evidence can be collected more efficiently and compared more easily across locations.
- Building stronger quality management and procurement follow-up into the global supply chain, so that delivered products are up to standard and reliable suppliers are reassured to participate into a fair competition process.
- Planning earlier for longer-term follow-up on reuse, repurposing and end-of-life recovery, since the value of a durable tarpaulin depends on what happens after first use.
- Continuing to invest in technical dissemination and awareness-raising for procurement and operational teams, so that the risks of poor-quality purchases and the benefits of durable, well-tested products are better understood.
- Engaging donors on how they can support the development and procurement of lower-impact humanitarian products adapted to operational realities.



FURTHER READING ON SHELTER PROJECTS

On the history of tarpaulin development: [SP 17-18 / B.02](#)

On the use of plastic sheeting in the field:
[SP 2008 / A.2 ERITREA](#); [SP 17-18 / A.3 KENYA FLOODS](#).

On a tent recycling project: [SP 13-14 / A.12 JORDAN](#)



Truong Thi Thu Phong's family now lives safely in a repaired home and is better prepared for future storms. Nghia Hanh, Quang Ngai, Vietnam.

© CRS Vietnam

SECTION B

RESEARCH PIECES



SHELTER, SETTLEMENT AND HEALTH ALONG THE U.S.-MEXICO BORDER

A LATIN AMERICAN CASE STUDY INVESTIGATING THE RELATIONSHIP BETWEEN SHELTER AND SETTLEMENT ASSISTANCE AND HEALTH OUTCOMES IN FORMAL AND INFORMAL CAMPS

Andrea Batarse

INTRODUCTION

This research contributes to the growing body of work that examines the relationship between shelter and settlement (S&S) assistance and health outcomes among vulnerable communities in humanitarian crises. Focusing on case studies drawn from formal and informal camps along the US-Mexico border in Reynosa, Tamaulipas, Mexico, the study analyzes three primary sites: Plaza de la República ("The Plaza"), Senda de Vida II ("Senda II"), and the Rio Camp ("Rio"). These sites offer a lens through which to investigate how U.S. immigration policies, such as the Migrant Protection Protocols (MPP), Title 42, and Title 8, directly influence the formation, organization and conditions of these settlements as part of a broader borderland urban landscape of displacement. The study explores the connection between policy and spatial development, revealing how migration policies shape not just the movement of people, but the physical spaces they occupy.

METHODOLOGY

In order to best understand space programming in formal and informal settlements in Northern Mexico, a mixed-methods qualitative approach was used to explore the complex set of factors surrounding the expansive and permanently transient phenomenon of three case studies: The Plaza, Senda II and Rio. Drawing on geospatial data alongside traditional qualitative sources enables engagement with emerging approaches to mapping, modeling,

and data management in shelter and settlement research¹. Through mapping and qualitative interviews taken in July 2023 with women in Senda II and Rio, social complexities, as well as the site's physical attributes, are observed and analyzed to address the wider impact of shelter and settlements on migrant communities along the U.S.-Mexico border.

Case study mapping was conducted using monthly drone imagery, AutoCAD, and Adobe software. Drone data provided by an implementing partner was cross-referenced with population estimates to analyze changes in density between 2021 and 2023. From these density calculations, per-capita access to public and play space was assessed and compared against Sphere standards and other camp planning guidelines. This spatial analysis visualizes settlement visualizes growth patterns, materiality and scale of temporariness.

The qualitative interviews, conducted in July 2023, explored the experiences of migrant women living in Senda II and Rio. Sixteen women participated across two sites. Ten women of varying ethnicities and shelter typologies were interviewed at Senda II, while six Haitian women living in tents were interviewed at Rio. Thirteen participants reported having children, providing insight into how families experience children's infrastructure, public space, and daily life within these settlements. Rather than serving as a statistically representative sample, the interviews

¹ GSC, 2018, p. 160

Policies

	2019	2020	2021	2022	2023
MPP	Starts under Trump January 2019		Suspended under Biden January 2021	Reinstated under Biden December 2021	Suspended under Biden June 2021
COVID-19		Global Pandemic March 2020			
Title 42		Starts under Trump March 2020			Suspended under Biden May 2023
Title 8					Starts under Biden May 2023
Settlements					
Matamoros Camp	Starts July 2019		Dissolved March 2021		Starts Again December 2022
Plaza de la República			Starts March 2021	Forced Close March 2022	
Senda de Vida II			Build Starts December 2021	Opens May 2022	
Rio Camp					Starts July 2022

Figure 1: Figure linking U.S. policies to the creation and closure of formal and informal settlements in Tamaulipas, Mexico. Elaborated by: Author, 2023

provide contextual understanding that complements the spatial analysis, illustrating how settlement design influences everyday experiences of migrant communities.

This study is subject to several limitations. High population turnover within both settlements meant that spatial and demographic conditions were fluid and continuously changing, limiting the ability to capture a stable population baseline. As a result, drone imagery and population estimates represent temporal snapshots rather than fixed conditions. Additionally, access constraints and on-site conditions influenced participant availability, meaning interviews reflect those present at the time of data collection rather than the full diversity of settlement residents.

BACKGROUND AND RATIONALE

Figure 1 shows the direct correlation between policy development and settlement development. Compared to prior in-country border management approaches, both MPP and Title 42 represented contentious shifts toward externalized and expedited containment policies. These policies provoked political debate and left thousands of migrants vulnerable, contributing to the emergence of new unsanitary, unsafe and insecure settlements. The onset of MPP led to what is now considered “the first refugee camp on the U.S.-Mexico border,” the Matamoros Camp². The Matamoros Camp is the only site among those studied that received sustained international attention and documentation from media, humanitarian organizations and

policymakers, becoming so visible that the Biden administration vowed to close the camp upon election, as it “was a powerful symbol of the humanitarian impact of policies enacted by the administration³”. Post the Biden administration’s initial suspension of the camp, it was bulldozed as the remaining migrants crossed, but within that same month, a new settlement “sprang up about 55 miles farther west, in the Mexican city of Reynosa,” La Plaza de la Republica, or “the Plaza.” The following case studies are explored: The Plaza, Senda II and Rio; the creation and closure of all three camps are directly correlated to U.S. policy and each other, as seen in Figure 1 next page.

Using drone imagery, the development of these settlements has been mapped since 2021, with monthly data maps that reveal key trends in density, materiality, and the transient nature of the settlements. By mapping settlement growth, the research visualizes key elements of temporariness and how the lack of long-term planning contributes to overcrowding, substandard living conditions, and increased health risks. This spatial data is cross-analyzed with population estimates and compared to international standards for humanitarian assistance, including Sphere Standards, UNHCR’s emergency indicators, and the European Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment (see Figures 2 and 3). The CPT standards are reserved for incarcerated adults not for children, however the study makes a stark comparison: asylum-seeking children have less space to live than prisoners under international guidelines (see Figure 4). This highlights the critical need for improved shelter design and policies that address overcrowding.

²Jordan, 2021, para. 2

³Jordan, 2021, para. 2

EXISTING CONDITIONS: site m ²						
	Sphere Guidelines	UNHCR Emergency Indicator	CPT Standards	The Plaza	Senda de Vida II	The Rio Camp
1 person	45 m ²	30 m ²	4 m ²			
500 people	22,500 m ²	15,000 m ²	2,000 m ²	6,500 m ²	11,650 m ²	2,500 m ²
1,000 people	45,000 m ²	30,000 m ²	4,000 m ²	6,500 m ²	11,650 m ²	2,500 m²
1,500 people	67,500 m ²	45,000 m ²	6,000 m ²	6,500 m ²	11,650 m ²	
2,000 people	90,000 m ²	60,000 m ²	8,000 m ²	6,500 m ²	11,650 m ²	
,2500 people	112,500 m ²	75,000 m ²	10,000 m ²	6,500 m ²	11,650 m ²	
3,000 people	135,000 m ²	90,000 m ²	12,000 m ²	6,500 m²	11,650 m²	
,3500 people	157,500 m ²	105,000 m ²	14,000 m ²			

Figure 2: Figure comparing existing settlements’ sizes (m²) to UNHCR and CPT standards. Elaborated by: Author, 2023. Data from: (CPT, 2015; Sphere, 2018; UNHCR, 2007) and Solidarity Engineering drone data collection

EXISTING CONDITIONS: m ² /child						
	Sphere Guidelines	UNHCR Emergency Indicator	CPT Standards	The Plaza	Senda de Vida II	The Rio Camp
1 person	45 m ² /child	30 m ² /child	4 m ² /child			
500 people	45 m ² /child	30 m ² /child	4 m ² /child	13 m ² /child	23.3 m ² /child	5 m ² /child
1,000 people	45 m ² /child	30 m ² /child	4 m ² /child	6.5 m ² /child	11.65 m ² /child	2.5 m²/child
1,500 people	45 m ² /child	30 m ² /child	4 m ² /child	4.3 m ² /child	7.77 m ² /child	
2,000 people	45 m ² /child	30 m ² /child	4 m ² /child	3.25 m ² /child	5.83 m ² /child	
2,500 people	45 m ² /child	30 m ² /child	4 m ² /child	2.6 m ² /child	4.66 m ² /child	
3,000 people	45 m ² /child	30 m ² /child	4 m ² /child	2.17 m²/child	3.88 m²/child	
3,500 people	45 m ² /child	30 m ² /child	4 m ² /child		3.33 m ² /child	

Figure 3: Figure comparing existing settlements' conditions (m²/child) to UNHCR and CPT standards. Elaborated by: Author, 2023. Data from: (CPT, 2015; Sphere, 2018; UNHCR, 2007) and Solidarity Engineering drone data collection

According to Sphere minimum standards, spatial thresholds would suggest approximately 144 residents at the Plaza, 258 at Senda II, and 55 at Rio under adequate emergency conditions. At peak occupation, however, the Plaza reached approximately 3,000 residents, Senda II reached 3,000 residents, and Rio reached 1,000 residents. Figure 3 extrapolates Figure 2 to compare spatial guidelines for children across frameworks: Sphere's 45 m² per child, UNHCR's emergency indicator of 30 m² per child, CPT's standard of 4 m² per child, and the observed condition of 2.17 m² per child at the Plaza's peak density.

Under these conditions, spatial allocation is significantly inverted, with multiple children occupying the area defined by single-child standards. Contextualizing these humanitarian benchmarks within the Mexican housing policy framework established by SEDATU and CONAVI underscores the gap between emergency thresholds and formal housing criteria.

