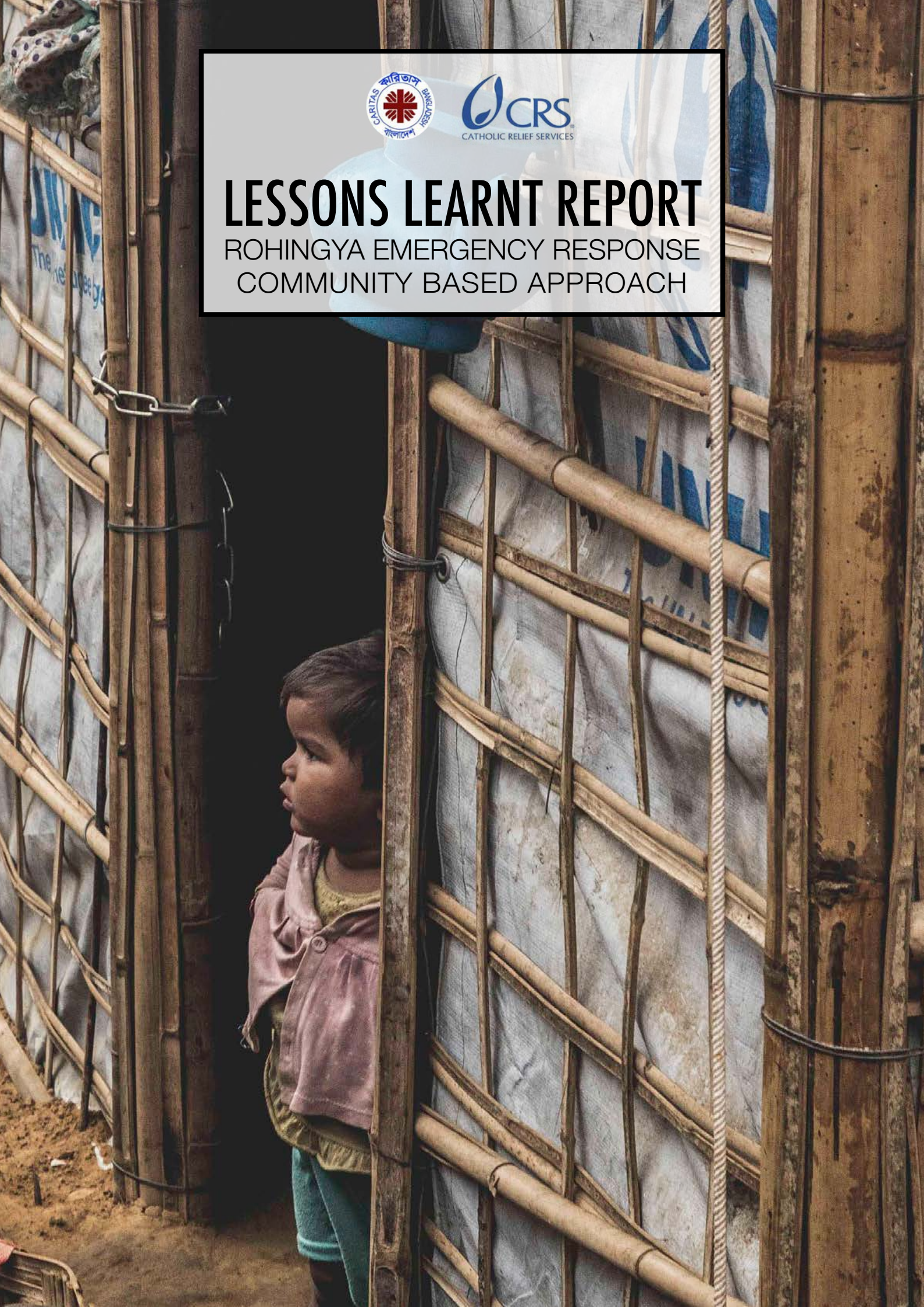




LESSONS LEARNT REPORT

ROHINGYA EMERGENCY RESPONSE
COMMUNITY BASED APPROACH



Authors: Livia Mikulec and Jamie Richardson

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Catholic Relief Services

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Graphic design: Livia Mikulec

**SITE AND SHELTER IMPROVEMENTS SUCCESSFULLY COMPLETED THROUGH
COMMUNITY BASED APPROACHES WHILE BUILDING SOCIAL COHESION**

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LIST OF ACRONYMS

CAP: Community Action Plan

CB: Caritas Bangladesh

CFS: Child Friendly Space

CiC: Camp in Charge

CRS: Catholic Relief Services

DRR: Disaster Risk Reduction

EVI: Extremely Vulnerable Individuals

FGD: Focus Group Discussion

GIS: Geographic Information Systems

IFRC: International Federation of the Red Cross and Red Crescent

KII: Key Informant Interview

NGO: Non-Governmental Organisation

OBU: Oxford Brookes University

PASSA: Participatory Approach for Safe Shelter Awareness

UNHCR: United Nations Refugee Agency

USK: Upgrade Shelter Kit

WASH: Water, Sanitation and Hygiene

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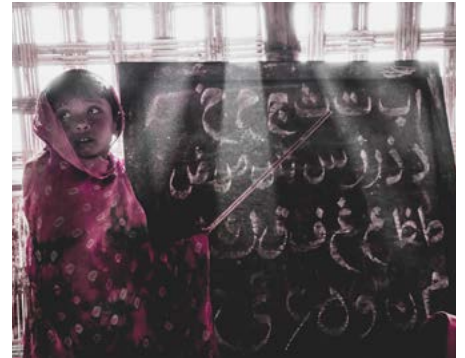
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INTRODUCTION



INTRODUCTION

There is extensive evidence that participatory-based approaches can have lasting and further reaching benefits for communities. Involving people and communities in all stages of humanitarian response is clearly set out in the Core Humanitarian Standards and reiterated in the SPHERE Standards and guidance notes for all sectors. However, in practice there are often constraints of time, scale, resources, beneficiaries' understanding of local conditions and capacity, that may limit the level of participation. It would take too long in an emergency context to use

the whole participatory process found in recovery and development projects. Thus this project piloted a **Rapid Participatory Approach** in an emergency phase, during the 3rd-6th month from the start of the crisis; it engaged and mobilized the community to serve as an initial step and platform for longer-term community empowerment and resilience.

The purpose of this study is to capture the experience and learning from this pilot project, which delivered shelter and settlement upgrades to a small site of



credit CRS / Christopher M. Reichert

“We need to support the will of the community to create a better environment”

– Seki Hirano, CRS Technical Advisor
Shelter and Settlements

182 households within a small area of the overall camp. This study was designed to investigate the possibility of a community led approach in an emergency environment so that UNHCR, Sector Partners and other actors could reference it. The study has also been designed to investigate the social benefits of the process and how this may have strengthened social cohesion, promoted inclusion, and improved or created systems of governance, considered to be an important outcome of the project for longer term community empowerment and resilience.

Oxford Brookes University (OBU) assisted in the design of the study and the analysis and evaluation of the results. With their guidance the study was designed to follow academic processes and standard research practices. To guide and focus the study the following research questions were decided upon:

Research question

To what extent did the project approach realize the following objectives:

- To efficiently and effectively improve the living conditions, reduce risks from flooding and landslide, improve sanitation, improve physical access, and reduce protection risks.
- To enhance and strengthen social cohesion and community capacity.

These research questions are to test the theories and assumptions that the pilot project hoped to demonstrate, as summarised:

Hypothesis

Through participatory approaches to improve settlement and shelter conditions, that this will utilize the skills and capacity within the community to make the necessary improvements to their living environment; and through this experience and process that it will lead to greater community cohesion and organizational capacity; and to help communities realize their potential and be more resilient to future shocks and events.

Methodology

The study used the following sources for information and assessments:

- Physical survey of buildings and infrastructure
- Key Informant Interviews
- Focus Group Discussions (Men and Women)
- Household Surveys (Study and Control Group)

The study also made reference and use of documents such as 'PASSA'^[1] (Participatory Approach for Safe Shelter Awareness - IFRC), 'Extending Impact'^[2] (CRS), 'Guide to Facilitating Community-Led Disaster Risk Management'^[3] (CRS), and builds upon the principles and experiences or community led, area based approaches.

The shelter and settlement project was designed by UNHCR and Caritas Bangladesh (with technical support from CRS), and implemented by Caritas Bangladesh with funding from UNHCR.

[1] 'Participatory Approach for Safe Shelter Awareness' - IFRC <http://www.ifrc.org/PageFiles/95526/publications/305400-PASSA%20manual-FN-LR.pdf>

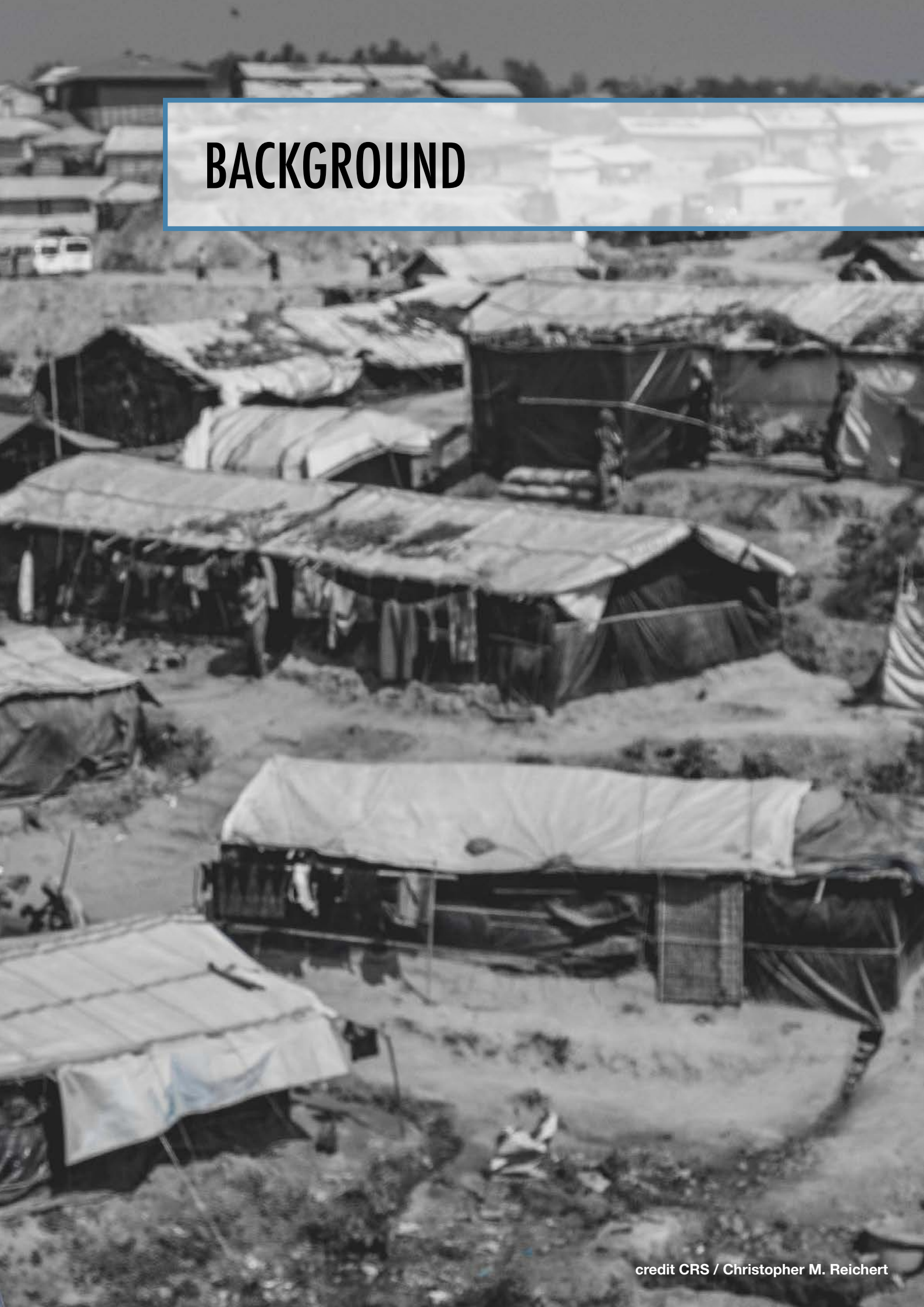
[2] 'Extending Impact' - CRS <https://www.crs.org/our-work-overseas/research-publications/extending-impact>

[3] 'Guide to Facilitating Community-Led Disaster Risk Management' - CRS, Cafod and Caritas Australia <https://www.crs.org/our-work-overseas/research-publications/guide-facilitating-community-led-disaster-risk-management>





BACKGROUND





GENERAL CONTEXT

Since August 2017, over **688,000 Rohingya people** ^[4] have fled from the Rakhine state in Myanmar to Bangladesh. They have been the victims of violence including sexual assault, burning of villages creating mass displacement ^[5]. Most of the influx happened near the town of Cox's Bazaar, in the South of Bangladesh, joining the existing **Kutapalong camp** where around 300,000 Rohingya had settled in previous years. Due to security issues, return to their birth land is unlikely for some time, therefore having an ambiguous future ahead.

