

CASE STUDY

BANGLADESH 2021–2022 / FIRE RESPONSE

KEYWORDS: Community engagement, Disaster Risk Reduction, Site planning, Transitional Shelter

CRISIS	Major fire incidents in Kutupalong-Balukhali Expansion (KBE) Camps in March 2021 and January 2022		
PEOPLE WITH SHELTER NEEDS	10,473 HHs (50,037 individuals in total)* - 10,100 HHs (48,300 individuals), March 2021 - 373 HHs (1,737 individuals), January 2022		
PROJECT LOCATION	Kutupalong-Balukhali Expansion (KBE), Ukhiya, Cox’s Bazar, Bangladesh (Camps 9, 8E, 8W in Mar 2021, Camp 16 in Jan 2022)		
PEOPLE SUPPORTED BY THE PROJECT	10,473 HHs (50,037 individuals directly supported); 895,515 individuals indirectly supported		
PROJECT OUTPUTS	Activities	Fire incident Mar 2021	Fire incident Jan 2022
	Shelter plots re-planned	-	373
	Slope stabilization	77,444 m ²	4,450 m ²
	Drainage construction	12,546 l.m.	206 l.m.
	Improvement of access	8,388 l.m.	250 l.m.
	Increase in WASH facilities	-	19 %
SHELTER SIZE	13.9-18 m² (As per govt. guidelines on max. shelter size)		
SHELTER DENSITY	Shelter density: 3 m² per person Site density: 9-15 m² per person		
DIRECT COST	USD 1,091 per shelter USD 364 per HH for site development		
PROJECT COST	USD 1891.5 per HH		
*Fire Incident Initial Rapid Joint Needs Assessment Report, March 2021, ISCG			
*C16 Fire Situation Report, January 2022			

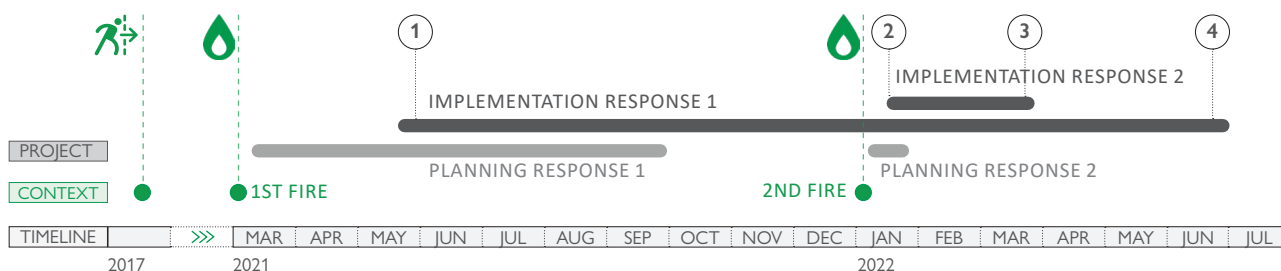


PROJECT SUMMARY

The densely populated settlement of Kutupalong-Balukhali was developed on hilly terrain, prone to recurrent landslides and floods particularly during the monsoon season; and also using flammable materials such as bamboo and tarpaulin for both shelter construction and site development works, as the settlement is considered temporary by the authorities. This case study analyses the responses implemented after two fire incidents which occurred in 2021 and 2022, reflecting on the (re)planning approach incorporated in the post-fire reconstruction. Addressing contextual challenges, the scale of the fires, and the social and political complexities, the response incorporated lessons learned from different approaches, and focused on a strategic, adaptive, and participatory planning process to address local priorities, sticking to the pre-fire layout.



A view of the affected area in Camps 9, 8E, 8W, the day after the fire in March 2021.



- 25 Aug 2017:** Violence in Rakhine State which drove an estimated 655,500 Rohingya across the border into Cox’s Bazar, Bangladesh.
- 22 Mar, 2021:** The fire broke out in one of the densest areas of the camp, destroying over 10,000 shelters.
- 1** **May 2021:** Government issued an instruction on the allowed modality of Shelter support, i.e. to be built by agencies following an agreed footprint. By this time, the community had rebuilt temporary shelters on their pre-fire plots, in effect largely ‘cementing’ the pre-fire site plan.
- 9 Jan, 2022:** The second major fire incident. The fire source was unique, and fire was contained relatively quickly.
- 2** **Jan 2022:** Government approval for planning approach in C16 reconstruction and allocation of shelter partners responsibility.
- 3** **Mar 2022:** Reconstruction of 2nd fire affected structures (with dedicated funding).
- 4** **Jun 2022:** Completion of the reconstruction of the area affected by the first fire in March 2021.