Across the three case studies, drone-derived mapping data from 2021 to 2023 illustrates differentiated trajectories of settlement formation, material permanence, camp circulation, and layout configuration. A consistent hatch gradient is used to represent degrees of permanence, ranging from dark grey (existing built environment), to light orange (tarps), darker orange (tents and semi-permanent structures, including sanitation infrastructure), and darkest orange (permanent concrete and steel construction).

The Rio Grande is represented in blue as a fixed geographic boundary condition. The aggregated density, constrained circulation and mixed materiality visualize the disparity amongst migrants in accessing shelter typologies and WASH infrastructure while safely moving throughout the space.

RESEARCH FINDINGS

Complementing the quantitative analysis, the research also integrates qualitative data from in-depth interviews with migrant women residing in Senda II (a closed, more formalized camp) and Rio (an open, informal camp).

At the shelter level, the Reynosa case study findings highlight how the provision of adequate shelter has a positive impact upon health. Notable findings show that improving energy access and thermal comfort reduces heat

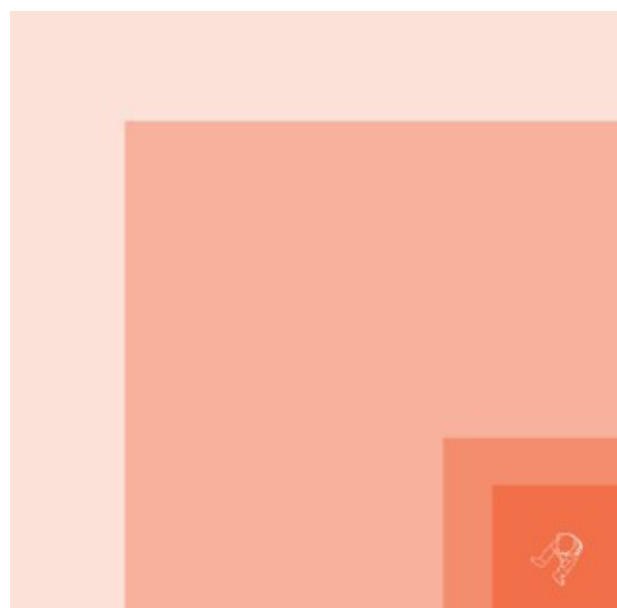


Figure 4: Illustration depicting UNHCR and CPT standards (m²/child) to Reynosa Plaza de la República peak density of 3000 people. (45 m² → 30 m² → 4 m² → 2.17 m²). Elaborated by: Author, 2023. Data from: (CPT, 2015; Sphere, 2018; UNHCR, 2007) and Solidarity Engineering drone data collection

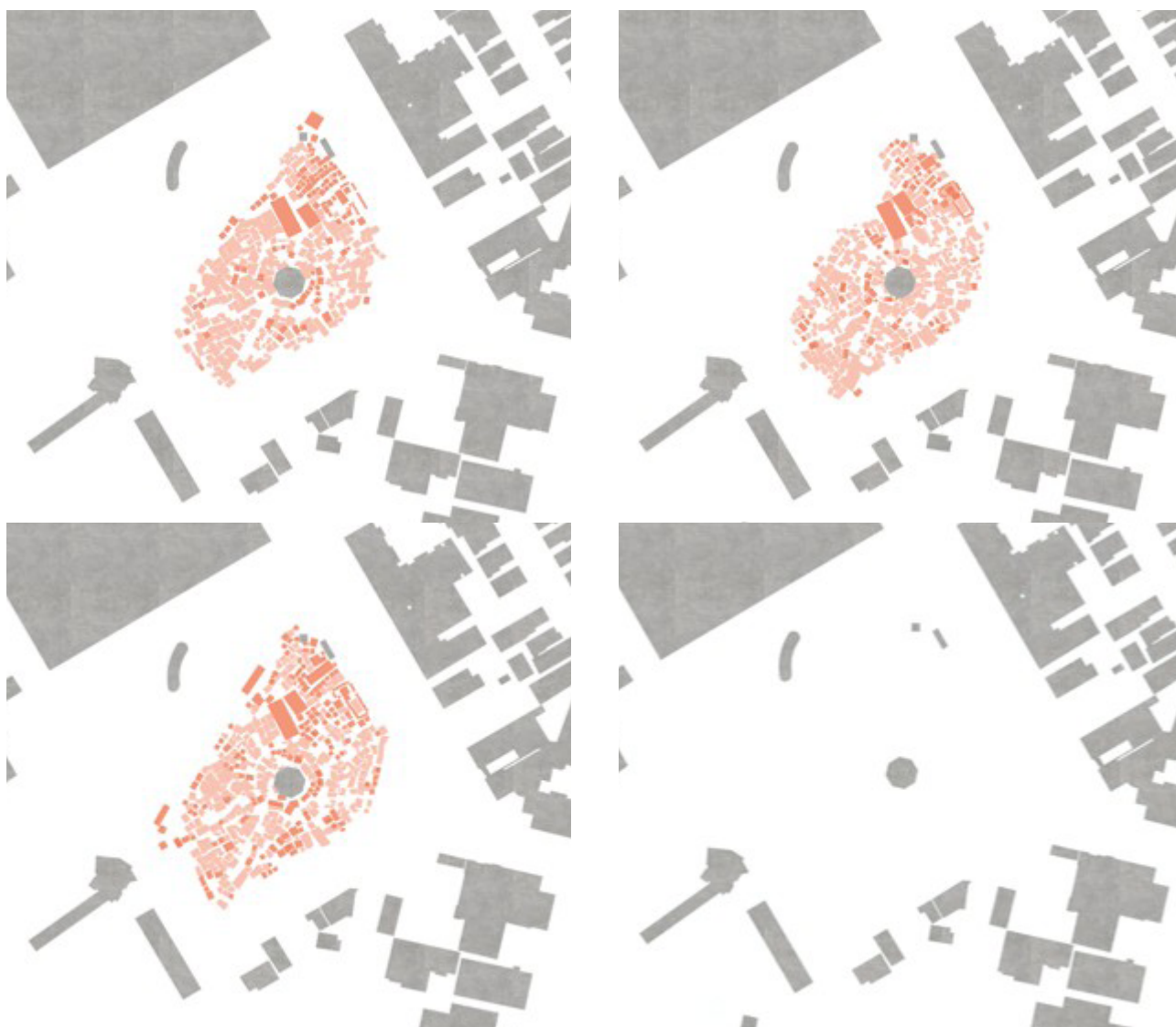


Figure 1: Figure linking U.S. policies to the creation and closure of formal and informal settlements in Tamaulipas, Mexico. Elaborated by: Author, 2023

exhaustion; prioritizing ventilation through shelter orientation mitigates respiratory illness; appropriate bedding mitigates skin rashes, and constructed shelters address issues such as poor sanitation, hygiene, psychological stress and insecurity.

Heat exhaustion emerged as a significant health concern, highlighting the need for climate-responsive shelter strategies that improve thermal comfort through passive and active cooling design and access to energy. Every woman interviewed reported experiencing extreme temperatures within their shelters, and one tent-user recounted a near-death experience during a hailstorm, underscoring the vulnerability of inadequate shelter to both chronic heat and acute weather events.

Respiratory illness exposed shortcomings in shelter design. Three distinct shelter typologies were identified at Senda II: casitas (small, permanently constructed shelter), tents, and large covered shelters. All casita users reported experiencing respiratory illness, compared with only 18% of tent occupants, highlighting the importance of adequate ventilation, appropriate shelter orientation, and passive cooling strategies.

These findings also underscore the need to minimize overcrowding and provide well-designed outdoor public spaces that encourage daily activities to occur outside enclosed shelters, thereby improving indoor air quality and reducing the risk of respiratory disease transmission.

Skin rashes emerged as a recurring health issue across the camps, underscoring the importance of appropriate bedding and the equitable distribution of clean non-food items (NFIs), particularly blankets. At Senda II, 100% of women who slept on communal blankets reported skin rashes, as did 100% of those who used bedding previously occupied by another resident. The Reynosa case studies are particularly notable due to the high turnover of diverse populations, where women often shared or transferred NFIs, including tarps, tents, blankets, and mats, within informal, ethnically linked networks, facilitating the circulation of potentially unhygienic materials.

Poor sanitation and hygiene emerged not as the result of individual behaviors but as spatially produced conditions shaped by unequal access to durable shelter, construction materials, and NFI distribution. While none of the women living in casitas reported poor sanitation or hygiene, 72%



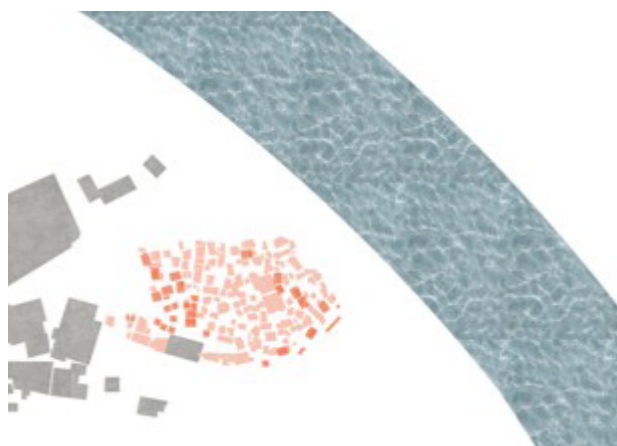
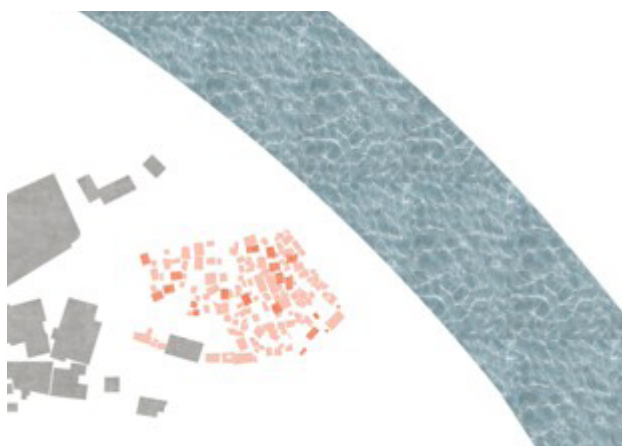
of tent users did, and they were substantially more likely to report exposure to rats and other small animals (90% compared to 20% of casita residents), demonstrating the relationship between shelter typology and environmental health risks. These inequities were further reflected across migrant groups: Haitian migrants were approximately seven times more likely than Latina migrants to report poor sanitation and hygiene. This disparity corresponded with differences in shelter allocation, as Latina migrants more frequently occupied casitas obtained through camp management or previous occupants, whereas Haitian migrants were generally directed to large covered communal areas or tents, most of which they purchased themselves for an average cost of 600 pesos.