The Kutapalong camp has been extended and subdivided into zones, those are in turn divided into smaller sub zones under the leadership of a “**Majhi**” (community leader), who may represent between 50 and 200 Households. Islam is central to Rohingya life and culture, and the mosque an important feature of the settlement. Due to the conflict and displacement, there are many women and child headed households as well as other types of vulnerability, related to age, sex, and disability. Those with particular needs are identified as Extremely Vulnerable Individuals (EVI) and are provided targeted assistance from humanitarian organizations.

The topography of the camp presents settlement challenges that limit the available space and have inherent hazards that will be exacerbated during the **monsoon and cyclone season**. The series of knolls and valleys provide few level areas for shelters to be constructed and require terracing of the slopes to create the plots, which increases the risk of landslide. The loss of vegetation and the density of shelters have also reduced the natural attenuation of surface water, which has increased the likelihood and severity of flash flooding.

Limited space and high density have been some of the primary challenges of the emergency response. People have had to construct their shelters and WASH facilities on the land that is at **risk of flooding and landslide**. In addition, the Rohingya come from a rural context, whereas the current situation is better described as urban in terms of density. The lack of space is challenging for both physical and psychological reasons and compounded by the further risks from monsoon and cyclone, the lack of income and livelihood, trauma from the past and uncertainty about the future.

[4] IOM Bangladesh: Rohingya Refugee Crisis Response - External Update, 2 - 8 February 2018

[5] Global Center for the Responsibility to Protect http://www.global2p.org/regions/myanmar_burma

Many people who self-settled, as in the project site, did so with little or no external support and shelters were constructed using locally sourced timber and bamboo and low quality plastic sheeting. There was no time or resources to plan or prepare the site. With the monsoon season due to start in April / May, with the potential of cyclones, fears grow for the safety of the Rohingya population and efforts are being made to prepare for this, including the upgrading of shelters and site improvements.

The Shelter Sector designed an **Upgrade Shelter Kit (USK)** that included humanitarian grade tarpaulin, bamboo, materials for binding and fixing, and tools.

Technical support is intended to compliment the USK and the Sector has developed information on how to construct shelters that can better withstand wind loads, including foundations, wall, roof, and connection details. Practical demonstration is often used as a way to share this information, the CRS 'Extending Impact' study showed this to be an essential activity to encourage and promote better building practice.

To assist with site improvements, the Site Management Sector has developed a guide on how to make sites safer and improve access. These technical guides were used during the project.










The main elements of site improvement have been used to form the acronym **DASH** (UNHCR):

- **Drainage** - surface water management to prevent flooding, erosion and landslide
- **Access** - steps, paths, handrails, bridges, street lighting
- **Stabilisation** - retaining walls and structures
- **Haven** - creating safe places to go in the event of an emergency

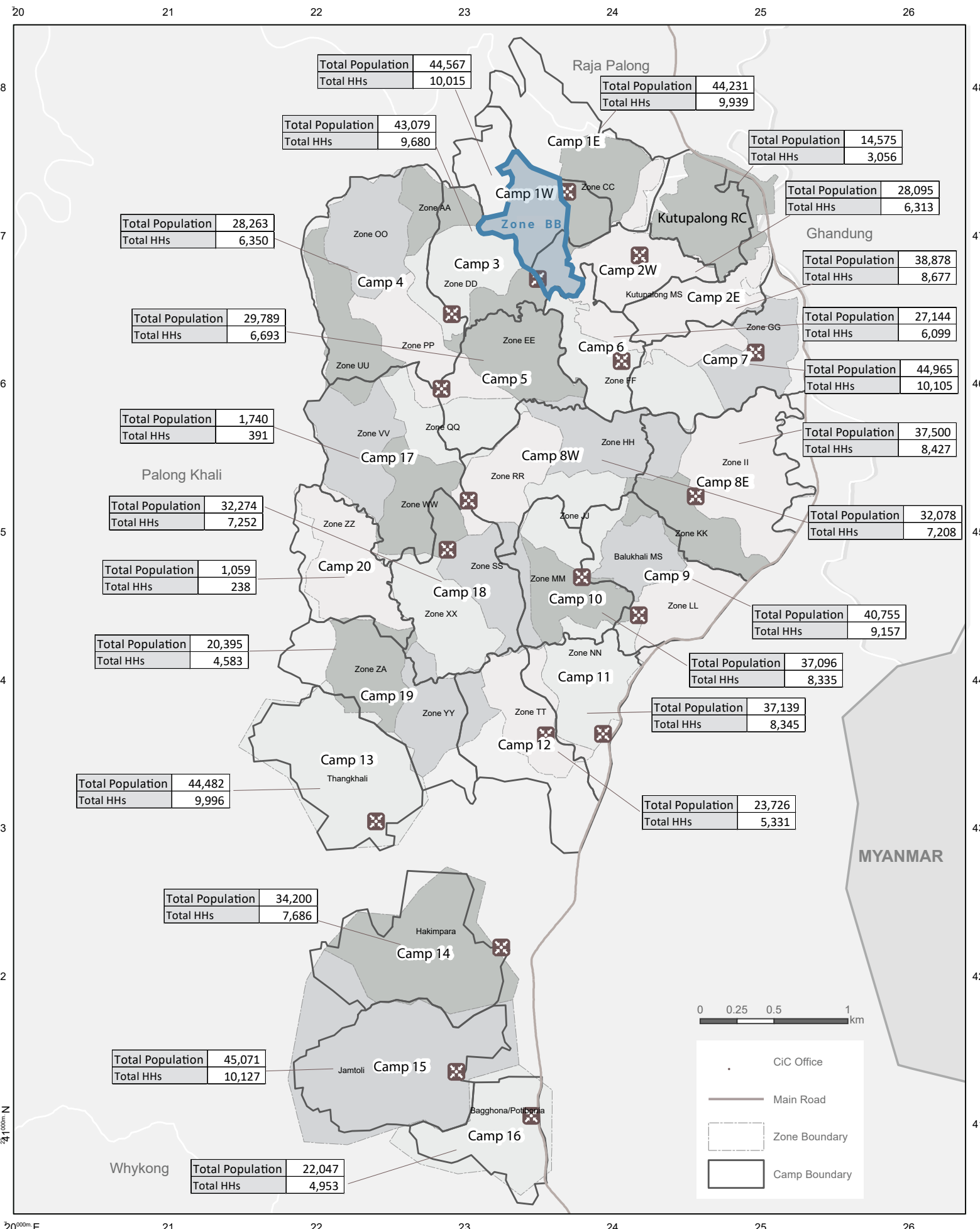
Organizations working in the camp have been trying different methods to improve the access and living conditions. At the start of this pilot project no upgrade works had been carried out on the site.

As the Rohingya people are mainly from rural areas they have practical skills in construction and are familiar with using bamboo. This capacity and the ability and willingness to work have proved to be an essential strength to meeting their shelter needs.

UPGRADE SHELTER KIT (USK)

#	Item description	Unit	No.	Unit cost/BDT	Cost/BDT	Specification description	Picture	Note
TARPAULIN PURPOSE – To provide water, wind, sand protection / coverage. Also to provide privacy and dignity.								
1	Tarpaulin (4m x 5m, 4m x 6m shelter grade)	piece	2	1,250	2,500	UNHCR approved standards OR SIMILAR specifications as below: Tarpaulin Size: the finished size of each sheet is 4 x 5 meters or 4m x 6m +/- 1 %. Color: preferably white or blue/grey, sun reflective on both sides. Inner black fibers to ensure opacity. Red Cross Specs: http://itemscatalogue.redcross.int/upload/products_data/files/HSHETARP.pdf UNHCR Specs: http://www.unhcr.org/53fc56bd9.pdf		Essential Item.
BAMBOO PURPOSE – To create/strengthen shelter framework.								
2	Bamboo (Borak)	piece	4	260	1,040	<ul style="list-style-type: none"> Min 25 feet long; At least 8" (eight inch) perimeter measurement at 1/3 length from the toe of the Barak Bamboo. No insect defect in the circumstances of the Barak Bamboo 		Essential.
3	Bamboo (Mulli)	piece	60	40	2,400	<ul style="list-style-type: none"> Min 20 feet long. Circumference 2" nominal or 3" nominal. Mix of sizes recommended 		Essential.
	Timber	Ft	20	130	2,600	2" x 2" softwood timber; for framing.		Optional
ROPE, WIRE & OTHER FIXINGS PURPOSE – To fix the bamboo and tarpaulin frames together as well as secure structures to the ground.								
4	Rope	Kg	1	250	250	Polypropylene or similar, diameter. 6 mm diameter , length: approx. 25m, in a roll, preferred colour: black/blue/dark green. Woven with 2 or 3 strands, with the possibility of being unravelled.		Essential
5	Rope	Kg	1	250	250	Polypropylene or similar, diameter. 3 mm diameter , length: approx. 30m, in a roll, preferred colour: black/blue/dark green. Woven with 2 or 3 strands, with the possibility of being unravelled. OR Approx. 30m of polypropylene plastic box strapping; 6 – 12mm wide.		Essential
6	Wire	Kg	0.5	90	45	low carbon steel, hot dip galvanised tie wire 18 or 19 gauge (1 – 1.2mm)		Essential
	Round Wire Nails	Kg	0.25	200	50	Steel, length: 3inch, diameter 3 mm, supplied in a sealed bag.		Optional
	Padlock & Chain	Ea.	1	250	250	Small durable padlock with 2 keys and cast iron chain (min. 2 feet).		Optional
SAND BAGS – To anchor ropes into the ground or for other site improvement works.								
7	Sand Bags	piece	20	15	300	Sand bag; woven plastic (ex. Cement bag)		Essential

*Sand bag anchors could be replaced with red clay bricks or reinforcement bar



THE SITE

The pilot location was selected as being typical to the conditions found across the camp in terms of population density, being risk-prone, and of a size that was manageable as a pilot project. **Majhi 17 and 20** (reference numbers) of **Zone BB** site met all the requirements and had communities and landowners that were willing to participate in the project. The two communities have respective populations of 535 and 258 people divided in **117 and 65 households**.

The site is situated around a ravine with a seasonal water course at its center. Shelters have been constructed on the level areas at the top and bottom of the slopes and on terraces cut into the banks of the ravine. Latrines, bathing areas, and hand pumps had been installed but many of these facilities were constructed as a short-term emergency solution and situated where there was space rather than in a planned way. Access around the site was by a network of paths and earth steps. Surface water drainage was limited to few shallow channels used mainly to direct grey water from washing areas into the main water course. There was little or

no evidence of the community trying to improve or maintain the site, other than cleaning around the immediate vicinity of their shelters.

Most of the shelters were of a **poor construction** with inadequate framing materials and low-grade wall and roof covering. The shelters had no bracing or foundations that could provide resistance to wind loads. Many of the shelters lacked ventilation for cooking, maintaining air quality, and thermal comfort. The lack of covered living area and materials to form partitions created issues of privacy and dignity, especially for women. The shelters lacked the means of providing personal security and the protection of belongings.