Debris removal started immediately in the initial phase of the response in both the fire incidents, involving many community volunteers and laborers.

CONTEXT

Since the 1970s, multiple waves of Rohingya have fled from Rakhine State in Myanmar to Cox’s Bazar in Bangladesh. The largest influx occurred in August 2017, with more than 745,000 Rohingya seeking safety from violence – leading to the establishment of densely populated camps on hilly and flood-prone terrain. Five years later, around 920,000 Rohingya refugees are solely dependent on humanitarian aid to survive and remain in five nearby locations – including the world’s largest refugee settlement.

Due to deforestation and the loss of green coverage caused by rapid self-settlement in 2017, shelter construction – as well as access and slope stabilization efforts – utilized flammable material such as bamboo, tarpaulin, and geotextiles in congested areas with limited access routes or fire breaks. Since 2017, more than 404 fire incidents of a varied scale have occurred; among which two significant fires occurred in March 2021 and January 2022 affecting 48,300 and 1,737 individuals respectively.

For more background information on the Rohingya crisis, see [A.11](#) , [A.12](#) (Shelter Projects 8th edition), and [A.14](#) , [A.15](#) (Shelter Projects 2017-2018).

SITUATION BEFORE THE CRISIS

Government restrictions against expanding the camp area or allowing the construction of two-story shelters limited any possibility to decongest the most overcrowded zones, and created significant challenges to providing fire breaks or improving emergency access. The presence of a major market in the relevant area also made households reluctant to be relocated – even to areas with significantly better conditions and lower risks.

Fire response tasks in the camps were assigned to the Disaster Management Unit (DMU) Rohingya volunteers, who were regularly trained to act as the first line of responders to fire incidents. The DMUs established available fire points (drums filled with water) scattered across the camps and supported in extinguishing small fires or containing larger fires by demolishing structures and creating fire breaks until the national fire service would arrive (which could take over an hour). Additional systems such as small vehicles equipped with mobile water tanks, a network of water reservoirs with easy-to-access hydrants, and fire stations within the camps were implemented gradually to complement existing mechanisms for fire response.

SITUATION DURING/AFTER THE CRISIS

The fire incident in March 2021 spread across 63,590 m² in Camps 8E, 8W, and 9, impacting 48,300 individuals directly (including 11 fatalities) and destroying 10,100 shelters and all major facilities in one of the most highly congested areas of the camps. Slope stabilization in the area was largely affected, and accessibility, drainage networks, and solar streetlights were also damaged. Despite generous funding dedicated to reconstruction, gaps remained in infrastructure coverage in the fire-affected area more than one year after the incident.

A later fire incident in January 2022, while considerably smaller than the previous event, still affected 15,425 m² in Camp 16 – impacting 1,737 individuals and destroying 373 shelters and communal facilities. As before, slope stabilization, stairs, pathways, and drainages were heavily damaged. Dedicated funding was again provided, and since the area was much smaller, the reconstruction of most of the affected infrastructure was possible in a timely manner.

NATIONAL SHELTER STRATEGY

In the immediate aftermath of each fire, United Nations agencies, NGOs, and partners – in coordination with the government – began providing life-saving services and emergency support (including food, NFI distribution, and temporary shelter items such as bamboo, tarpaulins, rope, or tents). This was followed by the reconstruction of shelters, public facilities, site development works, and WASH blocks during a second phase.

After the first big fire incident in March 2021, prolonged negotiations with the authorities regarding the prescribed shelter sizes for varying family sizes delayed the start of shelter reconstruction and prevented substantial replanning, as families had already rebuilt on their pre-fire shelter footprints.

In addition, advocacy efforts from humanitarian actors coordinated at the cluster level to maintain minimum standards of shelter size were unsuccessful, as the government-approved shelter for households of up to six members (13.9 m²) was smaller than the previous design used as a reference in the replanning exercises (18 m²) – which entailed reiterative community consultation.