Psychological stress, feelings of insecurity, and perceived lack of safety were exacerbated by unequal access to constructed shelters such as casitas, alongside inequitable shelter distribution and insufficient shelter plot sizes. Tent users were 50% more likely to report psychological stress than casita residents, with over 75% of tent users experiencing leaks and structural instability compared to 20% of casita users. All casita residents reported feeling secure and safe, whereas 90% of tent users reported feelings of insecurity and lack of safety, underscoring the relationship between shelter typology and perceived wellbeing. These

conditions are further shaped by uneven camp governance and the reliance on out-of-pocket expenditure for shelter access, with 60% of Haitian respondents reporting having paid for shelter materials. In this context, there was a strong preference expressed for cash-based interventions (CBI), particularly where distribution systems were inconsistent and residents were required to self-procure essential shelter components, reinforcing existing inequalities in access to safe and stable housing.

At the settlement level, the Reynosa case study findings highlight how the provision of adequate settlements have a positive impact upon health. Notable findings highlight the positive impact of providing adequate play spaces on children's well-being; prioritizing shaded public areas effectively reduces both heat exhaustion and psychological distress; engaging local authorities in project planning can effectively mitigate instances of diarrhea, and improving period infrastructure can mitigate poor sanitation and hygiene.

Heat exhaustion emerged as a significant health concern, highlighting the need for climate-responsive settlement strategies that integrate coordinated project planning, improved WASH infrastructure access, shaded and green space provision, engagement with local authorities and anticipatory settlement growth and expansion strategies.



In Senda II, water scarcity restricts residents to less than 5L per person per day at the familial level, falling below UNHCR emergency indicators and contributing directly to exposure-related heat stress. All women interviewed reported experiencing heat exhaustion and described seeking shaded or ventilated spaces throughout the day for relief. Overall, both Senda II and Rio conditions fall below Sphere Standards and UNHCR emergency indicators, and at times fluctuate below CPT thresholds, reflecting systemic gaps in minimum humanitarian provision.

Respiratory illness exposed shortcomings in settlement design. As an open, informal camp, only 16% of Rio residents reported respiratory illness in comparison to 60% of Senda II residents, suggesting that airflow, circulation patterns and settlement density directly shape health outcomes. These differences highlight the importance of prioritizing circulation, ventilation, open-space integration, and planned settlement growth strategies as core components of humanitarian settlement design.

Diarrhea reports exemplified the health risks associated with insufficient settlement design. Ongoing challenges with the septic system at Senda II, shaped by limited coordination with local authorities and interagency actors, resulted in reliance on porta-potties rather than functional in-settlement WASH infrastructure and compelled women to leave the settlement during the day to wash clothes, access showers, or bathe in the Rio Grande, increasing financial burden and exposing them to unsafe external conditions, including risks associated with gang-controlled areas. These coping strategies effectively displaced sanitation practices into unsafe external environments, with 80% of women who bathed in the river reporting diarrhea. Overall, 60% of Senda II residents and 50% of Rio residents reported diarrhea cases, underscoring the relationship between inadequate WASH systems, off-site sanitation practices, and elevated exposure to waterborne illness, as well as the need for coordinated project planning with trusted partners, strengthened engagement with local authorities, and improved information-sharing among settlement residents.

Poor sanitation and hygiene emerge as a significant settlement-level health concern among women across the sites, particularly in relation to menstrual hygiene management. At Senda II, 90% of women reported inadequate infrastructure to manage menstruation, while at Rio this

figure reached 100%. These findings indicate a systematic lack of appropriate WASH facilities and gender-responsive non-food item (NFI) provision within both settlements. In this context, inadequate sanitation infrastructure disproportionately affects women's health and dignity, underscoring the need for more equitable and gender-sensitive WASH planning and distribution strategies in displacement settings.

Psychological stress among migrants underscores the importance of coordinated settlement design that ensures equitable access to basic services, infrastructure, and livelihoods for culturally and linguistically diverse populations. Reported levels of psychological stress are significantly higher in more informal and under-resourced environments, with 100% of Haitian respondents and 100% of Rio residents reporting psychological stress, compared to 60% in Senda II. Psychological stress is further exacerbated by infrastructural dependency, as 100% of women reported reliance on electricity to access the CBP One application. This highlights how digital asylum systems are materially conditioned by uneven access to energy infrastructure, reinforcing the relationship between infrastructure and administrative exclusion.

In terms of healthcare provision, less than 40% of Rio residents reported access to medical care, highlighting substantial deficits in service provision within the most informal settlement context. In contrast, Senda II demonstrates comparatively higher service availability through designated service areas within the settlement and periodic support from international non-governmental organizations (INGOs), indicating a more structured but still uneven service infrastructure.

Differences in play infrastructure further distinguish the settlements. In Senda II, 80% of children reportedly spend most of their time in a designated play space developed together by two implementing partners. Children in this settlement also have access to some structured programming provided by INGOs. In contrast, Rio lacks any dedicated play infrastructure, with residents reporting that there is "nothing" available for children, indicating a complete absence of designed child-friendly space and programming.

CONCLUSION

This research demonstrates that the provision of adequate shelter and settlements has a positive impact on health. Across the Reynosa case studies, differences in shelter typology, material quality, and distribution, as well as settlement planning, density, spatial organization, infrastructure, and governance consistently shaped health outcomes by influencing exposure to environmental hazards, disease, psychological stress, and access to essential services.

FOR PRACTITIONERS:

Addressing humanitarian shelter and settlements at the urban scale: The Latin American migrant crisis is an urban crisis. Humanitarian shelter and settlements assistance has the opportunity to operate at the urban scale and innovate regional shelter and settlement approaches, prioritizing the creation of safe spaces within the urban fabric. Shelters and settlements along migrant routes act as temporary collective shelters with limited resources and services available. Working with local governments to contextually understand the urban spaces available creates economic opportunities for improved project planning, access to services, access to livelihoods, community building, local infrastructure upgrading, and sustainable accountability of vulnerable populations. Addressing urban conditions at varying scales allows humanitarian shelter and settlements assistance to prioritize safety, equity and stability of migrants, rather than leave populations more exposed to violence, discrimination and uncertainty.

Prioritizing public space and play space: Public space and play space accessibility serve as vital proxy indicators of community health, promoting social connections and addressing the mental and physical health needs of both children and adults. By providing spatial opportunities for rest, recovery and activity, shelter and settlements assistance directly impacts the physical, mental and cognitive development of children, which in turn increases their happiness, well-being and sense of normalcy. Healthier and happier children contribute to the stability, resilience and cohesion of communities.

Increasing funding: Local grassroots initiatives, church groups, and NGOs work diligently to provide migrants with the resources they need. Bringing aid, collecting data and assessing impact require the capacity and resources to develop sustainable systems that address the local context.

Sharing interagency data: Organizations and camp management work in the same spaces together, often repeating work. Developing relationships and systems in violent areas are crucial to delivering equitable aid. Developing systems for agencies to share data allows for cross-analysis of sectors to create accurate needs assessments of settlements.

Developing sustainable collective impact assessments: With dynamic population shifts in various spaces, collaborative impact assessments can alleviate the burden that smaller organizations bear as they complete their quarterly assessments. Traditional assessment methods struggle to capture the full scope of impact with the constant flux of populations. Collaborative impact assessments allow various organization to share resources and data and develop more comprehensive evaluations that more holistically understand community needs.

Advocating for immigration policy reform: U.S. immigration policy is directly related to the development of formal and informal migrant settlements along the border, affecting the health of the thousands who wait and the millions who cross. Policies need to address the vulnerabilities of millions traversing through Latin America, establishing spatially safe opportunities to seek refuge.

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TOWARDS MORE EQUITABLE PLANNING FOR DISASTER-DISPLACED COMMUNITIES: RECOGNIZING MAJOR CHALLENGES FACED BY IDPS IN KARACHI AFTER THE 2022 PAKISTAN FLOODS

Daud Shad



Water access at Hub Chowki, a camp on the outskirts of Karachi, is dependent on tanker delivery (image by author, Aug 2023).

INTRODUCTION

When people lose their homes during a disaster, they often evacuate to urban centers to seek shelter and support. These displaced communities face complex challenges, from the trauma of leaving home to finding accommodation in an unfamiliar setting to maintaining their livelihoods under tenuous circumstances. The 2022 monsoon-season floods in Pakistan caused widespread devastation, resulting in millions of internally displaced people (IDPs) facing difficult choices. Tens of thousands of evacuees headed from rural areas to Karachi for safety,¹ with many ending up in relief camps (locally referred to as “tent cities”) that lacked basic facilities and services,² compounding the impact of livelihood losses. Although the government aimed to address the acute crisis of IDPs entering the city and promote rural rehabilitation, beyond this there was minimal ability to support those requiring or seeking longer-term support to stay in the city. Still, thousands of IDP households have chosen to stay in Karachi as they view return as neither safe nor economically feasible.³

1 Azfar ul-Ashfaq, “Of 0.5m IDPs in Sindh, 14,450 Take Shelter in Govt Camps in Karachi,” *Dawn*, 2 September 2022, <https://www.dawn.com/news/1707905>. An early source estimated 50,000 IDPs evacuated to Karachi, while subsequent counts of IDPs housed in government-run facilities were 14,450. The exact number of people who arrived in Karachi is unknown, though the amount likely exceeded 25,000, based on the aforementioned figure from public camps plus a figure from the privately-run tent cities described in this article (note that these figures contain an unknown degree of overlap).

2 See e.g., “Flood Victims in Karachi’s Relief Camp Complaint of Lack of Basic Facilities” [video report], *Aaj TV Official*, 21 September 2022, [youtube.com/watch?v=9TgUgNqSxo8](https://www.youtube.com/watch?v=9TgUgNqSxo8); Muzhira Amin, “‘This Is Not Our Country’: At Shelters in Karachi, Flood Victims Struggle to Stay Afloat,” *Dawn*, 29 September 2022, [dawn.com/news/1711611](https://www.dawn.com/news/1711611).

3 The exact population counts of IDPs are difficult to verify due to the complexities of migration and resettlement. It is certain that there were several hundred households in each of the tent cities visited during fieldwork, with an estimated combined population of 19,500 people in December 2023, based on reports from respective coordinators.

