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Extreme Weather and Disaster Preparedness in the Rohingya Refugee Response

2018 Cyclone Preparedness Lessons Learnt



Enhancing disaster preparedness for effective response

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This report is joint product of the Bangladesh Red Crescent Society, American Red Cross and International Federation of the Red Cross and Red Crescent Societies and the United Nations Development Programme Cox's Bazaar, Bangladesh. The UNDP Cox's Bazaar sub-office maintains a DRR Technical Advisory Unit through its Disaster Risk Management in Cox's Bazaar programme, which is funded from the Swiss Agency for Development and Cooperation (SDC) and the European Commission Civil Protection and Humanitarian Aid (ECHO), and provided with technical support from SDC and MSB (the Swedish Civil Contingencies Agency).

The findings, interpretations and conclusions expressed in this work do not necessarily reflect the views of European Commission Civil Protection and Humanitarian Aid (ECHO), Swiss Agency for Development and Cooperation (SDC), MSB (the Swedish Civil Contingencies Agency), Bangladesh Red Crescent Society, the International Federation of Red Cross and Red Crescent Societies, the American Red Cross, or the Executive Board of the UNDP or the governments they represent. The findings, interpretations, lessons learnt and conclusions expressed are based on the collected reflections of non-governmental disaster management stakeholders involved in the Rohingya response.

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In reference to the Rohingya in Bangladesh, the Government of Bangladesh refers to the Rohingya as "Forcibly Displaced Myanmar Nationals". The UN system refers to this population as Rohingya refugees, in line with the applicable international framework. The Red Cross and Red Crescent Movement uses the term 'displaced person from Rakhine' or 'people from Rakhine' in referring to the Rohingya in Bangladesh as an element in maintaining Red Cross and Red Crescent movement operational access to provide vital humanitarian assistance to those in need on either side of the border. In the Joint Response Plan document of 2019, both UN and Government of Bangladesh terms were used, as appropriate, to refer to the same population. The terminology used throughout the present cyclone preparedness lessons learnt report is in line with the applicable international framework.

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Field work and report preparation: Md. Sazzad Ansari, Gabriel Chevalier, Nir Prasad Dahal, Cathrine Tranberg Haarsaker, Mohima Kader, Saad Mahmood, Achala Navaratne, Harun-al Rashid, Lotte Ruppert, Resty Talamayan, and Sidney Tupper.

Editor: Cathrine Tranberg Haarsaker, United Nations Development Programme.

Cover photo: Rohingya camp volunteer in the Cyclone Preparedness Programme executing a cyclone early warning drill in Kutupalong Refugee Camp. (Photo credit: American Red Cross)

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ACRONYMS

AFD	Armed Forces Division
BMD	Bangladesh Meteorological Department
BDRCS	Bangladesh Red Crescent Society
COMPAS	Connecting Earth Observations to Decision-Makers for Preparedness Actions
CPP	Cyclone Preparedness Programme
CWC	Communications with Communities
DC	Deputy Commissioner
DPHE	Department of Public Health Engineering
DRR	Disaster Risk Reduction
EAT	Emergency Advisory Team
ECHO	European Commission Humanitarian Aid
EMPRTF	Emergency Preparedness and Response Task Force
EOC	Emergency Operation Centre/Emergency Control Room
ETF	Emergency Taskforce
ETS	Emergency Telecommunications Sector
HCTT	Humanitarian Coordination Task Team
IASC	Inter-Agency Standing Committee
IFRC	International Federation of Red Cross
IOM	International Organization for Migration
ISCG	Inter Sector Coordination Group
JRP	Joint Response Plan
LGED	Local Government Engineering Department
MoDMR	Ministry of Disaster Management and Relief
NGO	Non-Governmental Organization
NPM	Need and Population Monitoring unit in IOM
RRRC	Refugee Relief and Repatriation Commissioner
SAR	Search and Rescue
SMEP	Site Maintenance Engineering Project
SMS	Site Management Support
SOD	Standing Orders on Disaster
SOP	Standard Operating Procedure
UN	United Nations
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
VHF	Very High Frequency
WASH	Water, Sanitation and Hygiene



INTRODUCTION

The Rohingya refugee response in Cox's Bazaar, Bangladesh, is unique not only in terms of the rapidity and scale of the 2017 influx, but also in the extent of exposure of the refugee camps to seasonal variability, extreme weather and natural disaster risk.

One of the most disaster-prone countries in the world, Bangladesh each year experiences a high degree of seasonal variety, including the southwest monsoon and two cyclone seasons. With its long coastline on the Bay of Bengal and with a landscape consisting of flat deltaic plains and sandy hills, Cox's Bazaar is highly exposed to natural hazards and extreme weather, including cyclones, torrential rain, landslides, flash floods, storm surges and extreme temperatures.

Although no cyclone has made landfall on the south-eastern coast of Bangladesh since the influx of the Rohingya, 2018 saw several depressions and tropical cyclones occurring nearby in the Bay of Bengal. While the center (area of the storm with highest impact) stayed away from the coast, given the large size of these depressions and tropical cyclones, impact from strong winds and heavy rainfall extended inland. The 2018 Cyclone Preparedness Lessons Learnt Exercise aims to capture and analyse knowledge acquired by humanitarian actors during their cyclone preparedness efforts and operations in the Rohingya refugee camps during the 2018 cyclone seasons. The purpose is to provide a reference document for planning for future cyclone seasons, support evidence-based advocacy, and identify gaps in preparedness which need to be addressed in advance of the 2019 cyclone seasons. The report focuses on lessons learnt in the refugee camps, not host communities.

The present report has been produced jointly by the DRR Technical Advisory Unit of United Nations Development Programme (UNDP) in Cox's Bazaar, Bangladesh Red Crescent Society (BDRCS), American Red Cross and the International Federation of the Red Cross and Red Crescent Society (IFRC). It is based on document review, participatory observation, discussions and interviews with the ISCG secretariat, sector coordinators and their teams, community members, government officials and staff from UN agencies, Red Cross and Red Crescent Societies, and NGOs. The additional inputs to the analysis and report provided by *Translators without Borders*, *Internews*, and the *Columbia University International Research Institute for Climate and Society (IRI)/NASA "COMPAS"* project supported by the NASA Earth Science Division Disasters Program are gratefully acknowledged. Thanks to *IOM* for photo-sharing.

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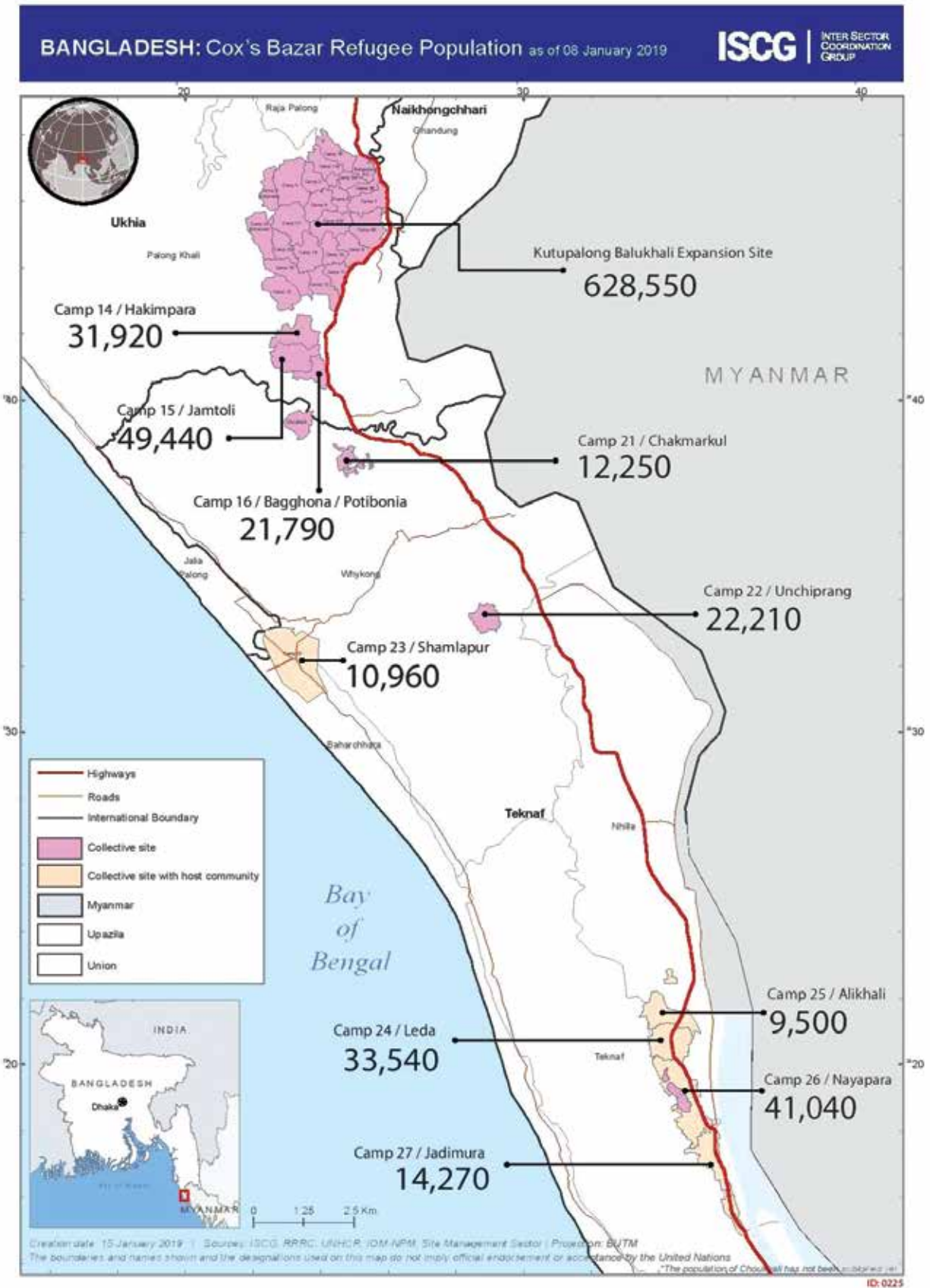