During the fire incident of January 2022, quick instructions were provided by the government to all partners to hold reconstruction until a site plan was prepared within seven days and clear guidelines on shelter size were already available from the previous event in 2021. This ensured shelter partners’ commitment to contribute to the development site plans and effectively guided the reconstruction of slope stabilization and shelters on time.

PROJECT DESIGN/STRATEGY

After the March 2021 fire incident, the replanning of the fire-affected area aimed to build back safer through the identification of new roads, fire breaks, landslide risk areas, priority areas for replanning, and rationalized facilities. While the first two actions were successful, the comprehensive replanning and redevelopment of these priority areas was rendered impossible by delayed confirmation of the mandated shelter design, as the community had already largely rebuilt on their existing plots before it was even possible to discuss site plans with them.

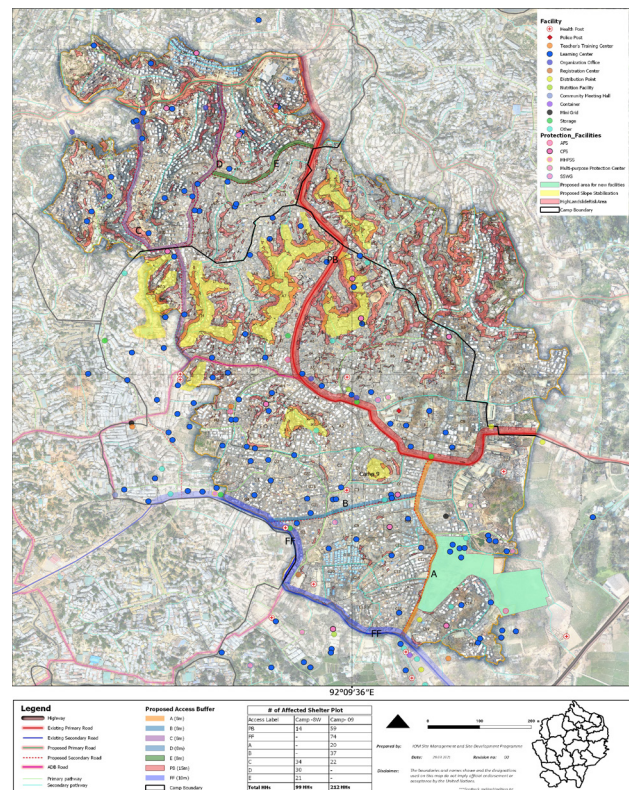
Instead, the initial comprehensive replanning approach changed to a ‘row-by-row’ approach, which set out a series of steps and indicative plans for shelter partners to develop localized site plans with groups of 5 to 15 families living in consecutive shelters (shelters are often placed in rows along terraces considering the hilly topography). This included discussions with the community and the aim to closely follow the existing layout while trying to secure local improvements (uniform plot sizes, additional WASH facilities, wider pathways, etc.).

Following the approved shelter design, a sample was built in a central location of the affected area to be explained to the community for households that would agree to

replace their recently rebuilt shelter with the government-approved design. The households were registered, and community members willing to take part as labor for camp reconstruction were trained on the techniques used. During the following months, more than 90 percent of the affected households agreed to have their shelter reconstructed, as the new one (while slightly smaller), would be built using bamboo poles treated against insect infections, metal footings anchoring the frame to the ground while preventing its degrading by the ground dampness, and steel-rod connections between the main frame elements.

However, due to an early agreement with the government, the site planning team was obliged to provide formal site plans – even after it became clear the approach was not appropriate. Though it was made clear that the plans were indicative only and should be superseded by the plans developed locally through the row-by-row approach, this created challenges in some situations, for example with a WASH actor seeking to build a latrine exactly where shown on the preliminary indicative plan, but where a shelter had since been built.

