

COX's BAZAR | 2019

technical review mission
of swiss solidarity supported projects
shelter support and public buildings
(RO17 & JRZ18) - October 2019



mobilstudio

Nadia Carlevaro

3rd of April 2020

Acknowledgements

The evaluator would like to express her thanks to the Swiss Solidarity for their trust and add her sincere gratitude to all partners for openly sharing their views and opinions, preparing materials for a better understanding of their projects and making this evaluation fruitful. The author would like to extend special thanks to all those responsible for the logistical support, organizing accompaniment during field visits. Particular gratitude goes to Renee Wynveen for taking her valuable time in proofreading.

Abbreviations:

AFP	Area Focal Point
BDRCS	Bangladesh Red Crescent Society
CiC	Camp in Charge
CB	Caritas Bangladesh
DGHS	Directorate General Health Services
ESK	Emergency Shelter Kit
EVI	Extremely vulnerable individuals
FGD	Focus Group Discussion
GoB	Government of Bangladesh
HP	Health Post
IEC	Information, education and communication
ISCG	Inter Sector Coordination Group
IOM	International Organization for Migration
JRP	Joint Response Plan (for Rohingya)
KI	Key informants
MdM	Médecins du Monde
MoH	Ministry of Health
MoDMR	Ministry of Disaster management and Relief
MPHCC	Multi-purpose Health Care Centre
MRF	Material Recovery Facility
MTS	Mid-Term Shelter
PDM	Post Distribution Monitoring
PHC	Primary Health Centre
PROTT	Prottiyashi (national NGO)
RRRC	Refugee Relief & Repatriation Commissioner
SFP	Shelter Focal Point
SMEP	Site Maintenance Engineering Project
SMS	Site Management Support Agency
SMSD	Site Management and Site Development
SRC	Swiss Red Cross
SWM	Solid Waste management
SwS	Swiss Solidarity
TDK	Tie Down Kit
TSA	Transitional Shelter Assistance
TWIG	Technical Working Group (Sector)
USK	Upgrade Shelter Kit
UNHCR	Office of the United Nations High Commissioner for Refugees
YPSA	Youth Power in Social Action
Borak	Big size bamboo (structural purposes)
Muli	Small size bamboo (non-structural purposes)

Evaluation and report by

nadia carlevaro | mobilstudio
accacias 76 | CH – 1227 geneva
+41 76 393 24 77 | nadia@mobilstudio.ch

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Introduction

Mission outline

The present Technical Review Mission takes place two years after approximately 750'000 Rohingyas refugees fled the violence in Myanmar (August 2017); and self-settlement in 32 overcrowded camps in the south of Bangladesh. Since the influx in August 2017, the authorities have not allowed for permanent constructions in the camps, imposing shelters and public buildings to remain of a transitory nature.

This evaluation assesses the Swiss Solidarity funded projects of five Swiss NGOs involved in the construction or maintenance of shelter and public buildings, in assistance to the refugees and host population. The field mission took place between the 19th and the 24th of October 2019, with 4 days of visits in the camps.

The NGOs and project visited during the missions are:

- **Swiss Red Cross** with its Primary Health Centres and Solid Waste Management facilities.
- **Médecins du Monde Suisse** with the maintenance of their Health Posts.
- **Medair** with its transitional shelter assistance project.
- **Solidar Suisse** with its transitional shelter assistance and proposal for a bamboo treatment plan.
- **Caritas Switzerland** (2 projects) with its transitional shelter assistance and mid-term shelter project.

As it had just submitted a new project proposal for transitional shelter assistance, a sixth NGO (EPER) was added and met during the evaluation. Unfortunately, there was no time to visit their previously implemented shelter projects.

Objective of the mission

The purpose of this Technical Review Mission was to evaluate the safety, efficiency and technical adequacy of shelter support and construction of public buildings by SwS partner NGOs, thus assessing the quality of the ongoing or finished constructions. Recommendations should highlight lessons to be learnt and ways to improve or help advancement of the projects. As stated in the ToR, TRM specific focus points were:

Shelter strategy and implementation

- Evaluate the adequacy of the shelter strategy in the camps.
- Evaluate the safety, appropriateness of the shelters, as well as their resiliency against natural hazards.

Health posts and health centers

- Evaluate the compliance with SwS Minimum Standards on reconstruction of Public Buildings chapter 2 (implementation and quality control system).
- Specific focus on their safety, resilience against natural hazards, accessibility, operation and maintenance, as well as their environmental impact.

Limits of the report

The objective and content of this report concentrates on the technical analysis of five construction and maintenance projects of Swiss NGOs, selected by SwS when the ToR were issued. For that matter, the general context will only be outlined. Constraints, challenges and recommendations are described comprehensively in each project assessment sheet and summarised in both the Health Sector and Shelter/NFI Sector introductions. Some main recommendations for SwS are also summarised hereafter.

As such, this report focuses mainly on aspects of technical construction and does not look at the health-related component of both SRC and MdM's respective projects. The Rohingya context in Bangladesh is extremely complex. Space and opportunities for humanitarian actors to improve the situation is continuously changing and unfortunately rather reducing. The time for the evaluation was very short, allowing for less than a day visit per partner, making it challenging to ensure a thorough analysis of such projects. Given the limited time, this evaluation does not claim to be complete nor to have covered all the necessary points for an optimal comprehension of the existing difficulties. In view of this, some inaccuracies and omissions may occur. Therefore, certain recommendations and propositions should be analysed in their global context in order to verify their relevance and feasibility.

General context

As said previously, the Rohingya situation in Bangladesh is becoming critical due to its magnitude and protracted nature. Entering the third year after the influx, the main challenge humanitarian actors are currently facing is to transform existing emergency operations to address medium-term needs within a context where the authorities remain resistant to efforts of creating any structures, infrastructures or policies that suggest permanency.

A cumulative 750'000 new Rohingyas refugees have settled in Kutupalong Expansion Site and other camps, adding to the community of almost 350'000 longer-term displaced Rohingyas. In addition to the location having many environmental challenges, poor access and insufficient natural resources, the lack of available land is leading to extremely congested sites. This is exacerbating the risk of natural hazards and limiting the capacity of agencies to provide settlement and shelter solutions that follow minimum sphere standards. Moreover, Cox's Bazar is already one of Bangladesh's poorest and most vulnerable districts and the risk of tensions between the Rohingya refugees and the local population could become a major issue in the long run if not addressed properly.

The difficult political context has become even more challenging after the mass peaceful demonstration, that gathered tens of thousands of Rohingya refugees to mark the second anniversary of their exodus. Since then, the space for humanitarian actors has reduced, complicating their work environment (including visa obtention) and which requires humanitarians to have more than ever flexibility, diplomatic skills and inventive solutions.

MAP – Partners coverage

Health:

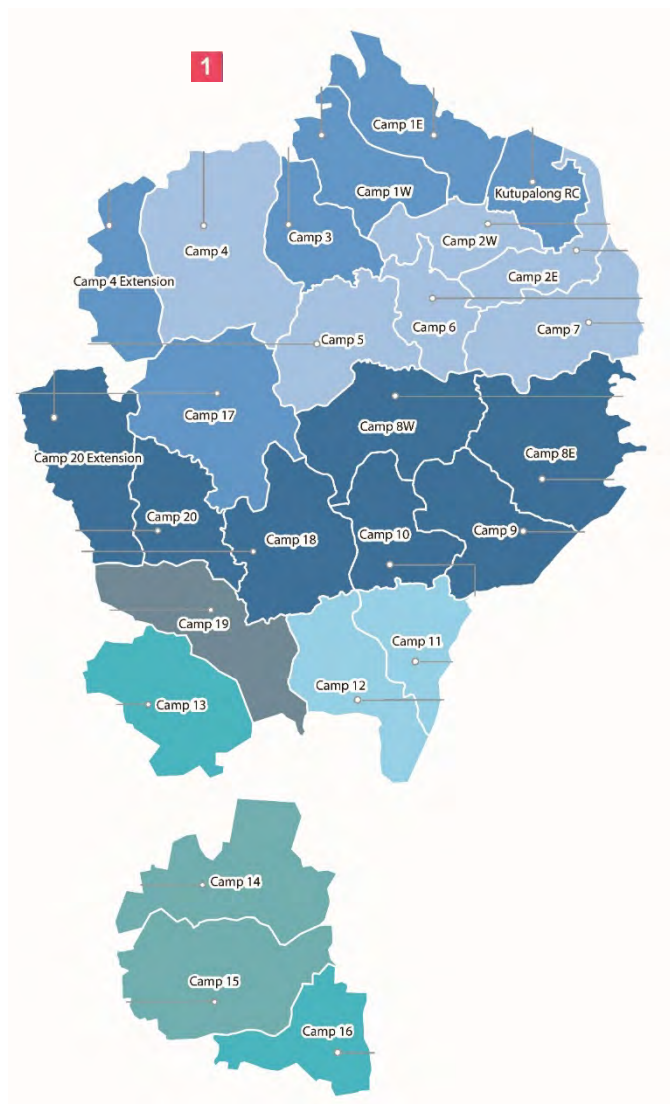
- **SRC** 3 built PHC in camps 11, 13 & 15
SWM (MRF) in camp 15
- **MdM** 2 planned PHC in camps 2E & 16
2 existing HP in camps 11 & 7

Shelter:

- **Medair** TSA in camps 8W & 8E
- **Solidar** TSA in camp 14
- **Caritas** TSA in camps 4, 17, 19 and 20
MTS in camps 19 and 4ext

Camps visited during the evaluation mission:

- **Camps** 15, 11, 7, 8W, 8E, 14, 19 and 4ext



Health Sector – Public Buildings

❖ Health Sector – Public Buildings

With approximately one million Rohingyas living in overcrowded camps and unable to work or travel, the provision of accessible health services is a humanitarian fundamental and has been the focus of the Health Sector since the influx in 2017. The Health Sector is co-chaired by the World Health Organisation (WHO) and the Civil Surgeon of the District of Cox's Bazar (Ministry of Health), with the support of the coordination centre (cell) under the Directorate General Health Service.

In Camps, there are three types of health facilities / buildings:

- MPHC: Multi-Purpose Health Care Centres, also called “hospitals”, cover 50'000 people (approx. 4000-4500 ft²). These are **semi-permanent structures**. Only 11 such structures exist in camps.
- PHC: Primary Health Centres cover 25'000 people and are open 24/7; they provide all types of services and are equipped with a maternity (approx. 2500-3500 ft²). Primary services are provided by the Directorate through the deployment of government health personnel, all other services and management of the Centre are ensured by partners. These are **semi-permanent structures**.
- HP: Health Posts cover 10'000 people; they provide primary and general services, only during the daytime (approx. 1000-1200 ft²). HPs are run and all services delivered by partners. These are **temporary or semi-permanent structures**.

In order to ensure an equitable access, the Government and Health Sector plan is to establish 1 PHC in each camp, equivalent to 32 PHC's in total. Currently 13 Camps still lack a PHC. On the other hand, there seems to be an excess of HP, and many will be decommissioned in the coming year, following the desire to rationalise the health service delivery and ensure a more efficient and fair coverage.

There is no government official design or guidelines either for PHCs or for HPs, with the exception of their average catchment area, related dimension/surface range and number of observation bed requirements. At the onset of the crisis, the only structures the government allowed agencies to build were of a temporary nature, thus mainly in bamboo. Since then, PHCs are to be built as semi-permanent structures. Recently, the government has allowed for HP to be built in a semi-permanent way as well.

❖ Main recommendations for Public Buildings

Advocacy role - As much as possible, do not compromise on quality and safety. When choosing the construction technique, and in full awareness of the situation, still advocate for safety and longer-term solution to avoid maintenance and/or repair costs. Always prioritize locally available and easily replicable techniques. Partners have an advocacy role to promote technique and safety as well as in coordinating and sharing their experience and expertise with other health stakeholders.

Technical expertise. Strong technical expertise is imperative when dealing with public buildings. Structural safety of the technical design (drawings) is to be cross-checked and validated by a specialised engineer or engineering firm. As well, the structural conformity after completion ought to be verified. When local expertise is chosen, partners should add an “external” control level (such as HQ engineers) as a mitigation measure.

Quality control and monitoring. Despite the “temporary” nature of the buildings, partners must ensure their safety. Close supervision and quality control must be ensured from the design to the hand-over. An experienced engineer(s) is (are) to be present in the field to monitor the construction throughout the implementation and supervise the technical team or local partner.

Prioritize and advocate for safe and accessible sites. Access to and inside health facilities, including for persons with disabilities, are to be guaranteed while taking into account weather constraints. Partners have the responsibility to ensure site safety by implementing the necessary measures, such as proper drainage and slope stabilisation.

Ensure appropriate sanitation and minimum comfort. Special attention should be paid to sanitation, in order to mitigate its environmental impact and health hazard, and with particular awareness on gender and disabled persons. Additionally, proper light and ventilation should be provided.

Be flexible in the design. To allow for future partitioning/ additions according to future needs and constraints.

Shelter & Site Improvements

❖ Cox's Bazar Shelter & Settlements

Shelter & Settlements Context.

With the recent influx of approximately ¾ of a million Rohingyas, Bangladesh is experiencing one of the worst humanitarian crises in its history. The forest land allocated to the Rohingyas by the GoB has been cleared, roughly terraced and divided into 32 overpopulated camps, most of which present many environmental challenges in terms of topography, access and lack of natural resources. As a result, most of the households had to settle on steep grounds and dug terraces, at risk of landslide especially during heavy rains. Only few households on sites considered at high risk have been or are planned for relocation in the western extension camps.

As additional land is not available, mainly for political reasons, the sites are extremely congested with an average density of 18 m²/person which is significantly lower than the SPHERE standards recommended 45 m²/person. As a comparison, Rohingya refugee camps are six times denser than New York City (haefa.org). Lack of space further results in substandard shelters, exacerbated by the necessity to accommodate large families, with an average covered area of about 2.5 m²/person instead of the advised 3.5 m²/person¹.

Basic emergency shelters have been built by the Rohingyas using a range of plastic sheet, tarpaulin, bamboo and other locally sourced materials. Successive improvements have been made in compliance with governmental regulations and limited humanitarian financial and technical resources. In light of Bangladesh's political agenda to repatriate Rohingyas to Myanmar, there are very clear restrictions for shelter construction/improvement in the camps. Allowed materials are limited to mainly bamboo and tarpaulins, with very limited use of RCC pillars (allowed only for one type of shelter: MTS). The use of permanent masonry and metal roofing is not permitted (CGI sheet is also restricted as the area is exposed to cyclones). The GoB intends to maintain the temporary character of the camps and avoid permanent settlements. This creates a very difficult and restrictive working environment for shelter actors, further complicated by the protracted nature of the crisis and uncertainty of funding in the future.

Shelter/NFI Sector | SMSD Sector.

The Government of Bangladesh leads the Rohingya response with the Office of the Refugee Relief and Repatriation Commission (RRRC), under the Ministry of Disaster Management and Relief (MoDMR), covering operational coordination at the district level. For each camp, the government has deployed a Camp in Charge (CiC), who oversees the work of the UN agencies and NGOs.

The Camps have been roughly divided into two main areas, each led by either UNHCR (Northern Camps) and IOM (Southern Camps). Both agencies co-chair the Inter-Sectoral Coordination Group (ISCG). At camp level, UNHCR and IOM are Area Focal Points (AFP) and the main responsible for site planning and shelter assistance in their assigned camps. The Camps are further divided into blocks², composed of an average 100 sub-blocks¹, themselves comprising of an average 100 households. At community level, each block is led by a community leader called Majhi and each sub-block by a sub-Majhi.

The Shelter/NFI Sector is led by IOM and co-chaired by Caritas Bangladesh. For each Camp, an implementing partner of the Area Focal Agencies has been identified as Shelter Focal Point (SFP) and is responsible for assessing shelter damages and providing Shelter/NFI assistance in case of emergencies. As such they are eligible to receive gifts in-kind from IOM/UNHCR, such as treated bamboo, tarpaulins, etc.

The Site Management and Site Development (SMSD) Sector is led by IOM and co-chaired by DRC. As for the Shelter/NFI Sector, a Site Management Support Agency (SMS) is focal point at camp level and coordinates with its CiC/RRRC Site-Level Counterpart. A Site Maintenance and Engineering Project (SMEP) has been established with the main stakeholders involved in the construction and use of roads (namely UNHCR, IOM and WFP) to develop land (site preparation and drainage) and roads across the refugee settlements.

¹ Data from "Study on shelter response of Caritas Bangladesh for the Forcibly-Displaced Citizens of Myanmar", CRATerre, CB, CRS and BUET, September 2018. <https://craterre.hypotheses.org/2498>.

² There seems to be some confusion on the terminology, as some partners call sub-blocks blocks. In this report, camp divisions that are defined by letters are called blocks and those that are defined by numbers are called sub-blocks. Sub-blocks sizes seem to vary between 50-200HH.

❖ Shelter Response and Site Improvements

Site Management and Improvements

Most of the camps had to be established immediately and people hosted with minimal preparation. As for the shelter response, the site improvements were made in successive phases (emergency, transitional, mid-term solutions). Due to a budgetary shortage, the SMEP and the majority of SMS agencies, are mainly focusing on the improvement of main roads and drainages. Consequently, over the past two years, most paths and stairways inside the blocks were stabilised by short-term solutions such as sandbags and bamboo, that quickly break due to erosion, rain or insects. This further limits the movement of Rohingyas and creates a hazardous environment. In most camps visited except for planned camps (such as extension camps), the shelter sites did not have proper drainage or durable soil consolidation. At present, it is not clear who takes responsibility for these site improvements, which leaves the shelters at risk especially during monsoons, and particularly when it comes to shelters in unsafe locations waiting to be relocated. In such a context, shelter partners should be more proactive in ensuring site improvements are done.

➔ For all recommended site improvements, the *“ICSG Site Improvement Catalogue V2”* (it can be found on the *“Site Management and Site Development Sector”* website) is a valuable reference, which gives a precise overview and construction details of local adapted solutions.

Incremental Shelter Response

Since the onset of the crisis, the shelter assistance provided by both international and national humanitarian actors responded first to the state of emergency, then to the changing needs and constraints and lately to the protracted situation. So far, the Sector has undergone three major phases (phase 3 started in September 2018) under which five types of shelter solutions or “Kits” were defined and distributed. The three first options (ESK, TDK and USK) are emergency related interventions, whereas the two latter ones (TSA and MTS) are mid-term oriented and in line with phase 3 of the Sector strategy. For each shelter response, a guidance note or strategy has been developed to guide partners and ensure equity in the assistance. They can be found on the Shelter/NFI website and are shortly summarized hereunder:

- **Emergency Shelter Kits** (ESK – Phase 1): The Emergency Kit (tarpaulin and ropes) was distributed during the first phase to support refugee’s own efforts to build rudimentary makeshift shelters from bamboo and sticks. An improved ESK (including bamboo) is still being distributed to support new arrivals or damaged shelters.
- **Tie-Down Kits** (TDK – Phase 1-2): The Tie-down Kit was developed in preparation for the monsoon to strengthen shelters in view of strong winds. The kit consists mainly of rope, pegs and sandbags. They are still provided if/when needed or as a complement to ESK.
- **Upgrade Shelter Kit** (USK – Phase 2): During phase 2, the Sector developed an Upgrade Shelter Kit with more Bamboo (particularly borak bamboo to strengthen structures), improved quality tarps and ropes. The kit is complemented by Technical Guidance and site improvement with a strong community involvement.
- **Transitional Shelter Assistance** (TSA – Phase 3): “Transitional shelter is defined as an incremental process which supports the shelter of families affected by conflicts and disasters, as they seek to maintain alternative options for their recovery” (TSA technical Guidance, 2018). TSA is a middle-way between the USK and the MTS, that adheres to ARUP’s reinforcement recommendations on tie-down, structural reinforcements, bracing, treated bamboo and foundations (*see next point on IEC and technical material*). TSA is a process to upgrade existing shelters and emphasises on the reuse of material and the importance of a “beneficiary driven” or “beneficiary enabling” approach. As such shelters are built by beneficiaries themselves while supported with tools, technical assistance and training. The kit is composed of essential materials (a fixed list of structural items: treated bamboo, ropes and footings) and flexible materials (chosen by the beneficiaries depending on their needs). It is also less costly and faster to construct than MTS.
- **Mid-Term Shelter** (MTS – Phase 3): The Mid-Term Shelter option was initially designed for newly developed extension camps planned to relocate beneficiaries most-at-risk of landslides and EVIs with special needs. The MTS is part of an approved site plan and follows ARUP’s reinforcements’ recommendations as well as the minimum SPHERE recommended covered space of 3.5 m²/person. The shelter includes concrete pillars and is designed to resist to strong winds, as newly developed extension camps are susceptible to higher wind speeds than existing camps. MTS are built by incentivized volunteers (Rohingyas) under the constant supervision of the implementing partner’s engineers. To date,

MTS is the Sector's favoured approach, as it is more durable and part of planned thus safer sites. However, with the government's persistent restrictions on MTS sites (now 10 units on a row instead of the maximum advised 4), the absence of new granted land, and insufficient funding to meet all the needs, its implementation seems to be limited only to extension camps. Moreover, MTS follows a model type and can therefore not easily be adapted or implemented on most existing sites.

At the time of the visit, the Sector presented a working paper for 2020-2022 that enhances the idea of progressivity and incrementalism and, promotes diversification in the response in order to transition from a provider to an enabler approach and involve the community in designing and implementing their own solutions. However, in this context, the shelter/NFI Sector's task of providing adequate shelters that meet international standards is arduous as it is conditional to the availability of land, the decongestion of settlements, and the government's acceptance of building standards and materials. Furthermore, partners struggle to identify affordable solutions that also address the challenges of the environment. The Sector is currently exploring shelter designs that increase the covered living area (mezzanine, two-storey), upgrading building techniques (earth infill walls, green roofing), and recognises the need to build upon the skills and capacities of the refugees and the host population.

IEC and technical material

The Shelter/NFI Sector had done an amazing job in developing many documents and IEC material. All shelter implementing agencies have the responsibility to know and use them.