This article examines planning for the needs of IDPs who arrived in the city after the floods. As climate change is exacerbating forced migration, how can municipal authorities and humanitarian actors plan for a more equitable response for IDPs seeking support in urban settings?⁴

“Equity” is defined by a United Nations source as “the process of being fair to all individuals and groups, by addressing present and historical inequality in order to work towards equality in outcomes.”⁵ In this case, an equitable response means addressing the particular barriers that IDPs face in achieving dignified access to shelter and settlements. More integrated humanitarian and urban planning is key for Karachi to both handle and recover from a protracted crisis in a manner that upholds the rights of IDPs.

METHODOLOGY

The investigation of the exploratory research question included qualitative methods such as desk research (searching through government reports, international documents, news articles, and social media posts), site visits, and stakeholder interviews.⁶ While in Karachi during the summer of 2023, initial conversations with community advocates highlighted three main privately-run tent cities (Hub Chowki, Gulshan-e-Syed, and “New” Sindhabad) where large communities of IDPs were located, which formed the geographic scope of this research.⁷ Each of these sites was discussed in local news and public social media posts from coordinators and charities, and aspects

4 See “Research Baseline Report 2022,” *Global Shelter Cluster*, September 2022, p. 15, <https://s3.eu-west-1.amazonaws.com/sheltercluster.org/public/docs/GSC%20Research%20Baseline%20Report%20FINAL.pdf>. The research question relates to the Global Shelter Cluster’s research priority on “how to better support disaster-affected households in the longer term.”

5 High-Level Committee on Management, “Annex I Diversity, Equity, and Inclusion Glossary for the United Nations Common System,” *UN System Chief Executives Board for Coordination*, 2023, <https://unsceb.org/sites/default/files/2024-01/DEI%20Glossary.pdf>.

6 Fieldwork was conducted in 2023 and made possible through the support of the Humanitarian Shelter and Settlements Research Fellowship from USAID’s Bureau for Humanitarian Assistance and Habitat for Humanity International and through guidance from the Orangi Pilot Project in Karachi. Interviews of the affected population were assisted by a local translator (Sindhi to Urdu), who had journalism experience in the area of study.

7 The selected sites do not represent every place where IDPs found accommodation. For instance, the resettlement of IDPs in parts of Karachi beyond the three organized settlements fell outside the scope of this research. Other sites where IDPs resettled included coastal and various peri-urban areas, as reported by Karachi Urban Lab (see Nausheen H. Anwar et al., “How Climate Change-driven Displacement is Reshaping Pakistan’s Cities,” *Dawn*, 1 September 2025, <https://www.dawn.com/news/1938893>). Earlier sources detailed conditions encountered by IDPs at the major, but since-closed, Malir Tent City that was established and run by the government (see, e.g., Nadja Sieniawski, “Pakistan’s Government is Failing Flood Victims,” *Jacobin*, 29 March 2023, <https://jacobin.com/2023/03/pakistans-government-is-failing-flood-victims>).

were also covered by international news and relief sources.⁸ These tent cities were established near major highways, owing to the accessibility of open tracts at busy interchanges and urban peripheries.

Interviews were conducted with four stakeholder categories: affected population, public sector, civil society (i.e., charities and private philanthropists), and international actors. These categories reflected the main decision-makers who impacted the development of settlements for communities evacuating to Karachi. During site visits (July-August and December 2023), household interviews were conducted with IDPs residing in the three tent cities (key informants) to understand their experiences and the type of support they received.⁹

With interviews, it was important to note that having an outsider perspective may have led to skewed perceptions and hindered the sharing of certain information. Additionally, relief beneficiaries may have been reluctant to voice complaints against settlement management. To mitigate such realities, questions centered on lived experience, did not discuss partisan politics, and invited open-ended responses and ideas. Respondents from affected households were selected through purposive sampling and interviewed using a questionnaire that lasted about 10-20 minutes. Coordinators (including private landowners) and community leaders of the relief settlements were interviewed, as were local charity workers, municipal and provincial government officials, and international humanitarian workers to understand their roles in supporting displaced communities.

BACKGROUND AND RATIONALE

Pakistan has a history of monsoon-season floods causing massive displacement and subsequent migration to urban areas. In 2010, at least 38,000 flood-affected people from rural areas were supported across 160 relief camps in Karachi.¹⁰ About 70% of the IDPs who migrated to big cities then may have permanently resettled due to the difficulties in their hometowns.¹¹ Before the 2022 floods, Pakistan was classified as “low” on the UNDP’s Human Development Index, with a ranking of 161 out of 191 countries,¹² and among the 10 worst-off countries for long-term climate

risks on a Germanwatch index.¹³ The 2022 flooding’s scale was not expected by the country’s disaster management authority, as the “worst case” from the preceding monsoon contingency plan came true instead of the “likely” scenario.¹⁴ The resultant rural-urban migration to Karachi, the country’s largest city and capital of Sindh, was significant in both scale (tens of thousands of people) and speed (within a few weeks).

Karachi has a history of large waves of migration, and socioeconomic disparities have fueled spatial segregation. About 62% of the population lives in katchi abadis (informal settlements) and 72% works in the informal sector.¹⁵ The process of formalizing settlements (i.e., enabling access to basic utilities) in the city is focused on settlements that can prove their establishment before 2012. As such, settlements composed of recent climate migrants would not necessarily be part of these public development efforts. The current master plan of the city (Karachi Strategic Development Plan 2020) – to potentially be updated to a 2047 master plan¹⁶ – was published in 2007, before three massive floods, and it has no mention of displacement or monsoon flooding.¹⁷

IDPs in Karachi navigate a landscape where access to adequate shelter remains elusive. Public accommodations during the 2022 emergency phase included schools turned into shelters and tent cities,¹⁸ including one in Malir that served thousands of IDPs who came to Karachi. However, the government goal was to promote return and end temporary shelters promptly, such as the Malir Tent City, which officially closed by early 2023 despite protests from residents.¹⁹ Relatedly, there was a gap in major post-disaster policies in terms of directly addressing rural-urban

8 See e.g., “Pakistan: Urgent Health Concerns Remain Months After the Flooding,” *Doctors Without Borders*, 15 December 2022, <https://www.doctorswithoutborders.org/latest/pakistan-urgent-health-concerns-remain-months-after-flooding>; Duaa Sameer, Bosibori Barake, and Muhammad Arsam, “Exploring Urban Risk, Climate Change and the Emancipatory Possibilities of Climate Repair Infrastructures in Karachi and Nairobi,” *Geography Directions*, 27 November 2023, <https://doi.org/10.55203/ISSE5621>.

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18 Tahir Siddiqui, “Over 15,000 IDPs Housed in 30 School Buildings to Be Moved to ‘Tent City,’” *Dawn*, 26 September 2022, <https://www.dawn.com/news/1711951>.

19 Define News, [Video of news report; accessed on Facebook], 26 December 2022, [fb.watch/s5IRa0a83K/](https://www.facebook.com/watch/s5IRa0a83K/); Malir National Press Club, [Video of news report; accessed on Facebook], 25 April 2024, [facebook.com/100010585665816/videos/803479987897980/](https://www.facebook.com/100010585665816/videos/803479987897980/).

migration and shelter in the longer term.²⁰

A local charity offered a rough estimate in July 2023 that about a third of IDPs who came to Karachi after the floods stayed, notably in Hub Chowki, Gulshan-e-Syed, and “New” Sindhabad. These sites – previously serving as, respectively, vacant land, private plot, and an informal settlement that began after the 2010 floods – were early hubs for relief. Local philanthropists and welfare associations helped manage and develop them to the point where more than 5,000 IDPs were residing in each by December 2023, as reported by the respective coordinators. Though having a piece of land to stay long-term in the city is significant, the IDPs have faced challenges in accessing the most basic necessities, such as stable shelter and water, and myriad uncertainties about the future.

The rights of IDPs point to the importance of recognizing and respecting varying post-disaster circumstances, as in Karachi. Tailoring responses to specific needs help to prevent placing a person or group at risk of further socioeconomic or environmental harm. The Guiding Principles on Internal Displacement hold that IDPs have rights to “be protected against forcible return to or resettlement in any place where their life, safety, liberty and/or health would be at risk” (Principle 15), that IDPs should be able to fully participate in “the planning and management of their return or resettlement and reintegration” (Principle 28), and that planning should include the “full participation of women” (Principle 18).²¹ Additionally, the Pinheiro Principles state that return for displaced people must be “based on a free, informed, individual choice” (Principle 10.1) and that displaced people cannot be “forced or coerced” to return and can “effectively pursue durable solutions to displacement other than return, if they so wish, without prejudicing their right to the restitution of their housing, land and property” (Principle 10.3).²² Ensuring that IDPs – including those socially marginalized – participate in planning decisions that affect them is fundamental to realizing equity, especially as disaster risks are exacerbated by climate change.

RESEARCH FINDINGS

Of the 30 households interviewed, ²³ arrived in Karachi in late August or early September of 2022, while 8 arrived after previous floods in 2010 or 2011. The latter 8 were within Sindhabad, where the majority of the large settlement consists of households displaced by previous disasters and a “new” part mainly consists of recent IDPs.²³ Responses from households that arrived before 2022 show how the experience of recent IDPs was not necessarily novel and that even IDPs who arrived a decade ago were still struggling with basic utilities and services. A man who arrived at the settlement in 2010 explained how “there are a thousand difficulties here,” citing daily struggles in the neighborhood.

Based on responses from households and people involved in supporting the households, significant takeaways include that: 1) similar displacement challenges in Karachi recur in different crises and extend existing deprivations and planning challenges; 2) civil society and private individuals have played a major role in accommodating IDPs in Karachi, citing religious and social motivations; and 3) planning for IDPs is complex due to differing priorities across stakeholders, from each IDP’s own basic needs to government’s rural rehabilitation programs. These takeaways demonstrate a gap in both policy and action to consider the particular circumstances of IDPs and to center equity. Relevant findings on major interlinked aspects of equity are elaborated below.



The homes of IDPs who arrived in 2010 at Sindhabad, a long informal settlement that thousands of displaced people call home (image by author, Dec 2023).