Figure 1: Cox's Bazar refugee population (ISCG 2019)



METHODOLOGY

The present report was produced between 7th January and 28th February 2019 by a team consisting of five staff from the UNDP DRR Technical Advisory Team and six staff from American Red Cross and IFRC. The teams have maintained continuous presence on the ground and been a part of the preparedness coordination in Cox's Bazaar since January 2018.

Scope of the Lessons Learnt Exercise

The exercise and report cover cyclone-related lessons learnt by UN agencies and I/NGOs participating in the Inter-Sectoral Coordination Group (ISCG) responding to the Rohingya refugee response in Cox's Bazaar, Bangladesh. The cyclone seasons occur in the spring and fall, from April to June and from October to November generally. The Terms of Reference of the exercise is attached as Annex 1. The report does not cover the monsoon season-specific lessons learnt.

Approach

The written primary and secondary sources reviewed in the course of this exercise are outlined below. Three rounds of Key Informant Interviews (KII) and Focus Group Discussions (FGD) on preparedness and response were conducted in August 2018, October 2018 and January 2019. The guides and list of KIs are attached to the report as Annex 2 to 10. After key KIIs, transcripts have been shared with the informants to verify correct understanding of views given. The qualitative transcripts have been categorized and interpreted according to the pattern of key themes. The draft report was shared with ISCG, sector coordinators, and selected key informants in March 2019 for validation of findings and feedback on key recommendations.

Table 1: Documents Reviewed for the 2018 Monsoon Lessons Learnt Exercise

1. All editions of the ISCG contingency plans beginning from "Cyclone Contingency Plan" ISCG, Nov 2017
2. All minutes of ETF throughout 2018, including minutes meeting at Camp 15 in Ukhiya, ISCG, 2018
3. "Cyclone preparedness action tracking matrix", ISCG, November 2018
4. "Cyclone Preparedness Review", OCHA, October 2018
5. "Monsoon/Cyclone Planning Workshop Outcomes", ISCG, February 2018
6. "SM Sector Core Content for Site-level EPR Plans cyclones", SM&SD sector, September 2018
7. "CPP-Early Warning Communication - Update, lessons learned and next steps", TwB, August 2018
8. "Site Management and Site Development Sector Meeting minutes of CPP workshop", November 2018
9. "Data Related to Cyclone Preparedness" (community feedback) Inter news, 30 October 2018
10. "COMPAS project team observation on the Use and Understanding of geophysical (including climate and weather) information related to the monsoon and cyclone season in 2018", IRI/NASA January 2019
11. "Rohingya crisis - Lessons learned about the impact of cyclones", ACAPS NPM, April 2018
12. "Cyclones Background - Rohingya crisis thematic report", ACAPS NPM, March 2018
13. "Bangladesh Tropical Storm-Cyclone Disaster Summary Sheet", Start Fund, April 2018
14. "A study on Knowledge, Attitudes and Practices for DRR in Northern Rakhine State", REACH, Aug 2015
15. "Camp Coordination and Camp Management Cluster Annual Global Retreat Report", October 2018
16. "Recovering from Roanu - Initial Analysis Full Report", UNDP Bangladesh 2016
17. "Cyclone Hazard in Bangladesh: Background Information on the Storm Surge Modelling", ADPC, 1994
18. "Site Management Category 1 Incident Assessment and Reporting-Survey Analysis: May-November 2018" IOM, March 2019



BACKGROUND AND RISK CONTEXT

In response to periodic persecution and violence in Myanmar's Rakhine state, over 900,000 Rohingya have sought shelter in Cox's Bazaar, Bangladesh, with more than 700,000 arriving as part of the influx following the 25th August 2017 outbreak of violence. While benefiting from the generous hospitality offered to them by the people of Bangladesh, the scale of the crisis is such that Bangladesh cannot be expected to singlehandedly meet the most acute needs of the Rohingya. Coordination of international support to the Government of Bangladesh-led response is sector based. A Senior Coordinator chairs the Sector Coordinators' forum, with operational partners coordinated under thematic sectors with designated Sector lead agencies (IASC cluster equivalents). The Heads of Sub-Offices Group, also chaired by the Senior Coordinator, provides key decisions at the District level, while the Strategic Executive Group in Dhaka provides strategic oversight and national government liaison. A secretariat supports the Senior Coordinator and the coordination structure.

Ranked as the tenth most exposed country in the world in terms of natural hazards and the fifth most at-risk country from disasters by the World Risk Report, managing disasters and their impact has been a major area of focus for Bangladesh. Weather patterns in the Bay of Bengal creates conditions conducive to the formation of depressions and cyclonic storms between April and July, and September and December every year. The mass fatalities associated with the 1970 and 1991 Bangladesh cyclones - the former an Extremely Severe Cyclonic Storm/Category 4 cyclone, the latter a Super-Cyclonic Storm/Category 5 cyclone - are internationally known, as is the recurrent large-scale flooding of the Ganges delta system criss-crossing central and northern Bangladesh.

Investments in disaster management - such as cyclone early warning, construction of coastal embankment and cyclone shelters, and public health management of post-event diarrhoea - have decreased disaster mortality in the past four decades by a hundredfold in the time period from the 1970s to 2010. However, natural disasters continue to cause massive loss and damage, and contribute to significant overlap between disaster-prone areas and pockets of sustained, extreme poverty.

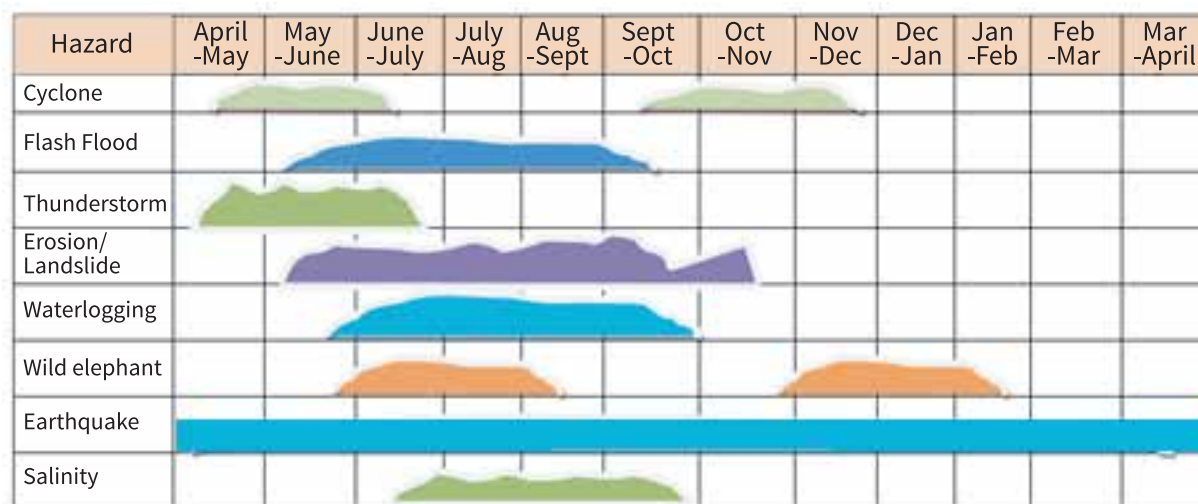


Figure 2: Cox's Bazaar hazard calendar (Cox's Bazaar Disaster Management Plan, 2014)

Cox's Bazaar district is generally recognized as a particularly disaster-prone area of Bangladesh. The district is highly exposed to not only the high winds and seawater storm surges of cyclonic storms making landfall on the Chittagong coast, but also the rains and winds brought by depressions forming in the Bay before diminishing or moving westwards towards India. On July 30th, 2015 Tropical Storm Komen came ashore at Chittagong with heavy rains and winds up to 90km/hr, leading to 4 deaths in Bangladesh. On May 21, 2016 Tropical Storm Roanu crossed the coast near Chittagong with 100km/hr winds. At least 24 people, mainly by drowning as the storm surge over-topped embankments. On May 30, 2017, Cyclone Mora made landfall in Chittagong, affecting four districts including Cox's Bazaar.