After the January 2022 fire incident, utilizing learning from previous experience, the replanning focused on making local improvements to the pre-fire layout, addressing priority issues of access, drainage, slope stabilization, and WASH gaps while incorporating feedback from the community and all stakeholders from the initial assessment stage. An on-site participatory planning approach was taken from the start which enabled better field coordination with all partners and better engagement with the community. In this case, no indicative site plans were provided before



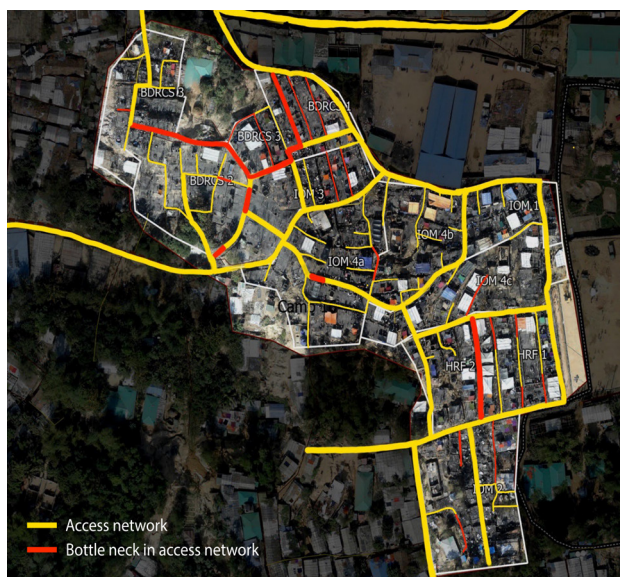
A ‘Priority Access and Landslide Risk Areas’ map, prepared during the planning phase for Camps 9, 8E and 8W after the first incident in March 2021.

the community consultations but rather developed during field visits, incorporating community feedback. Site plans remained adaptive and provided options for replotting through door-to-door community consultations. This helped to create achievable and agreed-upon site plans in a complex site which were followed by the reconstruction of shelters and WASH facilities.

PROJECT IMPLEMENTATION

Reconstruction work in response to the 2021 fire incident took over a year given the caseload of over 10,000 shelters, compared to only three months after the 2022 incident of 373 shelters. The site planning period was also substantially longer in response to the 2021 fire (three months compared to two weeks), though site planning and reconstruction proceeded simultaneously (the site planning team was almost the same size for both responses, despite the difference in scale).

After the first fire incident, the implementation of larger-scale priorities such as the creation of new access roads (which double as fire breaks) and slope stabilization worked well, contributing to long-term hazard mitigation in the area. Moving from comprehensive replanning to a 'row-by-row' approach allowed Shelter and Site Development teams to implement quickly while securing local improvements. Though the indicative site plans provided some guidance to the teams on the ground (for instance, as to areas where additional latrines were needed and might be best placed), they also at times created confusion and even the risk of forced relocations when plans did not match spontaneous community-led reconstruction. It would have been preferable to abandon the indicative plans once it became clear that the more ambitious replanning approach was not feasible, as the developing of these plans also absorbed site planning resources that could have been better used in the field.



A map of the 'Existing Access Network' with network bottlenecks prepared in order to address them by replanning. (Second fire response, January 2022).

The implementation timeline for the 2022 fire response is highlighted below:

- **Initial Phase:** Debris cleaning and emergency support, including temporary shelter and WASH and NFI kit distribution, began immediately. Communication to communities regarding the steps of the response was also delivered from the beginning. The initial phase also included a needs assessment for shelter and site development works and – from the site planning perspective – the identification of bottlenecks and opportunities to improve overall access, fire breaks and drainage networks.
- **Clear frameworks and approvals:** After the second fire incident – building on experience from the previous one – advocacy efforts to obtain clearance from the government on replanning and shelter reconstruction resulted in timely instruction from the government on shelter size and the endorsement of the planning approach – which enabled a more coordinated response.
- **Reconstruction phase:** The affected area was divided into zones (each one assigned to one shelter partner – or rows) to facilitate the quick reconstruction of shelters. Plots were categorized as follows to indicate whether shelter construction could be started:
 - i. Plot is ready for shelter construction.
 - ii. Plot requires site development work before reconstruction or not.
 - iii. Community agreed to the site plan or consultation in process.

In parallel, site development work was done to prepare plots for shelter and WASH facilities. Door-to-door community consultations with site plans were done through shelter partner and site management through the implementation period to validate the plans and integrate eventual changes.