DIRECT OUTREACH

During the chaotic conditions of displacement to an unknown setting, there is a need for consistent information and accessible engagement so that people are empowered to determine the best possible accommodations for their needs. Of the interviewed 2022 IDPs, only 9 among 22 had at least one family member who had been to Karachi before. As such, many households were unfamiliar with the city, which can be hard to navigate, especially with little to no earnings. It seems that IDPs entering Karachi were provided insufficient information by officials on where they could stay and for how long, and many were unaware of rural recovery efforts. For instance, no interviewed households from 2022 reported direct support from the government during displacement in the city (one from 2010 cited assistance). Some of the IDPs did allude to government

20 See Sindh Ministry of Planning, Development, and Special Initiatives, “Pakistan Floods 2022: Post-Disaster Needs Assessment,” *United Nations Development Programme*, 28 October 2022, p. 53, <https://www.undp.org/pakistan/publications/pakistan-floods-2022-post-disaster-needs-assessment-pdna>; “Sindh Resettlement & Rehabilitation Policy, 2022,” *Government of Sindh*, 30 January 2023, pp. 5-7, 11-5, and 24-5, <https://cm.sindh.gov.pk/storage/resourcePage/v2WDTRFBoXUJqB2E50th-FoaWrtOnhBiyMPN9i1MX.pdf>; Sindh Disaster Management Policy, “*Sindh Provincial Disaster Management Authority*, March 2023, p. 25, pdma.gos.pk/Documents/Reports/Sindh%20Disaster%20Management%20Policy-Draft%20Forwarded%20to%20Stakeholders%20for%20Review.pdf; “Informed Disaster Management Plan: Sindh, 2023-2032,” *Sindh Provincial Disaster Management Authority*, 2023, p. 31, https://pdma.gos.pk/Documents/District_Management_Plans/Provincial%20Disaster%20Management%20Plan.pdf. The indicated page numbers are where there is a reference to rural-urban migration or resettlement.

21 United Nations Office for the Coordination of Humanitarian Affairs, “Guiding Principles on Internal Displacement,” accessed via *Internal Displacement Monitoring Centre*, 1998, api.internal-displacement.org/sites/default/files/publications/documents/199808-training-OCHA-guiding-principles-Eng2.pdf.

22 United Nations Sub-Commission on the Protection and Promotion of Human Rights, “Principles on Housing and Property Restitution for Refugees and Displaced Persons” [“Pinheiro Principles”], accessed via *UNHCR*, June 2005, [unhcr.org/us/media/principles-housing-and-property-restitution-refugees-and-displaced-persons-pinheiro](https://www.unhcr.org/us/media/principles-housing-and-property-restitution-refugees-and-displaced-persons-pinheiro).

23 See Amar Guriro, “Still Marooned After 2010 Floods in Pakistan,” *Dawn*, 21 April 2025, <https://www.dawn.com/news/1177326/still-marooned-after-2010-floods-in-pakistan>.

support at some point in their journey; it may be difficult to distinguish support from charities and government entities during aid distribution. Additionally, IDPs arrived in different parts of Karachi at different times (e.g., before Malir Tent City was made), and many lacked access to the internet, which made gaining information inherently challenging. The interviewed coordinators of the privately-run tent cities did describe local officials' assistance in establishing the relief sites. Additionally, they detailed their own efforts in building partnerships, harnessing communal networks, and conducting outreach to support IDPs when it was apparent that more durable solutions were needed. For example, one coordinator described how he placed banners on major roads where IDPs were arriving to raise awareness about the tent city.

TENURE SECURITY

Displaced populations tend to be at risk of eviction and repeated displacement due to land insecurity, economic instability, and inexperience with local systems. At each of the three tent cities, each interviewed household reported having a plot allocated for them (two tent cities even guaranteed long-term plot ownership). This provision was significant for IDPs, most of whom had previously rented land in their villages. Plot ownership offers relative security, at least within the confines of the settlement, and a potentially stable path forward if they choose, or can ever manage the expenses, to develop the land. Coordinators have provided each household with an allotment document and affirmed their communication with local officials.²⁴ There have been issues in the establishment of tent cities due to disputes over land, which is often a severely contentious resource in Karachi.²⁵ For instance, a dispute about land encroachments around Gulshan-e-Syed in December 2023 led to violence, with a child being shot dead. IDPs are unlikely to know about the land issues in the places where they are residing but are especially vulnerable to such dangers.

SOCIOECONOMIC INTEGRATION

Navigating a new socioeconomic system presents clear challenges for IDPs, who generally settle in the most underserved parts of the city. Karachi can present fresh economic opportunities that provide a lifeline to IDPs who might face extreme debt if they return to work as tenant farmers.²⁶ Interviewed IDPs reported daily household incomes up to 6 USD (about 1,600 PKR at the time), though this varied based on household size. However, the lack of affordable transit, especially as the tent cities are far from many job opportunities, has made it more difficult for IDPs to access stable employment. Of the interviewed IDPs, jobs included day labor (logging and construction), artisanry (jewelry), and street sweeping. Additionally, at each of the tent cities, education for children has been either

nonexistent or insufficient. The coordinators described their efforts to provide education: each settlement had classrooms but hiring consistent teachers to meet the population's needs had proven difficult. Even before displacement, many of these children did not attend school. In spite of the socioeconomic challenges IDPs have faced in Karachi, one coordinator emphasized how IDPs chose to stay because of the relative freedom and employment prospects they found in the city as compared to rural areas, where rigid labor and social structures often prove stifling.

SOCIAL PROTECTION

It is unclear to what extent provisions were made to accommodate IDPs based on considerations such as gender, religion, and disability within government-run shelter facilities. However, the Sindh Disaster Management Policy, created after the 2022 emergency, mentions that the creation of camps (which can no longer be in education and government facilities) will include "special care" for "women, children, elderly, and disabled persons."²⁷ But the implementation of that policy for relevant shelter programming remains to be seen as does any process for fair camp closure. Within the private tent cities, coordinators did express concerns for disadvantaged residents, such as people with disabilities, but specific courses of action were not described. It is worth noting that the inner coordination circles of each tent city seemed to only include men.

At Hub Chowki, a notable example of gender equity was evident as property documents were placed under women's names, empowering women in decision-making and preventing social exclusion. Each of the tent city coordinators expressed their pride in the religious diversity and tolerance in the camps. No issues around religious practice were raised by the interviewed IDPs, though it was not directly asked

27 "Sindh Disaster Management Policy," p. 71.



Sindh's Hindu communities were among the most flood-affected people, with some settling in New Sindhabad and building mandirs (image by author, Jul 2023).

24 It was beyond the scope of fieldwork to investigate municipal land registration and property records.

25 Arif Hasan et al., "Land Ownership, Control and Contestation in Karachi and Implications for Low-income Housing," International Institute for Environment and Development, London, March 2013, pp. vi-ix, <https://www.iied.org/10625iied>.

26 Haroon Janjua, "Pakistan's Female Agriculture Workers Suffering Since 2022 Floods," *Al Jazeera*, 31 March 2023, <https://www.aljazeera.com/news/2023/3/31/pakistans-female-agriculture-workers-suffering-since-2022-floods>.

PUBLIC PARTICIPATION

All of the interviewed IDPs planned to resettle in Karachi, with no intent to return, at least at the time. The most common rationale was that they had nothing left in the village. This finding relates to comparable international evidence that a vast majority of IDPs a year after disaster-caused displacement prefer to stay than return.²⁸ Despite this well-documented trend, the IDP experience in Karachi seemed distant from both short- and long-term planning processes. There was a significant power differential between those who made impactful decisions on where IDPs stayed and what accommodations they had (i.e., local government, landowners, and charities) and the IDPs themselves. Across interviews, no accountability mechanism nor participatory approach was mentioned that would provide connection between IDPs settling in Karachi and public authorities. Within the privately-run settlements, each had a committee or council structure to handle community matters, though the extent to which all IDPs participated was not assessed during fieldwork. As a general observation, the IDP positionality in Karachi made it very difficult for displaced communities to advocate for even basic education, medical services, and utilities.

CONCLUSION AND RECOMMENDATIONS

Equitable planning for IDPs who migrate to cities after disasters is certainly a challenge for municipal authorities and humanitarian actors alike, but it is necessary to promote fundamental rights and further urban resilience. This reality is especially pertinent as Pakistan faces existing and projected challenges with climate change. Recognizing the unique situations faced by urban IDPs and planning from their perspective – by improving systems for direct outreach, tenure security, socioeconomic integration, social protection, and public participation – is key for a more equitable humanitarian response.

This research recommends that key actors in Karachi plan for a comprehensive and flexible array of shelter and settlements

programming to meet the varied needs of people after disaster displacement and ensure tenure security. Documentation from the perspective of IDPs, including their lived experience with sheltering, is critical for safeguarding their rights amid an already complex political context. Humanitarian responders should offer appropriate accommodations that anticipate different types of decisions, from temporary evacuation to permanent resettlement. Relevant programming can have options beyond well-maintained relief shelters and tent cities, such as local rental arrangements and partnerships with welfare associations.

These programs should be part of a strategy to integrate IDPs into urban networks. Pertinent elements include resources for secure employment, extension of public transit systems to tent cities, and access to medical and psychosocial care. Figuring out ways to plan structural improvements for IDPs and for local communities at once is useful for easing tensions and fostering inclusivity.²⁹ At all stages of planning, the affected population should have robust involvement in ideation and decision-making.

IDPs in 2022 could have been better served through more accessible information on housing options across the city, which requires proactive outreach and multi-lingual communication systems that endure beyond the initial crisis period. This information should be created via public-private partnerships so that all types of relief sites are transparently catalogued and made available to all IDPs, regardless of existing social connections.

Government and civil society actors can more thoroughly assist IDPs by sharing safe data and resources among all stakeholders, providing incentives for landowners to support relief work, and identifying service and funding gaps. Partnerships are critical for surging response efforts and meeting varied needs, so mutually defining their goals and building mechanisms to resolve conflicts is needed for sustainable management. I

DPs still living in tent cities should also be kept informed of any new efforts that support a safe return, such as economic development programs, as well as affordable housing in the city. Humanitarian actors have an important role in monitoring and evaluation, as well as advocating for particularly marginalized groups within displaced communities, due to their independent position.

Overall, equitable approaches avoid oversimplified solutions and recognize that upholding rights involves tailoring policies to the particular situations present within a population. Such approaches to urban planning may reduce the uncertainty inherent in a humanitarian crisis and thus better assist people that are devastated by circumstances beyond their control. Lessons from the 2022 shelter response, as well as previous and subsequent crises within the city, must be used to improve disaster preparedness and dignified housing for all in Karachi.

28 International Organization for Migration and Georgetown University, "Periodic Global Report on the State of Solutions to Internal Displacement (PROGRESS)," IOM, Geneva, December 2024, pp. 22-3 and 106-7, <https://dtm.iom.int/products/progress-2024>.



The view from a school being built along Gulshan-e-Syed's main road (image by author, Dec 2023).