- ➔ They can be found on the Shelter/NFI Sector website, amongst other useful resources: *"Basic Guidance for Strengthening/Upgrading Existing Community Facilities/Structures"*, *"Footing Catalogue V1"*, as well as the Shelter Options *"TDK, TSA and MTS Technical Guidance"*, including the *"MTS design option"* (drawing catalogue designed by CB, CRS and UNHCR). Other important documents to read in order to understand the structural imperatives are *"ARUP's Technical Guidelines Notes"* (1-3).
- ➔ There are also many IEC materials that were produced in English, Bangladeshi and Burmese and are ready to use for awareness raising or training of beneficiaries, such as *"Tie Down Kit IEC"*, *"Wall Bracing IEC"*, *"IEC on Footing installation for TSA"*, and many others but the most important two are the *Booklet "Basic Guidance Shelter Improvement & Maintenance"*. *"ToT (Training of Trainers) on Basic Guidance for TSA"*.
- ➔ All documents can be found here :
<https://www.humanitarianresponse.info/en/operations/bangladesh/shelter/documents>

❖ Field observations

Beneficiaries selection

IOM and UNHCR have a slightly different approach in their respective camps, as UNHCR tends to select beneficiaries based on their shelter condition. UNHCR's strategy of beneficiary selection was originally based on the assumption that all Rohingyas would ultimately receive MTS, which now seems totally unachievable. Overall the beneficiary selection process is quite homogeneous and mainly follows a blanket approach in the chosen areas. It may happen that two or more shelter agencies are active in the same block, which is not advisable as it usually originates from a lack of coordination (some agencies not participating in the Shelter/NFI Sector). These situations create tension between beneficiaries as they often receive different shelter support which hinders the affected community's trust and acceptance of partners' support.

- ➔ *Extremely Vulnerable Individuals*: EVIs are usually identified by the protection Sector and the CiC. The EVIs' list is given to the shelter partner, which in turn cross-checks it with the Majis or community leaders, followed by a house to house assessment. The practice of removing certain EVIs from the list or not considering additional EVIs selected by the Majis or community leaders, has led to complications during the implementation of the assistance, as these households proved to be EVIs and had to be given extra support while the budget was no longer available.
- ➔ *Household size*: Moreover, according to the Shelter/NFI Sector's guidance, a household comprises on average 5 members. A household of more than 7 members will be given 2 kits. Some extended households have struggled to upgrade their shelter ensuring structural integrity as the size they had built was bigger than the intended minimal surface area covered by the kit (particularly true in terms of borak bamboo and footings).

Training for beneficiaries

Training is an essential component of the Sector's strategy, particularly as a complement to the provision of shelter kits and TSA. The TSA training targets all beneficiaries' households as they are the key builders of their shelters, whereas the training regarding MTS mainly focused on community groups (particularly craftsman/workman) who will then be tasked with building the MTS projects regardless of whether they are the direct beneficiaries. Training modules and communication through IEC distribution has been developed and agreed on through the Shelter/NFI Sector's TWIGs. Thus, most shelter partners follow the Sector's advised training methodology. Partners (such as CB) with large shelter projects have developed training centres in key locations with structures for practical exercises and model houses. Others have been less ambitious and used their office building or specific beneficiaries' shelters as models.

Most beneficiaries have already attended various short trainings for TDK or USK before attending the TSA training. Their capacity building has thus followed a stepped approach or incremental approach. Each training phase has been designed to build on the precedent one and complete the acquired construction skills of the Rohingyas. There are two types of TSA training, one for the beneficiaries and one for the volunteers. One male and one female from each household attend the beneficiary training that consists of a half-day instruction, mostly theoretical but with small practical demonstration exercises. The formula for volunteers/supervisors varies depending on the partner and lasts 1-2 days, including building demo shelters. Volunteers are not necessarily formerly skilled workers or carpenters, that also depends on the partners' approach and selection. Both trainings are provided by INGOs' staff or their local partners' technical staff).

- ➔ *Beneficiaries' skills:* Some interesting outcomes came from the discussions with the Rohingyas. Unlike the conveyed belief that most Rohingyas know how to build or have built their houses in Myanmar, men indicated during both male FGDs that only 20% had previously built their houses in Myanmar. The others had contracted skilled workers and carpenters. In one visited sub-block, the number of carpenters amounted to 8 and assistant carpenters to 10 (knowing a block has approx. 100 HH, that approximatively amounts to 20%), only few of them had been selected as volunteers.
- ➔ *Training outcomes:* All beneficiaries seemed to have greatly appreciated the training, but only 30% said they felt confident they could truly build a safe shelter, and most confessed they did not properly understand the theoretical part of the training or the IEC material. When asked technical questions, the majority did not seem to have either understood the concept not the correct detailing of bracings. This finding might also have been partly due to unfamiliarity with the language (dialect) and terminology used during the discussions. Nevertheless, in all FGDs they mentioned extra training would improve their skills and the need for technical support.
- ➔ *Gender inclusion:* As per the Sector's guidance, one woman per household is supposed to attend the TSA training. Depending on the partner's strategy and gender sensitivity, women's participation is successful or not. When both men and women are attending the same training, the number of women drastically decreases, and their average age increases in the same proportion. When women have a separate training, not only do they attend it but also they are eager to learn. It is worth highlighting that shelters in which women (of working age) have attended the training are better built and maintained.

Requests from beneficiaries

During the visits, various group discussions were organised in the different camps: three FGDs with beneficiaries (one with women and two with men), one FGD with the Majhi and sub-Majhis and one with the community leaders.

- ➔ The recurring additional requests that were mentioned by the Rohingyas (besides the lack of space and perishable nature of construction material) mainly concerned lighting (solar lights) and ventilation (fans) and the lack of electricity to power them.
- ➔ Another major preoccupation they had was the overheating of the shelters. There was a long discussion on solutions for the roof (such as green roofing) and/or the addition of an interior ceiling.
- ➔ They also repeatedly mentioned the need for support in terms of labour costs both for the transport of material and the construction of the shelters.
- ➔ Lastly, they expressed their worry about the lack of durable stairways (or their proper maintenance) and protection from landslide.
- ➔ Women's main concerns in both TSA and MTS were to ensure private kitchen and bathing spaces, which require a cement floor and mud plastering around the cooking area, as well as covered drainage. For security and protection purposes, they also requested lockable doors.

❖ Technical observations

Transitional Shelter Assistance – TSA

Shelters targeted for transitional shelter assistance (TSA) are of various size and typologies making it challenging to draw consistent conclusions that can be generalized to all cases. The material provided aims at replacing mainly damaged material and is planned for the upgrade of a theoretical one or two-room 18m² shelter. In practice, the recommended 3.5m²/person has not been achievable in many cases due to small plot size. In a few cases, the space availability has enabled them to build larger shelters, up to double the size. Considering the limited means and inaccessibility of durable materials, partners have done their best to both seek structural safety and resilience to high winds, while striving to find solutions to reduce overheating and respond to basic comfort needs.

- *Various sizes and shapes of TSA:* The first challenge concerns the great variety in size and shape of the shelters. Shelters that do not follow a “conventional” 20m² and squared typology challenge partners’ technical staff in advising beneficiaries on suitable and safe upgrades. Moreover, the quantity of material provided, particularly borak bamboo and footings are often not sufficient for the larger shelters, hampering the structural integrity of the whole shelter.
- *Overhangs and connected structures:* A concerning observation in many self-built shelters, particularly those with “unconventional” shapes, are the presence of wide roof overhangs directly connected to the main roof structure. These are critical details to modify, as they can cause the entire roof to be blown off in case of high winds. Similar risks can be witnessed in shelters that have been built side by side and whose main structures are connected to one another putting them both at risk of collapsing if one of the shelters is unstable.
- *Footings and bamboo:* Other main structural issues observed are related to the absence or insufficiency of two essential structural elements. Mainly due to their unavailability at the time of the assistance, some shelters lack all or part of the footings (up to 30% of visited shelters), treated bamboo or enough borak bamboo pieces to ensure structural soundness. At this stage of the assistance, bamboo posts directly embedded in the ground are not acceptable. Partners have put a lot of efforts in ensuring beneficiaries implement cyclone resistant details, but part of the bracings, bamboo fixings and tie-downs could still be improved and would benefit from more assiduous quality control.
- *Resale of material:* According to some partners, there is a phenomenon of resale of certain high demand material such as footings, borak bamboo or pegs. Although it seems difficult to avoid completely, mitigation measures can be achieved through a “larger or more inclusive” identification of EVIs as well as awareness raising on the importance of these main structural elements and their consequence on the shelters’ safety and durability.
- *Overheating and material deterioration:* As said previously, partners are struggling to ensure rain protection and cyclone resilience which requires hermetic sealing while enabling minimum comfort with the limited materials they can use. Shelters covered by tarpaulins are overheating and dark. Protecting the tarpaulins with vegetable roof and bamboo wall cladding are good solutions as they are low cost, locally adapted, and they not only protect the bamboo structure but also seem to considerably reduce the heat inside the shelters. Nevertheless, bamboo cladding, being a perishable material, does not last long when exposed to rain. Indeed, after some time, most of the lower parts of the wall claddings are damaged. Some shelters have used mud to protect the base of the walls (or even as infill walls), it is a sensible detail, nevertheless bamboo posts should not be covered by mud on both sides, otherwise not only are they at risk of rotting, but the deterioration will also not be visible.
- *Cooking and bathing spaces:* Notwithstanding the Sector’s findings on the importance of cooking and bathing spaces, not all partners have arranged for its inclusion in the shelter assistance. Despite this, most beneficiaries are cooking inside highlighting the necessity of providing fire protection measures for the kitchen space. As well, planning for private bathing spaces is key in supporting women’s privacy and protection.
- *DDR essential measures:* Depending on the partner’s strategy, main site DRR measures are often missing, such as proper drainage around the shelters and consolidated slopes or retaining walls where needed. These are critical issues to tackle in order to guarantee the shelters’ safety.
- *Beneficiary-centred and gender inclusion:* Lastly, it is worth highlighting that three significant elements seem to considerably improve the quality of shelters. As pointed out in the previous paragraph (*training of beneficiaries*), the participation of women in trainings, thus their inclusion in the construction of shelters, has been demonstrated in the fastening details and maintenance of the shelters. The proper execution of bracings, fastening and tie-down details also vary greatly depending on the quality control and

monitoring scheme and frequency put in place by the partners. Most importantly, the appropriateness and inventiveness of solutions increase radically in regard to the relationship between the partner's staff and the Rohingyas. Projects in which partners have built a two-way trust-based relationship and involved beneficiaries in decision making are much more successful, as they have put forth the beneficiaries' competences and existing skills, while guiding them through the newly developed details.

Mid Term Shelters – MTS

Technical observations on mid-term shelters (MTS) are easier to synthesise as they all follow the same previously set typology. A set of various options has been developed and proposed by the Sector to respond to various site constraints and family sizes. In the first MTS implementation phase, a two-room typology of 20m² has been built in newly planned blocks or extension camps (i.e. camp 19). To the evaluator, these are the best planned blocks visited in terms of shelter, space and site planning. At the time of the visit, the freedom of partners in terms of site planning had been further reduced. They are now only allowed to build uninterrupted rows of 6 shelter-unit (12 rooms) with a maximum of 2m gap between the units or rows. These restrictions force agencies to design camps that do not comply with the minimum sphere standards of 35-45m²/person and as space becomes more and more limited these new blocks take on an unhuman and undignified character. It is clearly a strong sign from the authorities of their refusal of Rohingyas to settle for the mid to long-term.

- ➔ *Resistance to wind and cyclones:* The 6-unit long structures that are imposed by the authorities do not comply with basic rules for cyclone resistance which should allow a maximum width/length ratio of 1:3-1:4. This represents a great risk in the case of high winds, as 6 shelters are structurally linked together, exacerbated by the fact that the foundations (even if improved from before) are not sufficient to anchor the whole structure in the event of a major cyclone.
- ➔ *An improved model:* Besides the masterplan issue, the MTS model seems an improvement from previous shelter solutions as it included site planning (soil stabilisation and drainage) and as such guarantees the safety of the shelters. Additionally, the minimum sphere standards of 3.5m² per person is respected, the height allows for better air movement/ventilation and the shelter is fully partitioned ensuring some family privacy.
- ➔ *A more durable shelter:* The MTS is presented as the most durable shelter solution to date, both in term of materials and construction details, but also in the quality of its implementation. Indeed, since the shelter is designed from scratch all required materials are provided ensuring both improved details and better finishing touches, not to mention that the MTS are not self-built but rather built by engaged Rohingya skilled labour closely monitored by the partners' technical staff.
- ➔ *Reinforced structure:* The MTS are built with 6 concrete pre-cast posts in addition to the same material as used in the TSA (treated bamboo, footings, ropes etc.). Adding concrete pillars is an interesting alternative considering the shortage of bamboo, as they are a locally used and available technology. But as currently used, they remain for temporary, light and one-storey shelters. Many other improvements have been made to strengthen the roof and the main structure in case of very high winds such as better connections, bracings and tie-down, secondary structure on the tarpaulin roofing, as well as top wall ventilation. Nevertheless, these structures are still light and not properly tied to in the ground. And as stated previously, this remains a weak point. The concrete posts would need a proper foundation and soil compaction. Bamboo footings would greatly benefit from having a concrete base.
- ➔ *Main connections:* All connections have been previously designed and, in most cases, properly executed. Nevertheless, it is still not clear how two quite opposite materials-like structures (concrete and bamboo) with very different behaviours will work together in the long-run, especially with the weight of the concrete columns not being solidly anchored in the ground. The connections are quite complex especially on top of the concrete posts and might be complicated for households, particularly EVIs to repair or maintain. Another concern are the bracings. Observation shows that often the bamboo used for bracing is not mature enough and will therefore shrink when drying with the risk of losing its bracing function. Main connections could be simplified in some cases and execution improved. Bracing details are critical and would therefore require greater supervision from the partner's technical staff.
- ➔ *Finishing touches and details:* MTS design and construction is fully managed by partners, the details and finishing touches are generally well thought and executed. Many improvements and efforts have been made on the fastening of the roof and secondary elements such as the wall cladding. Protective measures from the rain have been added on the base of walls and bamboo posts. Concerning the base of walls, experiments have been conducted testing various solutions with tarpaulin, bamboo, mud, iron

sheet, or even bricks. To date none has been approved, except for the bamboo and tarpaulin, but they can inspire beneficiaries to improve their shelters on their own initiative.

- ➔ *Basic comfort:* As said previously, MTS provide two rooms with the required 3.5m²/person and an adequate height to add a small mezzanine. Bamboo shutters, permeable bamboo cladding and ventilation on the top of the walls drastically improve the feeling of suffocation experienced in other shelters. Nonetheless, heat is still an issue with tarpaulin roofs and new innovative solutions ought to be thought of in the future.
- ➔ *Cooking and bathing spaces:* Although not done officially, the partners provide cement bags and drainage pipes to ensure families can enjoy both an interior cooking and bathing space. According to partners, the WASH Sector rejected the inclusion of a bathing space in the MTS because of the risk of defecation. In previous models of the MTS, where space allowed for it, many households have built a separate kitchen and/or bathing space attached to the main shelter. It is clearly safer both in terms of fumes and fire and would be sensible to encourage that kind of setting where feasible. If new MTS areas are to be planned, it would be advisable to plan the space for a kitchen and bathing extensions.
- ➔ *Cultural appropriateness and lack of privacy:* The “military camp-like” master plan composed of a repetition of row-house lanes does not provide a friendly or socially favourable environment and the two-metre spacing allowed in between rows deprive families from their privacy. From experience, it may be a trigger for creating social tensions in the long run and is a fire hazard.
- ➔ *Maintenance and extensions:* As mentioned above, the details and complex connections might be difficult to repair or maintain particularly for EVIs households which represent a large part of the MTS beneficiaries. This is even more relevant considering that the construction was not done by the beneficiaries themselves and women not included in building. Lack of proper maintenance will reduce the durability in the long run. In the same vein, awareness raising should be given to beneficiaries on their self-made extensions to avoid weakening the main structure of the shelter.

❖ Main recommendations for shelter & site improvements

Develop national capacity toward localisation.

As specified in the *JRP 2019 Strategic Objective 9* “development actors will help build knowledge and strengthen capacities of national and local actors involved in service delivery.” Building national and local partners’ capacity is a prerequisite in order to move towards the localisation of humanitarian aid. It is all the more relevant and vital considering the protracted nature of the Rohingya crisis, the reduction of funding and the increase in access restrictions on expatriates and international organisations from the authorities. Moreover, if one extends to the Bangladeshi context, which is already prone to many natural disasters, it is an opportunity to strengthen national preparedness, which is key in preparing the country for future crisis. On another note, due to the growing tensions of the local population towards the Rohingyas and to prevent it spreading to the national staff, INGOs and NNGOs have a key role in raising awareness on impartiality and ensuring the refugee population is respectfully treated. Building local and national capacity does not only involve strengthening their technical knowledge and capacity in managing and running the projects, it also requires sharing essential humanitarian principles.

Blanket approach and beneficiary selection.

Considering the dire situation each affected Rohingya is facing, assistance ought to prioritize a blanket approach in lieu of a targeted one. Moreover, considering the reducing number of shelter partners and need for clear coverage and coordination, partners must cover full blocks or if possible full camps, and thus avoid creating tensions within an area. Targeting however is to be considered for people with special needs to ensure they are given extra support in terms of material delivery and construction. As such, special care is to be given to the EVI beneficiary list. In case of doubts, EVIs should rather be included than excluded, as some vulnerabilities might not be obvious at first glance and would then require their inclusion during the implementation while not planned in the initial budget. It is also important to note that some families (outside of the EVI list) with only one adult male seem to struggle in transporting the material and in building their shelters. It might be advisable to identify these families and plan a small provision for labour support. Moreover, in the beneficiary selection process, it is also essential to follow the Sector’s recommendations on the quantity of material delivered against the size of families (two kits for HH of more than 7 members).

MTS: be aware of the risks and limitations.

The MTS model is a significant improvement from the previous shelter solutions, as it ensures the minimal sphere standards of 3.5m² per person are respected. As shelters are part of new master plans, basic site planning requirements such as site stability and proper drainage guarantee their safety, as well as providing them access to essential equipment. The construction is more durable not only in terms of details and material used but also because of the quality of the implementation. However, due to the absence of newly granted land and insufficient funding to meet all the needs, MTS’ implementation seems to be limited to existing extension camps. MTS sites are prone to congestion due to the government’s persistent restrictions (now 6-10 shelter-units in a row instead of the maximum advised 4), making these areas less cyclone-resistant and more prone to fire. As MTS follows a model type, it cannot easily be adapted or implemented on most existing sites. This has reduced beneficiary participation and ownership of the construction process of MTS shelters, potentially hampering its maintenance in the long run. Considering the lack of privacy, if partners are not able to advocate for more humanised masterplans, then MTS is not a recommended solution where others are available. However, the technical details developed in the MTS can be applied in other forms of shelter assistance.

Prioritize a beneficiary empowering approach.

Beneficiary driven shelter assistance enhanced with training and technical assistance is vital considering the lifespan of material, limited space availability, governmental restrictions on durable shelter solutions and the protracted nature of the crisis. Promoting community-based approaches such as TSA, will lead to more durable solutions. As the *TSA Guidelines* state, “Transitional shelter is defined as an incremental process which supports the shelter of families affected by conflicts and disasters, as they seek to maintain alternative options for their recovery.” As such, the TSA approach is not a ‘one-time’ support, but rather a planned process that includes several steps to achieve durable shelters, guiding the beneficiaries and offering them the freedom to make their own choices thus empowering them. Finding the most relevant low-tech construction techniques according to local needs, tradition and capacities is an imperative in owner-driven reconstruction projects. Being sensitive to local building culture will not only ensure better acceptance and appropriation, but replicability thus transfer of knowledge, base to a localization process.

Improve site safety when providing shelter assistance.

Shelter agencies should collaborate with SMS agencies to ensure access to the main path and stairways are consolidated. It is also essential that they take the responsibility to make basic sites improvements to ensure minimal safety while providing shelter support. Imperative improvements are proper drainage for all shelters and slope consolidation where needed. To that end, shelter project proposals should always include a budget for site improvements.

Prioritize structural safety main elements.

Focus should be emphasised on ensuring construction safety elements are provided and built properly. Prioritize footings with concrete base (see *footing catalogue* type D or E) as they are more durable and resistant to high winds. They can be built in Cox's Bazar and can thus be presented to the authorities as a mutually beneficial project for the host community. Add footings to all bamboos still embedded in the ground. Provide enough borak bamboo (structural bamboo) to ensure shelter stability. With the running of several treatment plants, treated bamboo doesn't seem to be a major challenge to access anymore and ought to be provided at least for the borak. Extra emphasis should be made on proper connections of bamboo elements and fastening of roofs as well as properly installed bracings. Horizontal bamboo bracing in the corners (as in MTS) will solidify the whole structure and should be added in TSA upgrades.

Note: It should however be noted that distributing treated bamboo requires making refugees aware of the potential risks of borax being washed by rain in open waters, and consequently the need to protect the bamboo from rain to prolong its durability and ensure proper drainage is available and maintained. Lastly, treated bamboo should never be used as fuel due to the toxicity of its fumes.

Be aware of the low cyclone resistance.

It is important to be conscious that both TSA and MTS are light structures and not properly anchored in the ground and are therefore not cyclone-resistant. As stated in the observations, bamboo footings would greatly benefit from having a concrete base and concrete posts would need proper foundations. In both cases it is highly recommended to create a fuse element in the roof as a mitigation strategy, such as a weakness in the tarpaulin, to prevent the whole shelter to being blown away. Tie-downs are essential elements and reducing the reselling of pegs through awareness-raising is critical.