Being able to **live in a safe and habitable environment with dignity**, includes issues of site design and management, shelter design and construction, and water and sanitation. The project looked to capitalize and build upon existing capacity and resilience, as a 'strength based' approach; mobilizing the skills, knowledge, and labor of the community to improve their own environment.



credit CRS / Christopher M. Reichert

PROPOSAL

Having selected the site as a typical example of a self-settled community in need of shelter upgrading and site improvement, the community were consulted to see if they would be willing to take part in the project. This was presented as a partnership between the community and Caritas,

and intended to build upon the existing capacity of the community so that they were central to the decision-making process and responsible for the implementation of the work. After meetings with the community there was agreement to work together.

“Engineers should be more enablers than designers”

– Seki Hirano, CRS Technical Advisor
Shelter and Settlements





PROCESS

Having made the first introduction to the community, the next step was to describe and agree the process. This was a simple **'road map'** that set out the activities to collect and collate the necessary data to allow for analysis and then make informed choice and planning. This included:

- Household survey
- Physical mapping of the site
- Hazard mapping
- Analysis and site planning
- Planning activities and resourcing
- Implementation of shelter and site improvements
- Maintenance and Disaster Risk Reduction (DRR)



credit CRS / Christopher M. Reichert

Household Survey

A household survey was conducted by Caritas social animators and engineers to collect the demographic data of the entire communities as well as measurements of every shelter. The results of the survey showed that people were living in substandard conditions, in shelters lacking durability, privacy, space for household activities, and clearly not meeting the SPHERE standard of 3,5m² of covered living space per person.

Physical Mapping

Using drone imagery and site sketches, Caritas staff with the assistance of the community produced a plan of the site that included the location of the shelters, pathways, water and sanitation infrastructure, and community buildings. The Caritas GIS team was assigned to create a digital map of the features in the project area using GIS software, which the community later verified.

Shelter and Facilities - Majhi 17 and 20 Camp 1W, Kutupalong, Cox's Bazar, Bangladesh (January 2018)

Site Overview:

# of Shelter:	182	# of Bathing Place:	21
# of CFS:	1	# of Latrine:	34
# of Mosque:	2	# of Tube Well:	8
# of Street Light:	22		

Location Map



Funded by:



Legend:

	Bathing Place		Shop		Drainage		FCN #
	CFS		Solar Light		Pathway		
	Latrine		Tube Well				
	Mosque						

Hazards Mapping

Informed by flood risk maps and physical inspections with the community, areas at risk of flood and landslide were identified and marked on the site plan. This allowed hydrological modeling and engineering assessments, to be combined with the communities' perceptions and then visualized.

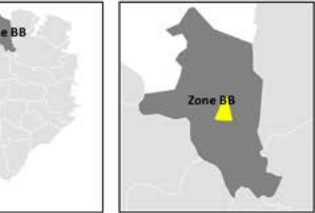
Analysis and Site Planning

Having completed the hazard mapping and collected the demographic data for each household, the community and Caritas would then identify households at risk and needing assistance; consider the locations of the water and sanitation infrastructure and access routes through the site; prioritize the construction of retaining walls and identify shelters that needed to be relocated. A new site plan was then developed showing the new locations of shelters and other infrastructure by considering the surface water drainage.

Landslide Prone-Areas - Majhi 17 and 20

Camp 1W, Kutupalong, Cox's Bazar, Bangladesh (January 2018)

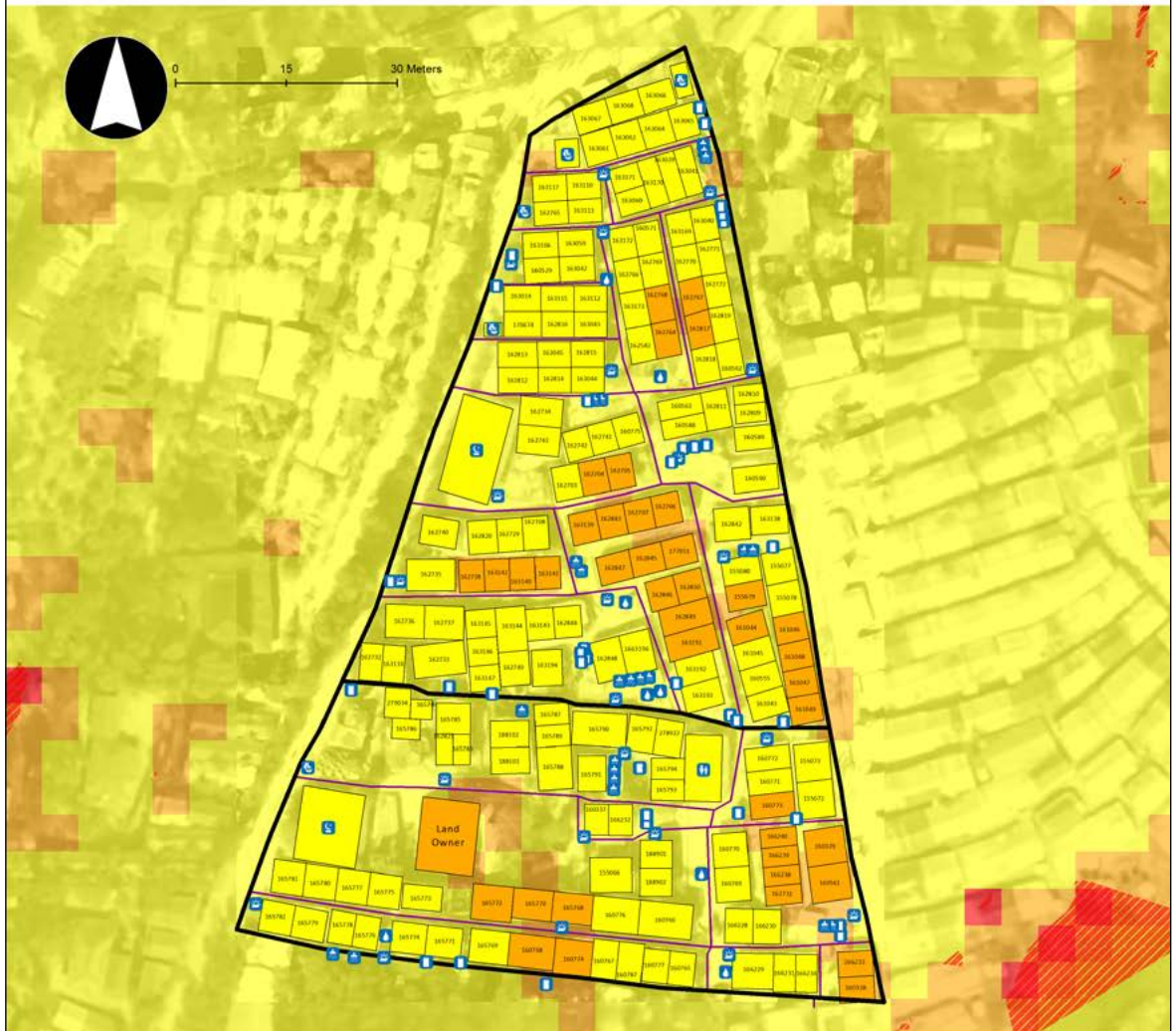
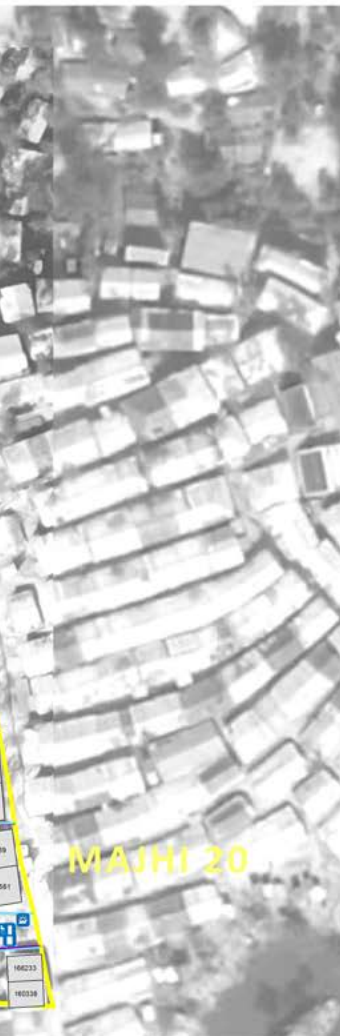
Map:



Household Vulnerability:



Location Map:



Shelters

CREATION DATE: 1/28/2018
 PROJECTION: WGS 84 UTM 46N
 SOURCES: UNHCR, IOM, REACH, ISCG, HDX
 DISCLAIMER: The boundaries and names used on this map do not imply official endorsement or acceptance by Caritas/CRS.

Facilities

Majhi Boundary

Funded by:



Legend:

- Bathing Place
- CFS
- Latrine
- Mosque
- Shop
- Solar Light
- Tube Well
- Pathway
- Majhi Boundary
- Slope Impact
- High Hazard
- Moderate Hazard
- Low Hazard

CREATION DATE: 2/3/2018
 PROJECTION: WGS 84 UTM 46N
 SOURCES: UNHCR, IOM, REACH, ISCG, HDX
 DISCLAIMER: The boundaries and names used on this map do not imply official endorsement or acceptance by Caritas/CRS.

Planning Activities and Resources

Through meetings with the community, the activities to carry out the shelter upgrades and site improvements were discussed and planned. It was agreed that the majority of the site improvements would need to be completed before the shelter upgrading work could begin.

Caritas was responsible for the supply of materials, and to provide technical supervision. The communities were responsible for organizing the labor to carry out the work, paid and voluntary.

The schedule of work was agreed and shared with the community so that the process was understood by all and for households to know when they would receive their Shelter Kits (Upgrade Shelter Kits from UNHCR and top-up materials from Caritas).

Implementation of Shelter and Site Improvements

The site improvements started by trials and testing different methods of constructing steps, retaining walls, and drainage channels using bamboo and sandbag structures. The most robust systems were then replicated across the site.

Prior to the distribution of the shelter kits, a demonstration shelter was constructed to show the techniques and strengthening features. This was also used as a means to assess the material quantities, and to feedback this information to UNHCR and the Shelter and Non-Food Item (NFI) Sector.

Technical support and supervision for the site and shelter work was provided throughout the process by having engineers permanently on site.

Maintenance and DRR

On completion of the work the community independently organized the ongoing operation and maintenance of the site by forming sub areas (household clusters) of the settlement to be managed by the households within each cluster. This household clustering was useful for learning and is recommended for future projects.

To evaluate the risks perceived by the communities, Caritas Bangladesh organized four focus groups (two with men and two with women) and repeated the hazard mapping exercise. The objective was for each group to evaluate the vulnerability of an area in their communities related to specific types of disaster (landslides, flooding, cyclone, fire, and sanitation issues) and to identify appropriate preparedness and response activities. This included deciding upon evacuation routes and meeting points, and to find out where the community wanted to add further latrines, bathing spaces and water points to improve sanitation.

The results of these focus group discussions were essential in understanding how safe or unsafe the communities perceived their majhis after the improvements were completed and to understand their possible behaviors during an emergency, especially for flood and cyclone.