29 MIT Displacement Research Action Network and Internal Displacement Monitoring Centre, "Home Sweet Home: Housing Practices and Tools That Support Durable Solutions for Urban IDPs," IDMC, Geneva, March 2015, p. 17, <https://www.internal-displacement.org/publications/home-sweet-home-housing-practices-and-tools-that-support-durable-solutions-for-urban-idps/>.

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WHAT WORKS FOR RECOVERY? HOW CAN WE LEARN?

Bill Flinn, Charles Parrack, Sue Webb

INTRODUCTION

Longitudinal studies are uncommon in the shelter sector. This has contributed to a lack of information and analysis on the long-term impacts of shelter and settlements (S&S) programming. Addressing this concern, between 2022 and 2024, a review was conducted with the aim of “documenting and learning from the challenges and successes of over twenty years of Shelter & Settlement (S&S) humanitarian”. A comparative analysis between the three contrasting contexts of Afghanistan from 2002 to 2021, Nepal after the 2015 earthquakes, and the Philippines after Typhoon Haiyan in 2013 allowed comparisons and insights into different types of assistance, approaches and other factors which influenced the outcomes and impacts of programming.

This research answered the question: ‘how did S&S programming influence recovery of affected populations?’ by addressing two sub-questions: ‘what were the outcomes and impacts of S&S assistance?’ and ‘what factors contributed to or hindered outcomes and impacts?’

METHODOLOGY

The BHA Review was carried out by CARE International UK and the Centre for Development and Emergency Practice (CENDEP) at Oxford Brookes University. This exploratory research used qualitative methods to uncover the nature and impacts of the programming, including a desktop review, key informant interviews (KIIs), and, in the case of Nepal and the Philippines, site visits and group discussions. The secondary data for the desktop review included grey literature such as project reports available

in the public domain or shared by implementing partners included in the review, as well as academic literature.

The scope was defined by establishing what S&S assistance had been implemented by USAID/BHA’s partners, using data in the public domain, or shared by the partners’. Findings were limited by the information that the team was able to access. This was constrained by the availability of documentation, varying ability or willingness to share in-house project reports and contacts, and time or access constraints to key informants and former project participants during fieldwork.

Using a comparative approach, assistance and the outcomes in each context were analyzed in order to identify common trends, as well as any implications when designing future programming. Despite limitations on the quantity and quality of outcome level data, and restrictions on the ability to independently verify claims or discern direct correlations, substantial information was gathered in all three contexts that offers valuable insights into the contribution of S&S as well as key factors that support recovery.

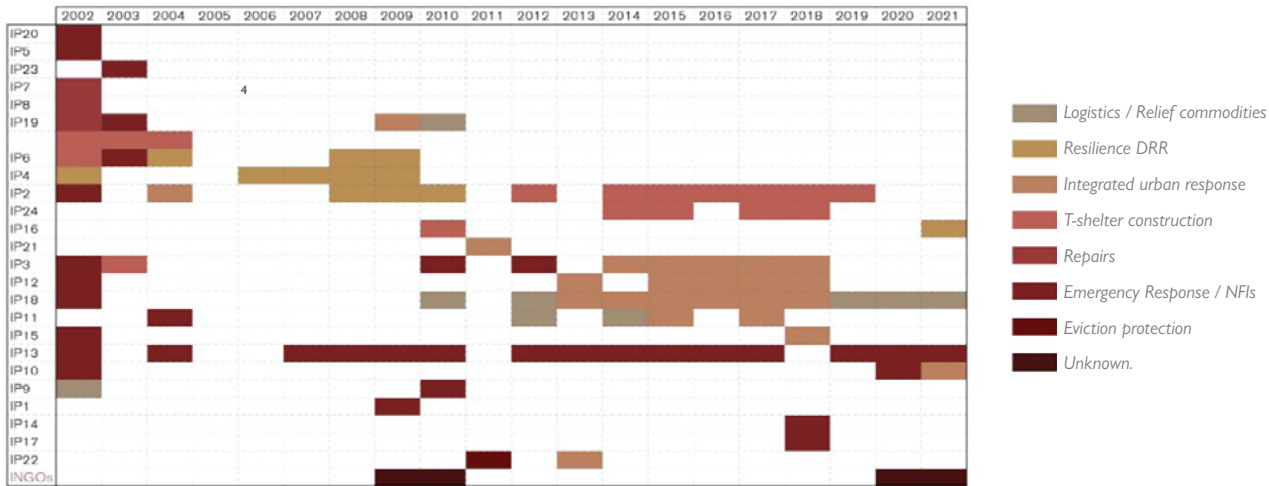
2 Sources of data included humanitarian platforms such as ReliefWeb, ALNAP HELP library and the Humanitarian Library in addition to USAID’s Development Experience Clearinghouse (DEC). Publicly available financial data (e.g. from UNOCHA’s Financial Tracking Service)

3 This restriction on the methodology means that some S&S assistance funded by the donor may have been unintentionally excluded from the donor Review.

4 The timescale of the review over 20 years of project implementation meant that staff were not easy to identify or access; people’s memories were fading; and documentation had not always been systematically archived.

1 See, for example, What Impact? in Shelter Projects 8th Edition.

Researched donor-funded projects arranged by main type of assistance.



BACKGROUND AND RATIONALE

Within the S&S sector, and to an extent, the wider humanitarian sector⁵, there is a dearth of publicly available outcome and impact evaluation data. Typical Monitoring and Evaluation (M&E) frameworks collect data on programming outputs through standard post-distribution and implementation monitoring activities, which focus more on whether stated project targets were achieved, rather than the actual outcomes of the provided assistance. Implementing organisations often face time or capacity barriers to carrying out longer-term impact evaluation, usually due to funding restrictions. This status quo limits sector-wide learning and the potential for improved practice regarding pathways to recovery. This comparative study of historical S&S programming in three contrasting contexts offered an unusual opportunity to undertake a longitudinal review and learn from similarities and differences in identified outcomes and the factors which contributed towards them.

In this paper, outcomes are understood as “Intended or unintended changes or shifts in conditions due directly or indirectly to an intervention”. Impacts are defined as “the wider and longer-term effects of the program”, while recognising that people or communities achieve and sustain any changes themselves⁶. In the review, the terms were often conflated, as outcomes and impacts were hard to retrospectively disentangle.

However, some attempt has been made to distinguish between short-term outcomes (those which are reported to have had immediate effects) and long-term outcomes or impacts (those which arose later or were based on the short-term outcomes). Recovery is referred to in its most simple terms to be ‘a process of getting better’⁷, which is not focused on an end goal, but the creation of conditions that facilitate incremental improvements to overall stability and well-being.

5 See, for example, ALNAP (2022) The State of the Humanitarian System. London: ALNAP/ODI.

6 Adapted from ALNAP (2016) Evaluation of Humanitarian Action (EHA) Guide. London: ALNAP.

7 Cambridge Academic Content Dictionary, Cambridge: Cambridge University Press.



Research field exercise in Nepal.

NEPAL⁸

In 2015 and 2023, Nepal was struck by major earthquakes, causing widespread damage to housing in both urban and peri-urban districts of the Kathmandu Valley. However, damage was most extensive in rural regions, only accessible on foot or by helicopter. The humanitarian actors included in the review primarily provided Shelter/NFIs and water sanitation and hygiene (WASH) relief items. Of eleven identified projects, nine focused on distribution of emergency shelter materials, mainly in rural settings. The two other projects focused on communication and technical support for resilient construction.

Almost all projects were of six months or shorter duration and were implemented in seven of the fourteen districts categorized as severely hit or crisis hit, close to the epicenters of the major earthquakes in April and May 2015. The government announced the provision of a significant cash grant of 3 Lakh rupees⁹ for reconstruction to eligible families. However, confusion over eligibility, compliance and delays in distribution meant many families waited significant periods of time with little to no interim support. This gap between emergency assistance and reconstruction support possibly delayed households' recovery.¹⁰ The research findings suggest that opportunities for creating enabling environments for recovery through direct and indirect S&S assistance were missed.

PHILIPPINES¹⁰

The Philippines was hit by Typhoon Haiyan in November 2013, carving a swathe of destruction across the Visayas region of the Philippines. The city of Tacloban was the largest urban area affected, with over 12,000 structures destroyed. Many were in the densely, informally settled coastal strip. This area was later declared a No-Build Zone, leaving tens of thousands of families facing permanent relocation. Of two identified projects in the review, one agency

8 For a fuller account of the 2015 earthquake context and the implementing partners funded, see the Nepal Summary Report

9 3 lakh = 300,000 rupees, around USD \$3,000 in 2015

10 For a fuller account of the 2013 Typhoon Haiyan context and the implementing partners, see the Philippines Summary Report



Research field exercise in the Philippines.

operated in 24 coastal barangays¹¹, navigating the challenges to provide assistance to all affected people through offering a range of shelter options, including 'transitional relocation', depending on people's tenure circumstances.

The other agency focused on two barangays within the Dwell Zone, finding ways to support households with no land to rebuild their informal dwellings. Both partners implemented multi-sectoral projects where shelter was integrated with WASH, Protection and DRR support over a timeframe of 18-24 months, while permanent government-provided relocation sites were being developed north of the city. The multi-sectoral support and transitional shelter solutions enabled households to recover in their original barangays where possible, or gave people effective, dignified temporary living conditions prior to permanent relocation away from the 'no build' coastal zone.

AFGHANISTAN¹²

Over the period 2002 to 2021, Afghanistan was affected by a range of humanitarian crises: natural hazards including earthquakes, flooding, and landslides caused extensive damage to housing and compounded internal displacement caused by conflict and drought. 24 partners were identified to have implemented S&S over the 20-year review period. S&S responses differed according to changing needs and high-level political interests.

In the early 2000s, the high influx of returnees was met mainly with emergency response, including relief items, shelter repairs or temporary shelter support. Significant lack of housing in Kabul led to a focus on multi-sectoral urban interventions between 2004 and 2010, including the construction of transitional shelters. Transitional shelters continued to be provided as part of disaster response, but over time the focus shifted towards disaster risk reduction and resilience-building with shelter components, including pre-positioning and distribution of emergency relief items in response to disaster events. S&S interventions in the Afghan context were regularly affected by insecurity and/or seasonal access restrictions, low socio-economic income and high needs, and often remote and logistically challenging operating environments. Programs which explicitly addressed security of tenure were seen to facilitate stability, which enabled long term recovery.