Additionally, and to prevent putting further stress on shelters, wide overhangs and connected structures are to be avoided. Small overhangs are needed on all four sides of the shelters in order to reduce the exposure of walls to rain. However big overhangs are to be disconnected from the main structures and side-by-side shelters are to be made structurally independent. Partners need to be flexible and adapt to each situation when providing technical advice to beneficiaries. When confronted with large shelters and limited structural pieces to ensure the structural integrity of the whole, a "core housing" approach can be taken. This suggests ensuring a structurally stable model size shelter and the rest as separate or independent annexe that can be strengthened at a later stage. For the same reasons, partners should avoid building MTS without structural gaps (every 2 or max. 4 units). Lastly, awareness raising ought to be given to beneficiaries on extensions. If the extensions cannot be built as soundly as the base shelter, they ought to be planned as separate elements. It is also critical to understand that such structures should not be extended vertically (even MTS). For two-storey shelters, foundations will be a key issue to guarantee their safety.

Technical improvements and model shelters.

Given the restrictions in the permitted materials and their temporary nature, efforts should be put on improving their durability (such as bamboo treatment) but also on developing protective measures. The details developed in the MTS can be reused in TSA such as elevating the building on an earth plinth and protecting the bamboo frame. To that end, simple solutions can be found to protect the bamboo columns, the end of bamboo/timber rafters and the base of the walls from driving rain. Columns can be protecting using sacrificial material such as split bamboo. Watertight solutions for the base of the walls comprise of plastic sheet or a separated bamboo cladding or mud plater. When using mud, remember that bamboo posts should not be covered by mud on both sides. The bamboo structure must be allowed to "breathe" inside the waterproof envelope. Tarpaulins on roofs and walls ought to be protected for durability purposes but also to reduce heat. Overheating can be reduced with the upper part of the wall being permeable, bamboo shutters and ventilation on the top of the walls. These details can further be improved by adding rain protection elements such as roll-down tarpaulins (blinds), verandas or overhangs detached from the main structure.

As TSA shelters will be self-built, *model shelters* should be showcased as they are an opportunity to present suitable details, including alternative solutions and proper execution. Model shelters' in training centres are a great asset but for partners without that option, EVIs' houses are great opportunities as they will be built by skilled volunteers. Choosing small and simple shaped houses in a safe location and identifying sites with good visibility will expand their impact in the community.

Include beneficiary needs and requests.

Basic comfort requirements are to be considered as the definition of *adequate shelter* does not look at space requirements alone. This is particularly relevant in consideration of the protracted situation and the Rohingyas' seemingly future long-term stay. As such and as much as possible, beneficiaries' recurring requests should be included in shelter support and upgrades. To that end better and more systematic feedback mechanisms (also applicable for the training part) are to be put in place. Due to the high camp density, the virtual absence of windows, and of most women being homebound, ensuring minimum light and ventilation is crucial for the refugees' wellbeing and health. Lack of electricity could be supported in the form of small solar panels sufficient to power small fans and rechargeable lamps. Further considerations and improvements could include vegetable roofing, interior ceilings or any innovative solution that could reduce overheating during daytime and which could also have the added benefit of protecting the tarpaulins. Lastly, supporting women's requests for private bathing space, interior cooking area and a lockable door for safety will promote a gender sensitive response. Examples of NGOs giving a bag of cement for a kitchen flooring and wall plaster for fire protection or providing a PVC tube for women's discretion are small-scale and low-cost solutions that can change the daily life of women.

Improve trainings & gender inclusion.

Capacity building and awareness raising actions on better building practices are key in owner-driven construction projects. It ensures better acceptance, appropriation, as well as replicability. Knowledge transfer will enhance self-recovery and consequently pave the way to more durable solutions. Based on field observations, the training strategies could be improved both for beneficiaries and volunteers. Most of the beneficiaries recommended to extend the duration of the training and focus on the practical part. Developing longer trainings comprising of more practical sessions would clearly improve their understanding and mastery of the information taught.

Regarding volunteers, a clear training strategy should be defined and harmonized among partners. Skilled carpenters and labourers ought to be identified and tested, and then given extra training followed by supervised practical experiences such as building the EVIs' shelters. Engaging in supporting extra labour costs for families in need will further allow these trained volunteers to acquire extra experiences and expand their skills. Forming groups of skill practitioners among the Rohingyas will enable them to support their community and foster a long-term transfer of knowledge, thus further consolidating their resilience.

As stated in the observations, not all partners have worked to encourage the participation of women in training, and in the subsequent construction of the shelters. Strategies that enable women to be trained should be favoured such as organising separate training venues for women and men, etc. Their participation has been demonstrated in the good execution and maintenance of the shelters. The inclusion of women is not only a matter of improving the quality of shelters, but it is also a means to promote their status within their community.

Emphasise on technical support, monitoring and supervision.

Quality control and monitoring varies between partners, resulting in some crucial details (such as bracings) being repeatedly poorly executed. Guaranteeing structural safety of shelters is vital and requires greater and assiduous supervision from the partners' technical staff. When planning owner-driven shelter projects, strong technical support and building supervision is essential as it will ensure the transfer of knowledge at all stages of the process.

Finding and building local expertise is always the preferred option. Unfortunately, technical expertise that have both experience in humanitarian owner-driven housing projects and expertise on vernacular and cyclone resilient constructions seems difficult to find locally, particularly if looking for staff who speak the local dialect. As such, it is highly recommended to hire an expatriate with a solid technical background at least for the first 6 months in order to set up the program, train and supervise local staff, as well as make sure trainings are carried out adequately. It adds an "external" control level and a mitigation measure not only for quality control but also to prevent local staff from getting caught up on domestic matters (i.e. corruption, tensions or impartialities). Building the capacity of the local partners' and INGO's local staff ought to be the priority of the expatriate particularly when it comes to supervising and advising beneficiaries on repairs/upgrades, and when dealing with unfamiliar self-built shelter typologies. To date, engineers and supervisors follow the three days TOT (RedR/IOM). This training is to be considered as an introduction. The real learning will take place in the field where they will have to apply the theory to actual situations of different nature. At this stage, the expatriate supervision and guidance are crucial. Later, a backstopping can be considered if needed to follow up periodically or remotely.

Foster inclusive technical teams.

The technical set-up as well as the skill transfer is to be thought “in cascade”: The shelter/construction expert (expatriate or national) will build the capacity of the local staff (engineers and supervisors) who in turn will train the volunteers and the beneficiaries and knowledge will ultimately be disseminated in the community itself. Quality versus quantity and speed should be prioritized as much as possible. Special attention should be paid to large geographical areas and the number of constructions ongoing at the same time, in regard to the supervision capacity of the technical team. To supervise constructions, duos of engineers and trained builders is a proven solution, as it combines theory and practical know-how. Adding social mobilizers to the set-up will foster beneficiaries’ inclusion and build the trust with the refugee community. Lastly, increasing the gender balance of technical staff will give access to Rohingya women and enable them to more easily participate in the trainings, thus in the construction process.

Don’t work in silos and promote local staff.

Taking into consideration the massive needs and limited resources both in terms of partners and finance, it is imperative that shelter partners build a community of practice to support each-other by sharing information, knowledge, lessons learned and good practices. Swiss NGOs active in shelter projects ought to facilitate the visit of one-another’s projects, in order for partners starting new shelter programmes to learn and gain from previous experiences. Participating in cluster meetings is a must, particularly those with strong technical expertise, even if they are not currently assisting with shelter, as it will support others with valuable expertise and help foster new ideas and innovative solutions. Given the above-mentioned importance of building local capacity and fostering future localization, local staff as well as local partners’ staff are to take part in cluster meetings. It will not only give them exposure, but also allow their point of view and local knowledge to be shared and taken into account.

Diversify the response and be flexible.

Generally speaking, partners and donors need to plan adaptable and adjustable strategies, in regard to the political centralized shift, constant change in recommendations and humanitarian restrictions, as well as the upcoming reduction in funding. This requires partners to demonstrate flexibility, adaptability and creativity. Henceforth, they need to diversify the shelter/NFI response to reduce the impact on the environment, particularly in view of bamboo shortages. Housing strategies developed by the local population or former refugees should be considered as examples of low-tech and low-cost solutions adapted to the local climate and local capacities. Partners are already researching and testing alternative solutions to weather constraints such as green roofing and mud plaster. They could also anticipate and adopt some of the refugees’ spontaneous choices of materials and techniques such as CGI, masonry and mud, and facilitate their usage or self-acquisition despite their current restrictions. Moreover, options such as incremental strategies should also be investigated where space allows for them. Cash alternatives through “incentive for volunteering activity” projects linked with technical support are an opportunity to empower the refugee community. Being sensitive to local building cultures will not only ensure better acceptance and appropriation, but replicability. It will foster traditional heritage and knowhow and by developing the local community’s resilience, it targets a long-term and larger impact, in line with a self-recovery process. Lastly INGOs have an advocacy role and responsibility to always push for better, durable and locally tailored solutions.

Recommendation for Swiss Solidarity

❖ Main recommendations for Swiss Solidarity

Structural safety of public buildings is a priority.

SwS should request proper technical drawings to be submitted prior to project approval as well as a credited engineering firm structural validation prior to construction. Project proposals should demonstrate through their set-up, their technical expertise and proper supervision capacity, as well as experienced engineer backstopping when needed. Always keep in mind that a well-qualified construction expert (notably an expatriate) will not only ensure quality control but can also build the expertise of local staff and local partners.

Promote locally available and replicable building techniques

As a donor, SwS has the position and authority to advocate and prioritize locally adapted building techniques. Advocating low-tech and locally available construction technique in owner-driven reconstruction projects, not only prioritize safety precautions but, by ensuring acceptance and appropriation, will foster better building practices and therefore promote replicability and self-recovery.

Request for experienced technical expert presence.

Considering the difficulty to find experienced technical local staff, it is recommended for partners to hire an expatriate with extensive technical expertise for a minimum of 6 month, in order to launch shelter programmes and build the capacity of their local staff and the local partner's staff. At this stage, most of the local engineers and supervisors would greatly benefit from the expatriate's supervision and guidance. Later, a periodic or remote backstopping can be considered.

Shelter projects – Ensure full coverage of semi-blocks and blocks.

As stated in the main recommendation for shelter projects, partners should cover entire sub-blocks or blocks with a blanket approach. Project proposal should be submitted accordingly.

Shelter projects – Do not cut on budget for site improvement or training.

Improving site safety when providing shelter assistance is an imperative. Project proposals should include minimum safety site improvements such as proper drainage for all and around all shelters as well as slope consolidation where required. The necessary budget should not be reduced. Likewise, training and building skills being an essential part of owner-driven housing projects will develop the resilience of the beneficiaries enhancing the community's self-recovery. Partners should put emphasis on training when submitting shelter projects and plan for the required set-up and budget.

Shelter projects – Keep some flexibility.

Be conscious of price fluctuation. Market prices for construction material can vary quickly and considerably between the time of the project approval and its implementation. Plan for some flexibility in order to allow partners to cover all households in their chosen sub-block(s) or block despite potential price increase. Also be aware of the difference in upgrade according to the level of damage or deterioration, and therefore the variable cost per shelter.

Shelter projects – Promote community of practice and building local capacity

As representative of the Swiss NGO consortium, SwS can encourage all partners to build a community of practice in the field, in order to share experiences and knowledge. Additionally, as a long-time advocate for cluster participation, SwS should encourage partners to send their national staff and national implementing partners in cluster meetings in order to give them better exposure.

Swiss Red Cross (SRC)

Reference project: 292.004

Primary and Environmental Health in Ukhia, Bangladesh.

Visit schedule: 20th of November (half day and 19th evening)
meeting of SRC's senior staff the previous evening
visit of the 2 PHCs in Camp 15 and 11
visit of the Material Recovery Facility in camp 15
meeting with Chief Coordinator from the Health Coordination Cell in Cox's Bazar

Contact persons: Benedikt Kaelin, Programme Officer Bangladesh (benedikt.kaelin@redcross.ch)
Mr. Arif Chowdhury, Head of Finance and Admin (arif.chowdhury@redcross.ch)
Tuhin Samaddar, Disaster Risk Manager (tuhin.samaddar@redcross.ch)
Md Elias, Programme Manager, Emergency (md.elias.srcbd@redcross.ch)

Field visit accompanied by: Arif, Tuhin and Elias

Objectives according to LogFrame:

Maintenance & running of 3 previously built Primary Health Centres in camps 11, 13 and 15.
Planned construction of 2 new Primary Health Centres in camps 2E and 16.
Construction of 2 Material Recovery Facilities (MRF, solid waste management facility) in camp 15 and in host community area of Palongkhali.
Location: Camp 11, 13, 15, 2E and 16 | Project duration: 36 months | SwS contribution: CHF 800'000.-

Note: only a half day was planned for the visit of SRC's project. Considering the travel time to the camps, the remaining time was clearly too short to ensure an adequate technical evaluation, only one primary health centre could be properly visited and none of the new sites could be seen.

1.1. Situation at time of visit | Context

Between January 2018 and March 2019, SRC built three PHCs (SwS project n° 285.013), which are now, under SWS current funding, maintained and run by their national partner Bangladesh Red Crescent Society (BDRCS) in collaboration with Ministry of Health. While SRC continues to provide strategic guidance and technical support through its delegation and ensures project monitoring as well as support of BDRCS in negotiations and lobbying with government authorities. SRC is at present launching the construction of two new PHCs in camps 2E and 16, as well as two MRFs in Camp 15 and Palongkhali area

➔ **Progress PHCs:** At the time of the visit, both new PHCs planned in camp 2E and 16 had just received approval and were under site preparation. Delays seem to be due to land acquisition, design finalisation and lengthy approval processes. The completion is now planned for February/March 2020.

➔ **Progress MRFs:** At the time of the visit, the MRF in camp 15 was partly built on governmental land allocated by CiC, but waste sorting was already taking place. Delays are also due to land acquisition, and lengthy approval processes. Additional work such as building composting sheds, storage facilities, WASH facilities, drain construction, and setting up an office space is planned and should be completed by the end of the year. The construction for the MRF in the host community is planned for 2020. Plans are not yet available but should benefit from the completion of the pilot MRF and resulting lessons learned.

1.2. Project strategy | Context

Health Service component

SRC project is in line with the Health Sector's to improve equitable access to primary health services by providing each camp with a primary health centre. This approach follows the *JRP 2019 Strategic Objective* and is fully aligned with the localisation agenda by strengthening the knowledge and capacity of a national actor such as Bangladesh Red Crescent Society.

SRC is an active partner and fully supports the Health Sector. It is also one of the first agencies to have designed and built semi-permanent PHC structures that are much appreciated by both Health Sector partners and the government, advocating and pushing for better solutions than the previous temporary constructions. SRC has a formalized partnership (MOU) with the Ministry of Health through the DGHS.

Moreover, SRC seems to have a privileged relationship with the Health Coordination Cell which highly welcomes its initiatives and proposals and puts forward SRC's PHC model design as the one recommended for all agencies.

→ *Integrated service*: The addition of other specialised services provided by partner organisations in complement to the government essential health service package offers a combined assistance. According to partners, patients are more satisfied, feel confident, and thus are calmer.

→ *Local relevance of chosen building technique*: The light metal structure proposed by SRC meets the need and constraints for quick construction, semi-permanency, being removable, and/or relocated elsewhere. It also has a low maintenance cost, is quite easy to build, and can be built locally (in Bangladesh) if properly designed.

→ *Implementation*: The 3 previous PHCs were designed and built by a Bangladeshi engineering/building company. The SRC construction consultant in Bern reviewed the design remotely and following his recommendations significant modifications were made. Additionally, SRC hired a short-term local consultant to support in designing the PHC and supervise its construction. Direct implementation through a general contractor is in line with the need to ensure quality and rapid execution. The next construction phase with BDRCS as implementing partner will require an improved supervision and monitoring setup from SRC.

→ *Role & responsibility*: By having such a key relation with the DGHS, SRC has an advocacy responsibility regarding adherence to minimal standards for public buildings. As such SRC should ensure plans are developed with all critical structural details and compile them in order to share comprehensive drawings and lessons learned with Sector partners to build on the acquired expertise.

Solid Waste Management Component

[*This evaluation focuses mainly on the PHCs construction. The MRF visited was still in a very early construction stage, therefore only quick recommendations will be listed below.]*

Unlike the Health Sector, there is no specific plan, policy or guideline for waste management in the camps. Waste management is a real issue in the camps and has become de facto a burden in the surrounding areas. It is therefore welcomed that SRC's engages in that type of program and has engaged a technical consultant (backstopper) to develop their project and provide technical guidance during the implementation of the solid waste management component. In addition to conducting a feasibility study, the technical consultant has supported the development of standard operating procedures (SOP) for conducting SWM in camp conditions. Furthermore, both CiCs and RRRC have committed to support solid waste management projects, through land allocation, advocacy and community organization.

SRC has chosen two sites for their pilot phase to build their material recovery facilities (MRF). One is in a camp in which they are operating a PHC, hence strengthening community-based work around the health centre. The other one is in the host community, close to the camps, where many Rohingyas are now residing, thus substantially increasing the waste production of the area. Choosing a site in the host community should increase social cohesion and reduce the growing tensions between both communities.

→ *Participatory approach*: In the case of a SWM project, it seems a very sensitive approach that will enhance community engagement, allowing for both stronger community ownership and later behavioural change. It will also help when scaling up the project.

→ *Site selection camps 15*: The CiC has allocated the land in camp 15. The location is appropriate as it has direct road access while not being too close to the shelters (to avoid the smell...). According to the team it is not prone to flooding, and considering the storage of waste on the ground it is crucial to quickly build proper drainage.

→ *Local relevance of chosen building technique*: Building with locally available materials and techniques is always a more sustainable and sensitive approach, as well as a way to consider, foster and enhance local capacity. After two years of building community facilities in Bamboo there are many good examples in the camps. It would therefore be wise to coordinate with these experienced partners and make use of their know-how and lessons learned.

→ *MRF Design*: The layout was developed by the technical consultant and is too basic to be used for construction purpose. The project decided to adopt an incremental approach for setting up the MRF. The current layout of the facility seems sensitive and adapted both to the need and the location. On the other hand, the built elements would need an experienced engineer to design stronger details, ensure structural safety and supervise or train the builders. Many documents and IEC material have been developed by the Shelter/NFI Sector that SRC/BDRCS could use to improve their design, and can be found on their website, amongst other useful resources: "*Basic Guidance for Strengthening/Upgrading Existing Community Facilities/Structures*" and "*Footing Catalogue V1*". It would be worthwhile for SRC/BDCS to liaise with the shelter agency of Camp 15 or the Shelter/NFI Sector in Cox's Bazar to benefit from their advice and expertise.

→ *Technical improvements*: The main technical issues observed during the visit and that could be quickly improved consists of adding proper footings and bracings to the main structure, using treated bamboo to increase its durability, strengthening the connections between elements and replacing the roof with opaque/dark sheets (as it will avoid workers and stored waste to overheat during sunny days).

→ *Pilot/exemplary building*: As the construction technique chosen is the same as the recommended one for shelters by the Shelter/NFI Sector, this building could be an example of “how to build properly”. It would be a great opportunity for knowledge transfer and a model for replicability.

→ *Handover*: In a later stage and if their SWM project scales up, SRC plans to make a partnership with the government and private collectors in order to create a market.

1.3. General observations | issues

Geographical coverage

SRC's choice of camps follows a need-based approach and coordination with both the Health Sector and CiC. Once the Health Sector has identified a need for the construction of an HPC, it looks for a partner to implement it. SRC is covering as many PHCs as it can. Furthermore, the choice of implementing their pilot MRF in the same camp as they are operating a PHC strengthens their position and community reach.

Cost effectiveness

As there is no design type agreed on within the Sector, it is difficult to compare prices. SRC seems to have found a rather effective quality/price ratio with this light semi-prefabricated construction system.

→ *Comparison*: Nevertheless, it would be worth comparing with other agencies the cost of similar designs, as well as with properly built semi-permanent bamboo structures to realize the actual price difference.

→ *Labour*: It seems skilled labour for this type of construction is challenging to find in the area, requiring hiring labour from Dhaka, which represents an extra cost.

→ *Logistics*: Supplying material on site is quite a challenge considering the roads and topography and involves hiring extra labour.

Challenges in operating the PHC

According to partners interviewed, SRC's PHC functions very well and patients seem more content than in other PHCs. BDRCS in partnership with SRC's seem to do a very good job considering the constraints of the situation. The main challenges they are facing are:

→ *Turnover of doctors*: Governmental doctors are on a one-month rotation scheme.

→ *Female staff*: It seems very difficult to find qualified female staff who are able or willing to work in the context of the camps for various personal and social reasons. Nevertheless, SRC/BDRCS together with their partner organisations are clearly promoting the recruitment of female staff. The main challenge remains doctors sent by the MoH, very few are females. SRC should continue their advocacy toward the government.

→ *Access during rainy season*: In bad weather, many staff, as they live outside the camps, encounter difficulties and delays in reaching the PHC, thus reducing their daily time presence.

→ *Low power availability*: The solar system in place does not produce enough power to ensure continuous electricity, especially during rainy days, compromising the capacity to properly store medicine amongst other functions. If feasible, it would be advisable that SRC increases the solar catchment capacity (extra panels and/or batteries) to guarantee a minimum level of daily power provision.

1.4. Compliance with SWS minimum standards | general

In a context where the government pursues a “non-permanency policy”, adherence to public building minimum standards is a real challenge for humanitarian actors, not to mention with the additional challenge of scarcity of land. Nevertheless, concerning health facilities, the situation seems to have improved, the Government now allows for semi-permanent structures instead of temporary ones.

Site selection | Site planning

The sites for PHCs are chosen in coordination with the site management agency and the CiC on governmental held (mainly forest) land. Nevertheless, SRC was been able to propose or negotiate for better sites. Their criteria for site selection included priorities on access, catchment area, topography and duplication. Due to land scarcity and topography, it is often difficult for agencies to choose or obtain sites that follow standards in size or safety such as flooding-free sites.

→ *Access*: SRC has prioritized sites with direct access to main roads or pathways, to ensure easy access to the beneficiaries. Access will remain a challenge during rainy season until the government allows for durable concrete stairs and pathways.

→ Drainage: Special care should be given to drainage in all PHCs. In camp 11, proper drainage was lacking. Details for drainage should be included in the drawings (building plans and master plan), so as to ensure the contractor builds it properly, such as in camp 15.

→ *Master plan*: SRC seems to develop comprehensive master plans for each site.