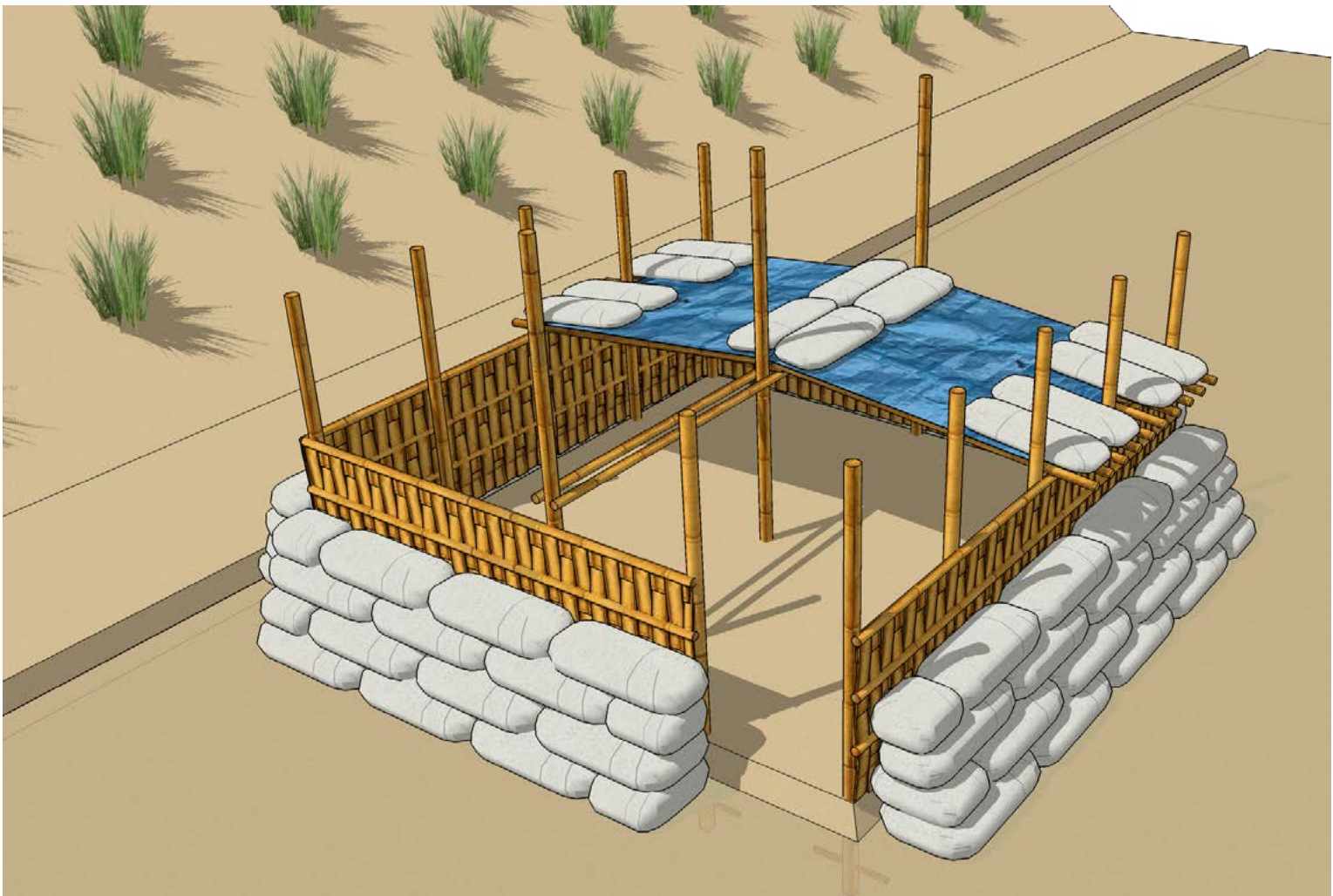
“I am happy that I can go to my neighbors’ house and they can come to mine. We all support each other all the time and that has all become stronger since we got a new house, streetlights and good pathways.”

– Rojuma Khatum

Notably, Mosques were often seen as a place of refuge but, since women cannot enter the mosques, the Child Friendly Space (CFS) building was considered suitable for women. However the CFS in the pilot site is situated in an area that is at risk of flooding. Furthermore, both mosques and the CFS will also not be able to withstand cyclone strength winds. The community needed to consider alternatives. One suggested solution was to organize in

small household clusters and to reinforce one shelter as a cyclone shelter. DRR for cyclone recommendations also included strengthening of the shelters, preserving assets and belongings if a cyclone is imminent.

The project did not include implementing the DRR plans, beyond the improvements to shelter and site, but should be integral to the process if replicated.





TECHNICAL SOLUTIONS

SHELTER CONSTRUCTION

Each household was to be provided an Upgrade Shelter Kit (USK) but at that time the kit included only two lengths of the thick Borak bamboo. During a focus group discussion on safer building, the community complained that there was **insufficient material to make an improved shelter**. It was decided to construct one shelter to see what were the minimum quantities of materials needed, while demonstrating techniques to improve the shelter.

The shelter was constructed following the main guidelines provided by the Shelter Sector and other improvements, which included:

- Plot preparation, including any retaining walls or drainage
- A raised plinth to avoid surface water entering the dwelling during heavy rains
- Ground connections fitted to vertical posts to prevent uplift
- Strong wall and roof connections
- Diagonal bracing
- Bamboo reinforced fitting of tarpaulin wall and roof covering
- Bamboo ventilation mesh
- Lock and chain for doors

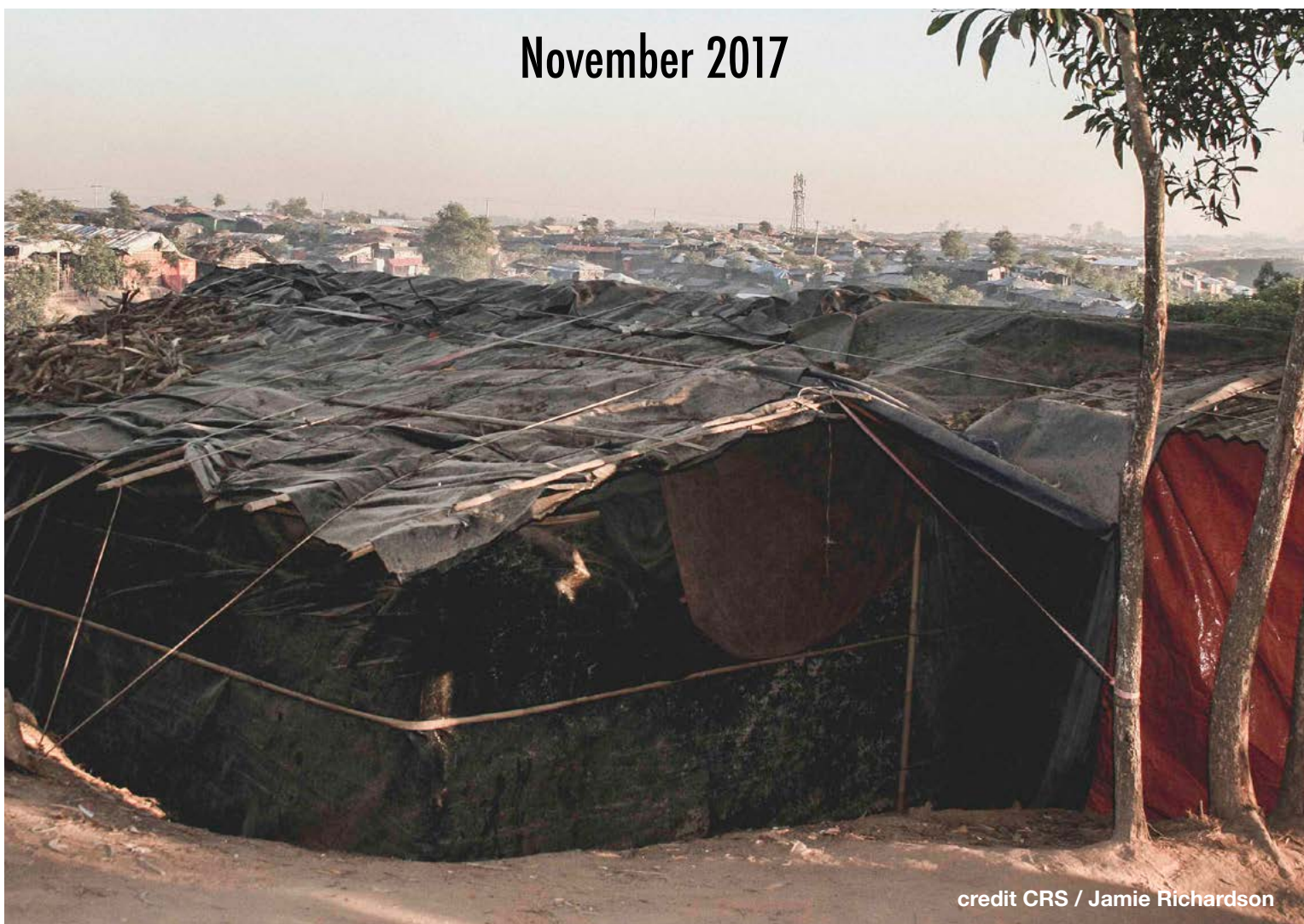
Skilled laborers from the community constructed the shelter with technical support from the Caritas engineers. This allowed others to **visit and discuss the construction** and learn about the different techniques being used.

After the shelter was constructed it was found that ideally 8 Borak were needed for the construction. This information was fed back to UNHCR and the Shelter Sector who agreed to increase to 4 pieces of Borak, based on the assumption that most households could reuse materials from their old shelters. The Caritas engineers determined that in this location there was insufficient usable materials and therefore Caritas decided to distribute a further 4 Borak per household. This enabled all shelters to have sufficient materials to construct to the recommended standard.

Once the demonstration shelter was completed, the materials were distributed to all the households. Caritas engineers stayed with the community throughout the construction to provide **technical support** and advice. Skilled laborers from the community were paid to construct shelters for families who could not build for themselves.

Involving the community in discussions about design and having them be responsible for the construction of the demonstration shelter proved to be an effective way to **transfer knowledge** ^[2]. Having the engineers and supervisors on site during the shelter building was essential to maintaining quality. It was calculated that one person could supervise between 30 and 50 shelters. The supervisors in this instance were Caritas engineers but could have been trained supervisors from the community.

November 2017



credit CRS / Jamie Richardson

February 2018



credit CRS / Christopher M. Reichert



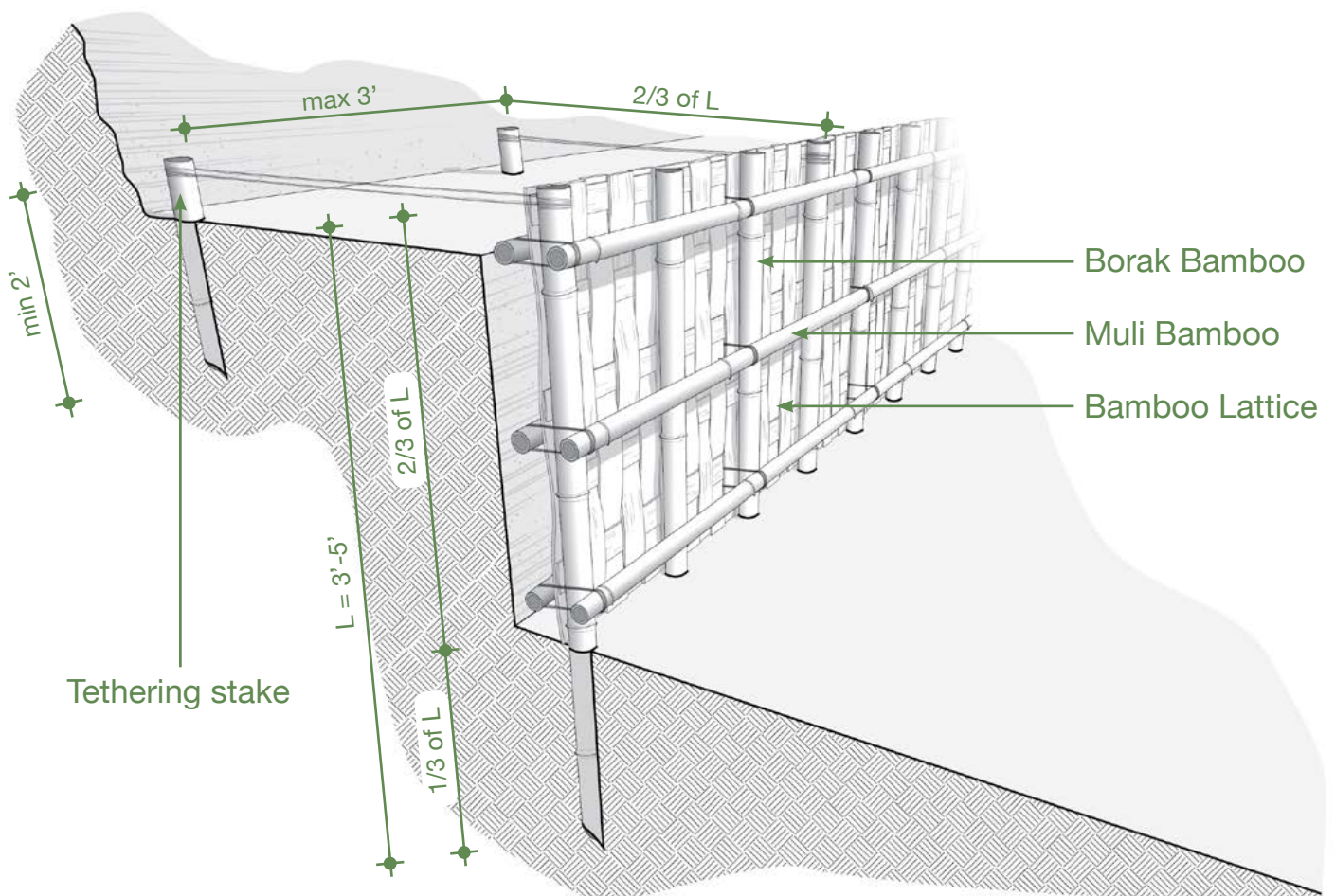
RETAINING WALLS

The Caritas engineers and workers from the community experimented with different types of retaining wall including those made of sandbags, bamboo and a combination of both. For bamboo retaining walls over 4' high, the tops of the walls were **'stitched back using rope and peg'**, a technique from World War I trench construction [6]. Ideally the retaining wall should be **constructed against undisturbed soil**, as loose backfill would absorb more water during the rains and put greater load on the retaining wall structure. For all walls,

drainage was considered essential to reduce water-logging and erosion.