11 the lowest administrative unit in the Philippines, responsible for managing concerns at the community level

12 For a fuller account of the Afghanistan context over 20 years and the implementing partners, see the Afghanistan Summary Report



RESEARCH FINDINGS

Similar types of assistance and approaches in different contexts were reported to lead to similar outcomes, influencing the discernible long-term impacts of S&S programming in relation not only to the type of assistance, but to the way in which it was provided. These are explored further below. The first section addresses the research sub-question about outcomes and impacts; the second addresses the second sub-question on the influence of other factors.

OUTCOMES AND IMPACTS OF REVIEWED SHELTER AND SETTLEMENTS ASSISTANCE¹³

The most basic shelter assistance such as provision of emergency materials and household items resulted in clear short-term positive outcomes, primarily on protection, with some risk reduction. Emergency shelter materials (tarpaulins and fixings, household NFIs) provided lifesaving protection from the elements and allowed families to carry out household activities with dignity. Clothing and household items such as mattresses and blankets helped people at higher altitudes survive cold conditions during winter. In both Nepal and Afghanistan, this was reported to have mitigated negative coping strategies and reduced the risk of further displacement. Use of cash-for-work in Afghanistan resulted in similar short-term outcomes through provision of income, with some potential longer-term outcomes such as improved public health and reduced risk through the resulting infrastructure improvements.

While some of the tarpaulins lasted for many years and continued to provide weather-protection for multiple purposes, generally as shelter assistance increased in durability, so did the outcomes. In both the Philippines and Afghanistan, provision of household shelter assistance (transitional or core shelters, repair assistance, rental support) produced the same short-term outcomes, with the addition of wider and longer-lasting effects. Decent shelter using quality materials increased security, dignity and privacy and was stated to contribute to improved physical and mental health - especially for women, and particularly in the context of cultural restrictions in public places. Spending in the local market on shelter materials and labour was reported to have an indirect benefit of stimulating the economy. Shelter support contributed to a level of stability that enabled further recovery – in many cases, transitional shelters outperformed their intended lifespan and were maintained, upgraded or expanded by the occupants, providing sustained benefits.

More complex and time-consuming programming, such as the multi-sectoral projects in Tacloban and Kabul, revealed the strongest indications of longer-term impacts, which humanitarian programming contributed towards but which were achieved or sustained by communities and local authorities themselves. This included safer, productive and inclusive neighbourhoods, building on improvements in community cohesion and representation, connection to governance or national systems, economic investment and stimulation, and sustained or continued improvements

13 Further details and examples are set out in the paper The significance of Shelter – Maximizing impact through support to Shelter and Settlements assistance

following provision of basic infrastructure. DRR programming and HLP integration also had immediate benefits on increased sense of security and stability as well as longer-term outcomes through resulting investment. However, the research revealed that programs that had the most wide-ranging or sustained impacts had certain aspects in common, and diverged from other projects where these elements were not included. These elements and the associated outcomes are discussed below.

FACTORS INFLUENCING POSITIVE IMPACTS; WHAT WORKS?¹⁴

1. ADDRESSING (IN)SECURITY OF TENURE

The inclusion of support to housing, land and property rights (HLP) played a key role in contributing to sustained outcomes. Access to land and security of tenure was identified as one of the main barriers to receiving shelter assistance in Afghanistan and the Philippines¹⁵.

In Afghanistan, a household's tenure situation heavily influenced government-defined eligibility criteria. Registration processes prioritized returnees and support to those who were able to prove prior ownership of land, excluding many internally displaced populations, who often resided in informal settlements, from receiving assistance. Agency programming which directly addressed these barriers – whether through support to gather documentation, community verification, validation by municipalities, certificates of ownership based on customary authorities, or negotiating occupancy or rental agreements – provided a level of tenure security that facilitated the provision of assistance and stability that enabled longer-term recovery. Once the ownership of land was officially recognized or the use of the property agreed, people invested their own time and money to improve their living conditions.

In the Philippines, prohibitions on rebuilding in zones designated as unsafe along the coast created challenges to provide support to people who had previously resided in these areas, particularly since the majority were informally settled. While all residents were eligible for resettlement in government sites, regardless of tenure formality, the new settlements were still under construction for several years after the crisis and located far from people's livelihoods. Different assistance was provided from a 'menu of options', tailoring support to different tenure categories that optimised the household's social capital and preferences. This included support to obtain documents for formal owners to enable repair or reconstruction, materials and labour for households who reached agreements to construct shelters on individual plots, and negotiating rental agreements with landowners to establish collective sites for households with no alternative options. This enabled households to maintain social connections and access to livelihoods and education, providing stability for a crucial (if limited) time period.

14 For illustrative evidence of the factors in this section, see the three summary country reports on the Recovery Community of Practice. Each report also includes recommendations for future programming in these and similar contexts.

15 In Nepal, emergency shelter/NFI distributions included in the donor Review used a 'blanket approach'. Later on, land tenure issues certainly affected people's access to reconstruction support in subsequent years.

2. MULTI-SECTORAL INTEGRATED APPROACHES¹⁶

The projects in the Philippines and Afghanistan suggest that multi-sectoral programming was important in its contribution to recovery by drawing on the co-benefits or mutually enhancing effects of different types of assistance to address interlinked needs. The integrated projects in Tacloban included shelter support and infrastructure upgrading alongside WASH, DRR, and Protection assistance resulting in both short- and longer-term outcomes that stimulated recovery. Training in carpentry and construction ensured safe and durable shelter but also gave participants skills that provided livelihood opportunities and challenged gender norms through women's inclusion. Child protection training was supported by improved household shelter as well as community level safety and security through infrastructure such as lighting, child-friendly spaces and drainage. These household and community infrastructure interventions worked together to create immediate protection outcomes, as well as improved safety, security, health and well-being.

In Kabul, between 2006-2010, programming included access to markets and basic services, as well as shelter and infrastructure provision, WASH and livelihoods support. Infrastructure improvements such as improved roads and drainage increased access, while also generating income through cash-for-work. Safe shelter and sanitation supported physical and mental health, while also creating a space for economic activity. Livelihood activities including kitchen gardens, and micro-enterprise grants supported income-generation while increasing community assets and services. Support to the population as a whole, not only individually vulnerable households, also contributed to social cohesion and integration of IDPs. The approach addressed the needs not just of individual households, but the physical, social and economic environment, and contributed to the revitalisation of a whole area. As well as being multi-sectoral, projects were also multi-scale, working at household and neighbourhood level as well as engaging with city authorities and wider systems, particularly in regards to disaster preparedness. Taken together, the implemented activities strongly contributed towards improved safety and security, healthier homes and environment, improved economic opportunities, and increased physical and social resilience.

3. LOCALLY-DRIVEN PROGRAMMING¹⁷

The engagement of the community and level of involvement in decision-making was at the heart of many of the longer-term outcomes and impacts. In Afghanistan, community development councils (CDCs) were supported¹⁸ to prioritise interventions and receive funding to manage resourcing and implementation directly. In the short term, this reduced potential conflicts and improved targeting of people's needs. However, in the longer term, the CDCs continued to be involved in later activities in coordination with municipalities beyond the improvement of housing and physical environment. Increased capacity to contribute to development and

16 For more on this theme and further examples of the value of multi-sectoral programming, see one of the donor Review reports: People and Places – Meeting interconnected needs through collaborative responses.

17 This theme is explored more fully in the thematic paper Going local – Benefits and implications of Community-centred programming in Shelter and Settlements assistance.

18 or if they did not already exist, were created

improved interaction and dialogue between residents and city officials strengthened recovery of certain geographic areas of the city.

In the Philippines, training and integrating community-based social mobilisers or roving teams into programming helped amplify community voices and create reliable feedback mechanisms. Community emergency teams established as part of DRR training continued to implement risk awareness and community preparedness activities. This has contributed to an increased sense of safety and ongoing hazard mitigation. Likewise, initial support provided to youth and community savings groups has continued to have positive social and economic effects. The highly locally-invested approach has contributed to communities being able to continue their recovery independent of INGOs once programming had ended.

In the multi-sectoral urban programs in both Tacloban and Kabul, the relationship with local authorities was also key. Engagement with local authorities and - in the case of Afghanistan, technical support provided to Kabul municipality - strengthened existing systems and relationships beyond the timeframes of programming. In the Philippines, close working relationships with barangay officials has contributed to maintenance and enforcement of clear access routes and drainage. High community engagement also helped to address key HLP challenges, both through the identification of available land, and innovative ways of securing tenure.

Given the constraints arising from the lack of security and the adverse geography and climate of the country, working with and through local actors has been important for access, security and knowledge of the communities across Afghanistan. DRR programming in later years focused on establishing and training community-based teams to be deployed in disaster response. In the longer term, this has increased the ability to provide rapid assistance to mitigate the negative impacts of hazard events in hard-to-reach areas, reduced loss of life/injury and property damage and was perceived to have improved the self-reliance of communities, including through addressing social risk and protection issues, such as GBV.

These findings suggest that devolving power and putting people's capacity and relationships at the centre can have sustained outcomes. However, while in the Philippines and Afghanistan the benefits of investment in local actors was clear, in Nepal, more transactional relationships left little remaining impact on local organisations. Following the 2015 earthquake, the Nepali government mandated that INGOs had to implement through local partners to support 'localization'. While this resulted in positive involvement of Nepali organisations in the emergency response, many challenges were faced establishing relationships, contracts or new processes that contributed towards delays. Despite this, INGOs recognised the value of local expertise and positive outcomes, such as improved targeting of the most vulnerable households. However, as funding depleted after the initial response, the rapidly established partnerships and forums were dissolved. Some local organisations felt they had gained experience and improved their capacity to respond in future, but little sustained impact was able to be identified at community or household level.

4. SUPPORT FOR SELF-RECOVERY¹⁹

The extent to which assistance was flexible and built on what people and communities were already doing themselves was also seen to influence longer-term outcomes and impacts. However, this was revealed through gaps that were highlighted as well as assistance that was provided.

Support that built on existing efforts, incorporating capacity building or addressing barriers as required, had longer-lasting positive outcomes. In the Philippines case, flexibility of transitional shelter designs promoted to avoid a 'one size fits all' approach encouraged additional investment and modifications to meet their needs over the years. In Afghanistan, communities that self-settled and received support to upgrade were far more successful than new resettlement sites allocated to returnees/IDPs, which failed as a result of being far from existing networks and markets. Negotiating interim solutions such as a Memorandum of Understanding with local authorities was also seen to be a starting point for longer-term negotiations on land occupancy rights and recognition, especially when combined with improved infrastructure which was seen to increase the possibility of future formalisation.