The hazard most commonly associated with cyclone mortality in Bangladesh is storm surge-mounds of seawater driven towards the shore due to storm winds, wave fetch and pressure drop, and potentially exacerbated by the tidal situation, the bathymetry and shape of the coastline. The majority of the Rohingya refugee camps are located in the east of the Teknaf peninsula, shielded from the ocean by hills up to 100 meter above sea level. The Kutupalong camp areas are 10-15 km away from the river Naf estuary. While the Kutupalong camp in Ukhia sub-district is therefore not exposed to storm surge or inundation risk, most of the camps in Teknaf sub-district are separated from the eastern river Naf by only a less than 1 km wide coastal plain protected by embankments along the river. A breach or overflow of those embankments during a cyclone event may cause flooding of the eastern Teknaf camps. One Teknaf camp - Shamlapur/camp 23 - is on the western coast of the Teknaf peninsula and is at direct risk of storm surge.

Apart from storm surge, cyclones are also associated with sustained winds ranging from 62 to 200 km/hr. While intensity of winds generally decrease gradually upon landfall, even a relatively minor cyclone such as Mora have been known to cause damage and fatalities in the Chittagong Hill Tracts, located further inland than the refugee camps. Due to new settlement and firewood consumption, the 34 refugee camps and surrounding areas have suffered extensive deforestation and terrain modification in the past year. In the absence of trees, camps are more exposed to the strong wind. The risk related to falling trees and flying branches is therefore reduced, but the fragile shelters and infrastructures and the high population density produces a higher risk related to flying debris than in an average Bangladeshi village or town setting.

The primary mitigation tactic against trauma from flying objects is to take shelter in buildings made from robust materials such as brick, concrete and steel, be it a designated cyclone shelter or a private home. Currently, there are no truly safe sheltering options in the camps due to the lack of cyclone shelters and the fragility of materials used for housing and most camp infrastructure.

Unlike the majority of Bangladesh, the terrain of Cox's Bazaar is hilly, consisting of poorly consolidated sand and silt deposits that are vulnerable to erosion processes, landslides and flash floods when raining. Vegetation removal for cooking fuel and hill cutting for shelters, facilities and new roads exacerbates the pre-existing landslide susceptibility of the sandy soil hills. The 2018 monsoon season demonstrated that immediate heavy rainfall impacts in the camps include impediments to road access and navigability, shelter and asset loss, and additional barriers for refugees to access services and distribution points¹. Similar impacts can be anticipated in the case of a depression or cyclonic storm, independently of wind.

¹See United Nations Development Programme, 2018. "Extreme Weather and Disaster Preparedness in the Rohingya Refugee Response - 2018 Monsoon Season Lessons Learnt".

The cyclone seasons coincide with the Bangladeshi summer (mid-April to mid-June) and late rainy season and autumn seasons (mid-September to mid-December). Normal summer weather conditions in Bangladesh include high day- and night-time temperatures, high humidity, and intermittent thunder- and wind storms known as Nor'westers in English and "Kalbaishaki" in Bangla. Late rainy season and autumn season weather is generally characterized by progressively decreasing humidity, rainfall and temperatures. While seasons have historically been considered predictable in Bangladesh, anomalous weather is popularly considered to now be happening more frequently than before.



Figure 3: Facilities and shelter damage in camp 18 after short thunderstorm on 25th February, 2019
(Photo credit: Jony Shahidul Alam, IOM)



ABOUT THE CYCLONE PREPAREDNESS PROGRAMME

The Cyclone Preparedness Programme (CPP) was constituted following the devastating cyclone of 1970 which killed an estimated 1 million people. The programme was established in 1972 as a joint initiative of Ministry of Disaster Management and Relief (MoDMR) of the Government of Bangladesh and Bangladesh Red Crescent Society (BDRCS), with the support of IFRC and approved by then Prime Minister Honorable Sheikh Mujibur Rahman.

CPP is one of the largest preparedness programs in the world and provides cyclone early warning so that coastal communities can take early action to reduce loss of lives and property. CPP currently covers 13 coastal districts and consists of a network of over 55,000 community volunteers. As detailed in the Standing Orders on Disaster (SOD), which outline the responsibilities and activities of government ministries, agencies and armed forces, the mandate of the CPP is:

1. Cyclone early warning,
2. Emergency management of the over 4,000 Department of Disaster Management evacuation centres,
3. Search and rescue and first aid,
4. Coordination with government agencies at all levels,
5. Continued training of CPP volunteers and expansion, and
6. Conducting cyclone awareness activities through preparation drill exercises in communities.

Bangladesh Meteorological Department (BMD) is responsible for issuing early warning signals which are then widely disseminated by the CPP control room to its zonal offices in the coastal districts. The zonal officers then send alerts to CPP team leaders through its sub-district offices, which are then responsible for informing and mobilizing the volunteers to take early action with their communities to protect themselves and their assets. A radio communications system helps disseminate early warning messages down from the national to village level, where warning flags are raised and warning messages and advice disseminated by mouth and microphone.

CPP follows the BMD warning signal system for community early warning and early action. While the warning signals are mainly based on the strength of the cyclone, the level of warning can be increased based on time for landfall and direction of impact - please see next page for an explanation of the old and current system of warning flags.



Figure 4: CPP Cyclone Early warning system up to November 2018 as per the Standing Order on Disaster (Old system)

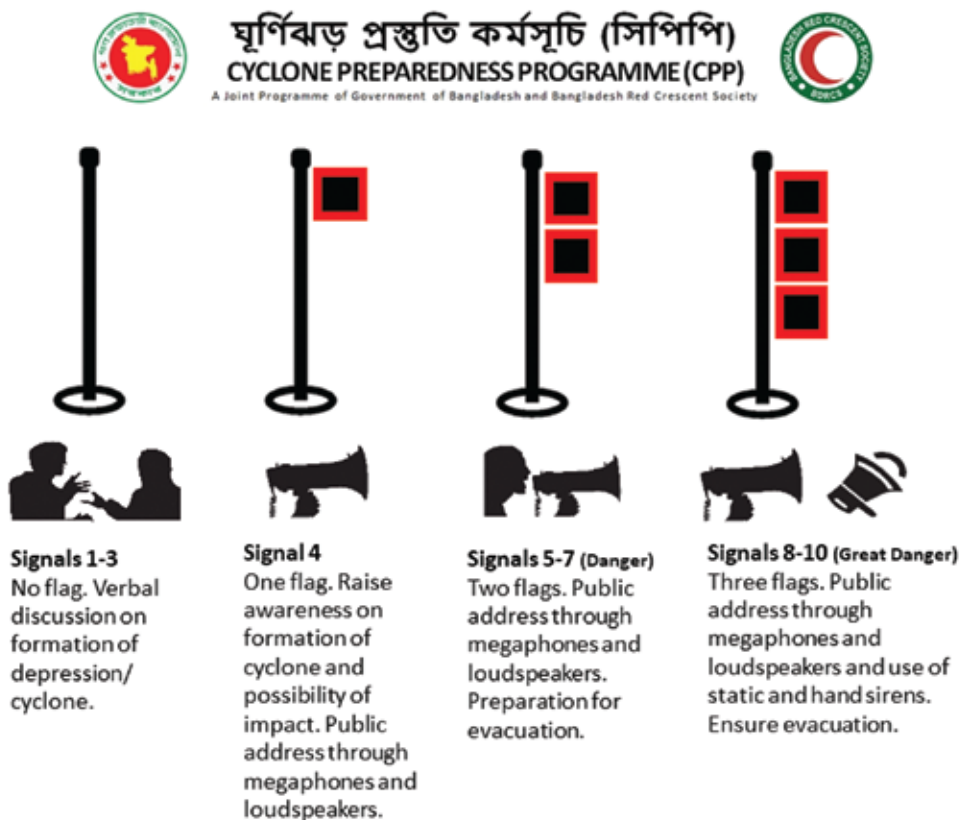


Figure 5: CPP Cyclone Early warning system since November 2018 as per revised Standing Order on Disaster (new system)



KEY PROCESSES THROUGHOUT 2018

Concerns about the potential impact of cyclones and natural disasters on the refugee population and the surrounding host communities arose quickly after the August 2017 influx of Rohingya refugees into Cox's Bazaar, only months after Cyclone Mora. Cyclone Mora had made landfall in Chittagong on 30th June 2017, with wind gusts up to 130 km/hr causing structural damage and refugee asset loss, including damage to 70 per cent of the shelters in the refugee camps and settlements. At the same time, the growth of the Kutupalong-Balukali site highlighted how the hazardous potential of the hilly landscape for landslide was being exacerbated by rapid deforestation and human interference such as hill-cutting. Similar concerns applied to smaller Teknaf camps on steep hills surrounded by low-lying paddy fields, such as Chakmarkul and Unchiprang, and Shamlapur on the coast.