Design appropriateness

According to the team, the layout of the PHC's follows the type of design used by the government in Bangladesh but is adapted to the plot site. The light construction type chosen (metal frame / sandwich panel) and simple layout seems a sensitive solution for a semi-permanent facility.

→ *Flexibility*: The choice of construction and layout allows for flexible arrangements. SRCs has already made improvements and modifications on the existing PHCs following staff requests and operational needs, by adding rooms/partitions.

→ *Need for separate rooms*: Lack of space to ensure enough rooms for various activities (especially for the maternity ward) came out as a recurrent request from the PHC staff. Due to the land scarcity challenges, these requests have not been fulfilled.

→ *Intimacy*: Added partition walls are not full height and can be a problem to guarantee privacy while discussing sensitive subjects. With such little space, it is challenging to ensure both intimacy, light and ventilation when partitioning in a later stage, it is nevertheless important to identify such activities and ensure private space in future layouts.

→ *Comfort*: According to interviewed staff "SRC's PHCs are less durable but as comfortable as Government ones". The sandwich panels act as insulation in cold weather, while light and ventilation are assured through many windows and under-roof louvers.

→ *Ventilation*: The ventilation system was not identical in the two visited PHCs. In camp 15 the louvers were better proportioned and allowed for proper ventilation. In camp 11 however, louvers were reduced to avoid water entering in rainy season but are too small to both ensure proper ventilation and provide extra light. Aware of the local weather, it is recommended to follow the ventilation design of Camp 15 PHC while adding a closure system to avoid rain exposure.

Accessibility

Public buildings have a duty to ensure access and easy movement of disabled persons.

→ *Access to the PHCs*: Each PHC has an access ramp that links to the main access road or pathway.

→ *Access in the PHCs*: In the visited health centres, step between each room or toilet and the hallway or waiting room, prevented people in wheelchairs to move freely. Steps should be avoided in future PHC design.

→ *Toilets*: In the visited PHCs there were no adapted toilets. According to BDRCS disabled persons are helped by relatives or volunteers. It is SRC's responsibility to add disabled toilets to the future PHCs design.

WASH

SRC is working closely with the WASH partner in charge of the camp, to ensure their WASH component is in line with the WASH Sector's recommendations.

→ *Toilets*: The number of toilets seems low considering the high attendance of the PHCs. According to the staff, some rooms (such as family planning/observation room) would benefit from having an adjacent toilet. Furthermore, there is no private staff toilet which could be easily added.

→ *Water collection*: In camp 15, the PHC has enough water through its deep well (no drinking water). Nevertheless, considering the local scarcity of water in the camps especially drinking water, it might be worth thinking of adding a rainwater harvesting system on the roofs of the existing/future PHCs.

Operation & maintenance

The two visited PHCs seemed well maintained and clean, the one in camp 15 more than the one in camp 11. It seems the painting in Camp 11 was not done properly which now shows more rusting signs. There seems to be a good referral system and communication between BDRCS which allows for efficient need-based maintenance response.

→ *WASH & drainage*: The WASH system and drainage seem to be regularly maintained.

→ *O&M documentation*: SRC has developed a very comprehensive maintenance manual for their PHCs, which is highly appreciated even for a semi-permanent public building, as it will contribute to the increased lifespan of the building.

Environmental impact

Metal frame and sandwich panels are obviously not the eco-friendliest materials. But considering the high demand on bamboo and the resulting deforestation, as well as the difficulties to find treated bamboo in large quantities, this solution seems fairly sensitive. Panels and metal frames are built in country.

1.5. Safety | Resilience against natural hazards

As said previously, the choice of the specific building technique (metal frame and sandwich panels) derives from a requirement for semi-permanency. It is worth mentioning that no technical or structural explanation took place, as the only local partner staff present during the visit were management or health related. At the end of the week, SRC gently organised a meeting with the consultancy architect that followed the construction sites, but unfortunately, he could not provide any structural clarifications.

→ *Metal frame*: Light frame structures need bracing in order to withstand heavy winds or earthquakes. In both Camp 15 and 11, no bracing was observed (walls nor roof). It is not clear if they are build-in the panels? Being in a cyclone prone area it is imperative to properly brace the structure. Also, the roof design seems quite weak to sustain heavy winds and without elements to transfer horizontal loads.

→ *Footings*: Footings should be adapted to the soil quality and deep enough to anchor the building in case of uplift. For each building, footing design should be checked by an engineer.

→ *Roof*: In the visited PHCs the roofs are double pitch and the overhand is short, which is adapted to heavy winds. In the new design the roof design seems different and should be checked by an engineer for wind resistance.

→ *Flooding*: SRC has adapted their design for sites that are at risk of flooding (such as camp 11) and elevated the building to ensure it remains operational even in heavy rains.

→ *Structural integrity and safety*: As said previously, and due to the lack of structural clarification on resistance to cyclone, it is highly recommended that all drawings be cross-checked and approved by a (external or SRC) structural engineer to ensure structural safety. Existing buildings should also be checked and bracing and/or reinforcements added if found necessary.

1.6. Implementation | Quality Control

For this new phase of construction, in order to follow JRP 2019 objective on strengthening local capacity and share their acquired experience, SRC has chosen to delegate the implementation to their local partner BDRCS. The two new PHC will be built by BDRCS under SRC's supervision. As BDRCS's technical capacity is limited, SRC has hired an engineering consultancy firm in Dhaka (Advanced Technology Company) to develop the technical drawings and BOQs. With these documents provided, BDRCS is presently launching the bidding to hire contractors, process that will be closely monitored by SRC. The implementation on BDRCS's part will be ensured by an engineer that SRC is helping BDRCS recruit in complement of BDRCS's existing team of engineers. SRC will also guarantee its supervising role during the construction phase through a consultant (as they did for the first 3 PHC).

→ *Technical documents*: It seems SRC's consultant has developed both architectural and structural sets of drawings for each building. The structural drawings mentioned wall bracings even though they were not observed on the building. Technical drawings must show all important details ensuring structural safety, such as bracing, footings, panel fixing, etc., as well as non-structural elements such as drainage, to avoid omission or errors by the contractor while building. Consequently, also ensuring all critical components will be included in the BOQs. As said previously they must be cross-checked and approved by a (external or SRC) structural engineer.

→ *Implementing partner*: The next construction phase with BDRCS as a local implementing partner, will require an improved supervision and monitoring setup from SRC. As such, it is opportune that SRC (or SRC consultant) engineer follows the whole construction process and regularly visits the construction sites to ensure deadlines are kept, quality and compliance to structural requirements.

→ *Contractor*: The implementation through a contractor should ensure quality and rapid execution. It is important to note that in the camps and surroundings, skilled labour is scarce favouring a contractor approach, especially if the scale of construction is not substantial enough to push for and ensure proper transfer of knowledge in the local community. Nevertheless, contractors should hire as much as possible local labour to ensure local acceptance.

→ *Site supervision*: It is a challenge to find experienced staff that are willing to work in the camp. This also seems to be the case with the engineering/consultancy firms. The three first PHCs have been supervised by a young architect with a positive and dedicated attitude. He has done a good job in supervising the architectural work but did not have the technical background to ensure structural details are executed properly, especially if not on the drawings.

→ *Experienced engineer*: In conclusion of the above remarks, it is important to ensure that SRC's consultant engineer is well experienced, with the capacity to both train BDRCS's engineer and supervise the contractor's work, and often goes on the field. It would also be an added value if that same engineer could supervise and advise on the MRF design and construction.

❖ Conclusion | Reminder

General impression

SRC shows a strong sense of dedication and seems to have a trustworthy and friendly relationship with BDRCS, the national society in Bangladesh with which RCRCs' partners are to collaborate. Despite the challenges in terms of logistics, site conditions and political pressure, the PHCs are executed according to plans and very well maintained. It is worth mentioning that SRC has put a real effort in integrating lessons learned in the new plans and layouts as well as including all partners' feedback to draw from experiences. Furthermore, in such a context, their SWM project is a worthy initiative.

Role of SRC

1 – SRC has done considerable work in building their position within the Health Sector and advocating for more durable solutions for health facilities. Today, they seem to benefit from a privileged relationship with the Health Coordination Cell and as such have an advocacy responsibility and should pursue in coordinating and sharing with other health stakeholders that could gain from SRC's experience and expertise. In order to do so, their drawings should be checked and improved to be structurally sound.

Reminder for MRF

2 – The MRF design should be structurally strengthened and could make use of all Shelter/NFI technical documents on bamboo construction. It could be an opportunity to build an "exemplary building" for awareness raising and knowledge transfer on safe building practice, thus enhancing the resilience of the affected community. (see point 1.2)

Reminder for PHCs

- 3 – Proper drainage to be added in camp 11 and planned in all new PHCs (see point 1.4)
- 4 – Disabled toilets to be added in the new PHCs, and steps between rooms avoided (see point 1.4)
- 4 – Ventilation to be ensured maintaining the same type of design as in Camp 15 (see point 1.4)
- 5 – Structural safety to be cross-check by an engineer, reinforcements to be added (see point 1.5)
- 6 – Technical drawings for new HPCs to be developed with all critical structural details and cross-checked and validated by a (external or SRC) structural engineer (see point 1.6)
- 7 – Experienced engineer to be hired with the capacity to supervise PHCs and MRF (see point 1.6)

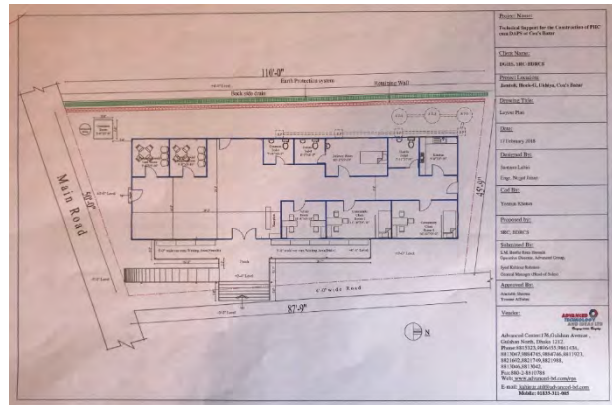
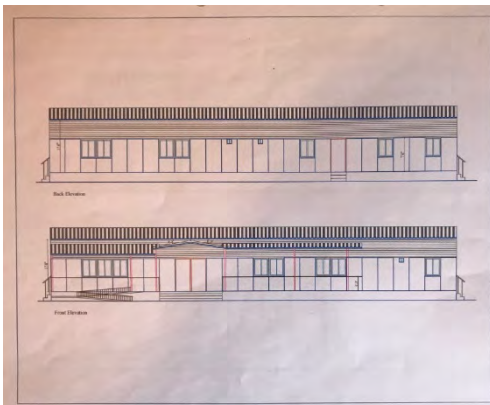
❖ Project documentation



Camp 15: SRC PHC



Access from main road



Camp 15: Drawings



Camp 15: Interior, spacious and ventilated



Added partitions



Small rooms



Camp 15 : Access ramp



Non-disabled toilet



Steps between rooms



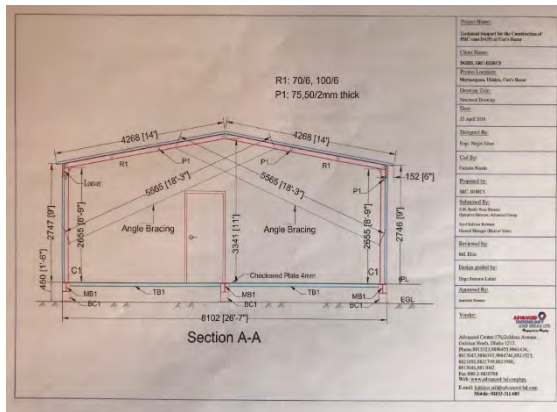
Proper



Camp 11: SRC PHC



Access from main pathway



Camp 11: Structural drawing



Interior (no visible bracings)



Adaptation to flooding



No proper drainage



Small rusting



Toilet (less maintained)



MRF Camp 15: Compost pits



Sorting spaces

Médecins du monde (Mdm)

Reference project: 289.004

Provision of quality healthcare in Kutupalong/Bulukhali camp.

Visit schedule: 20th of November (half day)

visit of the 2 HPs in Camps 11 and 7

quick visit of Friendship bamboo child friendly space on the drive back

Contact persons: Constance Theisen, Head Program, (constance.theisen@medecinsdumonde.ch)

Javier Tena, Medical Coordinator (genco.bangladesh@medecinsdumonde.ch)

Dr. Rafi Abul Hasnath Siddique, Team leader, (rafisiddique@friendship.ngo)

Tarek Siraj Chowdhury, Project Manager (tarek@friendship.ngo)

Field visit accompanied by: Javier, Tarek

Objectives according to LogFrame:

Provision of health care, running and maintenance of 2 existing Health Posts in camps 11 and 7.

Location: Camp 11 and 7 | Duration: 13 months | SwS contribution: CHF 400'000.-

Note: only a half day was planned for the visit of Mdm's two Health Posts.

The project is primarily a health program, where only a minor amount (approx. 2%) of the total budget is planned for maintenance and upgrading of the buildings. This evaluation focuses mainly on technical construction aspects and will therefore mainly give technical recommendations. It is important to note that the partner engineer was not present during the visit which made it difficult to understand the exact nature of the upgrading that were made under SwS funding.

2.1. Situation at time of visit | Progress

Over the last year, Mdm has supported Friendship in running and maintaining two previously built Temporary Health Posts in Kutupalong/Balukhali camps.

→ *Progress:* SwS funded project will end at the end of the year. Both Health Posts will continue to operate next year, although it was not made clear to the evaluator under which funding and operational scheme.

2.2. Project strategy | Context

Although overall conditions in Kutupalong/Balukhali camp have improved since the September 2017, overcrowding, poor hygiene and inadequate access to safe water endures, highlighting the need to ensure access to basic healthcare to the overall camp population. Médecins du Monde, as an experienced international NGO specialised in the medical/health field, adheres to the *JRP 2019 Strategic Objective* by supporting and strengthening the capacity of Friendship, a national Bangladeshi NGO, active in the camps since the onset of the crisis.

→ *Partnership:* Friendship has been active in the Health Sector since 2002. In this context Friendship has built many public community buildings, including 11HP and 2 maternities, complemented by a large WASH program. Moreover, they are the designated health focal point in camp 11, which makes them a key partner to assist and by way support the Sector in its coordination efforts.

→ *Decommissioning of HPs:* According to the Health Sector new strategy some HPs will be decommissioned to ensure a more coherent coverage. At the time of the visit the new list of approved HPs was not available. As designated health focal agency, it is crucial to follow-up on the Health Sector plan and keep coordinating with other actors to ensure fair coverage and avoid duplication.

→ *Maintenance of existing buildings:* While sufficient secondary care facilities have now been created, camp authorities have been instructed not to authorise the construction of new facilities in most camp areas. It therefore seems a sensible approach to consolidate and scale up existing health structures, consequently capitalizing on what is already available while mindful of the reality of diminishing funding.

→ *Running of the HPs:* Friendship is running both health facilities with a lot of dedication. Doctors seem knowledgeable and each health post has of a women doctor! As doctors are not on a rotation scheme, Friendship seems to have gained the trust of the Rohingya and built a reliable relationship.

2.3. Compliance with SwS minimum standards | General

The two present Health Posts were built during the emergency phase and had to abide by the governmental requirement for temporary design, making it challenging to comply with minimum standard for public buildings. They were also built under the urgency to respond to a massive influx.

Geographical coverage | site selection

MdM supports Friendship in running two of its HPs, one of which is in the Camp where they act as health focal point. Both were previously built and run by Friendship and were chosen following a need-based approach.

→ *Camp 11*: Friendship built the health post after the CiC granted them the land. Camp 11 seems currently well covered with a large number of existing HP. It is nevertheless important to note that it is one of the most densely populated camps, hence with quite high needs in terms of health care. Friendship/MdM's Health Post is well situated, with easy access from the main road, therefore attendance is important. The site, on the other hand, seems prone to low flooding. Considering the scarcity of land and existing topography, it is a challenge to find sites that comply with all usual safety requirements. It also seems Friendship did not have much of a choice in the site selection.

→ *Camp 7*: The land was provided to Friendship by a local landowner in order to build the HP. The landlord himself lives on the HP's compound, which seems to help in ensuring the site is being well maintained. Camp 7 seems less covered both in terms of medical and health services, and topography makes easy movement challenging, which highlights the need to keep these small health facilities running. The chosen site is more remote but as such covers people with less access to central locations.

→ *Follow-up on decommissioning*: It is important to follow-up on the Health Sector and Governmental plan, in order to identify if these two Health Posts are to remain or be decommissioned. Nevertheless, considering the position and the high frequency of patient visits, it seems quite unlikely that the health post in Camp 11 would be decommissioned, being also crucial to Friendship's responsibilities as Camp health focal agency. Concerning Camp 7, decommission might not be an issue as the HP is located on a non-governmental own land, nevertheless the risk of overlapping another HP should be monitored.

Design appropriateness

The Health Post design follows a very simple and efficient layout consistent to the emergency situation in which they were built. Both HPs are composed of two consultation rooms and a storage room accessible from an external veranda also serving as a waiting room. The HP in Camp 7 is slightly bigger as there was more land available for construction. They are also very humble in terms of construction with a basic bamboo/wooden structure covered by corrugated iron sheets both on roof and walls.

→ *Waiting room*: Using the veranda as a sitting area in such small settings demonstrates a willingness for efficiency. It nevertheless seems challenging for patients during rainy season. If the HP is to be maintained on the long run, the waiting area might gain from some improvement or extension.

→ *Intimacy*: The layout allows for gender separation, which compliments the staffing arrangement with one doctor being female. Friendship has managed to improvise consultation booths in each room guaranteeing patients' privacy. Nevertheless, windows being always open and overlooking the adjacent pathway (particularly in Camp 11), don't always ensure privacy while children are peeking through the windows.

→ *Light*: Both HPs seems to enjoy enough electricity through their solar installation, even during rainy season, consequently allowing doctors to use light bulbs when needed. However, rooms are not very luminous due to the green interior coating of the iron sheeting and the small window size; requiring to open windows and doors, which in turns prevents from enjoying the needed privacy.

→ *Ventilation*: A bamboo mat has been added as under-roofing insulation, which clearly improves the temperature in the rooms. Nevertheless, it is important to note that in Camp 11, bamboo mats should be properly placed up to the walls as in Camp 7. This would help in reducing the heat, not to mention that Camp 11 HP does not have any shade. Moreover, both HPs, would also benefit from bamboo louvers on all sides, that could be covered during heavy rains, it would not only improve ventilation but also luminosity.

→ *Rain*: During heavy rains, water seems to be incoming through the windows, this could be mitigated by enlarging the window iron sheet to properly cover the openings when closed.

Accessibility

→ *Camp 11*: Access to the HP's site in Camp 11 is straightforward as it is adjacent to the main road. On the other hand, there is no proper connection (built pathway) between the road and the HP. Moreover, movements in and about the HP's compound are not fluid, especially for people with disabilities, as proper flooring and pathways are not available, except to access the wash facilities. This could definitively be

improved and as humanitarian organisations it is MdM/Friendship's responsibility, if feasible, to facilitate movement and access to public facilities such as health posts to people with disabilities.

→ *Camp 7*: Accessing the HP in Camp 7, requires crossing a bridge and using stairs, or using the back entrance through a somewhat craggy path, which in both cases is a challenge for people with disabilities, and a challenge for all in time of heavy rains. Contrary to Camp 11, once in the compound, the movements are made easier thanks to properly built pathways. As in Camp 11, access to WASH facilities is fluid.

→ *Steps*: Steps to enter the rooms should also be looked at while considering disability access, but in the case of both HPs, it seems necessary to take precautions to prevent water from incoming.

WASH

In both HPs, two double toilet/shower units have been rebuilt less than a year ago, one unit is designed to accommodate people with physical disabilities. Both are accessible through a covered pathway and/or with a wheelchair. As they were constructed in a later stage, they are more solidly built and the cabins with their cement pillars are of a semi-permanent nature. The roof fixing however could be improved/enhanced in order to resist heavy winds.

→ *Camp 11*: The site seems prone to low flooding. It would be advised to check if the latrine pits are not flooded in time of heavy rain.

→ *Camp 7*: The site is close to a river, and the toilet units have been placed on the side of the river. Conscious of land scarcity and of the constraints given by overcrowding and topography, it is nevertheless important to pay attention and avoid, if possible, placing the latrine/shower pits closer than 10 meters from any water source or surface water.

→ *Maintenance*: In both camps, wash facilities are well kept, according to the HP staff, Friendship's WASH team comes every 15 or 20 days to check and ensure maintenance.

2.4. Technical issues | Resilience against natural hazards

As said previously both HPs were built as quick and temporary structures. As such locally available material and technique were used, and it seems without any proper construction plans. Since Friendship's engineer was not present during the visit, the exact nature of the maintenance/retrofitting works was not made clear. In the evaluator's understanding, the subsequent works mainly concerned the newly built WASH facilities, the replacement of some bamboo posts and other minor repairs. As we are now entering the second year following the influx, temporary structures that still operate should, if not able to comply with minimum standards for public buildings, at least guarantee a minimum of safety and operability in regard to natural hazards, such as flooding, landslides or cyclones. Below are some technical recommendations that should be applied in order to secure and strengthen the existing structures.

Site improvement

For all hereunder recommended site improvements, the *"ICSG Site Improvement Catalogue V2"* (it can be found on the *"Site Management and Site Development Sector"* website) is a valuable reference, which gives a precise overview and construction details of local adapted solutions. As well, site management engineers are present in all camps and can advise on most suitable measures.

→ *Site 11*: As said previously, being prone to low flooding, pathways in the compound including the waiting area should be improved or raised and proper flooring added.

→ *Site 7*: Friendship took the opportunity to build a HP as long as the site could allow for, which is understandable considering the population needs. This does present some safety issues in terms of landslip, because the plot is on a hill. Both side of the building facing a slope have been strengthened with simple sandbags, nevertheless this is a temporary measure and ought to be strengthened with more durable slope stabilization solutions such as small bamboo or cement retaining walls. This is particularly important in the case of the facade on the entry side where landslip is at high risk.