Site development work of reconstruction of bamboo slope stabilisation and access carried out by people engaged in Cash for Work, February 2022.



(Left) Re-planning of the fire affected areas focused on access and drainage, amongst others. (Right) View of the reconstruction phase with emergency and transitional shelters.



COMMUNITY ENGAGEMENT

Intensive community consultation was carried out following both incidents:

- After the first incident (2021), the Communicating with Communities (CwC) team had multiple discussions with community groups at the 'maji-block' level (around 100 families) in the weeks immediately following the fire, aimed at understanding the priorities of the communities and their willingness for replanning and redeveloping the area. They were supported by the Site Planning team, who produced indicative plans for them to use as the basis of discussions. The community was initially very willing to engage in the process, but this was challenged first by the delay in confirming the approved shelter size and then by the size itself, as it was significantly smaller than the community deemed acceptable.
- After the second incident (2022), community consultation took place from the initial assessment and data collection stage, and community demands on access, drainage, and WASH were incorporated prioritizing the needs of Persons with Disabilities (PWD) or Extremely Vulnerable Individuals (EVI). Group sessions and door-to-door consultations took place throughout the implementation period and site plans were continuously adapted.



The Communicating with Communities (CwC) team engaged with the community groups to understand their needs and priorities, which helped the Site Planning team to develop the plans for replanning.

COORDINATION

Overall coordination at the field level during fire incident response was conducted through regular meetings to share information, set priorities and avoid duplication with all sector focal points, partners, and government representatives. Instruction to partners regarding site plans after the second fire incident (facilitated by joint technical visits and participatory planning) reduced gaps in coordination and enabled a unified approach to reconstruction.

DISASTER RISK REDUCTION

Unplanned construction, the narrowing of waterways and hill cutting accompanied by increasing demand for new construction in a monsoon climatic area pose great risks of landslide, flooding, and fire hazards in the camps of Cox's Bazar. A total of 81,894 m² of slope stabilization for plot preparation, 8,638 linear meters of vehicular roads, pathways, stairs, and bridges and 12,958 linear meters of drains were reconstructed after the major fire incidents which contributed to mitigating landslide and flooding risk and reinstate and improve access. The improvement of road and pathway networks is particularly important to create fire breaks, facilitate the access of the firefighting response and improve evacuation routes in case of emergency.

MAIN CHALLENGES

- **Limitations of the re-planning:** Considering the context in the fire affected camps – in hilly areas with high density and the requirement to accommodate back all affected households in the same area and the limitations imposed in terms of shelter typology and materials, the capacity from the replanning carried out to improve the networks and site plans was reduced. Opportunities were identified and locations where the replanning could lead to bigger improvement were prioritized.
- **Timing:** Though the field-based process helped coordination efforts – the need to provide site plans before the shelter reconstruction forced the teams to work quickly, and site plans were to be delivered within seven days. In some locations, slope stabilization

efforts were needed prior to shelter reconstruction. The affected area was thus divided into zones and site planning activities began in parallel so that all partners could operate simultaneously where needed. improvements created opportunities for plantation.

- **Data availability:** Family data from fire-affected households were outdated and there were no spatial references to the data. During community consultations, some community members presented borrowed family counting number cards to receive bigger shelter/plot allocations. Later, family data was updated, assistance delivered and planning done according to real household size.
- **Social context:** In some cases, the host community resided next to target refugee households. In some instances, during replanning and plot preparation activities, host community members did not allow the works for slope stabilization and access to be carried

out on their plots. This delayed the process and further discussions were needed, which prevented some planned improvements.

WIDER IMPACTS

Improved living conditions through replanning (reduction of bottlenecks for access and drainage) and increasing the number of WASH facilities by 19 percent (2nd fire incident) were primary outcomes of the project. Improved accessibility ensured safe movement and access to facilities – especially for Persons with Disabilities and EVIs. This created further emergency evacuation routes while improvements to the drainage network helped flood mitigation and ensured the safe discharge of grey water and rainwater by preventing water to get inside shelters. Slope stabilization works contributed to overall safety from land erosion of shelter and facilities plots, and access and created opportunities for plantation.



A view of Camp 9 after the reconstruction in April 2022.