Shortly after the influx, ISCG therefore requested support from OCHA to develop a first cyclone preparedness plan for the Rohingya camps and settlements. The 2017 Cyclone Preparedness plan was developed with OCHA support in November 2017 for a Mora-equivalent scenario with support from the sectors and became the basis for subsequent monsoon and disaster preparedness plans. OCHA continued to provide support to preparedness through secondment in the first half year of 2018 and several short missions.

However, disaster risk management within the refugee response started without comprehensive baseline information about cyclone, flash flood and landslide risk in the camps - or even comparable settlements to learn from. The Comprehensive Disaster Management Programme (2005-2015) had previously facilitated the development of an Ukhia Upazila Disaster Management Plan and landslide risk assessment in high-risk locations in the district. However, the Kutupalong-Balukali site was established in a protected forest area for which no risk assessments had previously been done. Likewise, there were no comparable settlements in Bangladesh or abroad which could inform a cyclone planning scenario. This lack of previous risk assessments and sparse community knowledge of hazards in situ placed government and humanitarian actors in a situation of trying to gauge the degree of risk from a minimum of baseline information.

By December 2017, several ISCG sectors recognized the necessity of initiating risk mitigation in preparation for monsoon flash flooding and landslides. In parallel with a UNHCR-initiated landslide and flash flood hazard analysis and the November 2017 cyclone contingency planning exercise, a first disaster risk reduction discussion was initiated by the Site Management and Site Development sector in early December 2017. This was followed up by a proposal for forming a Disaster Risk Reduction working group, submitted to the Heads of Sub-Office group from the Site Management and Site Development sector, Shelter sector, IFRC, UNDP and the ISCG secretariat in February 2018.

In response to the sectors' proposal to form a DRR working group, the Heads of Sub-Office group requested the formation of an Emergency Preparedness and Response Task Force (EMPRTF) in February 2018. The EMPRTF served as a forum for coordinating cyclone and monsoon preparedness efforts in the first six months of 2018. Open to interested parties, in this period the EMPRTF generally included representation from all the sector coordination teams, the main humanitarian agencies, the Red Cross/Red Crescent (RC/RC) movement, and organizations with particular interest. The task force was de facto chaired by an ISCG secretariat focal point, with technical support from UNDP.

Although perceptions varied about the exact degree of cyclone risk to the camps, the need for close coordination between government and humanitarian actors' cyclone preparedness was recognized from the beginning. The Ministry of Disaster Management and Relief (MoDMR) ordered the expansion of the joint MoDMR and BDRCS CPP programme into the camps in early February 2018. This was followed up on with a 9th February 2018 workshop on cyclone preparedness co-facilitated by ISCG and the CPP, with participation from the sectors, UN agencies and NGOs. Suggestions for preparedness actions - such as agreement on the need for a Minimum Response Package, prepositioning of associated materials and formation of mobile Health and Protection response teams - fed heavily into subsequent cyclone and monsoon preparedness efforts. As UNHCR and IOM were already in the process of forming Safety Unit Volunteer (SUVs) groups, an agreement was also reached that the CPP would train these SUVs to function as CPP units.

While Bangladesh has a well-developed regulatory framework for disaster management, the existing national instruments and mechanisms do not address disaster risk management within the Rohingya camps and exact arrangements had to be clarified. The fact that the still-developing governance structure for the camps is overseen by the Refugee Relief and Repatriation Commissioner (RRRC) rather than directly by the district's Deputy Commissioner led to initial confusion among humanitarians regarding who the main government counterpart for coordination of disaster response in the camps would be. Both government and the humanitarian community recognised that the early warning messages disseminated by the CPP revolved heavily around evacuation to cyclone shelters, of which there are none in the camps and very few in the surrounding area. To support the Senior Coordinator's dialogue with government on early warning, an Early Warning Group was formed under EMPRTF.

The assumption of high, potentially fatal landslide risk and the lack of feasible cyclone safe sheltering options led to a strong focus on extreme weather and disaster preparedness across the Rohingya response in the first six months of 2018, including relocation of refugees away from plots at risk of landslides and flash floods. A UNHCR-initiated landslide and flash flood risk analysis indicated that as many as 200,000 people were at risk of landslide, flash flood, or both. In addition to the establishment of EMPRTF as a dedicated forum for discussion, the sector coordinators' weekly meeting included issues and decision points informed by and directing the discussions in the EMPRTF. At the tactical level, the Heads of Sub-Office group had a standing weekly agenda item on disaster preparedness from February to May. Plans for cyclone and monsoon preparedness were developed and agreed upon through these forums and recorded in successive iterations of the Cyclone and Monsoon Preparedness plan/s. The Site Management and Site Development sector facilitated the relocation of households in at-risk plots to new plots in existing camps and new sites developed.

Recognising the gravity of the cyclone and monsoon risk scenario, Government of Bangladesh initiated local adjustments to the nationally disaster management frameworks and instruments to ensure practical and people-oriented solutions for early warning and response coordination. In April 2018, it was confirmed that the Deputy Commissioner in his function as head of the District Disaster Management Committee would also oversee disaster and extreme weather response in the Rohingya camps. As per the SOD, in the event of a disaster, the Deputy Commissioner convenes the District Disaster Management Committee and opens an Emergency Control Room (ECR)/Emergency Operations Centre (EOC)² for situational monitoring and response. Agreement was reached between ISCG and the Deputy

²The terms EOC and ECR are used interchangeably in the Bangladesh Standing Orders on Disaster.

Commissioner that as a local arrangement, ISCG, AFD and the RRRC would be called to participate in the district EOC. Similarly, adjustments were made by the CPP to the curriculum, ToR and early warning message language (from Bangla to Rohingya) of Rohingya CPP volunteers to reflect realities in the camp.

Agreements on common cyclone and monsoon preparedness and response arrangements were recorded in the ISCG monsoon/cyclone contingency plan. Successive iterations of a multi-hazard monsoon and cyclone plan were regularly disseminated to UN agencies and NGOs until May 2018. The plan was then split, and the next updated cyclone contingency plan was circulated in November 2018.

Recognizing that the impacts of monsoon and cyclone season-related weather events would vary in severity, preparedness planning was made with reference to three distinct categories of events, defined by level of coordination required. These categories were defined as:

"Category 1 - A localized event that caused minor to moderate damage and that has little or no impact outside the locally affected area. Situation is managed by local stakeholders with existing resources. E.g. regular monsoon season.

Category 2 - An event that disrupts all or most of the refugee settlements. These events may escalate quickly and may have serious consequences for the refugee community. A category 2 emergency requires mobilizing additional resources and make immediate strategic & operational decisions. The effect of the emergency is wide-ranging and complex but, unlike Level 3, does not affect surrounding communities. E.g., a major flooding incident.

Category 3 - A major disaster that adversely affects the entire area and the surrounding communities. The effect of the emergency is wide-ranging and complex, and a timely resolution of disaster conditions requires broad cooperation and extensive coordination. A level 3 emergency requires mobilizing additional resources and making immediate strategic and operational decisions. E.g., a tropical cyclone."

The lack of viable cyclone sheltering options remained a major concern, but efforts to identify and implement alternatives for extremely vulnerable individuals were not coordinated. The risk of physical and emotional trauma due to exposure to the elements during cyclone is a threat to the Rohingya's dignity, safety and lives. Several UN agencies and NGOs entered into bilateral dialogue with local government to discuss the possibility of evacuating extremely vulnerable individuals (EVI) from the camps during cyclone and began cyclone shelter renovations as part of their social cohesion activities. However, the exact cyclone shelter capacity in Ukhia and Teknaf remains unclear and no written plans for EVI evacuation were agreed on. From August, an effort to consolidate diverging lists of cyclone shelters was initiated by ISCG, with support from REACH sought from November onwards.

The "Cyclone Response Plan - Rohingya Refugees - Cox's Bazaar (14-Nov-2018)" is the current version as of end of February 2019.



THE 2018 CYCLONE SEASONS- SEQUENCE OF EVENTS

Initial small rains began in mid-April, and hazardous events triggered by normal, non-extreme Nor'wester storms caused intermittent damage in May. Relatively short but intense rainfall and wind associated with Nor'wester storms led to water logging, landslides and wind damage to structures on 5th, 12th, 14th, and 17th-20th May. To track incidents and impacts, Site Management and Site Development sector with support from IOM-Needs and Population Monitoring (NPM) began issuing Category 1 Incident reports based on reports from Site Management Support agencies.

The first cyclone warning of the year was issued in response to a depression in the Bay of Bengal on May 29th, triggering early warning by CPP in the Ukhia camps. On May 29th, BMD issued a Special Weather Bulletin with warning signal no. 3, triggering the first cyclone early warning in the Ukhia camps. CPP volunteers from the host community immediately contacted the CPP camp volunteer team leaders to raise one flag, in consultation with CICs of each camp. The flag was raised in all 24 camps in Ukhia. The depression moved away from Bangladesh without causing any further early warning triggers. As the depression weakened, the warning was removed by BMD and at the instruction of CPP, the flag taken down in all camps by CPP camp units.