→ *Drainage*: In Camp 11 proper drainage is a must and ought to be added around the main building, the WASH facilities and compound, especially considering the site is below road level and adjacent to a pound area. In the same way in Camp 7, proper drainage inside the compound would be advisable.

Building improvement

For all hereunder recommended building improvements, the Shelter/NFI *"Basic Guidance for Strengthening/Upgrading Existing Community Facilities/Structures"* (it can be found on the *"Shelter/NFI Sector"* website) gives a comprehensive list of construction details and improvements for semi-permanent Bamboo structures. It is interesting to note that as for the site maintenance, the building in camp 7 is better preserved, and details such as bamboo and wood fixing have been better implemented (for example the usage of metal strips to link wooden pieces).

- ➔ *Bracings*: No bracings were observed during the visit, and ought to be added as they are crucial in order to prevent light structures from collapsing in case of heavy wind.
- ➔ *Footings*: It seems some of the bamboo posts/beams have already been replaced. Adding footings would prevent bamboo from rotting. But more importantly, it would ensure the structure is properly anchored. The use of footings is now allowed by the government and is therefore highly recommended that they should be added, especially if the HP is to continue operating next year.
- ➔ *Treated Bamboo*: Using treated bamboo would also increase the lifespan of the building and reduce the pressure on bamboo harvesting (deforestation) caused by their constant replacement.
- ➔ *Connexions*: All connections (bamboo and wood) could use some upgrading. Priority should be given to properly strengthening the main structure, especially making sure the ring beam is continuous and solid.
- ➔ *Roofing*: Fixing (nailing) of the roof should be strengthened, particularly in camp 11, to avoid iron sheets flying off in heavy wind, hence being a source of danger for the surrounding population.

❖ Conclusion | Reminder

General impression

MdM/Friendship team show a lot of dedication in running the two HPs, they seem to be doing a very good job with the little they have and hard conditions in which they are operating.

Minimal safety of public buildings should not be compromised

1 – Regarding the building, both HP's are of a temporary nature, and are therefore not very resilient to natural hazards, even after the minor upgrades they received. Most of the crucial structural elements ensuring safety and stability are missing. There is a need for a proper verification/expertise by an experienced engineer giving clear guidance on minimum but essential improvements to implement (such as added bracings and improved connections). If the HPs are to continue to serve the refugees for a year or more, a comprehensive retrofitting or reconstruction should be considered.

Make use of Partners and Friendship know-how

2 – Building with locally available materials and techniques is always a more sustainable and sensitive approach, as well as a way to recognise, foster and enhance local capacity. Two year building community facilities in bamboo has built the capacity of many international and local partners, it would therefore be wise to coordinate with these experienced partners and make use of their know-how (i.e. IOM, UNHCR have built many bamboo communal facilities). Moreover, Friendship's Learning Centre in camp 7, seems to better follow the best practices of bamboo construction and could clearly capitalize on it to strengthen or retrofit the existing HP structures.

Reminder:

3 – Site improvement in camp 11, to ensure easy access and movement for disabled people, through proper flooring and pathways (see point 2.3)

4 – Site improvement in camp 7 requires slope stabilisation measures (see point 2.4)

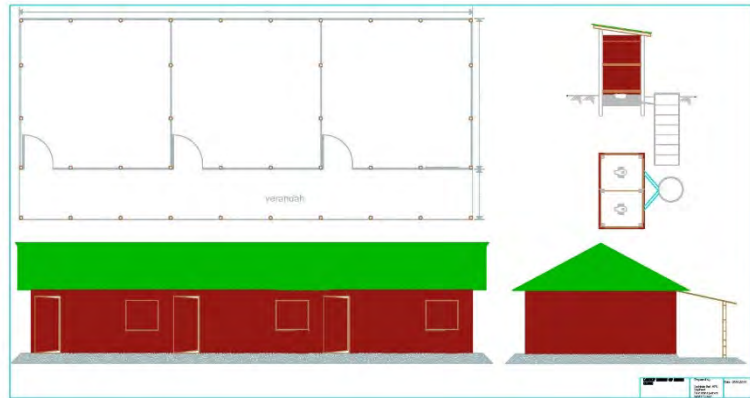
5 – Proper drainage to be added in both HP compounds (see point 2.4)

6 – Supervision by an engineer is needed to ensure strengthening upgrades such as: footings, bracings, treated bamboo, proper connection/fixing details of structure and roofing. (see point 2.4)

❖ **Project documentation**



Camp 11: MdM HP



Drawings



Access from main road



Back of the HP, main pathway



Waiting area



Consultation room



Consultation booth



Pathway to toilets



No proper drainage



Disabled toilet



Basic construction details



No intimacy



Camp 7: MdM HP

Main Buildings



WASH facilities



Consultation room



Waiting area



Better details



Main access entrance (bridge and stairs)



Back-entrance (craggy path)



Slope stabilization needed (front side)



(back side)



Toilet pits close to the river

Medair

Reference project: 289.003

Improving living conditions, durability of shelters and resilience of Rohingya.

Visit schedule: 21st of November (full day visit)
visit of shelters in Camp 8E and 8W, meeting the beneficiaries
meetings with community leaders, Majhis, camp 8W site management and CiC

Contact persons: Ernesto Lorda, Head of country programs, ernesto.lorda@medair.org
Carl Adams, Country Director, cd-bgd@medair.org
Milton Bonik, Programme Liaison Officer, plm-bgd@medair.org
Khaled, Shelter Project Officer, shelterpo-bgd@medair.org

Field visit accompanied by: Carl, Milton, Khaled,

Objectives according to LogFrame:

Transitional shelter assistance and shelter-related training for 2000 HH. Distribution of 500 Emergency shelter kits. Training of 50 community Carpenters.
Location: Camp 8W and 8E | Duration: 12 months | SwS contribution: CHF 800'000.-

General Note: Most onsite observations, analysis and recommendations for shelter projects are described thoroughly in the chapter "Shelter & Site Improvements" (p5). Shelter partners are expected to become fully acquainted with this chapter. The shelter project sheets are therefore synthetic and factual, and repeatedly refer to the aforementioned chapter.

3.1. Situation at time of visit | Progress

At the time of the visit, all shelters had been completed and the project was at a closure stage. The PDM survey was done in October and would be finalized after being cross-checked in focus groups discussions. Medair is at present in the process of submitting another shelter project proposal to IOM as their implementing partner in Camp 8.

➔ *Project completion:* Medair has covered 702 HH with transitional shelter assistance in Camp 8W (in 8 sub-blocks); and 1261 HH in Camp 8E (12 sub-blocks), including 100 extremely vulnerable individuals (EVIs) households. Special cases of households who refused to be relocated and still live in highly risky areas will be dealt with in the next step. Medair will work with the site management agency on a common approach.

➔ *PDM:* It would be appreciated and valuable to share the main findings of the PDM survey with Sector partners, especially for those that are starting TSA projects.

3.2. Project strategy | Context

Strategy

Medair is the Shelter Focal Point Agency for Camp 8E, which is IOM-led. As such, Medair is responsible for shelter emergency response if and when needed (emergency repairs and ESK). While working in Cox's Bazar since the beginning of the crisis, Medair has gained technical competencies within the Shelter/NFI Sector, studying and implementing the various incremental stages of the shelter response. The two previous shelter projects funded by SwS have complemented each other, transitioning from emergency distributions to shelter upgrade kits as the context shifted from emergency shelter to monsoon preparedness and lately toward transitional solutions. Medair was the first IOM pipeline partner to complete the Upgraded Shelter Kit programme and distribution. In this project, Medair has provided transitional shelter assistance together with shelter-related trainings for 1963HH, as recommended by the Shelter/NFI Sector.

➔ *Relevance of the approach:* Medair has chosen the TSA approach recommended by the Shelter/NFI Sector. Their aim was "to transition from providers to enablers so that the community wouldn't just be benefiting from the activities but also be involved in the designing and implementing of the solution". Medair has been very proactive in building trust with the community and guiding them through this self-recovery process.

Partnership

As shelter focal point in one of the IOM-led camps, Medair is considered a shelter implementing partner of IOM. The partnership agreement allows Medair to receive both funds and in-kind contributions from IOM. In-kind contributions consist of treated bamboo and tarpaulins.

→ *IOM contributions:* In-kind gifts ensures Medair have access to treated bamboo, as only the two leading shelter agencies have running treatment plants. But they also create a dependency on IOM's ability to deliver the requested material in the required quantities and time. If IOM provides less material than planned, the number of beneficiaries would be reduced, or the component of the kit would be changed, hampering the structural integrity of shelters. In this project, the provision of in-kind treated bamboo as well as part of the borak bamboo was delayed, which compelled Medair to provide non-treated bamboo and replace a few borak bamboo pieces with other construction material. Currently, it seems all three major bamboo treatment plants are fully running and would lessen the threat of such incidents. Nevertheless, and considering the massive pressure on single construction material, shortage of bamboo remains a risk for partners, particularly when it comes to properly seasoned borak bamboo.

Local Partner

For this project, Medair has partnered with the national NGO Prottiyashi (PROTT), as it was already working in locations and Sectors in which Medair operates. Their expertise with both refugee and host communities has complemented Medair technical and community engagement. PROTT's responsibility lied mainly in community engagement, direct supervision and technical inspection of household-led construction activities. In order to do so, Medair has trained their technical staff, and followed-up with overall capacity building and coordination. Medair has provided PROTT with technical, management and monitoring support. Medair remains the main project holder and oversees all procurements and provision of goods. The partnership unfortunately had to end at the end of the project, as PROTT was not officially on the FD7 agreement.

→ *Technical capacity:* At the time of the visit, PROTT was no longer working with Medair, therefore the evaluator did not have the opportunity to meet and evaluate the technical capacity of any of the local partners' staff. Nevertheless, and in view of the quality of shelters, PROTT technical staff seems to have been well trained or/and strongly monitored.

→ *Collaboration:* According to Medair, the collaboration was a success and would be reiterated if the opportunity arose. Interviewed beneficiaries also seemed satisfied with the NGO's assistance.

→ *Capacity building of local partners:* As stated in the main recommendations, building the capacity of local partners is a must. With its experience and expertise, and considering the achieved results, Medair should pursue its collaboration with PROTT, gradually increasing their responsibility to manage and run the project in view of their future independence. Proper expertise requires building technical knowledge through regular and repeated field experiences. Considering the dire local needs, Medair could expand on the effort already provided and focus on increasing PROTT's technical capacity.

Coordination

Medair has been quite active in the Shelter/NFI Sector, both in participation and sharing the strong expertise of its former shelter project manager (an expatriate). At the time of the visit, he had just left, and the new expatriate was waiting for his visa. Furthermore, as Medair was not yet running any new shelter projects, none of their staff was attending the Sector meetings.

→ *Promote a community of practice:* Medair is to constantly share its extensive experience and expertise with shelter partners by participation in the Sector meetings, regardless of the status of their shelter projects.

→ *Foster local staff:* As stated in the main recommendations, Medair should encourage their local staff, as well as their local partner's staff to attend the Sector meetings in order to give them exposure and a voice.

General challenges

Medair has encountered various challenges throughout their project, some of which are shared by many shelter partners and others specific to their situation. As with most partners, getting agreements and authorisation is time consuming, challenging and requires developing a good relationship with the CiC.

→ *Relationship with authorities:* Medair has nurtured healthy and regular contact with the authorities and seems to be well considered by the CiC. To be noted that a change in CiCs is always a risk to anticipate.

→ *Community acceptance:* As some organisations were not following the Sector's recommendations and delivering other type of shelter assistance in camp 8, Medair had to put a lot of initial effort into convincing and building the acceptance of the community, which subsequently proved to be a success.

→ *Security concerns:* Providing beneficiaries with tools became a security concern for I-N-NGOs, as authorities accused them of supplying Rohingyas with weapons. As a prevention, Medair followed IOM's example of a creating a "tool bank" whose tools were loaned daily.

→ *Proximity to the host community:* Because the distribution point in camp 8E was close to the host community some beneficiaries engaged in "forced selling" of bamboo pieces. As a mitigation measure and with the help of the CiC, Medair moved the distribution point to another site further inside the camp. This created another problem in that the beneficiaries had to carry the material further and ultimately required extra unplanned support for labour cost (some of which seemed to have been covered by the local staff).

3.3. Project approach | Appropriateness

Geographical coverage

The project covered 8 sub-blocks in camp 8W and 12 sub-blocks in camp 8E, representing approximately 25% of both camps. The initial plan was to cover 200 households in camp 8W. Given that other organisations were distributing dissimilar and more “durable” assistance from that recommended by the Sector, Medair struggled to convince Majhis to accept their support. As only 8 sub-Majhis accepted, Medair had to extend its geographical coverage to camp 8E. Medair, then, became Shelter Focal Point Agency for Camp 8E.

→ *Challenging coordination:* Considering the acute needs, the large geographical spread and the number of partners, coordination is key. Unfortunately, not all organisations participate in the Shelter/NFI Sector. Such partners should nevertheless somehow be included in the coordination process. Integrating the Majhis together with the CiC in decision making, as Medair did, is crucial to ensure smooth running and ownership of the project. It is the first step to build trust.

→ *Favour blanket approach in full blocks:* As stated in the main recommendations, partners should follow a blanket approach and cover full blocks as much as possible or at minimum full sub-blocks. This will avoid creating small pockets that might be left out of any assistance and create tensions between a community. Medair is consistent with this approach to the extent of its ability. As Shelter Focal Agency for Camp 8E, Medair will engage in progressively covering the rest of the camp in coordination and collaboration with IOM.

Beneficiary selection

The beneficiary selection process was similar to the one described in the chapter “shelter & site improvements”. Medair adopted a blanket approach in the chosen sub-blocks. The EVIs’ list was given by the DRC protection team and complemented by some additional families registered by the sub-Majhi’s and Majhi’s. Medair then conducted a house to house assessment and double-checked through a KIs’ voting system per sub-block. After crossing the vote results with the household survey, few EVIs were taken out of the list. Five EVIs per sub-block were considered, a hundred EVIs in total.

→ *Do not exclude EVIs:* Removing certain EVIs from the list showed that ultimately these households had to be supported. As mentioned in the main recommendations, EVIs should be rather included than excluded as it might lead to bad coping mechanisms. In this case, some households were unable to build properly, others indebted themselves to pay for labour cost; and a few even sold part of their material and then could not build anymore. Considering most vulnerable for additional support is a do-no-harm principle.

→ *Be flexible:* Be aware that some vulnerabilities are not obvious at first glance and can change with time. People can go in and out of categories depending on the situation. Constant monitoring and planning for a small budget reserve for unexpected cases is recommended.

Distribution of material

The distribution of material was organised by PROTT together with volunteers from the community. Because of the mentioned proximity issue of the distribution point to the host community, all distributions were moved to 8E. Distributions for the most vulnerable were made first to their shelters.

→ *IOM pipeline:* As mentioned previously, the IOM bamboo pipeline proved to be a challenge in providing both treated and non-treated borak bamboo on time. After some delay, IOM only delivered non-treated borak bamboo, part of the promised tarpaulin, and a few muli bamboo in compensation. This not only hampers proper construction of the shelters but can also lead to bad coping mechanisms. In fact, it was reported that one of the beneficiaries has gone into debts to buy the remaining borak bamboo.

→ *Postpone the distribution to ensure structural soundness:* The distribution was delayed for three months due to the aforementioned bamboo shortage and restrictions from the government. These two risks are unfortunately always present. Partners must plan accordingly, anticipating in a flexible manner such events. Planning in phases allows one to be more responsive and adaptable. Shelter upgrades ought to be postponed when the main material ensuring structural safety is lacking such as borak bamboo. To date non-treated borak bamboo ought to be avoided, as it will considerably reduce the durability of the shelters and put beneficiaries once more at risk in the short-term.

→ *Complaints and feedback mechanism:* Medair has put in place a complaints and feedback mechanism by phone. The phone number goes to the Medair hotline and is not managed or owned by the local partner. When interviewed, beneficiaries seemed informed and appreciative of the transparency. The main complaints concerned the quantity of bamboo and the transport of material. As mentioned in the main recommendations, partners should arrange for a small budget reserve to cover labour costs for transport when required, especially if the distribution site is far from the shelters.

Training / knowledge transfer

Medair has delivered the training curriculum validated by the shelter TWIG for beneficiaries, consisting of a half-day training for 15 households. One male and one female per household participated. The training was a complement to the previously provided USK training with emphasis on bracings, footings and tie-downs. It was delivered by Medair's team, with a practical demonstration by the carpenters and volunteers from the sub-block. At the completion of the training each household received a booklet presenting the build back safer details with simple drawings.

Volunteers and carpenters were identified by the community. Between ninety and a hundred, including 3-4 carpenters per sub-blocks, followed the same theoretical training as the beneficiaries with an additional day for practical training building a demo shelter (Medair's office in camp 8E). Consequently, all were tested by interview resulting in 40 carpenters and 40 volunteers being selected (4 per sub-block). To complete the training, they built five pilot shelters in three sub-blocks of camp 8W and in two sub-blocks of camp 8E. Sites for pilot shelters were selected according to the visibility of their location. As follow-up training experience they built the EVIs shelters with Medair and PROTT's supervision.

→ *Promotion of skilled workers:* As mentioned in the main recommendations, identifying carpenters and skilled labourers is essential in fostering community long-term transfer of knowledge. As such, recognized skilled carpenters should all be fully trained. Additional incentives would allow them to support not only the EVIs but also other beneficiaries in monitoring them. They could gain responsibility as technical focal persons and ensure their community benefit from their knowledge and acquired experience.

→ *More practical trainings:* According to focus group discussions, beneficiaries requested additional and more practical trainings, as most didn't properly understand the theory or the drawings. In future projects, Medair should include more practical sessions building small structures for practical exercises. A phased approach would take into account the time constraints of both staff and beneficiaries and participatory teaching would increase the beneficiaries' motivation thus their participation and learning.

→ *Gender inclusion:* Medair seems to have been the most successful in promoting women's participation, by proposing a separate training for women, taking place in one of the women's house.

Site improvement

As stated in the main recommendations, providing proper drainage for and around all shelters as well as slope consolidation where needed is essential and the responsibility of shelter partners. As well, elevating shelters on a mud plinth is an important safety measure and ought to be considered for all shelters. Most of the shelters visited had a raised earth plinth.

→ *Site improvements:* As many of Medair's supported shelters lacked proper drainage, it would be highly recommended for Medair to provide it in a later phase. In future projects, including drainage is an imperative.

Cost effectiveness

The cost of a transitional shelter has been valued by the Shelter/NFI Sector in the TSA guidance. Nevertheless, it remains an estimate and can greatly vary depending on market prices, material shortages or the extent of the shelter damage.

→ *Budget reserve:* Budget should allow for some flexibility and anticipate for unplanned events especially when dependent of IOM's gifts in-kind, while always keeping structural safety of shelters as the priority. As mentioned previously, a small budget reserve should be planned for additional material transport costs (labour costs).

Gender

Gender is a sensitive issue in this crisis and a real challenge for partners to find and hire female staff.

→ *Female staff:* Only PROTT had one female social mobilizer. Gender balance in staffing should be encouraged as much as possible, particularly for technical staff. Conscious of the cultural barrier, female volunteers should nevertheless be put forward.

Resale of construction material

According to Medair, foundations have been sold by beneficiaries either to other better-off Rohingyas (such as Majhis) or to the black market.

→ *Cross-check information:* The extent and the type of material that has been resold should be assessed in the PDM. Sharing results with the Sector would benefit all partners in advising them on measures to take.

→ *Mitigation measures:* As stated in the "*Technical observations - TSA*" (p8) a better identification of EVIs and awareness raising on safety elements can reduce these bad coping mechanisms.

3.4. Comfort & Safety | Resilience against natural hazards

All observations and observations and recommendations in the chapter “*Shelter and Site Improvements*” for TSA apply here and will only be reminded. Those specific to Medair’s project will be highlighted.

Comfort

Mainly due to a lack of material, most beneficiaries have struggled to build an adequate shelter in terms of comfort. Nevertheless, Medair could promote details developed in MTS in future projects and consider expanding the kit with extra muli bamboo and bamboo screen (bamboo fence).

→ *Ventilation and light*: As for most TSA, lack of ventilation and light is a major concern. Few of Medair’s supported shelters have permeable walls, bamboo shutters or ventilation on top of the walls. Consider improvements for overheating such as green roofing, interior ceilings, bamboo cladding with top ventilation. In response to beneficiaries’ requests, think of providing small solar panels and fans for the next phase.

→ *Bathing and cooking spaces*: Medair has been particularly sensitive in supporting the families’ request for private bathing space and interior cooking space by providing a concealed drainage with a PVC tube and a cement bag for the kitchen floor and wall plaster.

Safety & Resilience

As previously mentioned, structural integrity is imperative, as such providing the adequate material in sufficient quantities ought to be a priority.

→ *Shelter’s structural soundness*: Medair’s main challenge seems to have been advising beneficiaries with unusual shaped or larger shelters on suitable and safe upgrades. As structural integrity can hardly be achieved with the number of borak bamboo and footings provided, advocate for a “core housing” approach as mentioned in the main recommendations. Most importantly, make sure the main bamboo structure acts as a full frame, a “cage” where all the connections are solidly linked. Remember that households with more than seven members are to receive two kits.

→ *Structural main elements*: IOM’s treatment plant only started operating in august 2019 and struggled to provide all partners in time, therefore Medair couldn’t access treated bamboo. Additionally, not enough borak bamboo was available to provide the first batches of families with enough essential items. Structural safety ought to be prioritized, as such distributions which do not provide adequate structural pieces should be delayed rather than incomplete kits provided according to schedule. This also applies to footings.

→ *Footings*: Medair has designed their own footings which shows great dedication and inventiveness. They are easy to use, solid and enable proper anchoring of the shelter. However, they seem a bit complicated considering the need for regular shelter upgrades, as pillars can only be removed vertically. It would also be worth checking that the bamboo is not weakened at its base when hollowing out the nodal diaphragms. For obvious reasons it is always preferred to purchase what is locally available or can be easily produced as it will enhance beneficiaries’ self-recovery. As such footing D or E of the footing catalogue seems to be a better alternative.