Sandbags were effective as retaining walls but take up more space and for this reason were used less on the pilot project site. However, it was considered that the bamboo would have only a short life-span and in the interim other more durable solutions should be found, such as deep rooting grasses (vetiver).

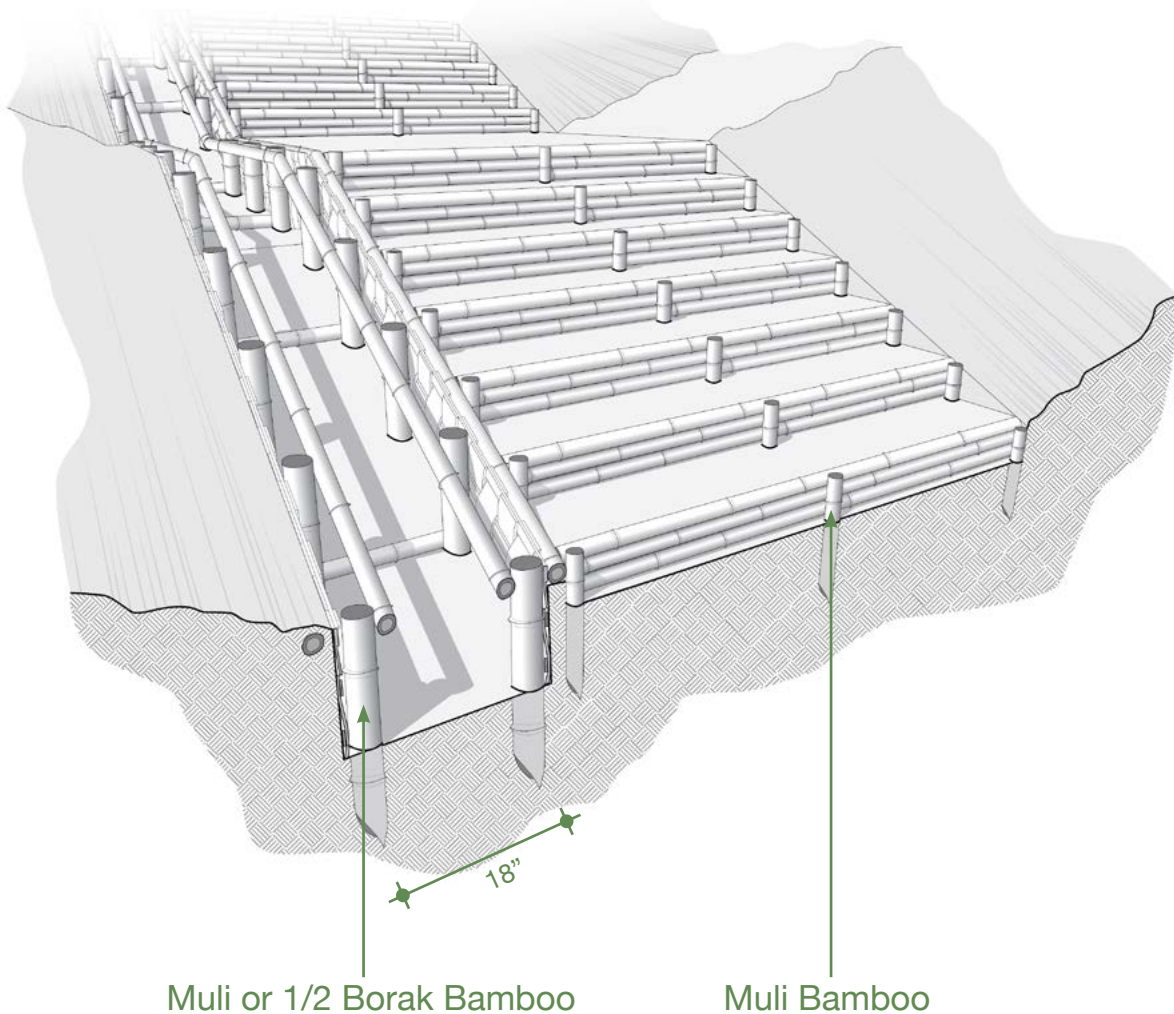
[6] Engineering Field Manual - 1914



STEPS

As with retaining walls, the project staff and community experimented with both bamboo and sand bags to make steps. The sandbags provided a short-term solution but within a relatively short period were ripped and worn through. **Steps formed**

using bamboo and backfilled with earth were most effective but require continuous repair and maintenance. It was difficult to always maintain a regular width of step but the rise was kept to a nominal 6" to 7".



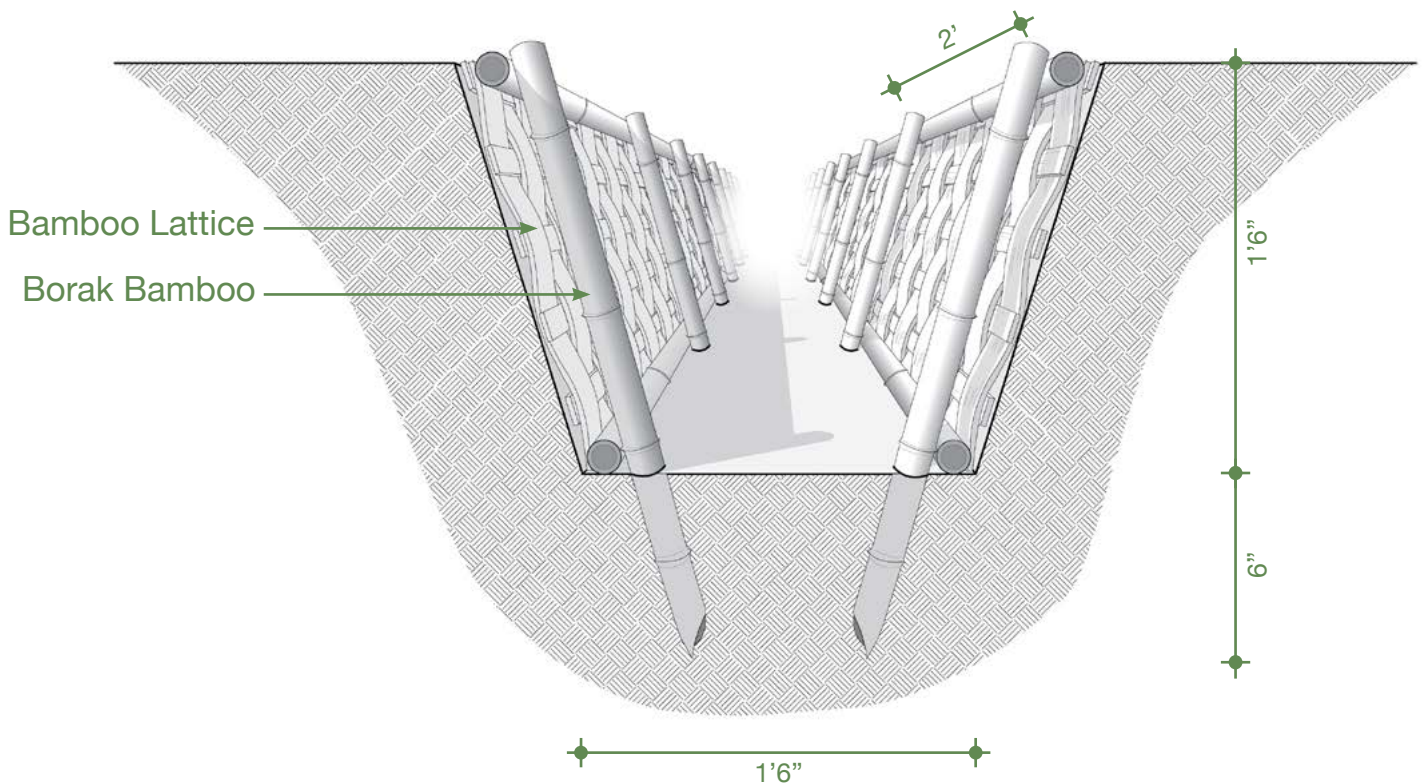




DRAINAGE

Drainage is required to remove grey water from cooking and washing and to manage rainwater. During the mapping process the main drains were marked and planned. The drains were **either constructed as open earth ditches or had channels formed using bamboo walled sides**. There is concern that not all the drains have sufficient capacity to cope with a monsoon downpour and that they will have to be

widened. It would have been useful to have had a guide to drain dimensions based on the approximate catchment area. The base of some of the drains were lined with sand / cement screed that allowed the drain to be cleaned, which proved effective to avoid stagnant water. The maintenance committee clears the drains at 7:30 AM every morning to prevent clogging.



WATER AND SANITATION

New boreholes and hand pumps were installed on the site to supplement existing facilities. Given the density of the settlement, some of these had to be installed in close proximity to dwellings, but were located away from and above the latrines on higher ground, however this meant the boreholes had to be drilled deeper. The location of the boreholes should be a primary planning consideration, which may require the relocation of shelters. It may have been better to have found more suitable locations farther down the ravine but this would have meant relocating some shelters.

Also due to the **space constraints**, alternated twin pit latrines (recommended by the cluster and GoB) could not be constructed, instead opting for **direct drop single pit latrines**. As with the boreholes, shelters would have had to be relocated to have installed the twin chamber design. This was a major constraint for the project and will require more frequent desludging.



SUPER S
MADE AS K



STREET LIGHTING

A total of 22, 20W LED, solar street lights were installed. The location of the lights was decided with the community to provide light to the main access routes, water points, and communal areas. The project also referred to the guidelines produced by the technical working group to provide specifications of spacing along pathways

of approximately 1 light per 30m. The lights were installed by the supplier with the bases prepared using community paid labour. Once installed, the lights not only provided safer movement around the site but allowed social activities to continue after dark. Also the lights provided a safer means of evacuation if needed.



credit CRS / Christopher M. Reichert

KITCHEN GARDENS

As part of the site improvements, Caritas agricultural specialists introduced simple grow bags and provided plants and seeds so that households could grow vegeta-

bles. It is hoped that this type of kitchen garden will expand over time and could provide some supplementary fresh food and enhance the environment.