The second cyclone warning of the year was issued on 8th October in response to a depression in the Bay of Bengal which became Cyclone Titli, triggering early warning in the camps and convening of the District Disaster Management Committee. On 8th October 2018, a depression in the Bay of Bengal formed which developed into Category 1 Cyclone Titli. In response, the BMD issued the Special Weather Bulletin with warning signal no. 4, which triggered raising for two flags in all camps. The District Disaster Management Committee convened by the Deputy Commissioner with ISCG present. The Site Management and Site Development category 1 incident tracking mechanism recorded an estimate 1,959 individuals affected by landslide, flash flooding and winds between 8th and 15th October.

The third cyclone warning of the year was issued on 10th November in response to a depression in the Bay of Bengal which became Cyclone Gaja, triggering early warning in the camps. On 10th November, a depression formed in Bay of Bengal and BMD issued a Special Weather Bulletin with warning signal no. 2. Accordingly, one flag was hoisted in all camps. The depression later intensified into Cyclonic storm 'Gaja', which on 11th November headed towards the Indian coast. New communication protocols were activated ensuring information sharing between CPP, the RRRC, CiCs, RC/RC stakeholders, the ISCG secretariat and Sectors, and the SMS agencies. Flag one was raised in all camps and remained up for several days while the storm persisted.

The fourth and final cyclone warning of the year was issued on 13th December 2018 for the depression that became Cyclone Phetai; however, due to changes in the CPP early warning system, no flags were raised in the camps. On 13th December 2018, Cyclone Phetai formed in Bay of Bengal. The cyclone was quickly forecast to make landfall in India. Based on weather conditions in the sea, BMD issues warning signal no. 2. Due to changes in the CPP early warning system, no flags were raised. In line with the protocols, ISCG, CwC, key stakeholders and CPP volunteers were informed.

VOICES FROM THE COMMUNITY DURING CYCLONE TITLI

"We have heard from others that, in Bangladesh, October is again a cyclone season. But we do not have exact information. We would like to hear more clear information about cyclone so that we can prepare in advance. There announced through mike in the camps and there were two flags."



(Man, 40, Camp 1E)



"I didn't hear any announcement that it was going to be raining like this. If we had enough information, we would have prepared in advance. We don't even know from where we can get information related to cyclone or preparedness for it. I want to know how long it is going to rain and how heavily it will rain so that we can buy food in advance. During rains, we had problems in our houses and related to food. Firewood became wet."

(Man, 44, Camp 1E)

"Neighbours told us, but we want announcements - especially if there is more information related to the camp level, we can be more careful. We had problems carrying water during heavy rain."



(Woman, 22, Camp 1W)



"I didn't hear anything. Some CIC volunteers told us before that it is cyclone season. We never heard anything about cyclone or weather on time. We even don't know what facilities are available in the camp to save ourselves or to go to take shelter in if it rains that heavy and our houses break. Because of rain, the roads are broken. Drains and latrines are full."

(Woman, 27, Camp 3)

"We thought winter is here. There might not be any cyclone. If there is a cyclone, we want announcement in advance so that we can prepare ourselves. We have heard from BRAC, CIC, in the mobile news and in the radios that it will be raining and that there are signals available and we must be careful. I am worried for those who doesn't have access to devices. They might need more information. Some women who don't have men in their household have no access to this information."



(Man, 50, Camp 4)



"There is a storm coming next week I heard. There will be heavy wind and rain. Our houses are made of tarpaulin and bamboo and are not strong enough. We made these houses when we arrived here. These are not in a good condition. In the radio, we heard and heard from mosque the information of storm. We got scared... Because it was raining, there was no sun. We couldn't charge our solar panel, so we had to be in dark. We want more clear information about the signal system and its preparedness."

(Man, 28, Camp 2W)

"We have no idea who are responsible for announcing about cyclone and we don't know who to go and ask for further information related to this. We just hear things from the shops, bazaar or mosque and sometimes these are not reliable."



(Woman, 33, Camp 2E)

Source: "Data Related to Cyclone Preparedness" (community feedback) Internews, 30 October 2018



LESSONS LEARNT - CROSS-CUTTING ISSUES

Following analysis of the documents and interviews, cross-cutting issues were identified:



Understanding and mitigating natural hazards and risk in refugee response

The Rohingya refugee camps present a unique cyclone risk scenario, and the lack of comparable settlements makes it challenging to accurately estimate risk. The coastal areas of Bangladesh are mainly characterized by deltaic plains, low-lying islands and villages with a high portion of fragile housing, interspersed with a few larger towns where building stock is mainly brick and mortar. The Rohingya refugee camps are very different from the typical scenario in that they are highly dense and hugely populous but consisting of very fragile shelters and infrastructures (mainly bamboo and tarpaulin); the majority are out of storm surge radius, but close enough to coast to experience full brunt of winds at landfall; some on flat land, but the majority on hills and valley bottoms. The extent of risk, especially from wind, is difficult to gauge even for specialists with long experience in disaster management.

Impacts across the camp will differ according to the geophysical characteristics of each camp as well as ongoing construction and large-scale landscape alterations. As demonstrated by the variation in nature and location of monsoon impacts observed in 2018, each camp - including camps in the larger Kutupalong site - face an individual risk scenario with interacting hazards. For some, the risks are not intuitively visible to non-experts. One example is Shamlapur, where precipitation upstream can interact with ocean tides and generate unexpected flooding in the camp. Further, the camps are at any given time characterized by a large number of construction projects, some of which are leading to extensive landscape alterations through hill-cutting or construction of raised roads. These changes in the topography have the potential to create new risks by blocking natural drainage or weakening slopes, and makes it difficult to maintain risk and hazard maps for rainfall-associated risk due to constant development.

While mitigation against the rainfall-triggered hazards associated with cyclone - such as landslide and flash flood - has reduced risk for many, risk reduction against wind hazard is severely limited. Small-scale risk mitigation, decongestion and relocations throughout 2018 significantly reduced landslide, erosion and flash flood risk in the camps. The topography of the camps necessitated extensive physical work to reduce landslide risk, and strengthen roads and pathways against the impact of rain. Site development partners worked to capacity, levelling shelter sites, building roads, constructing drainage channels and culverts, and permanently relocate households to safer sites. WASH was also working at full capacity decommissioning latrines, installing new ones, managing fecal sludge disposal and drilling tube wells. However, the majority of the mitigation activities have limited durability due to the fragility of materials used, erosion, or lack of desludging options. As such, repair or replacement will regularly be required. On the other hand, little was achieved to effectively reduce wind-related risks. Limitations in funding, material restrictions, as well as unclarity around existing cyclone shelter capacity in Ukhaia and Teknaf severely restricts the ability of response stakeholders to reduce risks to lives, health and assets from debris and objects thrown by cyclonic winds.

The majority of the camps are at lower risk of storm surge than most coastal Bangladeshi communities, but all factors indicate that the camp population should be considered at higher risk of

trauma, fatality and asset loss related to storm winds than what is usual for the country. Multiple factors exacerbate the risks from wind, including (a) extremely dense settlement, (b) use of bamboo for shelter construction and the vast majority of other structures in the camps, (c) the known low wind resistance of the majority of the shelters in the camps (around 50 km/hr, perhaps lower due to bamboo decay) and (d) the practice of drying firewood on top of household shelters. In this environment, the majority of the population is at all times permanently surrounded by a large volume of poorly secured objects which have the potential for causing acute trauma if thrown by extreme winds. People with disabilities, pregnant women, elderly, sick and, and children would be particularly at risk as their ability to move to less risky areas is limited.

While there is known storm surge risk to the population of certain refugee camps and informal settlements in Teknaf, there are as yet no written and plans for the evacuation and safe sheltering of Rohingya in these locations. While there have been discussions between humanitarian actors and local government and disaster management duty bearers on the need for evacuation of most-exposed refugees from low-lying areas vulnerable to storm surge and embankment breach, this has not yet crystallized in written plans agreed upon by local government. This is especially critical for Shamlapur camp, which sits directly on the Bay of Bengal.



Weather forecasting and use of weather information by humanitarian actors

Bangladesh Meteorological Department (BMD) is mandated to monitor conditions in the Bay of Bengal for cyclone risk and issues a Special Weather Bulletin when the data indicates conditions likely to generate a cyclonic storm - but concern about cyclone sometimes led actors to seek out and react to other, non-verified sources in the first part of the year. BMD as the sole nationally mandated actor to provide weather forecast information publishes daily forecasts, 10-day meteograms, special weather bulletins, and maritime warnings on their website. However, many humanitarian staff members also sought out other platforms. Some consulted the Indian Meteorological Department which is regionally mandated for cyclone monitoring and works with the BMD. Other online sources, including several commercial platforms, provided actors visually appealing but easily mis-interpreted forecast products. A third source included forwarded information from agencies' regional bureaus and UNDSS in neighbouring countries. At times, humanitarian staff consultation with these other sources created confusion and anxious requests for verification. In these cases, ISCG had the option to consult with partners such as the IRI/NASA COMPAS project to get identify available forecasts and obtain qualified comments on the forecasts at requested. However, this information was not consistently circulated on to other stakeholders in Cox's Bazaar.