→ *Cyclone resilience*: Medair has been quite proactive in promoting the Sectors’ recommendations for cyclone resilience. However, many would require additional muli bamboo to securely fasten the roof and the walls. Consider adding horizontal bamboo bracing pieces in the corners to solidify the whole structure (as in MTS). Special attention is to be given to unusual shaped shelters and wide overhangs.

→ *Shelter improvements*: The quality and details of shelters seem to vary depending on the family’s resources and building skills. However, many would benefit from additional muli, split bamboo and bamboo fencing to improve the protection of the structural frame and tarpaulins. Many shelters lack protection of the rafters on roof edges, and few have adopted a separated/removable base wall protection.

→ *Awareness raising of beneficiaries*: Partners are responsible for making Rohingyas aware of the danger of burning treated bamboo and not using it for cooking. Protecting treated bamboo is essential to avoid the treatment being washed away by rain. When building base walls out of mud, the interior face of pillars should be free to allow the bamboo to breathe. Furthermore, partners are responsible to conduct awareness raising against reselling of items and to provide guidance on adequately choosing the appropriate “flexible material” for greater safety and durability.

3.5. Implementation | Quality Control

Medair has a long-standing shelter experience and technical competencies. In Cox’s Bazar an experienced international and competent national staff delivered shelter assistance supported by Medair’s technical advisors in headquarters. At the time of the visit, Medair’s shelter team had been considerably reduced due to the closure of the project.

Technical set-up

During the implementation of the project, Medair's technical set-up was as follows: One shelter project manager (expatriate) supervising a shelter manager and a shelter officer (local staff). The shelter manager overseeing three shelter assistants and two shelter trainers (local staff). The shelter project manager, the shelter manager and shelter assistants are all engineers. The shelter program officer does not have an engineering background but seems to have been well trained by the shelter project manager. PROTT had two technical officers (identified by the shelter manager and acting as construction supervisors) and 1 female social mobilizer. Medair has made a point in building a shelter team from the area even though finding technical and female staff has proved to be particularly challenging.

→ *Technical expertise:* The previous shelter project manager seems to have been an experienced, innovative and a strong technical expert. Moreover, he has been very proactive in the Sector and dedicated in training and coaching its staff. At the time of the visit, the new expatriate was still awaiting his visa. Strong technical expertise still seems to be needed to coach local staff and local partner's staff. Medair should consider hiring a national technical expert to be trained by the expatriate and take over when fully ready, while benefitting from regular backstopping if judged necessary.

→ *Training of local staff:* As stated in the main recommendations, building the capacity of local staff (including local partner's staff) is essential. It is also critical to hire staff with a construction background. The TOT will only provide them with the theory. Real learning takes place in the field, as such local staff still need tutoring on how to approach unfamiliar self-built typologies. Therefore, the technical expert (in this case the expatriate) ought to accompany them on the field and coach them on the job.

→ *Local partner:* As stated in the main recommendations, local partners are key for localisation, and as such building their capacity is essential. To the extent possible, Medair should build on the provided efforts and resume their collaboration/partnership with PROTT. Consider training and building high level technical expertise withing their organisation.

Monitoring and supervision

The direct monitoring and supervision of construction sites are done by PROTT's technical officers. They are supported by two carpenters and two volunteers per sub-blocks. After distribution, they supervise each house a minimum of 5 times. Distribution is done per sub-blocks; thus, shelters are built and supervision is done sub-block per sub-block. Most of Medair's shelter team is present daily in the field and works alongside PROTT's staff. Medair's team have put a lot of effort in making sure the Sector's main recommendations for shelter upgrades and safety are implemented. During its visit, and because of the project's closure, the evaluator did not have the privilege of meeting the local partner. PROTT staff's competences and technical skills could therefore not be evaluated, nor the sharing of tasks or collaboration with Medair.

→ *Regular supervision:* Monitoring the upgrade of shelters every day until their completion seems an appropriate measure if enough time is scheduled to discuss and advise beneficiaries. Consider teams made of one technical supervisor and one social mobilizer to ensure beneficiaries' inclusion, as well as gender-balanced teams. Medair's technical team should visit at least twice during the construction of shelters to ensure their recommendations can be implemented. Moreover, integrating the carpenters and volunteers as a "part of the team" will give them exposure, responsibility and by snowball effect will build the community's self-recovery capacity and resilience.

→ *Monitoring tools:* Consider developing tools to help the shelter team but also the carpenters and volunteers in supervising upgrades such as an "inspection check-list". Monitoring checklists ensure that crucial details are not omitted and have been properly checked.

→ *Survey:* Consider conducting monitoring through surveys during the distributions, the trainings and the construction to identify the impact, the challenges and staff capacity in order to adapt and modify the assistance and the technical support during project implementation.

→ *Feedback and accountability:* As stated in the main chapter, community trust is vital in the success of beneficiary-driven projects. Medair has built a solid relationship and accountability with the communities they support. According to beneficiaries, they feel consulted and well counselled by Medair and PROTT's teams. They are aware and confident to contact Medair but in case of problems, they mostly call on the carpenter and volunteers. This reliance on people within their communities highlights the need to fully integrate carpenters and volunteers into the shelter team.

❖ Conclusion | Reminder

All recommendations articulated in the introductory chapter "Shelter & Site Improvements" (p11) apply for all shelter partners and ought to be taken into consideration.

General impression

With its long-standing experience of community-based projects, Medair has been proactive in building trust with the community and guiding them in their self-recovery. They seem to have developed a transparent and healthy relationship with the Rohingya while building both national staff's and local partner's capacity as well as the community's resilience. Moreover, the team in the field showed a lot of motivation, involvement and dedication to work in this challenging environment.

Share expertise

1 – Medair has gained significant experience in the field and actively participated in the Shelter/NFI Sector. As such and as shelter focal point, Medair has a responsibility to share its expertise with all partners and could support other newly active swiss NGOs with advice and field visits. Sharing the PDM's results with the Shelter/NFI Sector would also benefit all Sector's partners.

Build local capacity

2 – With the arrival of its new shelter project manager (assuming he is as experienced as the former one), Medair is in a position to expand the capacity building of both its local staff and local partner by training high level technical experts (see point 3.5). Focus should be on coaching local staff in adapting the "taught solution" to the wide-ranging field cases, such as paired or bigger shelters.

Reminder:

- 03 – Consider sending local staff to the Shelter/NFI Sector meetings (see point 3.2)
- 04 – Anticipate and plan alternatives solutions for shortage or delay in material delivery (i.e. IOM in-kind).
Postpone assistance if required, always prioritize structural safety (see points 3.2 & 3.3)
- 05 – Do not exclude EVIs and plan for unplanned cases in need of extra support (see point 3.3)
- 06 – Promote the identification of carpenters and skilled labourers.
Work more with and foster community expertise (see point 3.3)
- 07 – Promote additional and more practical trainings (see point 3.3)
- 08 – Prioritize structural soundness. Be flexible and adapt the "theory" to unusual shaped or larger shelters.
Avoid wide overhangs and consider adding horizontal bamboo bracing in the corners (see point 3.4)
- 09 – Consider using footings that are locally available, i.e. footing D or E of the catalogue (see point 3.4)
- 10 – Provide drainage to all upgraded shelters and plan for it in all future projects (see point 3.4)
- 11 – Raise awareness on the risk of burning treated bamboo (see point 3.4)
- 12 – Consider hiring a local technical expert to be trained in order to localise expertise (see point 3.5)
- 13 – Consider monitoring checklists (see point 3.5)

❖ Project documentation



Camp 8W and 8E: context



Camp 8W and 8E: context



Inadequate drainage and lack of soil consolidation

Unprotected base of walls Wide overhangs



Focus group discussion

Meeting with the sub-Majhis



Upgraded shelter



Kitchen space



Bathing space



Lack of ventilation



Upper wall ventilation and bracing details



Mud protection



Bamboo connections



Medair's personal developed bamboo footing



Separated overhang



Connected shelters



Example of green roofing

SOLIDAR

Reference project: 293.018

Enabling refugees and host community to build a safer environment.

Visit schedule: 22nd of November (full day visit)
visit of shelters in camp 14 and CFW project in host community
visits of proposed bamboo plant location, BRAC treatment plant, YPSA Office

Contact persons: Helmut Rählmann, Humanitarian Coordinator, Helmut.Raehlmann@solidar.ch
Pankaj Kumar, Emergency Response Delegate, pankaj.kumar@solidar.ch
Amit Chandra Roy, Shelter Coordinator
Bijoy Biswas, Livelihood Coordinator

Field visit accompanied by: Pankaj, Amit, Bijoy

Objectives according to LogFrame:

Provision of transitional shelter assistance and site improvement to 400HH
Cash for work (CFW) project for 470HH of the Host Community.
Location: Camp 14 & Host Community | Duration: 13 months | SwS contribution: CHF 500'000.-

Note: A proposal for the setting up of a new bamboo treatment plan was submitted for approval, extending the project of an extra 5 months and requesting a contribution of CHF 180'000.-

General Note: Most onsite observations, analysis and recommendations for shelter projects are described thoroughly in the chapter "Shelter & Site Improvements" (p5). Shelter partners are expected to become fully acquainted with this chapter. The shelter project sheets are therefore synthetic and factual, and repeatedly refer to the aforementioned chapter.

4.1. Situation at time of visit | Progress

At the time of the visit, Solidar had just completed a pilot phase and was in the process of launching its shelter assistance for 400 families. The cash for work project was also starting after a long negotiation period.

→ *Progress:* Solidar has upgraded four pilot shelters and completed a site improvements pilot in Camp 14. Delays are mainly due to the challenge in finding adequate material particularly treated bamboo.

4.2. Project Strategy | Context

Shelter Strategy

As most shelter partners, Solidar has opted for the recommended owner-driven and household-led TSA approach. Solidar plans to upgrade 400 shelters in camp 14. An individual structural assessment will be led and be the base for a technical and financial forecast for each shelter. Households will then be provided with the specific material to upgrade their shelter.

Solidar's strategy is to support all households in mud plastering around the kitchen fireplace, and those with enough space in including an individual bathing space (estimated to be 110 households). Additionally, one essential site improvement per household will be proposed.

→ *Relevance of the shelter approach:* Solidar follows the TSA approach recommended by the Shelter/NFI Sector. In including bathing and cooking areas, Solidar demonstrates social and gender sensitivity, as well as a concern for safety. Linking shelter assistance with site improvements is a highly appreciated initiative.

→ *Kit composition:* Solidar intends to adapt the material provided according to the individual shelter structural assessments. Such an approach is valuable if financial efficiency is sought and small-scale assistance is considered. For a large-scale assistance, however, it might be time-consuming and logistically challenging. It would be more appropriate to comply with providing the essential materials to all households and rather even offering additional material for those whose houses are in extremely poor condition.

Implementing partner

On this project, Solidar is partnering with Young People Social Action (YPSA), a well-known local NGO that has received all the required authorisations (FD6 and FD7) to collaborate with Solidar as its implementing partner. YPSA has been providing assistance in the camps since the onset of the crisis and has experience delivering shelter support in the region following previous cyclones. Additionally, YPSA is already active in camp 14, where the project will take place. Solidar will remain the overall project manager and will be

responsible for building the technical capacity of YPSA. For its part, YPSA will ensure the implementation of the activities, construction supervision as well as social mobilization.

→ *Capacity building of local partner:* YPSA has 6 engineers in its current staffing. As there are not many local NGOs previously involved in shelter activities, this is a great opportunity to further build their capacity, strengthen the technical expertise locally and have an impact in the long term.

→ *Collaboration:* Since the project has barely started, it is challenging to assess the relationship between both partners. Nevertheless, both NGOs showed equal motivation and trust to collaborate and local partner's staff already seemed confident and felt respected. Solidar's team seemed to be building a transparent and horizontal relationship.

Host community CfW Project

The authorities encourage humanitarian agencies to dedicate part of the budget planned for the refugees' assistance to support the local population. Solidar will support the host community in three wards of Palongkhali Union with cash for work, in accordance with the Bangladeshi law on CfW. The project will focus on assisting host communities by strengthening community assets, which will benefit the entire local community. The project was selected by the host community after consultation with Solidar, favouring low value assistance for many and need-based considerations.

→ *Improve social cohesion:* Supporting the host community should improve social cohesion and hopefully reduce the growing tensions between the local population and the Rohingyas.

Bamboo treatment plant project

Prior to the evaluator's visit, Solidar submitted a project proposal to SwS for the establishment of a new bamboo treatment plant. Solidar did an extensive market and business model analysis. If the proposal were to be approved, Solidar would hire a Bangladeshi specialist in bamboo treatment as a consultant to train YPSA's staff and offer back-stopping support. YPSA would purchase land to set up the treatment plant on one of the two already identified sites. YPSA would run the plant and sell the treated bamboo to other agencies and eventually to the host community or even beneficiaries.

At the time of the visit, treated bamboo was only available for Shelter Focal Point agencies as implementing partners of IOM or UNHCR through in-kind contributions. This resulted in ten to-fifteen partners not being able to access it from IOM or UNHCR/BRAC's treatment plants. According to the Shelter/NFI Sector Coordinator, an agreement was under process of negotiation to help smaller NGOs access treated bamboo through the newly running IOM treatment plant. A month later it seemed to be the case.

→ *Relevance of the project proposal:* Now that it is highly probable that all Shelter/NFI Sector partners will have access to IOM's or UNHCR's treated bamboo, the creation of another structure which requires financial means and qualifications does not currently seem a priority considering the high needs in terms of shelter assistance. In the future, if the situation changes and treated bamboo remains a challenge to purchase, such a project ("creation of local business" approach) would be welcomed, particularly if driven by a local partner ensuring sustainability in the long run.

4.3. Project Approach | Appropriateness

Geographical coverage

Solidar has selected two blocks (A and B) in camp 14 to deliver its shelter assistance. This part of the camp is quite "remote", access is limited and so far, only a few agencies had been present but many of those agencies have now left. For budgetary reasons, Solidar intends to cover 400 shelters out of the 600 households in need of shelter upgrade in the two blocks. To the evaluators understanding, no other agency is planning to cover the remaining 200 households.

→ *Blanket coverage:* As stated in the main recommendations, blanket coverage of full sub-blocks or blocks is to be favoured. Avoiding partners overlapping on small areas reduces the risk of future gaps in assistance and tensions within a same community. Solidar should request an additional budget to fully cover both blocks.

Beneficiary selection

The beneficiary selection follows a slightly different process than other partners. A list of beneficiaries was given to Solidar by the CiC and Site Management Agency without mentioning EVIs. The Majhis provided names of the most vulnerable households, which were then cross-checked by a house-to-house KOBO survey conducted by YPSA. A community consultation enabled finalisation of the list of 400 beneficiary families and the identification of volunteers. The criteria for excluding 200 families was not made clear to the evaluator. During the focus group discussion, the community voiced its concern and dissatisfaction with the decision and requested blanket coverage.

→ *Caution with EVIs:* In every camp and for each block, the Protection Sector has a list of most vulnerable families. This list must be requested and considered the basis on which to identify EVIs. As mentioned in the main recommendations, vulnerabilities are not always obvious at first glance and can require the inclusion of additional EVIs at a later stage during the implementing of the project.

Distribution

Solidar will follow the standard distribution procedure advocated by the Shelter/NFI Sector. Essential materials will be delivered first and flexible materials once the upgrade through essential materials has been completed and quality check carried out by Solidar's team.

→ *Recommendations:* EVIs should receive their materials first at their shelters. Plan for unexpected transport costs (labour costs). Postpone the distribution if part of the main material ensuring structural safety is lacking.

Training / knowledge transfer

Solidar plans to deliver the trainings as per the Shelter/NFI Sector's guidance. The beneficiaries (a female and a male per household), the carpenters and volunteers will be provided with a half-day training. Carpenters and volunteers, identified in community consultation, will be further coached upgrading the pilot and EVIs' shelters. Later, families are to benefit from two more refresher courses and a use & maintenance training.

At the time of the visit, Solidar had completed the pilot phase upgrading four model shelters (including one EVI household) selected with the Majhis and the CiC. The sites were chosen for the visibility of their location. It is currently difficult to assess the trainings' format as they had not yet been put in place. However, considering the details and construction quality of these pilot shelters, solid trainings and strong monitoring seem imperative, starting by building the technical capacity of both Solidar and YPSA's staff. Furthermore, when consulting the beneficiaries of the pilot shelters, none had understood the use and proper detailing of bracings.

→ *Recommendations:* As Solidar is starting its project, it should abide by the main recommendation "Improve training & gender inclusion" (p13) in the chapter "Shelter and Site Improvements".

→ *Promotion of skilled workers:* As mentioned in the main recommendations, identifying carpenters and skilled labourers and fully training them is essential in fostering the long-term transfer of knowledge to the community. When considered as a part of the shelter team, they would gain responsibility as technical focal persons and ensure their communities benefit from their knowledge and acquired experience.

→ *Beneficiaries' feedback:* To better assess the impact of trainings, systematic feedback mechanisms should be put in place, as well additional and more practical trainings are to be proposed if necessary.

→ *Model shelters:* Model shelters can be used as demonstration tools only when they are perfectly executed and adhere to basic didactic conditions, such as being an independent shelter with a simple shape on a safe site. EVIs' shelters could be considered as they will be built by skilled carpenters and volunteers with a close supervision from YPSA's team who could ensure quality in the execution.

Site improvement

In their first proposal Solidar had intended to provide site improvements for all shelters including drainage, and a mud plinth. At the request of SwS, Solidar removed these provisions in order to reduce the proposed cost per shelter upgrade. In the approved project proposal only one essential site improvement per household is planned, some will be individual (such as ramps) and other communal (such as pathways).

It is worth mentioning that, as hardly any other agencies are currently active in the selected block, most site improvements had been done by the community itself.

→ *Site improvements:* As stated in the main recommendations, proper drainage for and around all shelters as well as slope consolidation where needed is critical to the shelter's safety. Solidar should either reduce the number of shelters planned to include drainage costs or request additional budget.

→ *Elevated plinth:* Elevating shelters on a mud plinth is an important safety measure and ought to be considered in the budget.

Cost effectiveness

The cost of a transitional shelter has been valued by the Shelter/NFI Sector in the TSA guidance. Nevertheless, it remains an estimate and can greatly vary depending on market prices, material shortages, or the extent of the shelter damage. Without in-kind contributions from IOM or UNHCR, it is difficult to compare prices between partners.

→ *Price per shelter:* If cuts are to be made in the price for upgrades, only aesthetics improvements (such as cement flooring) or secondary improvements should be concerned. There is a limit to price reduction as structural soundness and site safety should not be compromised.

→ *Budget reserve*: A small budget reserve would allow for some flexibility and to anticipate unplanned events such as additional labour costs or increases in market prices.

Gender

Gender is a sensitive issue in this crisis, and it is a real challenge for partners to find and hire female staff.

→ *Female staff*: Solidar has an all-male team, whereas PROTT has female engineer as community facilitator. Gender balance in staffing should be encouraged as much as possible, particularly for technical staff. Conscious of the cultural barrier, female volunteers should nevertheless be put forward.

→ *Female beneficiaries' request*: Including bathing and cooking spaces in shelters demonstrates a gender sensitive approach. Other female requests should be considered such as providing a proper lockable door, in-house ventilation and light.

4.4. Comfort & Safety | Resilience against natural hazards

All observations and recommendations in the chapter "*Shelter and Site Improvements*" for TSA apply here and need to be considered. Those particular to Solidar's project will be highlighted here.

Pilot phase

Solidar has initiated its project with a pilot phase, comprising of four models shelters, two drainage channels, two pathways and a stairway on sites that have good visibility. The purpose was demonstrative but also to test design and construction system. Considering Solidar is new in delivering shelter assistance in Cox's Bazar, starting with a pilot is a sensitive approach as it will enable Solidar to assess their capacities, draw lessons learned and steer the project consequently.

→ *Phased approach*: This phased approach could be applied to the whole project, monitoring closely each phase and adjusting the response according to outcomes. In projects of this type, there is a particular need for flexibility, adaptability and capacity to innovate.

Confort

Beneficiaries' needs and requests are consistent in all camps visited: ventilation, solar light, improved roofing for heat, a lockable door, as well as individual bathing and cooking spaces. Solidar is well-founded for including bathing and cooking spaces in their shelter assistance. As for most TSA, lack of ventilation and light is a major concern. Solidar's pilot shelters all have proper ventilation on top of the walls, but walls are mostly impermeable.

→ *Ventilation and light*: Solidar could promote details developed in MTS and support beneficiaries with extra muli bamboo and bamboo screen (bamboo fence) enabling them to build adequate shelters in terms of confort. Consider improvements for overheating such as green roofing and interior ceilings. In response to beneficiaries' requests, small solar panels and fans could be provided. Consider adding roll-up plastic blinds on top of the walls to protect from the rain and in case of cyclone.

Safety & Resilience

While launching its shelter assistance, Solidar should take into consideration and implement all main technical recommendations, particularly "*Prioritize structural safety main elements*", "*Be aware of low cyclone resistance*" and "*Technical improvements and model shelters*" (p12) made in the chapter "*Shelter and Site Improvements*". Solidar and YPSA have put a lot of effort in trying to adequately apply all Shelter/NFI Sector guidelines for TSA, however the pilot shelters reveal they still need some essential improvements to ensure safety and durability. All improvements are comprehensively described in the main recommendations, but the most critical ones will be highlighted below.

→ *Shelter's structural soundness*: The main challenge faced by Solidar in upgrading the pilots is linked to the typology and size of the chosen shelters, as they were built side by side. Self-built shelters are to be structurally independent from one another or they are all at risk of collapsing if one is unstable. In any case, even when executed by skilled carpenters, shelters should not exceed a ratio width/length of 1:4. Additionally, half of the pilot shelters were much larger than the 20m² estimated for the TSA assistance. When faced with big shelters, where the quantity of essential materials provided will not suffice to guarantee structural integrity, partners should adopt a "core housing" approach. This implies ensuring the core of the shelter (approx. 20m²) is structurally stable and the rest are independent annexes that can be strengthened and connected when enough material (i.e. borak bamboo and footings) is available. Large shelters also require additional pillars, rafters and purlins, and the distance between them should not exceed 1.5m. Furthermore, adding horizontal bamboo bracing pieces in the corners would help strengthen the core structure (see MTS design). Lastly, make sure the main bamboo structure acts as a full frame, where all the connections are solidly linked.