STRENGTHS, WEAKNESSES AND LESSONS LEARNED

STRENGTHS

- ✓ **Integration of lessons learned and change on planning modality.** On-site planning, together with shelter, WASH, Site Management and Site Development (SMSD) field teams helped reduce gaps in communication, enhance understanding of priorities, encourage community feedback, and reduce the gap in site-planning and implementation.
- ✓ **Community messaging and consultation:** Community messaging and consultation played a key role in the implementation of the site planning and reconstruction activities. Community consultations were done through several phases, such as during preliminary community messaging on the steps for shelter reconstruction and the purposes and modalities for re-planning, during door-to-door consultations, during validation of site plans, and implementation.

WEAKNESSES

- × **Planning timeliness and rigidity of approved plans.** A comprehensive replanning effort takes time, while reconstruction efforts happen quickly – limiting a plan's capacity to guide reconstruction. This was the case after the first fire incident where the development of the plan took longer (due to the lack of clarity on the shelter size approved and scale of the incident). As a result, the final plan approved by the government did not reflect the situation on the ground and, in some instances, led to relocations of reconstructed shelters to make space for WASH blocks according to the approved plan.

LESSONS LEARNED

- **Agreeing on the process and setting parameters.** Any delays in setting the parameters for replanning will render substantial replanning impossible, as communities will take matters into their own hands. A context-specific Standard Operations Procedure for fire response and reconstruction defining the roles and responsibilities across different sectors and clarity on government approvals and limitations is key to facilitate the process.
- **Risks of the enforcement of site plans.** Implementing organizations should avoid the production of rigid site plans for government approval, especially if substantial replanning may not be possible. The extent of realistic site planning and further adaptation through community consultation should be clarified to relevant authorities.
- **Prioritizing planning at different scales.** The cost/benefit of the replanning needs to be assessed, as reconstruction on the ground cannot wait until thorough and comprehensive site planning is completed. Some replanning components such as facility rationalization and decongestion require lengthy procedures which may be too ambitious during a quick response. If the scale of the fire is large, it may be preferable to prioritize replanning larger-scale infrastructure such as access roads and priority facilities – identifying more strategic opportunities for improvement in networks while not defining in detail the plot in some pockets or areas where, considering the topography or the context, little benefits or improvements can be achieved with replanning.
- **On-site planning and securing space for key infrastructure early on:** Joint technical field visits and on-site planning with all stakeholders decrease gaps in coordination and time needed for replanning while enabling a more participatory approach. Hand-drawn site plans were a useful tool, which allowed consultation and flexible changes on the ground to ensure that alterations are consistent with reality and topography. On the contrary, a desktop planning approach required time-consuming data collection in the field to guide decision-making for planning and is less flexible to integrate changes and inputs from consultations. Some preparation in terms of analysis of existing networks, hierarchy, and opportunities should be done from the desktop prior to on-site planning sessions and as early as possible in coordination with partners.
- **Ensuring participation.** To facilitate participation, door-to-door consultations, and group discussions were held to collect updated data on family size. This was important to ensure that the allocation of space and support to each household was accurate and fair, according to agreed-upon standards.

RECOMMENDATIONS MOVING FORWARD

- **Increased Participation.** With more resources in terms of community mobilization and consultation, it could be possible to be more ambitious on the possibilities for re-planning to achieve more significant improvements on the layout and facility coverage. This would require participatory planning sessions with communities which could be integrated in the re-planning process and would need dedicated sessions with different community groups (women, community leaders, etc.).
- **Strengthened Advocacy.** Further advocacy on double story shelter and improved facility coverage could allow for more improvements through replanning. In the Cox's Bazar context this might not be feasible considering approvals however in other contexts can be considered and would benefit the replanning outcomes.



Reconstruction of the fire affected shelters in Camp 9 through Cash-for-Work.



FURTHER READING ON SHELTER PROJECTS

On Bangladesh: [B.1 / BANGLADESH 2009](#); [B.2 / BANGLADESH 2007](#); [A.13 / BANGLADESH 2017–2018](#);

On site planning: [A.9 / SOUTH SUDAN 2018](#); [A.26 / IRAQ 2016–2017](#); [A.18 / NIGERIA 2015–2016](#)

On fire responses: [A.38 / CHILE 2014-2016](#)