Lack of familiarity with the national forecasting and early warning products and the relationship between them led to initial confusion about whether a given bad weather episode bore cyclone risk or not. For humanitarian staff who are not familiar with the national system for coastal warnings, it was at times difficult to interpret and keep track of products. The key products available from the BMD include:

- Special Weather Bulletin: issued when depressions in the Bay of Bengal with potential to become a cyclone are detected;
- Marine Warning: issued when weather conditions in the Bay of Bengal pose a risk to the fishing and shipping fleets and ports.

The Special Weather Bulletin and Marine Warning look similar and both make reference to the national system of 'Signals for Maritime Ports'. The ten maritime signals range from Cautionary Signal 1 to Great

Danger Signal 10, with each signal corresponding to a set of storm conditions and trajectories in the Bay of Bengal. The maritime signals are not only announced by BMD in case of cyclone, but in all storms that pose a risk to the fleet. However, in cases where the maritime signal is issued for a depression/cyclonic storm, the level of the maritime signal corresponds to a particular level of early warning by the CPP (see page 12). The content of the Special Weather Bulletin and Marine Warning assume familiarity with this system. When the first Special Weather Bulletin of 2018 was forwarded by ISCG in late May, several humanitarian actors were confused about what the implications for CPP action would be. Similarly, when a Maritime Warning was forwarded to humanitarian actors in early June 2019, several actors initially assumed it was a cyclone-related Special Weather Bulletin.

Depression and cyclone tracking information was disseminated from ISCG in the second half of the year, but the frequency, format and sources utilized were not predictable and uniform. In the first half of the year, ISCG cascaded special weather bulletins and maritime warnings when received. In the second half of the year, the ISCG secretariat provided weather forecasts and updates drawing on several sources and with comments, but a predictable routine was difficult to pin down. Opinions varied among the key informants regarding the utility of the cascaded forecasts - some found too much emailed weather information disruptive to their daily work, while others suggested that more regular, contextualized and frequent weather updates would be useful.



Early warning to the community

Expansion of the early warning system was enabled by sustained, collaborative engagement by government, Red Cross/Red Crescent (RC/RC) partners, UN, host communities, Site Management Support (SMS) partners, and specialized NGOs. An early agreement between the CPP, UNHCR and IOM facilitated by the Site Management and Site Development sector, BDRCS, American Red Cross and IFRC enabled integration of training for fire and CPP volunteerism in the camps. Similarly, early involvement and ownership by CwC partners in discussions around early warning and preparedness discussion with the Red Cross/Red Crescent partners of CPP generated support communications materials. To be able to deliver on rapid training of new volunteers, involvement of all levels of the existing CPP structure including host community CPP volunteers was required. Close coordination of this broad group of government and humanitarian stakeholders was time-consuming and occasionally required ISCG and UNDP support, but had by the end of 2018 enabled the establishment of CPP units in all camps.

Due to the different settlement patterns and demographics of the camp population compared to the regular Bangladeshi village setting, the characteristics and catchment area of the CPP camp units were adjusted to meet camp needs. The camps have a much higher population density and a large percentage of women and children. The initial target was to establish one CPP unit of 10 women and 10 men in each camp - in contrast with the regular CPP units of 15 with a minimum of 5 women - with the necessary training and equipment by July 2018. An initial target of having 620 CPP camp volunteers covering 31 camps was achieved by July 2018. However, the need for additional CPP camp units to match the population size better led the Government of Bangladesh to direct for an increase of CPP camp volunteer numbers to a total of 3,400, 100 in each camp. This process is ongoing in a phased approach with a total of 1,800 CPP camp volunteers trained in 2018. The last phase of the trainings is scheduled to be completed prior to cyclone season of 2019. The trainings include disaster context of Bangladesh, disaster preparedness essentials, early warning, first aid and equipment use.

Gaps and challenges faced in execution of early warning were improved through repeated

opportunities for testing, joint lessons learning, and field monitoring. Whereas the national cyclone early warning system is well-known to the Bangladeshi population from a young age, the Rohingya CPP volunteers were starting from scratch. Similarly, SMS partners, the Armed Forces Division (AFD) and CiCs were not necessarily familiar with the command and control structure of early warning cascading through CPP. Gaps and challenges in correct execution of the flag protocols were observed in individual locations during the cyclone warning events which took place in the course of the year. These included: non-CPP volunteers taking own initiative or being ordered to use microphone to issue warning, warning flags raised again after BMD-ordered removal due to experience heavy wind and rain, and flags not being raised or lowered on time in all locations. However, each warning event was followed by discussions between the SMS partners, RCRC partners and CPP to identify issues and adjust protocols. Partners agreed that coordination and execution had improved considerably by the end of the year. Moving ahead, maintenance of a camp level log book for documenting early warning signal triggers and removal of those warnings has been proposed as a way for keeping a record of what action has been taken by whom and under whose authority.

The number of partners involved, the relative operational independence of the units and the rapidity of action once signals are issued made a clear protocol for information sharing among partners an absolute necessity. CPP units are trained to independently raise the flag upon receipt of the BMD-issued warning message. This, as well as the number of stakeholders in the CPP expansion and early warning system makes cascading information about warning messages and special weather bulletins absolutely critical to avoid confusion. In the absence of a predictable general ISCG cascading protocol, multi-channel communication protocol between CPP, RC/RC stakeholders, SMS partners, CwC partners, and RRRC/CiC is now used as a stop-gap to ensure all partners are made aware at the same time. On behalf of CPP, this CPP-specific protocol is triggered by RC/RC partners following pre-identified coordination points to ensure better coordination among all stakeholders. However, the protocol does not address how early warning information should be cascading at camp level by other actors than the CPP units.

Despite achievements in expanding the CPP to the Rohingya camps, lack of community sensitization about the early warning system among the Rohingya population has limited the effectiveness of the early warning communication. Unlike the national population, the Rohingya have not had the benefit of introduction to the Bangladesh early warning system through school curriculums and decades of public awareness campaigns. Despite broad concerns about cyclone risk, a Translators without Borders survey conducted in July 2018 showed that humanitarian stakeholders' outreach activities were mostly one off and that awareness and information on early warning hadn't been mainstreamed through operational actors' activities. It was also stressed in the findings that there was insufficient coordination and plans at camp level to reach the scale of awareness and information necessary as well as reach all segments of camp population. In response, CwC and RC/RC stakeholders worked with ISCG to expand the range of materials and organize training of trainers and orientations sessions in the second half of the year. However, the size of the refugee population and high levels of illiteracy makes it difficult for this relatively small set of to reach out at scale.

Lack of familiarity among humanitarian staff with the national system, and among national staff and stakeholders about the local adjustment in the camps was sometimes a barrier to consistent progress. Lack of awareness of the early warning system for the camps within humanitarian community is evident despite communication efforts and appears to be mainly due to high turnover of staff. This has highlighted the importance of disaster risk-informed staff inductions and conducting awareness and consultations sessions on a seasonal basis to address any gaps. Cyclone and early warning awareness and discussion

sessions were organized at camp levels for CICs, Site Management Agencies, sector partners and members of Armed Forces Division to increase awareness and provide clarity on roles and responsibilities of different entities in preparedness, early warning, early action and response.



Communication with and accountability to the community

The Rohingya population has been subjected to forced displacement which places a significant emotional, social and physical burden on men, women, boys and girls. While they come from a cyclone-prone area, their displacement, the camp settlement pattern and dependency on humanitarian support creates an entirely different cyclone risk and vulnerability scenario. In Rakhine state, the Rohingya population experienced similar weather patterns as in Cox's Bazaar. Rohingya community members consulted for the present lessons learnt exercise listed the most usual coping mechanisms for storms and cyclones to be relocating to higher ground away from surge and finding local cyclone shelters. This is consistent with previous Knowledge, Attitude and Practices surveys in Rakhine state, where most responders reported evacuation to cyclone shelters, temples public buildings and strong neighbor houses as the main action taken during disaster. The lack of robust buildings and cyclone shelters in the camps excludes this option. Loss of assets during flight to Bangladesh, coupled with lack of livelihood and agricultural options in the refugee camps increases vulnerability. This makes the refugees entirely dependent on humanitarian assistance if affected by cyclone and rain-triggered hazard, and magnifies their need for actionable cyclone preparedness information and timely early warning messages to take action against loss of food stocks, assets and valuables.

Developing communications to the refugees on disaster risk and preparedness required involvement of several sectors and specialized actors. Development of disaster risk and preparedness messaging for the Rohingya was initiated by the ISCG Early Warning Group in February 2018 to support socialization on the cyclone early warning system and provide households information for decision-making in the absence of cyclone shelters; the process was transferred to the Emergency Communications Task Force of the CwC Working Group in April 2018. Development of messages relevant to the camp setting necessitated content inputs on key Protection, Shelter, WASH, Health, and Food Security issues, as well as information on local natural hazards and weather patterns supplied by DRR stakeholders with long experience in Cox's Bazaar including the RC/RC movement. Identification of appropriate communication channels and formats, development of supporting documents, cross-referencing with existing national and local disaster risk and preparedness messaging, and translation into Rohingya was facilitated by CwC partners.