→ *Structural main elements*: As acquiring treated bamboo from IOM seem now a *fait accompli*, Solidar must guarantee that the required amount of treated bamboo is provided to all shelters. This also applies to footings. It is recommended to use the footings D or E of the footing catalogue, as they have a concrete base. As a reminder, bamboo pillars should be elevated from the ground to avoid water logging, a flat stone or concrete spacer can be added between the concrete base and the pillar to prevent capillary rise.

→ *Cyclone resilience*: Special attention should be given to unusual shaped shelters. Four pitched roofs are preferred in case of big shelters as they are more resistant to high winds. Wide overhangs must be disconnected from the main roof structure. This also applies to the pilot shelters presenting such details. Additionally, most bracings were poorly executed or missing. This is a critical detail to which Solidar/YPSA must be particularly vigilant. Lastly, plastic roofing is to be securely fastened, roof edges protected and tie-downs are to be added to all shelters.

→ *Awareness raising of beneficiaries*: Partners are responsible for making Rohingyas aware of the danger of burning treated bamboo and not using it for cooking. When building base walls out of mud, the interior face of pillars should be free to allow the bamboo to breathe. Separate the base of the bamboo wall cladding so that it can be easily be replaced when rotten, while preserving the rest of the cladding. Furthermore, partners are responsible to conduct awareness raising against reselling of items and to provide guidance on adequately choosing the appropriate “flexible material” for greater safety and durability.

Site development:

In addition of being remote with challenging access, Camp 14 is found on mostly hilly terrain, and many shelters are built on slopes and on stilts. They are at high risk of collapsing during monsoon as a result of soil erosion. Moreover, more than 50% of the shelters are built below the main walkway level, thus prone to water flooding and logging. The lack of drainage channels around the houses and on pathways poses a threat to the shelters, weakening their foundations.

→ *Ensure site safety*: Main site protection actions are still needed, particularly landslide mitigation measures. It is the Site Management Agency’s responsibility to ensure the overall site safety of the camp; however, Solidar is to advocate and work closely with the SMS agency in their two assigned blocks.

4.5. Implementation | Quality Control

Technical set-up

The main recommendations “*Foster inclusive technical teams*” and “*Don’t work in silos and promote local staff*” (p14) apply here and should be adopted.

Solidar has deployed a team of three qualified staff in Cox’s Bazar to implement their shelter project. The team is headed by the Emergency Response Representative (an expatriate and architect by training) supervising the Shelter Coordinator (a local civil engineer) in charge of the quality control. The livelihood Coordinator (local staff) completes the team and is mainly in charge of the community-based related issues and the CfW host community project.

YPSA will be directly implementing the project, carrying out the distributions and closely supervising the shelter upgrades. In order to do so, YPSA has a large technical team currently comprising of six engineers: three site engineers, two field officers (one being a woman), and a MEAL officer.

All Solidar and YPSA’s staff involved in this project (including non-technical staff) were sent to attend the three days TOT on TSA, given by RedR/IOM. However, based on the evaluator’s assessment of YPSA’s engineers and on the pilot shelters’ observation, all technical staff (Solidar and YPSA) still need to strengthen their technical capacity, as some basic structural concepts (such as proper bracing) were still not mastered.

→ *Technical expertise*: As strong technical expertise seems difficult to find locally, Solidar should consider hiring an experienced technical expatriate at least for the first six month. This expert should train the national Shelter Coordinator for him to take over when fully ready. Later a remote and/or punctual backstopping can be considered as a follow up measure.

→ *Training of local staff*: As stated in the main recommendations, building the capacity of local staff and local partner’s staff is essential and key for localisation. The TOT will only provide them with the theory. Real learning takes place in the field. As such, local staff still need tutoring on how to approach unfamiliar self-built shelters, adapting technical solutions to the complexity and wide-ranged typologies. Therefore, an experienced technical expert ought to accompany them in the field and coach them on the job.

Monitoring and supervision

The recommendations made under “*Emphasise on technical support, monitoring and supervision*” (p13) apply here and should be put in place by Solidar.

Direct monitoring and supervision of shelter upgrades will be done by YPSA technical team with the support of the carpenters and volunteers. As stated previously, and for this first phase, Solidar will need to strongly support YPSA with construction monitoring.

→ *Structural assessment*: Solidar/YPSA should make use of the individual structural assessment they carry out to identify shelters that would need restructuring. Discussion with the beneficiaries is to take place prior to the construction in order to define the “core part” to be stabilised and raise their awareness of the elements to be dissociated from the main structure.

→ *Regular supervision*: Monitoring the upgrade of shelters every day until their completion seems an appropriate measure if enough time is scheduled to discuss and advise beneficiaries. Consider teams made of one technical supervisor and one social mobilizer to ensure beneficiaries’ inclusion, as well as gender-balanced teams. Solidar’s technical team should visit at least twice during the construction of shelters to ensure their recommendations can be applied during the implementation. Moreover, integrating the carpenters and volunteers as a “part of the team” will give them exposure, responsibility and by snowball effect will build the community’s self-recovery capacity and resilience.

→ *Monitoring tools*: Consider developing tools to help the shelter team and the carpenters/volunteers in supervising upgrades such as an “inspection check-list”. Monitoring checklists ensure that crucial details are not omitted and have been properly checked.

→ *Survey*: Consider conducting monitoring through surveys during the distributions, the trainings and the construction to identify the impact, the challenges and staff capacity in order to adapt and modify the assistance and the technical support during project implementation.

→ *Feedback and accountability*: As stated in the main chapter, community trust is vital in the success of beneficiary-driven projects. Solidar/YPSA seems to be building a healthy and inclusive relationship with the community they support. Complaint and feedback mechanisms enabling beneficiaries to directly access Solidar must be established. However, based on the other partner’s experiences, beneficiaries will mostly call on the carpenter and volunteers. This reliance on people within their communities highlights the need to fully integrate carpenters and volunteers into the shelter team.

❖ Conclusion | Reminder

All recommendations articulated in the introductory chapter "Shelter & Site Improvements" (p11) apply for all shelter partners and ought to be taken into consideration.

General impression

Solidar as well as YPSA’s teams demonstrated strong motivation and enthusiasm to work in this challenging environment. They seem to make a great effort in building trust with the community and their choice of a remote and hard to access area is to their credit.

Technical expertise

1 – Solidar has no prior experience in delivering shelter assistance in Cox’s Bazar. Therefore, building the technical capacity of its staff, the implementing partner’s staff as well as the community’s carpenters is a priority. To that end, Solidar should consider hiring a strong international technical expert for the first phase to supervise and coach the shelter coordinator.

Focus should be on coaching local staff in adapting the “taught solution” to the wide-ranging field cases, such as paired or bigger shelters. On another note, Solidar could reach out to other shelter partners such as Medair in order to benefit from their extensive experience in shelter assistance and knowledge of the context.

Reminder

02 – Consider blanket coverage of full blocks (see point 4.3)

03 – Caution with the identification of EVIs and use the Protection Sector’s list (see point 4.3)

04 – Promote the identification of carpenters and skilled labourers to foster community expertise (point 4.3)

05 – Improve construction and choice of model shelters according to recommendations (see point 4.3)

06 – Provide drainage and mud plinth for all shelters, and slope consolidation where needed (point 4.3)

07 – Prioritize structural soundness. Be flexible and adapt the “theory” to unusual shaped or larger shelters. Consider “core shelters”, avoid paired shelters and wide overhangs (see point 4.4)

08 – Include main elements for cyclone resistance such as bracings, roof fastening and tie-downs.

Prefer footings with concrete base such as type D or E of the footing catalogue (see point 4.4)

09 – Raise awareness on the risk of burning treated bamboo and separate the base part of wall claddings to be easily replaced (see point 4.4)

10 – Solidar to strongly supervise and coach YPSA on the job (in the field) (see point 4.5)

11 – Conduct regular project monitoring to adjust the response and establish complaints and feedbacks mechanisms for beneficiaries (see point 4.5)

❖ Project documentation



Camp 14: context



Shelters on stilts



Camp 14: context



Unmaintained pathways



Lack of slope consolidation



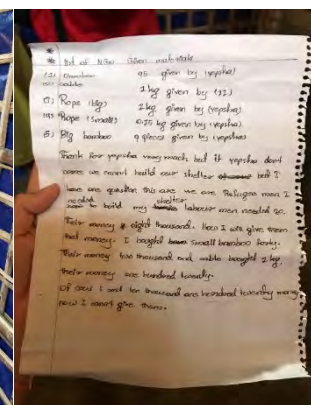
Focus group discussions



Model shelters



Proper drainage



Beneficiary's request



Cooking and bathing spaces

Big shelter: structure lacks essential material



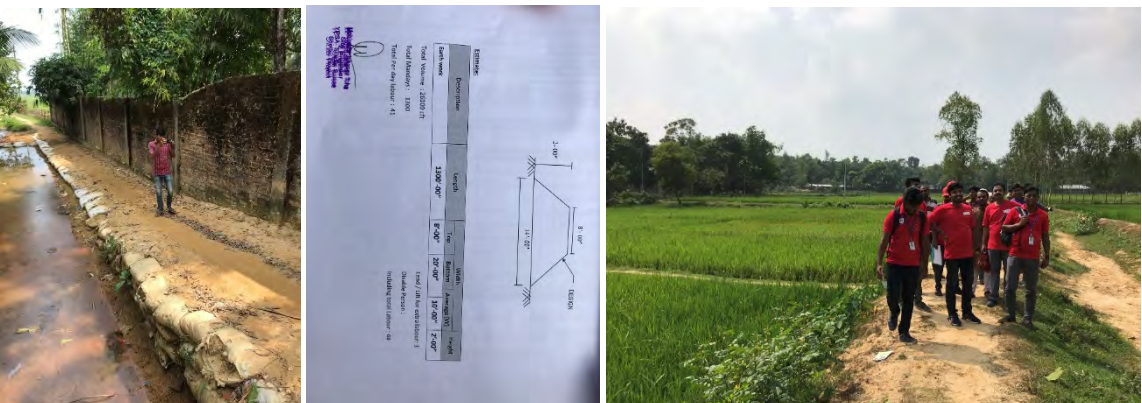
Ventilation detail

Shelter under pathway level

Wide overhang



Visit of Brac's treatment plant



Visit of CFW project for host community

Solidar's and YPSAs' teams

Reference project: 288.003 / 293.017

Mid-term shelter, site improvement and WASH services (288.003)

Shelter and settlement support for Rohingyas and Host Communities (293.017)

Visit schedule: 23rd of November (full day visit)
visit of training facility and MTS in Camp 19
visit of TSA in Camp 19, visit of MTS and site improvements in Camp 4 Ext.
meeting with Shelter/NFI Sector Coordinator in the evening
meeting with Caritas Bangladesh (24th morning)

Contact persons: Nicola Malacarne, nmalacarne@caritas.ch (at the time of the visit)
Amrita Regina Rozario, Country Director, arozario@caritas.ch (at the time of the visit)
Tim Mazharuzzaman, Manager Rohingya Response, tmazharuzzaman@caritas.ch
Sanzida Akter, Shelter Manager, Caritas Bangladesh

Field visit accompanied by: Tim, Sanzida

Objectives according to LogFrame: 288.003

Provision of upgraded shelters and site improvements for 400HH (camp 4)
Provision of WASH and hygiene services targeting approx. 3'400HH (camp 4 and 17)
Location: Camp 4, & 17 | Duration: 13 months | SwS contribution: CHF 470'000.-
→ Modified to provision of 330 MTS and site improvements for 1'130HH in camps 4, 4 Ext., 19 & 20 Ext.

Objectives according to LogFrame: 293.017

Provision of transitional shelter assistance for 360 HH, MTS for 40HH and site improvement to 400HH
CfW project for 400HH of the Host Community.
Location: Camp 19 & Host Community | Duration: 12 months | SwS contribution: CHF 500'000.-
→ Modified to provision 496 TSA (all 40 MTS were cancelled)

General Note: Most onsite observations, analysis and recommendations for shelter projects are described thoroughly in the chapter "Shelter & Site Improvements" (p5). Shelter partners are expected to become fully acquainted with this chapter.

MTS project: As Caritas is the only partner supported by SwS to provide MTS assistance, the observations and recommendations on MTS stated in the chapter "Shelter & Site Improvements" are directly intended for Caritas CH, thus will be repeatedly referred to.

5.1. Situation at time of visit | Progress

At the time of the visit, Caritas CH had completed all 400 USK of their previous project supported by SwS (project 285.007) in camps 4 and 17. Both new projects (288.003 and 293.017) were still ongoing.

→ **Project 288.003:** This project underwent many modifications which were challenging to follow. In the first project proposal, Caritas had planned to assist 400 households with TSA and site improvements in camp 4. When mid-term model shelters were endorsed by the ISCG, they changed to 408 MTS and extended the location for shelter and site improvements to camps 4, 4 Extension, 19 and 20 Extension. In the last modification, site improvements were broadened to cover 1'131 households and only 330 MTS.

→ **Delay in MTS assistance:** The launch of the MTS assistance was considerably delayed as the new MTS design took 9 months to be approved by the authorities. Land allocation procedures proved to be very lengthy and challenging. Additionally, the suspension of the authorisation to use certain buildings materials (such as RCC pillars and metal footings) by local authorities, greatly postponed the completion of the MTS assistance.

→ **Progress 288.003:** The construction of the last 148 MTS had finally started and was ongoing. The assistance in camps 4 Ext. and 19 was ongoing, in camp 4 it was starting and in camp 20 Ext. it had stopped.

→ **Progress 293.017:** Shelter upgrades are ongoing and seem to follow the planned timing. The construction of 40MTS were cancelled due to the inability to acquire new land.

5.2. Project Strategy | Context

Since the onset of the crisis, Caritas CH, through Caritas Bangladesh (CB), has supported the Rohingyas with shelter assistance, adopting and implementing all steps of the shelter response developed by the Shelter/NFI Sector. As such they are now implementing both TSA and MTS shelter responses respectively

in established and newly planned camps (camp extensions). They work both in IOM and UNHCR-led camps taking slightly different approaches (camps 19 & 20 Ext. are IOM-led; camps 4 & 4 Ext. are UNHCR-led).

→ *Relevance of TSA assistance*: CB, supported by the Caritas movement, is one of the partners who developed this beneficiary-driven initiative and is constantly improving it, striving for new and innovative solutions. See main recommendation “*Prioritize a beneficiary empowering approach*” (p11).

→ *Relevance of MTS assistance*: As stated in the main recommendations, the MTS solution is a significant improvement in terms of shelter construction, durability and site improvements. However, it seems limited to extension camps and is subject to ever-increasing constraints from the government, which prevent the development of a suitable masterplan’s design. See main recommendation “*MTS: be aware of the risks and limitations*” (p11).

Local partner

Caritas CH has entrusted the whole implementation of the project to the national NGO Caritas Bangladesh (CB). To support CB and report to Caritas CH Office in Dhaka, Caritas CH has embedded one of their regular non-technical local consultants in CB’s team. CB, as one of the largest local shelter partners, is supported by many other international Caritas Offices such as Caritas Germany and CRS. CB is also a direct implementing partner of both IOM and UNHCR, provides ESK and USK in all camps, covers 4 camps (4/4Ext./19/20Ext.) with TSA and MTS assistance, and is the Shelter Focal Point agency in camps 4 and 19. CB’s strategic position has enabled the N-NGO to become the Shelter/NFI Sector co-lead and as such, leads many technical working groups. To that end, CB is assisted by CRS’s international experts with technical support.

→ *Building local capacity*: Supporting CB in expanding their shelter assistance is a wise choice as it means further strengthening the capacity and responsibility of a strong local NGO that can easily take a leading role in delivering and coordinating the shelter response. It is a sensible approach aiming at localized assistance, thus long-term impact and durability. However, considering CB’s large-scale coverage and the difficulty to find local technical staff, CRS should not be held responsible for the full technical capacity building of CB. As such, Caritas should’ve considered supporting CB with high level international technical expertise, particularly in view of Caritas CH’s considerable, high-quality and long-standing experience in shelter projects. Additionally, expatriates can also serve to identify and minimize a potential local tendency to disregard the refugee population.

5.3. Project Approach | Appropriateness - TSA

Geographical coverage

As Shelter Focal Point agency for Camp 19, CB’s objective is to gradually cover all blocks with transitional shelter assistance. When applications for registration are done, both the shelter’s condition and site safety are checked. The households whose sites have not been deemed safe, are referred to the Site Management Agency for relocation, and are thus not eligible for TSA.

→ *Blanket coverage*: By supporting CB, Caritas CH contributes to promoting a full coverage of camp 19 with transitional shelter assistance. A further enabling factor for full coverage of TSA is that camp 19 is an IOM-led camp, and IOM prioritizes blanket coverages of blocks.

→ *Relocation*: Considering the constraints, suspensions and significant delays affecting the MTS assistance, many households waiting for relocation remain in dire situations, both in term of shelter condition and general safety. Intermediate or alternative solutions must be found and provided to these families, as many of them are already in the most vulnerable group.

Beneficiary selection

The beneficiary selection process is like that of most partners. The selection of EVIs is based on a door-to-door KOBO assessment and compared with the protection agency’s list. Caritas CH & CB plan for 25% of the targeted TSA as entitled to EVIs’ additional assistance (construction labour and porters).

→ *Selection of EVIs*: Planning for 25% of EVIs against the 10-15% targeted by most shelter partners offers more flexibility and allows CB to anticipate the support needed for unidentified cases.

Distribution

The distribution is organised by CB and follows the standard distribution procedure advocated by the Shelter/NFI Sector. EVIs are the first to be delivered at home with the help of porters. Once the beneficiaries have attended the TSA training, they are entitled to receive the essential material. After three days, CB’s MEAL team inspects the construction progress, and allows for the flexible material to be delivered when more than 80% of the essential material is used.

→ *IOM pipeline*: As Shelter Focal Point and an implementing partner of IOM, CB is eligible for IOM's in-kind contributions which ensures access to treated bamboo. However, as mentioned in the chapter "*Shelter & Site Improvements*", it also created a dependency on IOM's ability to deliver the requested material in the required time, consequently hampering the structural integrity of shelters if insufficient essential material is provided. This risk must be anticipated and the distribution postponed when main structural elements are lacking.

Training / knowledge transfer

As the Shelter/NFI Sector co-lead, CB is one of the agencies most involved in the development and delivery of trainings. Due to their large-scale shelter intervention, they have built training facilities in the camps they cover, including demonstration structures for practical exercises and perfectly built model houses. CB delivers the same half day training for beneficiaries' households (1 female and 1 male) as all shelter partners, consisting of theory with IEC posters and practical demonstrations. Out of 100 households, CB selects 10 individuals for extra training to act as skilled labour/volunteers for their community and support EVIs shelters' upgrades. The criteria for the selection of volunteers was not made clear to the evaluator.

→ *Promotion of skilled workers*: As mentioned in the main recommendations, identifying existing carpenters and skilled labourers is essential in fostering the long-term transfer of knowledge to the community. As such, recognized carpenters should all be fully trained. When considered as a part of the shelter team, they would gain responsibility as technical focal persons and ensure their communities benefit from their knowledge and acquired experience.

→ *Beneficiaries' feedback*: To better assess the impact of trainings, systematic feedback mechanisms should be put in place, as well as additional and more practical trainings.

→ *Model shelters*: CB's model houses built in the training facilities are very efficient demonstration tools. However, CB could expand the concept to use carefully selected EVIs' shelters (simple shape and safe sites) as additional model houses in the targeted sub-blocks, to expand visibility but also display realistic situation models.

→ *Gender inclusion*: To the evaluator's impression, women's attendance in CB's training facility was not successful and their average age seemed quite high. As stated in the main recommendations, CB should plan for separate trainings for women to ensure their privacy, and thus facilitate their participation. It is critical that younger women (under 45) attend the trainings to support in the construction activities and ensure the proper maintenance of shelters.

Site improvements

Caritas CH together with CB has made an effort of combining shelter assistance with site improvements, which is a vital approach that all partners should follow. However, most site improvements seem to only target community site improvements (pathways, footpaths, retention walls, main drainages, etc.) and not individual ones. Indeed, most shelters visited did not benefit from proper drainage.

→ *Site improvements*: As stated in the main recommendations, proper drainage for and around all shelters as well as slope consolidation where needed is critical to the shelter's safety. It would be highly recommended for Caritas CH & CB to complement their current assistance with proper drainages. In future projects, including individual drainages is an imperative.

Cost effectiveness

The cost of a transitional shelter has been valued by the Shelter/NFI Sector in the TSA guidance. Nevertheless, it remains an estimate and can greatly vary depending on market prices, material shortages or the extent of the shelter damage.

→ *Budget reserve*: Budget should allow for some flexibility and anticipate for unplanned events especially when dependent of IOM's gifts in-kind, while always keeping structural safety of shelters as the priority.

Gender

CB has managed to identify and hire a young Bangladeshi female engineer as their Shelter Manager. She is technically strong, having been well trained by CRS's experts, and she is also able to more easily access and gain the trust of Rohingya women, which is a considerable advantage.

→ *Female staff*: Gender balance in staffing should be encouraged as much as possible, particularly for technical staff. Conscious of the cultural barrier, female volunteers should nevertheless be put forward.

Resale of construction material

According to CB, some essential material such as footings or pegs have been sold by beneficiaries either to other better-off Rohingyas or to the black market. The Majhi interviewed during the visit, admitted buying extra metal footings from poorer Rohingyas for a reduced price.

- ➔ *Cross-check information:* The extent and the type of material that has been resold should be assessed and results shared with the Shelter Sector to benefit all partners in advising them on measures to take.
- ➔ *Mitigation measures:* As stated in the “*Technical observations - TSA*” (p8) a better identification of EVIs and awareness raising on safety elements can reduce these bad coping mechanisms. Additionally, CB should allow for the delivery of flexible material only when 100% of the essential material has been used.