“Our environment is clean now that we have dustbins, and thanks to the street-lights we can go out and walk around without any trouble ”

– Jahid Hossain



RESULTS



Assessment Methodology

To make an assessment of the impact of the pilot project, the following research methods were employed:

- Household Survey in the study group and a control group
- Key Informant Interviews
- Focus Group Discussions with men and women
- Physical Inspection by Caritas engineers and CRS staff





credit CRS / Christopher M. Reichert



ENVIRONMENTAL IMPACT

In less than two months, the community constructed nearly **2.5km of community infrastructure** (total length of steps, drains, and retaining walls) through cash for work. With their own labor, they also built **20 bathing units** and successfully **upgraded all 182 homes**. Private contractors installed **22 solar lamps and 30 latrines** in places designated by the community with technical input from Caritas. Especially remarkable has been an increase of care of the environment and community pride, which could also be observed by elements of beautification like gardens and trees that can be found throughout the two majhis.

Visual evidence

The transformation of the site is notable. The photos on the next page (p.50-51) are taken from the same location, the left on November 22, 2017 and the right 80 days later, on February 10, 2018. The pre-improvement photo shows the state of the homes, eroded gullies and steep unimproved pathways. The post-improvement photo shows upgraded homes, bamboo and cement drainage, bamboo steps, solar pathway lighting and retaining walls.



Leadership

The team has noted marked changes in the local leadership. The local leaders, called majhis, represent the community during coordination efforts with external actors and manage maintenance committees. Over the course of several months, the majhis have developed confidence and exhibited managerial leadership. The majhi oversees **six community maintenance committees** (36 unpaid members, 50% women), focusing on overall cleanliness, maintenance of basic public works (drainage, pathways, latrines and bathing spaces) and adherence to fundamental WASH behaviors.

Interest and community pride

Adjacent communities would welcome similar support, and visitors immediately recognize the difference. The sense of pride is palpable, and residents readily acknowledge, **“our community is beautiful.”** There are incipient signs of additional beautification, such as home gardens (chili, tomato and eggplant) and tree planting (guava). Although difficult to predict future impact, residents and technical staff believe the community infrastructure will be protective during the monsoons.

November 2017

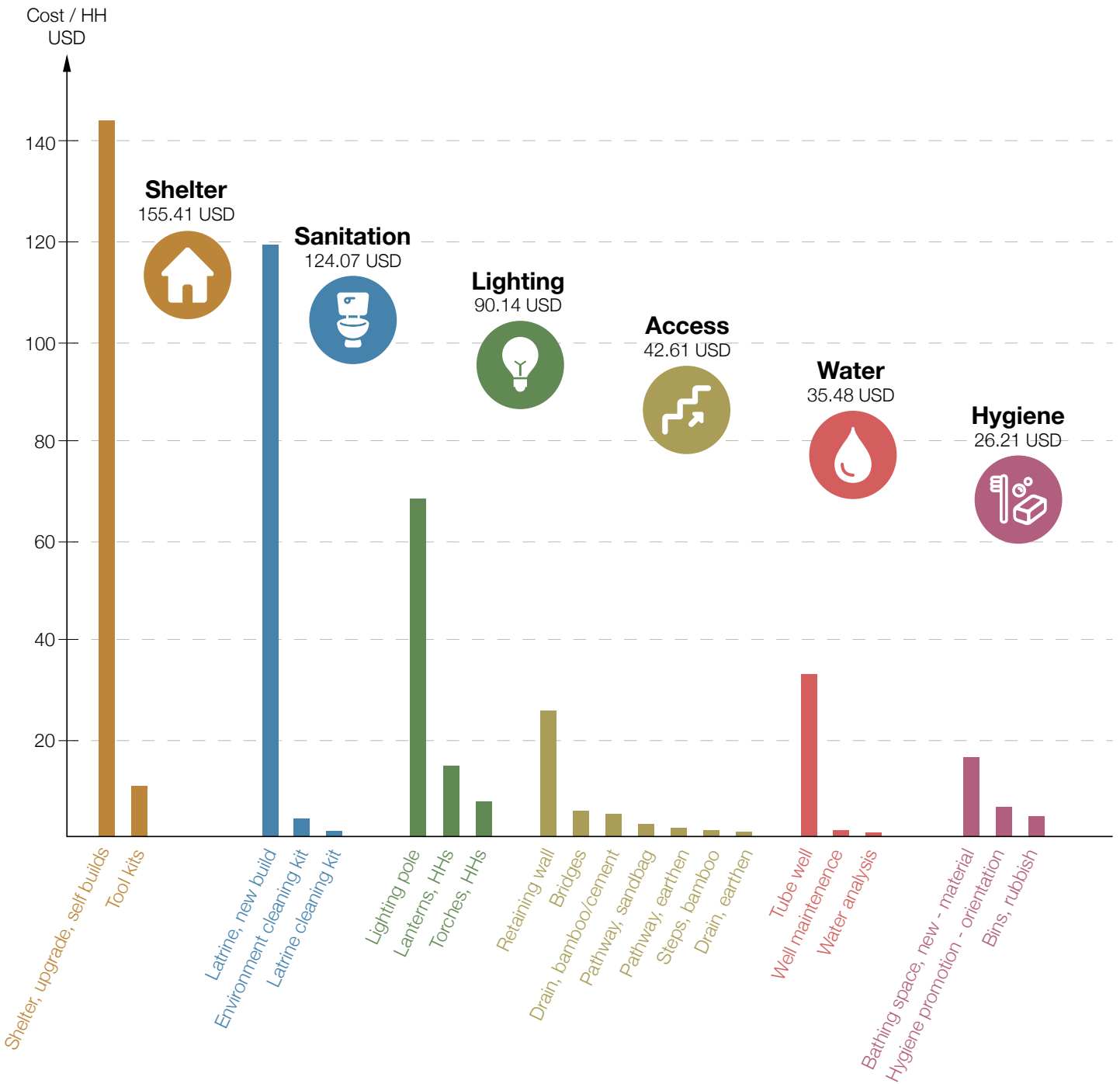
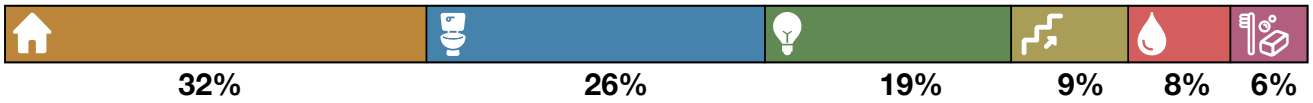


TWS
Fashion

February 2018



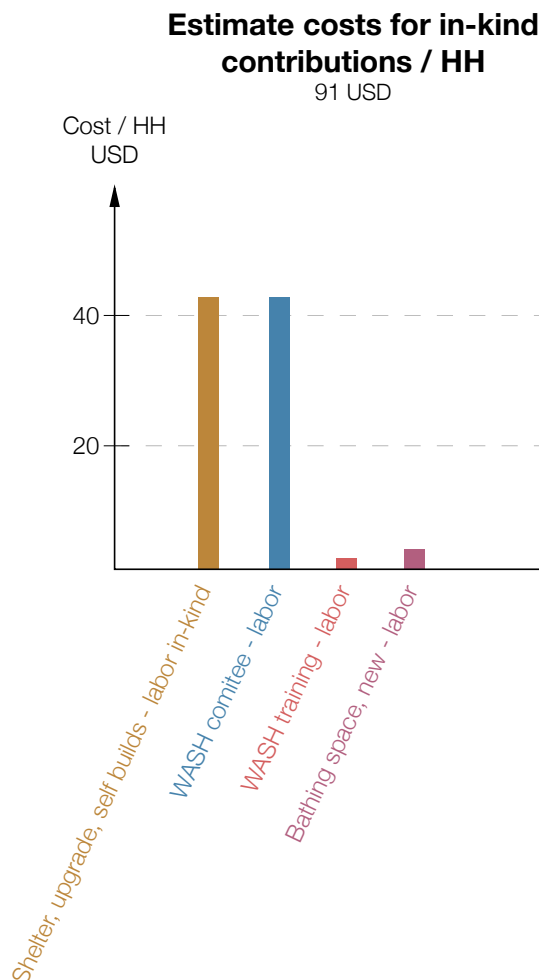
Total direct costs / HH
484.33 USD



COSTS

The case study compiled costs for inputs, local labor and community in-kind contributions. The total cost for the site improvements is **\$484 per household**. Of the total costs, the majority (81%) of the costs are attributed to five components: shelter upgrades (30%), latrines (25%), pathway lighting (14%), wells (7%) and retaining walls (5%). Community infrastructure, specifically related to flooding and landslide hazards and erosion (retaining walls, drainage, pathways and bridges), constituted less than 10% of costs, or \$43 per

household. Of the \$43, most of the cost is attributed to retaining walls (60%). Total in-kind contributions (monetized labor to build shelters and bathing spaces and to maintain the infrastructure) is \$92 per household, or one-fifth the total site improvement cost. A significant contribution to the pilot project, the **in-kind labor for shelters and bathing spaces was valued at over \$8,000**. The maintenance committee adds a level of sustainability, but also represents a significant community in-kind contribution, valued at \$7,808 per year.



SOCIAL AND CULTURAL BENEFITS

Household survey

To assess the satisfaction and perceived changes by the community, a household survey was conducted where 40 community members (20 men and 20 women) representing **40 households – 22% of households** – were asked a series of **75 questions**. The same survey ^[5] was conducted in a nearby community of the same size that served as a **control group**. Participants were chosen randomly by animators. The survey was developed by Caritas with guidance from Oxford Brookes University (OBU). The survey asked if changes had been perceived in all the different aspects of the living conditions. It also focused on finding out if community cohesion had improved with the project.

Results

What can be observed in the study group is that people on the whole are **satisfied with their living conditions** and have noticed a **significant positive change** since the project took place. The study group also feels **significantly less concerned about the safety** of their children and women now.

Major findings on community cohesion:

- Majhi 17, 20 were significantly more likely to go to other community members when they had a problem compared to the control group
- Majhi 17, 20 report being **more connected to their community**. They were more likely to describe themselves as 'very connected', whereas controls more often responded 'connected'.

- The survey data shows that Majhi 17, 20 tend to use a **greater range of groups to support them** when they have a problem.

“Because of this project our community grew stronger. We got a chance to work together and get to know each other”

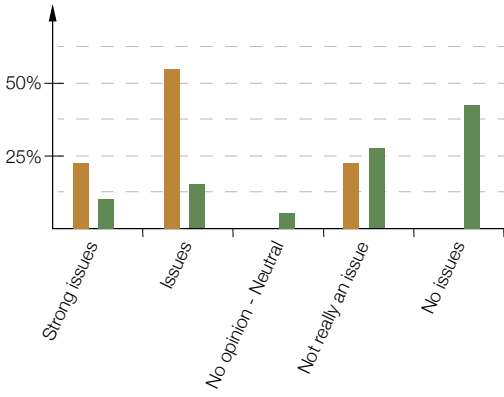
– Unanimous statement during male FDG

Focus Group Discussions (FGDs)

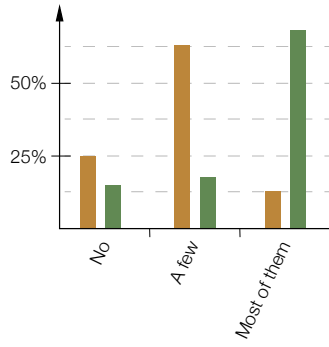
In addition to the household survey, two FDGs were conducted in Majhis 17, 20 and two in the control group, again separating men and women to allow all members to express themselves without pressure. These have shown that community cohesion had increased with the project as people got to know each other better by working together. Another important feedback of the men's FGD was that the group unanimously said: **“Everyone got involved in the decision making process and helped each other to build our community”**. On the contrary, the control group mentioned that they were not involved in the decision making process.

[5] The questions of the control group survey were identical to the ones from the study group except all the questions about change that were removed since no project had taken place there.

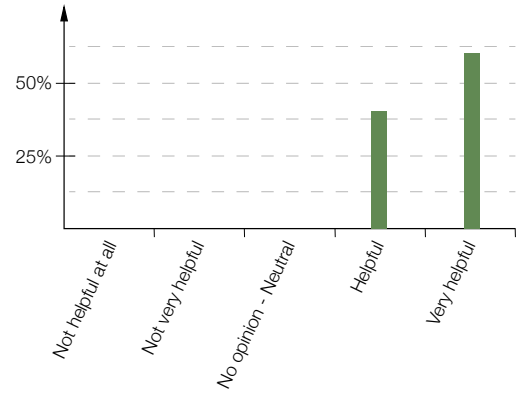
Do you have any issues concerning access?