The short- and longer-term outcomes stemming from technical training highlighted its importance and contribution to reducing vulnerability. In the Philippines, there were positive economic as well as physical outcomes from carpentry training that generated livelihood opportunities, and facilitated continued and wider implementation of safe construction methods, reducing risk from future hazards. In Nepal, long-term investment in technical expertise contributed to prevention of waste of resources by unnecessarily destroying houses suitable for retrofitting. The engineers and social mobilisers trained in earthquake-resilient construction have gone on to pursue careers in other organizations both in Nepal and abroad. With limited humanitarian program time-spans and government support slow to arrive, the research highlighted Nepal as a missed opportunity for supporting self-recovery. Investment in programs of socio-technical accompaniment alongside the provision of shelter materials as in the Philippines and Afghanistan could have enabled better shelter provision in the interim period and provided a stronger platform for recovery.

¹⁹ For more on this theme and further examples of the value of supporting self-recovery and having a longer-term approach, see one of the BHA Review reports: Relief to Recovery – The potential of Shelter and Settlements assistance on the humanitarian side of the Nexus.

CONCLUSION

The themes that emerged across all three contexts suggest that the approach taken and willingness to adopt key considerations early on influence the scope and likelihood of positive long-term outcomes or impacts being achieved. This study highlights the wide range of protection and longer-term outcomes on health, wellbeing and economic recovery possible through the provision of S&S assistance which contribute – to greater and lesser extents – to a foundation on which people's recovery can be built. It suggests that even basic shelter assistance has immediate outcomes on protection and risk reduction. However, more substantial assistance was seen to result in wider and longer-lasting contributions to recovery.

The comparison of methods and types of assistance across contexts finds that the most sustained outcomes were the result of multi-sectoral, multi-scale, community-driven programming that addressed security of tenure. Committed local engagement, while more costly and arduous, contributes towards a variety of sustained positive outcomes. Building on what people are doing and investing in technical training has short-term benefits as well as longer-term outcomes that contribute to recovery.

For implementing agencies and donors who aim to stimulate recovery, this research suggests the importance of taking a longer-term view. This means being willing to engage with key barriers such as land tenure, maximising the multiplier effects of multi-sectoral assistance, committing to devolution of power to households and communities, and considering how best to provide support that can address the gap between emergency relief and more permanent housing provision. The review highlighted that often the most limiting factor (to community engagement) was the timeframes for implementation. This suggests that the desire to influence recovery should determine this rather than preconceived response 'phases'.

As an uncommon undertaking, the research also highlights the value in investing in longitudinal studies in order to learn how programming can support recovery of affected populations. At the same time, it revealed a need for better measurement, documentation and archiving of project reports by agencies. Since the completion of the review in 2024, significant cuts in international humanitarian funding have made future efforts to understand the impacts of S&S assistance even harder. Donors are urged to enable further longitudinal reviews, ensuring that open data sharing benefits as fully as possible from the investment and that the research is timely enough to be able to capture the immediate outcomes while still allowing sufficient time to have passed for impacts to have emerged.



Shelter construction in Nepal.

Girl supporting the mud-wall task for her family shelter in Mozambique
© Juan Luis Rod





IN MEMORIAM

In the 18 years since the first edition of Shelter Projects was produced in 2008, untold thousands of people have lost their lives due to disasters or armed conflicts. Others have had their lives cut short, because of the inadequacy of the support which they have received, during their displacement as a result of those emergencies.

When a conflict breaks out or a disaster happens, the primary shelter responders are the affected people themselves. We recognize the work of the national authorities, the communities and the people themselves in finding shelter solutions. We would however like to take a moment to consider the contributions of those few people mentioned below.

The last 18 years have also seen significant increases in the numbers of aid workers killed worldwide. One database estimates 2443 aid workers killed between 2008 and 2024¹, whilst the under-secretary-general of UNOCHA has stated that as of April 2026, over 1000 aid workers have been killed in the last three years alone².

In this increasingly dangerous world, Shelter Projects remembers and gives thanks to friends and colleagues who worked on projects included as case studies, or who contributed to the work of Shelter Projects, and who have passed away in recent years:

MARK WERDMULLER (2009)

Mark was one of the earliest members of the Emergency Shelter Global support team, working for IFRC, and one of the first to combine field deployments with the development of the global tools which coordinator teams could use, to promote more effective and equitable humanitarian responses. Mark was part of the team which provided the backstopping to the creation of the first edition of Shelter Projects, in 2008.

STEVE BARKER (2015)

Steve was one of the GSC team who was both a practitioner and with significant work in research (including a doctorate whilst working at the same time in Rwanda after 1994) and teaching. Much of his work was in reconstruction programmes, where he could share his engineering skills and passion for their practical applications. Steve was a cluster coordinator in a number of countries where case studies have been based, ranging from Gaza to Malawi to Fiji.

¹ <https://www.aidworkersecurity.org/incidents/report>

² <https://www.un.org/unispal/document/with-over-1000-aid-workers-killed-in-3-years-often-at-the-hands-of-member-states-un-relief-chief-demands-accountability/>

GRAHAM SAUNDERS (2017)

Graham Saunders was for ten years, the co-lead of the Emergency Shelter Cluster and then the Global Shelter Cluster. Graham was one of the leaders in establishing Shelter Projects, and ensuring through its endorsement by the GSC, that Shelter Projects would continue as a series of editions, and develop many of the additional features which are now present. Graham was also actively involved in the editing processes for the introductions, opinion pieces, and other thematic pieces, as well as having been involved in supporting many of the projects which were covered as case studies.

GUILLAUME ROUX-FOUILLET (2019)

Guillaume was a freelance architect and humanitarian specialist known for his significant contributions to the GSC, as well as co-authoring Shelter Projects 2017-2018 and serving as a key evaluator for projects, focusing on improving humanitarian shelter standards in crisis zones. Guillaume was also noted for the contributions which he made to the graphics and visual language for conveying shelter knowledge.

FELIX DEVRIES (2020)

Felix worked on projects related to Shelter Projects case studies, mainly within the Red Cross movement, in countries across the Asia-Pacific and Caribbean region. Felix was also a contributor to a number of different guidance resources included in the Shelter Projects website³, and was also closely involved in humanitarian-led initiatives to better engage with the private sectors in reconstruction capacities.

WERNER SCHELLENBERG (2021)

Werner worked for UNHCR, as a coordinator, as a programme manager, and in a way which touched many lives, as a great mentor to many of the staff who he worked with. Werner contributed to the UNHCR programmes in Jordan and in Pakistan which have been covered as Shelter Projects case studies, and was also a key part of the team which developed the UNHCR master-plan approach to settlements planning, and which then informed the Shelter Projects thematic booklets on the same topics.

³ <https://shelterprojects.org/files/IFRC-ODHR-Guidelines.pdf>

PETYA BOEVSKA (2021)

Petya worked for the GSC both in Geneva and in the field, notably in Myanmar and Iraq. Petya also closely supported the development of the Global Shelter Cluster Strategy 2018-22, and was part of the Geneva team preparing the annual meetings and coordination workshops, during which the strategic support for the ongoing editions of Shelter Projects was developed and reaffirmed. Petya was also part of the team who developed the GSC 2018-2022 strategy, where research and evidence for the improvement of programming were first highlighted. Petra herself contributed two case studies to the Shelter Projects 8th Edition.

TEDDY BOEN (2023)

Teddy was an esteemed engineer, who contributed significantly to the development of knowledge and safety for the use of ferro-cement in seismic retrofits, mainly in Indonesia. Shelter Projects promoted his work to a wider readership, and included a separate memorial essay in honour of Teddy, in Shelter Projects 9th Edition⁴.

GIORGIOS PAPOULIAS (2024)

Giorgios was an extremely operational site planner and engineer, spending most of his time onsite overseeing works. Amongst many other projects he managed the drainage and site improvement for the POC sites in South Sudan featured in Shelter Projects. Giorgios was also a leader in training others in all aspects of site planning, from collaborative design, to working with heavy earth-moving machinery. Giorgios was also a shelter practitioner who was deeply involved in supporting camp management, and took a principled interest in how families actually lived in the camps and sites.

⁴ <https://www.shelterprojects.org/shelterprojects9/T-Teddy-Boen-SP9.pdf>

ANDREAS HAPSORO (2024)

Andreas held key leadership roles within Habitat for Humanity Indonesia and Habitat for Humanity International, and was closely involved as a programme manager and coordinator for a number of projects included in Shelter Projects, from 2008 until 2021, mainly in Indonesia, but also in other countries in the Asia-Pacific region, as well⁵. Through his expertise in civil engineering, he was a leader for large-scale post-disaster reconstruction and resilience programmes in those areas.

JOHN MCCUE (2026)

John was active in many of the projects which were covered as case studies in eastern and southern Africa. John was a champion of getting things done, finding practical solutions and turning plans into action. John was very active in many of the projects which were covered as case studies including Dadaab in Kenya, shelter across South Sudan, and Cox's Bazaar in Bangladesh. The site planning and development of Bentiu IDP camp is one example of his audacious vision, ability to constantly push, and deliver on staffing and logistics in complex environments.

⁵ <https://www.shelterprojects.org/shelterprojects8/ref/A13-indonesia180821.pdf> and <https://www.shelterprojects.org/shelterprojects9/A.17-Indonesia-SP9.pdf>



Over the course of 2024, 65.9 million new internal displacements were reported, in addition to the 5.4 million people who crossed international borders to seek protection as refugees or asylum seekers. Conflict and violence contributed to 20.1 million internal displacements, while 45.8 million people were displaced by disasters.

Spanning humanitarian responses from all over the world, this book is the tenth in a series of compilations of shelter and settlements case studies, response overviews and opinion pieces. The case studies included in this book show projects that took place in contexts of conflict, disasters and complex crises, demonstrating a wide range of approaches to shelter and settlements assistance.

The book is intended to support learning by highlighting the strengths, weaknesses and some of the lessons that can be learned from different projects, which try to maximize emergency funds to safeguard the health, security and dignity of affected people, whilst, wherever possible, supporting longer-term shelter and settlement needs and sustainable recovery.

The target audience is humanitarian managers and shelter and settlements program staff from local, national and international organizations at all levels of experience, as well as local and national government representatives involved in crisis response and recovery. Shelter Projects is also a useful resource for advocacy purposes, showcasing the work done by the sector, as well as for research and capacity-building activities. All case studies and overviews contained in this book, as well as from all past editions, can be found online at:

www.shelterprojects.org