5.4. Project Approach | Appropriateness - MTS

Geographical coverage

For their MTS assistance, Caritas CH/CB has been given land by UNHCR on their Extension site (camp 4 Ext.) where they are covering 330 households. IOM had also allocated land for Caritas CH/CB to build 40MTS in Camp 19 where they had already completed 56 MTS of the first design. Unfortunately, their request for the remaining forest land was not approved by the authorities. UNHCR and IOM are both providing site planning and site development but with different approaches. IOM only plans for shelters and WASH services, whereas UNHCR also plans for community services. In camp 4 Ext., UNHCR’s new masterplan suffered from successive and increasingly restrictive regulations which resulted in a somehow undignified settlement.

- ➔ *Limitation of MTS:* To date, it seems that only the households being relocated to Extension sites or previously planned camps will benefit from the MTS assistance. The expansion of the MTS assistance to other camps is not only contingent on the authorities’ decisions and goodwill but also depends on its applicability to existing and unplanned sites.

Beneficiary selection

The households eligible for MTS assistance are mainly those living in unsafe sites and EVIs that require the proximity of services. The selection of beneficiaries is based on a hazard map identifying sites at risk and is the result of a ping-pong agreement between the CiC and the RRRC. As such, partners are not involved in the final selection and cannot monitor the attribution of shelters as they directly hand-over the completed shelters to the CiC.

Training / knowledge transfer

The construction of MTS is carried out by hired Rohingya skilled (20%) and unskilled labour (80%), rather than through a beneficiary-driven approach as in the case of the TSA assistance. The training follows therefore a completely different strategy. The selection of both skilled and unskilled labourers is the result of a discussion with the CiC. The unskilled labour comes from the same camp and the skilled workers are evaluated on the basis of an interview with CB’s staff. The first skilled workers were trained by CB and CRS constructing 10 pilot shelters. The capacity building and transfer of knowledge amongst skilled and unskilled worker is done while building of the mid-term shelters.

- ➔ *Promotion of skilled workers:* As mentioned for the TSA trainings, identifying existing carpenters and skilled labourers and fully training them is essential in fostering the long-term transfer of knowledge to the community. This would require testing them on their practical skills.
- ➔ *More practical trainings:* According to focus group discussions, beneficiaries requested additional and more practical trainings, as most didn’t properly understand the theory or the drawings. As Sector co-lead, CB could advocate for more practical sessions. A phased approach would address the time constraints of both staff and beneficiaries and participatory teaching would increase the beneficiaries’ motivation thus their participation and learning.

Cost effectiveness

The cost of mid-term shelters is obviously higher than that of transitional shelter upgrades, which is a result of their improved quality and resilience. The Shelter/NFI Sector has sought to find the cheapest solution for the maximum resistance with the permitted materials.

- ➔ *Budget flexibility:* As MTS shelters have a fix design and are built by hired skilled workers, the cost per unit is given and less fluctuating than for TSA, which makes it easier for partners to plan their project according to budget. Nevertheless, it can still vary depending on the potential rise in market prices or material shortages and as such, partners should plan for some flexibility.

5.5. Comfort & Safety | Resilience against natural hazards - TSA

All observations and recommendations in the chapter “*Shelter and Site Improvements*” for TSA apply here and need to be considered. Those particular to Caritas CH’s project will be highlighted here. It is worth mentioning that the evaluator, for lack of time, did not visit enough upgraded shelters to draw consistent conclusions that can be generalized to CB’s implementation of TSA assistance. Furthermore, the shelters presented by CB were quite big, on safe sites, and seemed to belong to “better-off” households. Only a few unplanned stops along the way allowed for the observation of other conditions and outcomes.

Comfort

Beneficiaries’ needs and requests are consistent in all camps visited: ventilation, solar light, improved roofing for heat, a lockable door, as well as individual bathing and cooking spaces. As said previously, the visited shelters were particularly large and seemed to have benefitted from extra material to ensure a minimum of interior comfort. Roofing and wall cladding were well executed, and shelters included both an exterior bathing space and an interior kitchen, as well as concrete flooring.

→ *Ventilation and light*: Since additional material considerably increases comfort, Caritas CH & CB could promote details developed in the MTS model and expand the kit with extra muli bamboo and bamboo screen (bamboo fence). Consider improvements for overheating such as green roofing and interior ceilings. In response to beneficiaries’ requests, small solar panels and fans could be provided.

Safety & Resilience

As shelter cluster lead, CB is at the centre of the conception of Transitional Shelter Assistance and is thus a strong advocate for the implementation of the developed and recommended details. As mentioned, visited shelters seemed to involve “better-off” households who were able to afford buying additional material and hiring construction labour. Given the quantity of material available, most details were of superior quality, however a few essential structural details, such as bracing or a central beam were either missing or poorly executed. Moreover, during an unplanned stop, the visit of an ongoing upgrade, demonstrated that part of the shelter was being built and footings placed on a landfill, which is one of the critical violations of built-back-better messages. Building on stable grounds will prevent a differential settlement and the whole structure to tilt or collapse in case of soil erosion.

Given the on-site observations, Caritas CH/CB should take into consideration and implement all main technical recommendations, particularly “*Prioritize structural safety main elements*”, “*Be aware of low cyclone resistance*” and “*Technical improvements and model shelters*” (p12).

→ *Shelter’s structural soundness*: The main challenge faced by most partners seems to be advising beneficiaries with unusual shaped or larger shelters on suitable and safe upgrades. When faced with situations where structural integrity cannot be guaranteed such as during the “unplanned visit”, advocate for a “core housing” approach. This implies ensuring a structurally stable “core shelter” with independent annexes or independent verandas that can be strengthened at a later stage. Large shelters also require additional pillars, rafters and purlins, and the distance between them should not exceed 1.5m. Furthermore, adding horizontal bamboo bracing pieces in the corners would help strengthen the core structure (as in the MTS design). Lastly, make sure the main bamboo structure acts as a full frame, a “cage” where all the connections are solidly linked.

→ *Footings*: The ability to use concrete base footings seems to depend on the CiC’s goodwill and the agency’s diplomatic skills. Nevertheless, footings D and E of the catalogue should be the preferred options.

→ *Awareness raising of beneficiaries*: Partners are responsible for making Rohingyas aware of the danger of burning treated bamboo and not using it for cooking. Furthermore, when building base walls out of mud, the interior face of pillars should be free to allow the bamboo to breathe.

5.6. Comfort & Safety | Resilience against natural hazards - MTS

All observations and recommendations in the chapter “*Shelter and Site Improvements*” for MTS apply here and need to be considered. See in particular “*Technical Observations. Mid-Term Shelters – MTS*” (pp 9-10) as well as main recommendations “*MTS: be aware of the risks and limitations*” (p11) and “*Be aware of the low cyclone resistance*” (p12).

Comfort

MTS model is a significant improvement from previous shelter solutions, as it ensures the minimal sphere standards are respected. This two-room shelter provides far greater comfort than the TSA in terms of its roofing and wall cladding details, the provision of a proper door and shutters, the inclusion of kitchen and

bathing spaces, and cement flooring on parts of the surface. However, as stated in the main recommendations, the governmental restrictions, which no longer allow 2-4 row houses but impose rows of 6-10 shelter-units instead, are creating sites prone to congestion and no longer allowing for any privacy.

→ *Site planning*: Advocate for more dignified masterplans.

→ *Light & ventilation*: As for TSA, consider providing fans and small solar panels.

Safety & Resilience

The MTS design has evolved since its first attempt with improvements such as metal footings for the bamboo posts, double coated tarpaulins, plastic protection of the base of the walls and a 9" earth plinth. Nevertheless, it is still a light structure and not properly anchored in the ground. Moreover, the MTS sites are made less cyclone resistant and more prone to fire with the newly imposed constraints of masterplans.

→ *Structural gaps*: Avoid buildings with a width/length ratio exceeding 1:4 or plan structural gaps every 2 to maximum 4 units.

→ *Connections & bracings*: The execution of main connections could be improved. Special attention should be given to the maturity of bamboo pieces for bracings. This would prevent them from shrinking after construction and, thus losing their bracing function. See observation on "*Main connections*" (p9).

→ *Footings*: As for TSA, prioritize bamboo footings with concrete bases such as footings D or E of the footing catalogue. Also, advocate for the better anchorage of cement pillars (on-site casting of cement base).

→ *Use a fuse*: Create a fuse element in the roof as a mitigation strategy, such as a weakness in the tarpaulin.

Site development

Site planning is an integral part of MTS assistance, and as such main site improvements works are provided such as proper drainage (both collective and individual) and soil stabilization. Thus sites, pathways and stairways' safety are guaranteed and access to essential services is provided.

5.7. Implementation | Quality Control

The main recommendations "*Emphasise on technical support, monitoring and supervision*" (p13), "*Foster inclusive technical teams*" and "*Don't work in silos and promote local staff*" (p14) apply here and should be adopted by Caritas CH/CB.

Technical Set-up

As said previously, the complete implementation of the project is done by CB. Caritas CH has only a non-technical person embedded in CB's Office in Cox's Bazar for follow-up. CB's technical team in Cox's Bazar is responsible for all shelter projects carried out by CB in four camps and is composed as follows: A Head of Program (a male engineer) and a Shelter Manager (a female engineer). The Shelter Manager is strongly monitored and coached by CRS's Technical Advisor (expatriate) who comes regularly on three-month missions, thus benefits from high level technical support. CRS is also supporting CB with a National Technical advisor inhouse directly under the Technical Advisor's supervision. In the field, the team is composed of the following: A Program Officer Shelter, 5 Focal Site Engineers, 25 Site Engineers and 70 Supervisors. Supervisors are staff from the area without any technical background, and they are "trained on site". The Focal Site Engineers attended the TOT by IOM/CB. They then trained the Site Engineers and Supervisors developing various short trainings related to what needed to be learned whether it was for TSA or MTS.

→ *Technical expertise*: The technical team in Cox's Bazar has gained extensive experience as a result of the support and strong technical expertise of CRS's Technical Advisor. Moreover, CB is very proactive in the Sector and dedicated in training and coaching its staff. Nevertheless, considering the scale of CB's shelter assistance, CB could've benefitted from extra technical support from Caritas CH in a similar form as provided by CRS, through regular international backstopping and/or providing a national technical expert.

→ At the time of the visit, the new expatriate was still awaiting his visa. Medair should consider hiring a national technical expert to be trained by the expatriate and take over when fully ready, while benefitting from regular backstopping if judged necessary.

→ *Training of local staff*: As stated in the main recommendations, building the capacity of local staff is essential. It is also critical to hire staff with a technical/construction background. According to on-site observations, technical support is still needed to coach Site Engineers and Supervisors for them to master all essential structural concepts. The TOT will only provide them with the theory. Real learning takes place in the field, as such they still need tutoring on how to approach unfamiliar self-built typologies. Therefore, the technical experts should accompany them regularly in the field and coach them on the job.

Monitoring and supervision - TSA

As Shelter/NFI Sector co-lead, CB is particularly attentive and focuses on ensuring that the advocated TSA concepts and details are implemented by the beneficiaries. Additionally, to support their supervision team as well as beneficiaries, CB has developed a remarkable tool in the form of a booklet "*Transitional Shelter Assistance Program. Basic Guidance on Shelter Improvement & Maintenance*". As with the other partners, TSA upgrades are executed by the beneficiaries themselves, with the technical support of CB's shelter team and Rohingya volunteers. Two Focal Site Engineers oversee all ongoing TSA projects. Direct construction supervision is carried out by the Site Engineers and the Supervisors

→ *Regular supervision*: Monitoring the upgrade of shelters every day until their completion seems an appropriate measure if enough time is scheduled to discuss and advise beneficiaries. Consider teams made up of a technical supervisor and a social mobilizer to ensure beneficiaries' inclusion, as well as gender-balanced teams. During the construction of shelters, CB's Focal Site Engineers should visit at least once and Site Engineers two or three times to ensure their recommendations can be applied during the implementation. Moreover, integrating the carpenters and volunteers as a "part of the shelter team" will give them exposure, responsibility and by snowball effect will build the community's self-recovery capacity and resilience.

→ *Supervisors*: As Supervisors are supposed to supervise construction sites, they should at least have a construction background and team up with trained carpenter and volunteer Rohingyas.

→ *Focus on structural safety*: To ensure structural integrity of shelters, flexible material should not only be given once the essential material is used but also only if all critical structural details are properly executed.

→ *Feedback and accountability*: According to the consulted Majhi, the community leaders are included in the selection, distribution and assessment processes. They also feel that communication and access to CB's staff is easy. On the other hand, other beneficiaries seem to struggle a bit more in accessing CB's technical advice and support. Increasing Rohingya carpenters' and skilled labourers' responsibilities as focal persons will ease the access to beneficiaries, enable their feedback and increase Caritas CH/CB's accountability to beneficiaries.

Monitoring and supervision - MTS

As mentioned previously, MTS are built by skilled and unskilled Rohingya labourers hired by Caritas CH/CB under the direct and constant supervision of three Focal Site Engineers from CB. In this case, all Rohingya volunteers had the experience in building MTS in previous projects.

→ *Monitoring*: According to on-site observations and quality of the execution, the set-up and monitoring scheme seems to be efficient. Special attention should be put on supervising connections and bracing details.

❖ Conclusion | Reminder

All recommendations articulated in the introductory chapter "Shelter & Site Improvements" (p11) apply for all shelter partners and ought to be taken into consideration.

General impression

Caritas CH is supporting a strong local partner. CB has a strategic position as Shelter/NFI Sector co-lead and as such, is very proactive in developing shelter solutions, guidance and EIC material. CB is at the front of the response, with a large-scale assistance, implementing both transitional and mid-term shelter solutions for various international partners.

Model versus technique

1 – It is unfortunate that MTS is seen as a model and not a construction technique that could be extended to transitional shelter assistance, adapting itself to the various situations, sites and shelter sizes. CB as Sector co-lead could advocate for the adoption of these improved details in the TSA assistance.

Technical expertise – build local capacity

2 – The technical capacity of CB's technical team in Cox's Bazar has been built thanks to the strong support of CRS's Technical Advisors. With its long-standing and extensive quality shelter experience, Caritas CH could've further strengthened CB's capacity in their Sector leading position, by supporting and building high level technical expertise (see points 5.2/5.7). Focus should be on coaching local staff in being flexible and adapting the "taught solution" to the wide-ranging field situations (see point 5.7).

Reminder:

- 03 – Alternative or intermediate solutions to be found for household waiting for relocation (see point 5.3)
- 04 – Anticipate and plan for shortage or delay in material delivery (i.e. IOM in-kind) (see point 5.3)
- 05 – Promote the identification of carpenters and skilled labourers to foster community expertise (point 5.3)
- 06 – Promote additional and more practical trainings (see point 5.3)
- 07 – Foster gender inclusion, plan for separate trainings for women (see point 5.3)
- 08 – Provide drainage for and around all shelters (see point 5.3)
- 09 – Raise awareness on the risk of reselling essential material and burning treated bamboo (points 5.3/5.5)
- 10 – Prioritize structural soundness. Adapt the "theory" to unusual shaped or larger shelters (see point 5.5)
- 11 – Consider using footings with concrete base, i.e. footing D or E of the catalogue (see point 5.5)
- 12 – Advocate for humanized masterplans and avoid MTS exceeding 4 units (see point 5.6)
- 13 – Pay special attention on MTS main connections and bracings. Create a fuse element in the roof (5.6)
- 14 – Hire local staff with technical/construction backgrounds and ensure regular site supervision (point 5.7)

❖ **Project documentation - TSA**



Camp 19: CB training facility

Theory with posters

Practical exercises



Camp 19: no drainage

Unsuitable site at risk of landslide

Proper drainage



Discussion with CB shelter team and Majhi

Shelters of "better-off" beneficiaries

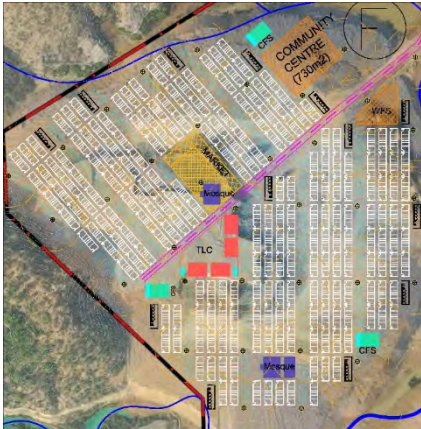


Exterior bathing space

Kitchen space | Insufficient pillars and rafters

Footings on landfill

❖ Project documentation - MTS



Camp 4 Ext.: Masterplan Block F



Rows of 6 shelter-units



Site development: soil stabilisation & drainage



WASH facilities



Two-meters gaps



MTS building site: construction by Rohingya workers



Complicated connections



Detail of bamboo footing



Two-room: partition



Door & lack of privacy

MTS - Previous model: Camp 19



Camp 19: MTS project



MTS self-made extensions



Cooking space in the self-made extensions

Main room



Connection detail

Main room

Main room

Annexes

ANNEX 1 – Planning

DATE	ONG	MORNING	AFTERNOON	EVENING
Friday 18/10/19	Flight from Geneva to Dhaka / Cox's Bazar			
Saturday 19/10/19	SRC	-		Meeting/dinner with SRC staff
Sunday 20/10/19	SRC MdM	Camp 15: PHC / MRF Camp 11: PHC	Camp 11: HP Camp 7: HP	Meeting Health Coordination Cell
Monday 21/10/19	Medair	Camps 8W / 8E: TSA Beneficiaries / EVIs Community Leaders	Camps 8W / 8E: TSA Majhis / Site Management / CiC	Dinner with Medair team
Tuesday 22/10/19	Solidar	Camp 14: TSA project Bamboo plant location	Host Community: CFW BRAC bamboo plant YPSA Office	Meeting with Caritas CH / Dinner with Solidar team
Wednesday 22/10/109	Caritas CH	Camp 19: Training facility & MTS TSA project	Camp 4 ext: MTS & site improvement project	Meeting with Shelter Sector / Dinner with UNHCR staff
Thursday 22/10/19	EPER CB	Meeting with EPER Meeting with CB	Shelter Sector Meeting / Meeting with SRC consultancy architect	Flight to Dhaka
Friday 23/10/19	Flight back to Geneva			

Abbreviations:

SRC: Swiss Red Cross

MdM: Médecins du Monde

CB: Caritas Bangladesh

TSA: transitional shelter assistance

MTS: mid-term shelters



BANGLADESH / COX'S BAZAR (ROH17 AND JRZ18)

Technical review mission – Shelter support and public buildings

Terms of Reference

Context

Around 700'000 persons are reported to have fled to Bangladesh since the outbreak of violence in Rakhine State/Myanmar in August 2017. They now live in crowded camps and sites in Cox's Bazar district. The authorities do not allow permanent constructions in the camps where the Rohingya refugees are staying. The shelters and public buildings therefore are all of transitory nature.

Swiss Solidarity through its Rohingya 2017 and JRZ 2018 funds has since 2017 been funding shelter projects and or projects with shelter components in this context. The projects assist the refugees but also the local host population.

Purpose

The purpose of this Technical Review Mission is to assess whether the SwS partner NGOs' shelter support for the refugees and the public buildings that were erected by them are safe, efficient and technically adequate.

It is expected that the findings and recommendations of the review will lead to improvements in the projects that SwS funds.

Scope

The scope of the review includes the following projects:

Ref	NGO	Title	Start	End	Total budget (CHF)	SwS contribution (CHF)
288.003	Caritas	Mid-term shelter, site improvement and WASH services	01.07.18	30.09.19	889'917	786'409
293.017	Caritas	Shelter and settlement support	01.04.19	31.03.20	516'870	436'557
289.003	Medair	Improvement of living conditions, durability of shelters and resilience	01.10.18	30.09.19	938'586	800'000
293.018	Solidar	Enabling refugees and host community to build a safer environment	01.06.19	30.06.20	568'162	499'980
289.004	MdM	Provision of quality healthcare	01.12.18	31.12.19	622'182	400'000
292.004	Swiss Red Cross	Primary and environmental health	01.04.19	31.12.20	1'770'502	800'000



RUE DES MARAÎCHERS 8, P.O. BOX 132, 1211 GENEVA 8
 T +41 (0)58 458 12 12 F +41 (0)58 458 12 39
 INFO@SWISS-SOLIDARITY.ORG, WWW.SWISS-SOLIDARITY.ORG



Review questions

The evaluator is requested to assess the projects in the light of the following questions:

I. Shelter strategy and its implementation

The projects are mostly engaging in materials distributions, support and trainings for what are called "transitional shelters", while one partner is constructing "mid-term shelters".

- a. Is the shelter strategy that is pursued in the camps adequate and efficient?
- b. Are the shelters that are built or supported by the projects safe, adequate for the needs and resilient against natural hazards?

II. Health posts and health centres

Are the buildings in compliance with chapter 2 (Standards) of the SwS Minimum Standards on Reconstruction of Buildings for Public Use? In particular, are they safe, resilient against natural hazards, accessible, properly operated and maintained and is the environmental impact sufficiently mitigated?

Methodology

The evaluator is expected to:

- a) Review the project documentation, shelter sector guidance documents and any relevant studies on the local shelter and housing situation
- b) Collect updated information on designs, materials costs and unit costs
- c) Visit and assess the different types of shelters and discuss with people living there
- d) Visit and assess the health post and health centre buildings that the projects have built or are operating
- e) Discuss with project staff and management, local shelter experts and shelter sector representatives

SwS kindly requests its partner organisations to assist the evaluator by facilitating the above.

Output

A report in English that includes a general analysis, focuses on the review questions and presents the following elements for each project:

- Observations
- Conclusions
- Recommendations to the implementing partner
- Recommendations to SwS

The inclusion of photographs is encouraged.

SwS will send a draft to the concerned partners before finalisation of the report.

Timing

About 5 days in the field, plus travel and preparation/reporting days, in October 2019.

Security

The evaluator will abide by the security regulations of the partners that organize the respective project visits.

EL, 10.09.2019