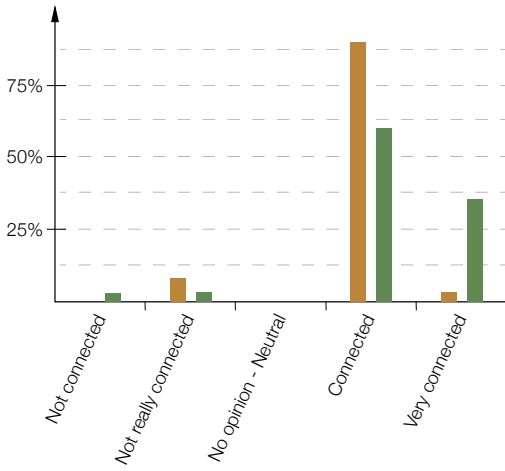
Do you live with people from the same community as before you came here?



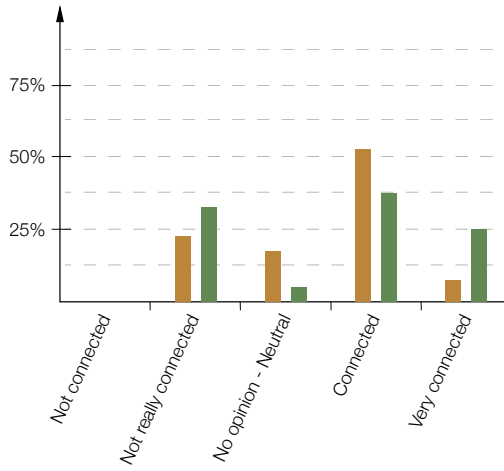
How helpful was the demonstration shelter built by CB?



How connected are you to your community?



How connected is your community?



Study Group

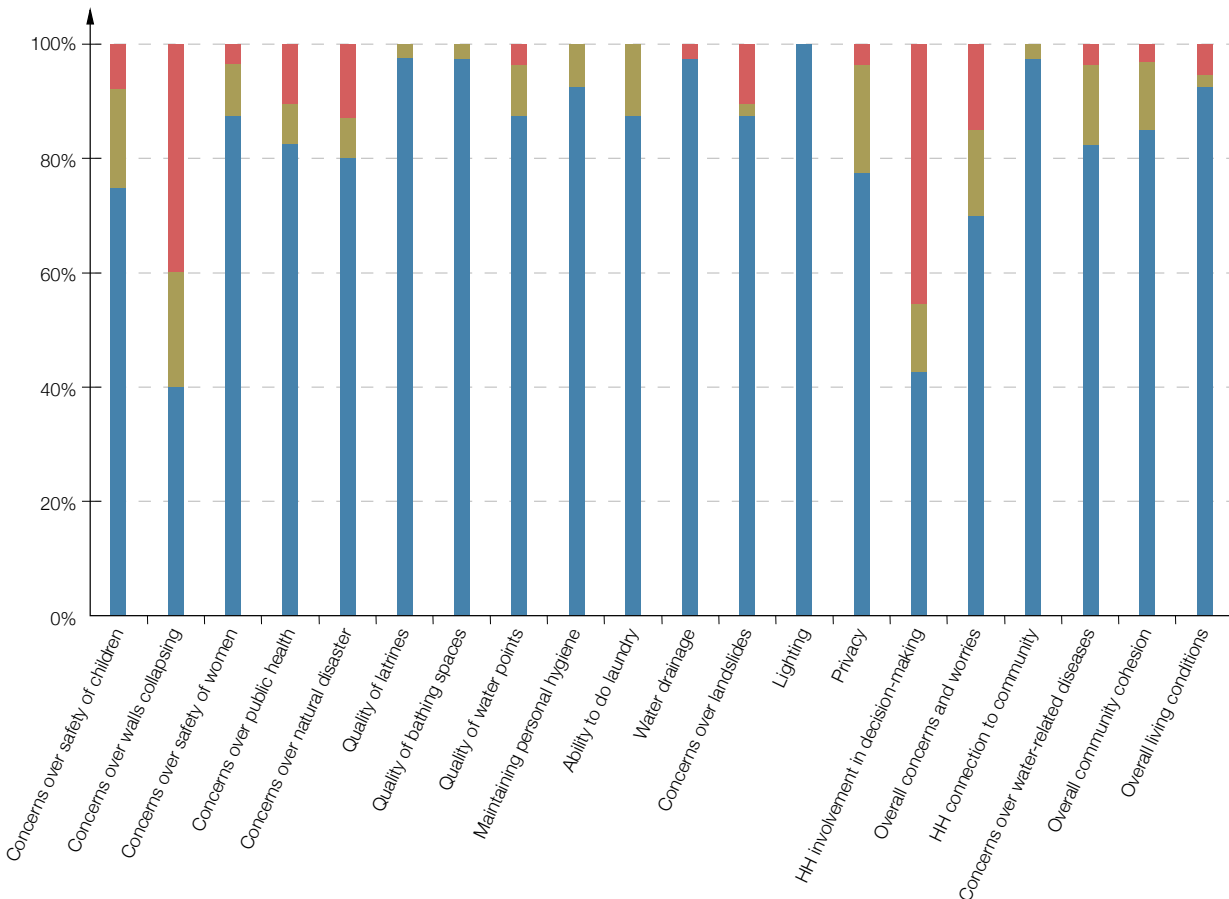


Control Group



Change observed by the community

How have the following things changed since you first arrived?



Worse now



No change



Better now



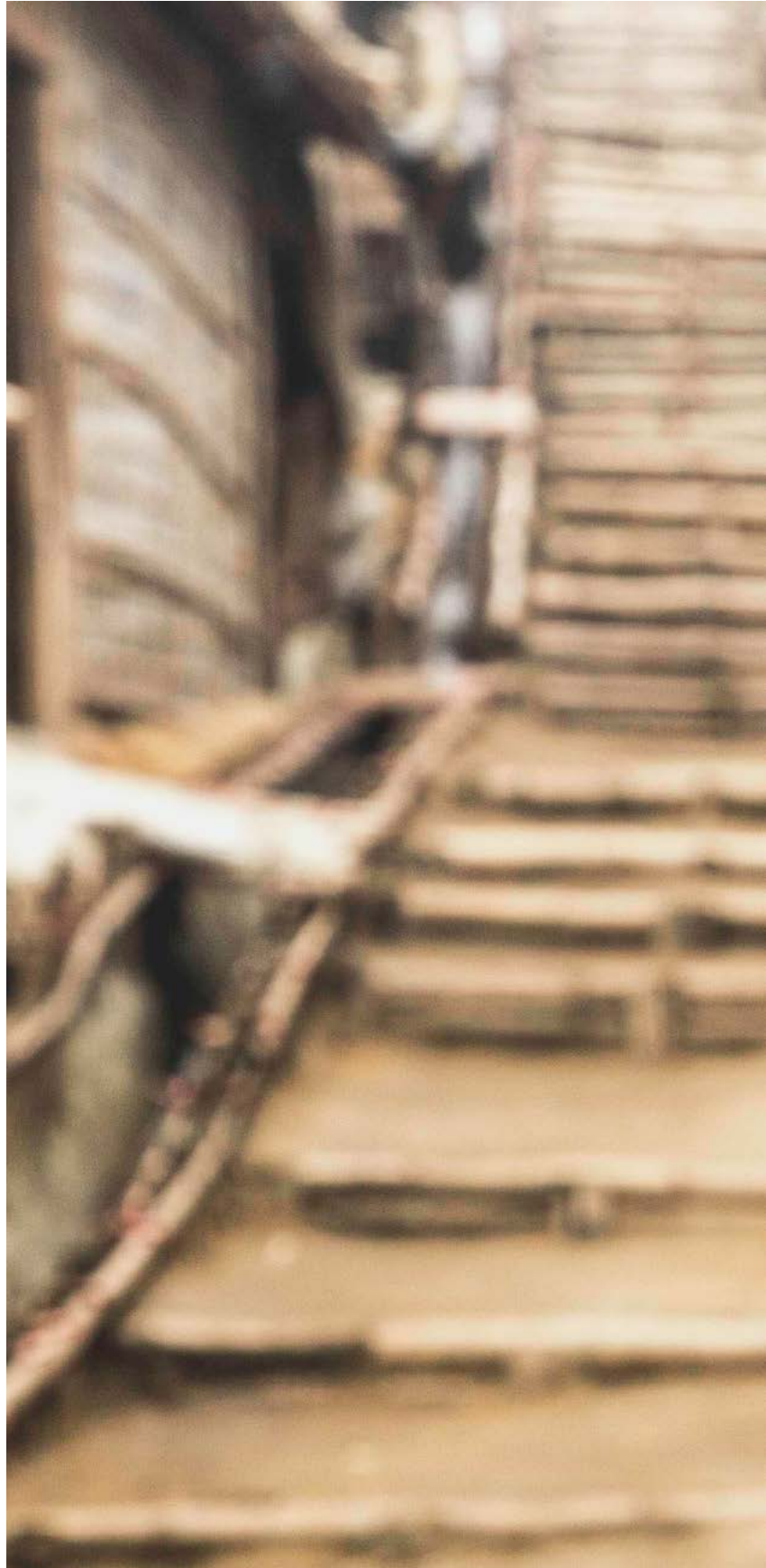


RECOMMENDATIONS



Methodology

Evidence gathering in humanitarian response is crucial to inform what works. Real time evaluation to guide the path of an ongoing humanitarian response can demonstrate direct impact. This study has shown that quality evidence involving control groups can be gathered as part of a humanitarian programme by involving trusted partners to guide the process. This activity should inform further studies to inform how academic and operational partners can work together in humanitarian response. The study also forms a useful baseline for gathering further evidence from this community in the future.







credit CRS / Christopher M. Reichert

MAPPING AND PLANNING

The mapping exercise is an essential tool for focusing and bringing the community together and is key to identifying hazards and sharing plans with the whole community.

Recommendations:

- Use a standard approach and make maps as accurate as possible from the beginning. These can be sketched over a drone image of the site.
- Ensure that GIS staff are integral to the facilitation by being present during the discussion and planning, and to record the development on site.
- Have men and women groups to do the mapping exercise separately and then combine the results.
- Ensure that people with disability are included and consulted, especially around access issues.
- Put the maps on display in the community and provide feedback mechanism. This could be an information desk during a consultation period (approx 2-3 days).
- Involve other stakeholders such as Camp in Charge (CiC) and NGO but keep in the ownership of the community.
- Design and Community Action Plan (CAP) provides clear direction to all stakeholders.
- There is a need to communicate from the offset that plans have to be realistic / cost effective / and achievable within the project period.
- The CAP needs to be listed with the roles and expectations for each stakeholder and how women will be involved.
- The CAP should be displayed for the community and should include pictures and again have a helpdesk.
- The CAP should include the longer term upkeep and maintenance, Protection, and DRR.



SHELTER UPGRADE

Participation in the design and construction of the shelters has been shown to have more lasting and wider impact than just providing information (Extending Impact Study - CRS, 2015).

- The community should be provided training and information on safer building through discussion and practical experience.
- Skilled laborers from the community should build demonstration shelters as their judgement and recommendation will be trusted by the community and therefore are best positioned to pass on knowledge.
- Always look to celebrate and build upon existing good practice. Bamboo structures should make use of traditional methods of construction where possible and make use of appropriate innovations developed by the community.
- Train technical supervisors from the community to monitor and oversee the construction but ensure they are supervised by an engineer and have a checklist to help monitor the shelter construction.



credit CRS / Christopher M. Reichert

SITE IMPROVEMENTS

Site improvement is the start of a process and commitment by the community to maintain and care for their environment. So that this has the greatest chance of long-term success, improvements have to be within the capacity of the community to maintain or have the commitment of external agencies to support.