Efforts have been taken to spread knowledge about the EW system and preparedness messaging, but the Rohingya still appear critically under-informed about what the suggested risk reduction actions are and what support they can expect from humanitarian actors. The ACAPS report on changes in the camp during the monsoon, several early 2018 community feedback reports, and focus group discussions conducted for this exercise in January 2019 indicate a critical information gap. The most common questions from Rohingya refugees about cyclones are:

1. **How does the early warning system for cyclones work?** Despite significant efforts from the Cyclone Preparedness Program (CPP) and other humanitarian actors to disseminate cyclone preparedness messages at the camp level, many Rohingya refugees do not understand how the flag system and other early warning signals work or where they can obtain weather information.
2. **Where should we go in case of a cyclone?** Community members report lack of clear advice on how their family can stay safe during a cyclone. They fear that their own makeshift shelters will not be

strong enough, and that the number of buildings with presumed stronger structures (such as the CiC offices or mosques) in their area would not be sufficient.

3. **What kind of humanitarian services will be available before, during and after a cyclone?** Refugees appear under-informed about the kind of support they can expect from humanitarian actors to manage the impact of a cyclone and other natural hazards.

Systematic, at-scale dissemination of cyclone preparedness messages and information materials to the refugees has not taken place, despite government, inter-agency and inter-sectoral efforts to develop messages, trainers, and supporting materials. FAQ guides for non-specialized staff on weather, early warning key preparedness messages were developed and published in the first half of 2018. These materials were regularly updated and re-circulated to support dissemination of early warning and disaster preparedness information. However, a Translators without Borders survey conducted in July 2018 showed that outreach activities were mostly one off and that awareness and information on early warning hadn't been mainstreamed through operational actors' activities. It was also stressed in the findings that there was insufficient coordination and planned at camp level to reach the scale of awareness and information necessary as well as reach all segments of camp population. Turnover of staff between the first and second half was also noted to have undermined institutional knowledge and application of the materials in operational agencies and organizations. In response, government, CwC and RC/RC stakeholders worked with ISCG to expand the range of materials and organize training of trainers and orientations sessions in the second half of the year. However, the size and high level of illiteracy of the refugee population makes it difficult to reach out at scale without consistent commitment by larger agencies to disseminate as part of their regular operational activities.

Integration of a common feedback mechanism into emergency response is unclear. The Sphere standards for accountability to beneficiaries in humanitarian response include the obligation of responders to provide information about rights and access to services and to establish mechanisms for safe, responsive feedback and complaints. At present, the Rohingya cyclone contingency planning documents do not address this.



Preparedness planning

While cyclone and monsoon preparedness planning was initiated in an integrated way, joint cyclone preparedness planning was characterized by starts and stops after June 2018, partially due to external factors. Common cyclone and monsoon preparedness planning among the ISCG-coordinated actors began with the establishment of the EMPRTF and the February cyclone preparedness workshop with CPP. With the change of focus and diversion of staff time to monsoon response in June, any further common cyclone preparedness planning effectively went on hold until late August. The September cyclone preparedness workshop and the October two-week OCHA cyclone preparedness review mission led to a round of review of the ISCG plan and sector plans. However, this was not systematically followed up on - partially due to cancellation of regular preparedness coordination meetings at Cox's Bazaar level from October onwards, partially due to workload associated with the Joint Response Plan 2019 formulation process.

Frequent turnover of staff was an impediment to maintaining consistent progress in preparedness and contingency planning efforts. In 2018, the ISCG-coordinated response saw frequent planned and unplanned turnover at all levels, from field staff to CiC and senior agency and coordination positions. Certain positions remained vacant, were filled by several ad interims, or were filled by existing staff in

addition to other senior duties. Critically for preparedness efforts, this also included central positions such as ISCG Senior Coordinator, several key sector coordinators, and the ISCG secretariat emergency preparedness focal points, head of field coordination, and head of information management. In addition to necessitating frequent recapping of basic disaster management issues in coordination forums and high demand for briefings for new arrivals, this also contributed to poor information management as central documentation and planning documents were not consistently handed over to or consulted by new arrivals.

The absence of a platform where all existing cyclone preparedness plans could be shared and accessed, as well as differences in formats and core content of a) the government disaster management plans, b) overarching ISCG contingency plan, c) the different sector plans, d) different camps' plans and e) agency plans led to information gaps hindering validation the overarching ISCG cyclone contingency plan and the delivery of timely camp-level response to the monsoon. With minimal guidance, sectoral plans were all written indifferent formats. Attempts to standardize camp-level plans faced obstacles including methodological differences and capacity constraints among SMS partners, as well as lack of information about sectoral arrangements and assignment of responsibilities in any given camp. Updated, confirmed information was not shared from agencies and NGOs. Without knowing agency and NGO plans, triggers and timelines for pipelines, stock release, prepositioning of staff, and prioritization for reopening of individual facilities and distribution, validation of the overarching ISCG contingency plan and camp-level plans is extremely difficult. Similarly, humanitarian plans have not yet been systematically cross-referenced against the plans of the RRRC, the AFD, and the district, subdistrict and union level disaster management plans where they exist.

Several sectors established sectoral response focal points and/or mobile response teams at camp or area level in preparedness for disruption to regular work modalities and to be able to manage cyclone and monsoon-triggered spikes in refugee's needs, service demand, and distributions at as low a level of coordination as possible. The focal points identified in 2018 were generally sector partner organisations considered to have requisite capacity to meet response needs in specified camps. For most of the sectors and mobile response units, the specific tasks related to the sector focal point function - including response delivery - were assigned to existing project staff in the assigned camp, in addition their regular duties. For some sectors, this camp/area sectoral focal point system of was later extended to non-emergency response functions as well, and the system remains a work in progress.

The experience from the 2018 monsoon is that while the sectoral focal points and mobile teams were useful in overcoming barriers such navigability and road access barriers, human resource limitations limited their capacity to consistently respond to spikes in caseload in a timely manner. As caseload is expected to spike dramatically in all sector following a cyclone, these limitations have implications for cyclone preparedness. Performance by the focal points during the monsoon varied by location and organization, and challenges included lack of clarity regarding duties and expectations of assigned personnel, poor selection and supervision of assigned focal point personnel, transport and road access issues hindering focal point personnel from reaching the camps, conflicting directions, and prioritization of regular project tasks over emergency response by the focal point organization. Site management support agencies consulted pointed out that timely support depends on the appointed sectoral partners knowing what is expected of them, and having the right resources, while Camp in Charges and site management support agencies need to know what sectoral focal points will deliver, and when. Explicit ToRs for the sector focal points need to be shared with all concerned partners at camp level to facilitate camp-level plans. Periodic refresher training is necessary to ensure that the focal point organization staff can fulfil their

function. Finally, sub-contracting UN agencies should ensure that the extent and limitations of implementing partners' role as sectoral focal points for monsoon and cyclone response are reflected in their contracts and implementation plans. For mobile response teams, exhaustion of team members due to challenging conditions and a lack of additional human resource to deal with the increased number of cases proved major limitations.



Operational impact of cyclone season weather and likely impact of cyclone

While the severity of a cyclone will determine the magnitude of impacts, experience from previous cyclones in the district as well as the impact of the 2018 monsoon on the camps gives an indication on what impacts might generally be expected.

Direct impacts on the population are likely to begin before landfall due to wind, landslide and flash flood damage to assets, shelters and facilities. Cyclones are large systems (100-2,000 km diameter; 300-650 km being the average) affecting weather conditions well beyond its center. For example, while October 2018's cyclone Titli made landfall on the Indian coast on the west of Bay of Bengal, the Rohingya refugee camps were affected by rain and winds associated with the storm system. In 2018, 5,000 latrines were damaged in the heavy rains on 24th-28th July. In the case of a cyclone, similar pre-landfall impacts may begin to affect the camp population and generate a caseload of affected people before actual cyclone landfall.

Similarly, humanitarian actors are likely to start experiencing communications and road access challenges before landfall. Humanitarians and the camp population - especially people with mobility issues - may start experiencing navigability challenges. The same pre-landfall rains mentioned above may also directly affect humanitarian actors' ability to directly access the camps via road and navigability on foot. As reported by the ACAPS report on changes in the camp during the monsoon, the percentage of the population accessible only by footpath increased from 59.3% in March to 67.8% in July 2018, while accessibility by Compressed Natural Gas vehicle ("tomtoms") had halved from 15.8% to 7%. Although considerable effort had gone into reinforcing pathways, stairs and bridges before the monsoon, slippery conditions and incremental wear and tear made movement on foot more difficult. Several sectors reported exhausting conditions for staff providing service on foot. The mid-June and late July heavy rainfall episodes during the 2018 monsoon caused erosion damage to the Army Road and several small landslides along main Cox's Bazaar town to Ukhiya artery Marine Drive. If a cyclone is preceded by a similar level of rainfall as during these two events - roughly 200 mm to 400 mm in 24 hours - similar impacts are likely to occur again.