- Sandbags have limited durability for use as steps or retaining walls due to Ultraviolet light (UV) and wear, and the plastic pollutes the environment. Look to avoid constructing steps from sandbags and suggest the use of jute bags and complement with planting grasses and trees for longer term stabilization.
- Tying back of high retaining walls is a good technique but pegs need to be set further back from the retaining walls to be effective.
- Site improvements using bamboo will last only 2-3 years. Planting of grasses and other plants should be part of the project to provide a long-term solution.
- Solid waste management was included in the program and has encouraged cleaning of the site but there is no place to dispose of the waste. More than 65% of solid waste is organic and therefore compost bins should be included for each cluster of house.

SOCIAL IMPACT

Engagement with the community could have been better planned to provide greater inclusion, especially for women, but also other marginal groups such as people with disability. The project also did not adequately involve other stakeholders, such as the Camp in Charge, and other NGO providing services within the camp. These failings were due to the speed of implementation but also because the project was developing its approach whilst implementing. In future the following is recommended:

- Create a committee that has wide representation and members that cover the geographic areas of the camp. The site could have been divided into clusters of 10-20 households and a male and female representative be nominated from each cluster and come together to form the committee. This way the whole site is represented and forming smaller groups will assist in taking responsibility for the care and maintenance over the longer term.
- Where women cannot join a committee for cultural reasons, have a separate women's group. This group should be run by women so that their views are better understood.
- More opportunities should have been found for women to have been involved in the implementation. This should be discussed with women to see what they would like to take part in, such as the planting and care of grasses or the manufacture of bamboo components for construction of walls
- Share the process and plans with other stakeholders and encourage their participation. This should include government as well as non-government actors so that they are also partners in the project.
- Social Cohesion and Community Capacity Building was enhanced during the process but should be encouraged to have direction and a further vision for their community, such as longer term improvements to the environment, community infrastructure, and disaster risk reduction.
- Information and training should be provided at the beginning of the project to better describe the objectives, processes, and expectations. Also to explain and share information on the humanitarian response plan in terms of the phases of the response and the assistance they can expect to receive.
- The project could have been more transparent and shared more widely information about the project. A project / site notice board where site plans and other information could be displayed would have helped and also to have a help desk or similar where people can go to ask questions or make complaints.

GENDER AND WASH

- Females animators vs male animators: It is easier to interact with families when animators are females. A female would be invited to enter the house and is allowed to talk to both males and females. Males animators must stay outside of the shelter and are allowed to talk only to males.
- In the project area the CiC instructed that females animators cannot walk around by themselves. Two females together can or one female and one male.
- Latrines are separated between men and women in theory but in reality people use either one or the other disregarding gender due to limited latrines facilities availability.
- Male community leaders (Mahjis) should be consulted throughout the process and women focus groups should to be led by women only. During the exercise with one group of women, the Mahji was present and very dominant in the discussions.
- A dedicated engineer team is necessary to ensure good quality of work from contractors (tube well, latrines).
- Pump committees are required to maintain and clean the water point. This will require training by engineers and access to tools and replacement parts.
- Hygiene promotion should be integrated with other activities such as Protection and DRR. Social animators should ideally be from the community and provided with training and resources.





GUIDELINES FOR IMPLEMENTATION





PROCESS DIAGRAM







1. INTRODUCTION

Prior to working with the community it is important to make the right introductions and ensure that the all stakeholders are informed.

a. Approval from CiC and other authorities

Have prepared a document or presentation that shows the process and explains the benefits. Be willing to make adaptations to the program to incorporate recommendations and address any concerns. Provide details of the activities and a schedule showing the implementation timeframe. Ideally request written approval to carry out the activities.

b. Meeting with key communities leaders and stakeholders to introduce the program, explain processes, roles and responsibilities

Arrange through the community leaders to have a meeting with representatives from the community and other stakeholders to present the proposal. This should include an overview of the shelter and site improvement sector strategies; an outline of the objectives; expectation of the contributions and commitments of the parties; expected timeframe. Allow time for the group to discuss between themselves and accept beneficial changes to the program.

Another approach can be to visit sites that have already been improved and ask representatives from that community to explain the process and provide advice.

c. Agreement with the community

So that there is no confusion or disappointment, produce a simple agreement that describes the roles and responsibilities and the commitments of all parties.



2. ORGANIZATION, INFORMATION SHARING, COORDINATION

It is important to have representation from all areas of the site and from the different groups, including men, women, girls and boys, and people with disability. There may already be committees formed but these should be diverse and provide broad representation.

a. Household clustering

As an administrative unit the Mahji may be too large to enable effective involvement at household level. Smaller 'Clusters' of households (approximately 25 households max.) can provide a way of focusing activities and providing better representation.

b. Forming Committees

Identify a male and female representative from each cluster that are brought together to form the committee along with other key community stakeholders. This may utilise existing community structures and organisations but should include representation of both men and women across the camp.

c. Coordination

As the NGO is partnering with the community to undertake the improvements, there needs to be good communication and coordination. Have planned and structured meetings and record decisions and actions. The Committee and NGO need to have a contact person to ensure that communications are structured.

The group and NGO should keep the CiC informed and together coordinate with other partners as required.

d. Community information sharing – notice board, help desk (focal point)

Decisions and plans will be shared with the community through the household cluster committee members but also should be published. Notice boards can be effective in sharing.



3. ASSESSMENT

a. Plan of the existing site

Using drone imagery and physical measurement and observation, produce a detailed plan of the site. This should show all the shelters (individually referenced), community buildings, access routes, water courses, and all other infrastructure. Ideally this can be produced as a GIS map so that information and images can be included, but a physical hand drawn plan can suffice. The plan should be checked by the committee to make sure it is accurate and advise on any corrections.

b. Household survey

At the same time the site plan is being produced a household survey should be carried out to understand the size of shelter and plot, number of occupants, demographic data and any vulnerabilities. This data may already exist from previous surveys and registrations. Each household should be identified using an appropriate reference (eg. ration card number) and be linked to the house number. When using GIS, this will allow the information about that household to be embedded in plan, which can later be used in site planning to help meet individual household needs.

c. Site Hazard and Risks Assessment

Having completed the site plan, the NGO can overlay flood and landslide risk maps to show where there are hazards and who is at risk. The committee should also identify hazards on the map, which may include other hazards and risks, such as security, fire, environmental health from effluent and solid waste.

d. Community Capacity (skilled and unskilled labour)

The committee should consider the skills and capacity needed and identify these people within the community.

e. Existing knowledge Attitude and Practices for shelter, WASH, monsoon and cyclone

In meetings with the committee ask how they will cope with the monsoon and possible cyclone; how this might have changed in their current situation; and what else they would like to do.



4. MAPPING AND PLANNING

a. Review and revise site plan

In committee, using the plan, propose changes to improve the site. This may include the relocation within the community of some households, changes to some public infrastructure and the inclusion of improvements to steps, retaining walls, drainage channels, paths and lighting. These changes then need to be agreed with the individual households and a new plan drafted to show these changes, and shared with the whole community using the notice board and help desk.

b. Produce a list and schedule of the improvements for each cluster of households

The works at each cluster can then be identified and made as separate plan or lists for those households to follow. This will enable the households to contribute to improvements and know what external support to expect.

c. For each task identify the resources needed (community and agency)

The materials and labour for each task should be calculated. The list of materials required is then used to organise procurement and delivery, and the labour requirement for each task used to organise and schedule the labour for each day.

d. Identify the roles and responsibilities

All the activities will require supervision and technical support to ensure that the works are completed on time and to the right standard. As far as possible the community should fill these roles with support from the NGO. This may require on-the-job training to provide the requisite skills.

e. Identify the training needs and activity

Training should be provided for all aspects of the work, duties, and responsibilities. Technical training should be through practical hands-on activity, such as shelter and infrastructure construction, followed by mentoring and monitoring. Training for supervisory roles is best through accompaniment and mentoring. Given the relative simplicity of the tasks, training can be fairly short but does require after-training mentoring and support to provide quality assurance.







5. IMPLEMENTATION

a. Supply of materials

Produce a schedule for the supply of materials. Having all the materials on-site at the same time may not be possible because of space issues and it increases the risk of damage and theft. Materials may be signed over to the community for their care and safekeeping, otherwise the NGO will need to have the means of storage, security, and the dispatch of the materials for the works.

b. Technical supervision

While very little of the improvements to site or the upgrading of shelters is technically difficult there are times when technical advice may be required and there should be an engineer on site to address any issues. Also it is important to have a qualified person who is independent to monitor the work to provide quality assurance. If possible this should be a suitably experienced and qualified person from the community.

c. Monitoring and supervision of the work

The community should be encouraged to take responsibility for all aspects of the work including the quality of construction. This will be important for longer term ownership and maintenance of the shelters and the site. The community can select people to supervise the work and the NGO can provide a short training and mentoring for these supervisors during the first days. The supervisors should be made to feel responsible and to be proud of their work to encourage them to be diligent in their duties.

d. As built site plan revisions

As the work is completed the plan (GIS map) should be updated to record any changes and to have an as-built plan of the site. The site will likely change again as the settlement evolves and this plan will serve as a historic record but also as a tool to assist planning any future development.



6. MAINTENANCE

a. Technical specifications and schedule for maintenance

With community agree the activities that will be needed to maintain the shelters and all other infrastructure on site. This should include the regular cleaning and maintenance of water courses and drains, as this is essential for the protection of the environment. Each task should be described, including the frequency of the activity. For example: latrines should be washed and disinfected daily; paths and steps maintained as required; drains cleaned out weekly.

b. Resources

Without any form of income the community may still require external support, including the supply of materials. Given that the bamboo being used will decay, there will be a need for replacement. With the community plan the replacement rate based on the durability of the material and its location. For example: bamboo posts in the ground will last 2 years, therefore there is a 50% replacement rate each year; bamboo wall mats may last 4 years so there is a 25% replacement rate. Together with the community, make a calculation of the materials that will be needed.

c. Roles and Responsibilities

Roles and responsibilities for care and maintenance should be developed at committee, household cluster, and household level. The committee should be encouraged to continue to provide oversight and to encourage household clusters to maintain their areas of the site. Roles and responsibilities for care and maintenance should be fair and equitable and agreed by all, especially women, to ensure that the burden is not given to one group.



7. DRR

a. Identifying hazard and risk scenarios

The community through meetings with the NGO and other stakeholders consider the risk associated with flood, cyclone, fire, disease, and personal protection. The community may add to or refine this list. Risks may be rated or ranked based on the likelihood and the severity of the impact to agree which to prioritise.

		SEVERITY				
		Insignificant	Minor	Moderate	Major	Severe
LIKELIHOOD	RISK					
	Almost certain	Medium	Medium	High	High	Extreme
	Likely	Medium	Medium	Medium	High	Extreme
	Possible	Low	Medium	Medium	High	High
	Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Low	Medium	High	

b. Planning responses

Each scenario should consider:

- Who is at risk
- Why they are at risk
- What can be done to prior to an event to mitigate or remove the risk
- What are the response activities can be taken to reduce the impact of an event

c. Resources / Roles and Responsibilities

The communities will have to consider how best to cope with minimum or no external assistance and should include looking at traditional coping strategies as well as any innovations. However, the NGO or other stakeholders may be able to provide some assistance but this should be durable and not perishable items unless resupplies can be guaranteed. Roles and responsibilities should be identified for both mitigation and response activities.

d. Training and Information Sharing

Training and support by DRR experts will assist the community through the process. There may also be some specific training needs identified as part of the risk assessment, such as coping with fires, first aid, or the construction of basic cyclone shelters. Training may also include simulations and other events with the support and guidance of govt or NGO.



8. FUTURE PLANNING AND IMPROVEMENTS

Over time the community will want to develop the social infrastructure, improve living conditions, and have access to livelihoods. This may require further changes to the site plan to make space for workshops, shops and markets, schools and children's play areas, and so on. Given the limited space this may require further rationalising the available space and developing higher density house designs.

Creating a vision or master plan of how the community could be developed will allow the community to schedule and prioritise improvements to realise what they can achieve with their own resources and what external assistance may be required.