Government and humanitarian presence within the camps will reduce to minimal as the cyclone approaches. The primary action to reduce risk to human life during cyclone is taking shelter in a wind-resistant structure, built on a stable terrain, with a raised floor to prevent flooding or inundation. As the number of structures in the camps meeting these requirements are close to zero, duty of care will compel most agencies, organizations and government to withdraw their personnel from the camps to safer locations before landfall.

Immediately before, during and after landfall, obtaining verified information from the ground for Cox's Bazaar-based coordination purposes may be challenging. At the time of landfall, observers in the camps are likely to be limited to the Rohingya and host community members as well as any government personnel remaining on duty in the CiC offices. Following landfall, this group will expand to include the Armed Forces Division, the limited number of humanitarian personnel pre-stationed close to the camps,

and possibly the local first responder agencies and local government disaster management committees. Surging of additional personnel from other sub-districts, including the military cantonment in Ramu, may be slow if major roads or bridges are damaged. Access to the most remote areas of Kutupalong camp in particular may be delayed. On a day to day basis, coordination of the Rohingya response relies heavily on Whatsapp groups and e-mails. Cell phone networks may go down, and the restriction on NGO access to VHF/HF may make certain actors reliant on others' communications equipment to be able to report to Cox's Bazaar at all. Satellite-based earth observations could support assessment when field data is unavailable, but no protocol for this is in place yet. Cox's Bazaar town itself is vulnerable to a storm surge, and communications and infrastructure may be affected. If electricity is cut off for several days due to preventive measures or wind damage, actors without access to a generator may face problems keeping computers, cell phones and radios functional.

Immediate impacts from the cyclone are likely to include blunt force trauma, shelter and NFI loss and damage, facility loss and damage, and displacement. During cyclone Mora, 70% of the shelters in the camps were found to have been damaged following the cyclone. In 2018, relatively mild wind events such as kalbaishaki/Nor'wester storms affected 27,005 people in the refugee camps. In 2018, it was estimated that the majority of the shelters and facilities in the camps are unable to bear wind loads over 50 km/hour - that bearing capacity may even have decreased in 2019 due to bamboo decay. Massive shelter loss and damage, casualties from flying debris, damage to facilities, and loss of NFIs and facility equipment due to wind, flooding and erosion is therefore anticipated in the case of a cyclone happening in the camps in 2019. Less certain, but still likely, is displacement of people within and at the edges of the camps.

Challenging weather and ground conditions are likely to persist after the center of the cyclone has passed and affect capacities to deliver humanitarian aid and first response. It is important to understand the timing and distribution of impact related to tropical cyclones. A tropical cyclone does not need to make a direct landfall in order to cause damaging impacts. Further, impact from tropical cyclones can exist far from the coast as well as potentially days after a landfall. This means that capacities to deliver humanitarian and first response can be limited both near landfall and in surrounding areas. Every tropical cyclone is different and it is important to monitor mandated news sources such as BMD. While losing strength upon landfall, the cyclonic storm is part of a surrounding system that may take some time to pass. The impact of flash floods, erosion, landslides, and wind-borne debris on roads, paths and bridges will persist beyond the cyclone event itself. Experience from the 2018 monsoon suggests that on-foot personnel such as mobile response teams will face exhausting conditions responding to a geographically dispersed caseload. For a cyclone scenario, the number of people in need at the same time can be expected to be significantly higher.

In the week following landfall, secondary impacts may require protection, WASH, nutrition and health interventions. Decline in navigability in the camps is likely to disproportionately affect people with mobility limitations - such as people with disabilities, the elderly, children, nursing mothers and persons with care-giving responsibilities - in their ability to access to aid and services. This can lead to negative health, nutrition and food security outcomes for already vulnerable households. In the case of women and girls, mobility restrictions may be self-imposed if they have lost clothing and their safety may be undermined if damage to WASH facilities deters women and girls' daytime usage. Depending on the severity of the cyclone and associated water logging, the combination of damage to WASH facilities and standing water may increase risk of disease outbreak. The cumulative caseload of people in need of health services may exceed capacity.



Figure 7: Rohingya refugee CPP camp volunteers practicing first aid during a public drill in Kutupalong camp.

Coordination

Government and the humanitarian community has achieved a significant success in establishing cyclone early warning and preparedness plans for the camps while responding to the largest and fastest refugee influx globally in recent years. However, the overarching system has not been drilled to test readiness for integrated response yet. Single elements of the cyclone preparedness plans have been drilled or effectively drilled throughout the year - examples include (but are not limited to) UNHCR's agency response plan through a March SIMEX, the CPP through multiple close calls with cyclones forming in the Bay of Bengal before moving west, and the Site Management and Site Development and IOM-NPM readiness for Category 1 and post-cyclone incident reporting through repeat drills. All these drills led to improvement in the involved agency/organization's ability to deliver as lessons were applied. However, no simulation exercise for the overall ISCG cyclone contingency plan has been conducted yet, nor comprehensive camp-level simulations. A simulation exercise involving ISCG, HCTT and government stakeholders is planned for April 2019.

In the absence of a cyclone making landfall in Bangladesh or a simulation exercise testing the overarching ISCG cyclone contingency plan, experiences from the mid-June and late July heavy rain events and the cyclone warning incidents the best learning so far on how the coordination, information cascading and decision-making arrangements outlined in the plan would perform. Because initial 2018 cyclone and monsoon planning were integrated, an integrated set of categories were set up describing distinct types of incident according to the geographical extent of impact and the level of coordination required to respond. This included individual camp-level (category 1), Rohingya response-level involving

ISCG/RRRC (category 2), and district-level involving ISCG/HCTT/Deputy Commissioner level coordination (Category 3). It was assumed that Category 1 and 2 events would be triggered by monsoon rainfall, while a cyclone making landfall in Bangladesh would be Category 3. The plan describes basic actions for Early warning cascading, and activation of an Emergency Advisory Team of the heads of sub-office of WFP, IOM, UNHCR, WHO and UNICEF to support the Senior Coordinator for Category 3. A Emergency Task Team consisting of key sectors is also mentioned. During the heavy rainfall events of mid-June and mid-July, as well as the close call with Cyclone Titli in October, certain elements of this plan was activated.

The three incident categories and corresponding coordination arrangements anticipated by the Monsoon Response plan did not correspond to actual decision-making and needs during the heavy rainfall events and Cyclone Titli, including the Deputy Commissioner's involvement during the heavy rainfall events during the monsoon. In advance of the monsoon season, it was not anticipated that the EOC stakeholders would be convened by the Deputy Commissioner unless a disaster affecting both the Rohingya and host community population took place. However, following discussion between ISCG and the district administration, the EOC stakeholders were convened on the 25th July in response to heavy overnight rains and weather forecasts indicating continued precipitation for the next two days. With a) decisions being made and relayed from the Government-led EOC, b) SMEP on heavy duty trying to respond to road damage to enable camp-level response, and c) sectors responding to needs at camp level, the heavy rains appeared to simultaneously be a category 1, 2 and 3 incident at the same time.

The heavy rainfall events and Cyclone Titli also demonstrated that certain additional actions will be necessary to ensure that the Senior Coordinator is adequately supported to represent the ISCG stakeholders in government decision-making and coordination processes. During the close call with Cyclone Titli, the Deputy Commissioner convened the District Disaster Management Committee meeting, to which the Senior Coordinator was invited to represent the UN. To prepare, the Senior Coordinator convened the EAT but found that the team was incomplete for decision-making without also including the UN head of sub-office serving as Area Security Coordinator. The District Disaster Management Committee meeting also includes requests from the chair to all government line department, participating NGOs and UN representatives to account for available resources for cyclone response, including the Senior Coordinator on behalf of the UN system. As it by the time the meeting happened was clear that the cyclone would not hit Bangladesh, the Senior Coordinator was not required to supply details at the time, but NGO stakeholders present did. The majority of the meeting focused on reviewing the forecast and resources for response in the district as a whole; arrangements for the camps were discussed after the end of the wider committee meeting, with only the joint EOC stakeholders present.

Disaster management coordination between the subdistrict (upazila) government, the CiCs and the humanitarian actors was not activated in 2018. Although briefly outlined in the ISCG Cyclone Contingency Plan, no acute need for upazila/CiC/humanitarian coordination arose as monsoon and storm impacts were manageable at camp level with support from SMEP. Coordination did take place between the logistics sector and government counterparts on traffic control. Testing the coordination at the sub-district level was not prioritized in 2018 and remains largely untested and undocumented.

While information-sharing practices adapted to changing needs during the monsoon, ad-hoc updates and cascading practices contributed to information gaps, the consequences of which would be far more critical during a rapidly escalating cyclone situation than during the monsoon. Standard operating procedures (SOPs) for information sharing are not explicitly described in either the Cyclone or Monsoon Response Plans, and changing practices made it difficult to anticipate where and when information would be shared. While the EMPRTF/ETF mailing list and WhatsApp group, the sector

coordinator mailing list and Head of Sub-Office Group mailing list provided starting points for disseminating information, dissemination down to the camp level depended on cascading within sectors and individual agencies. E-mail cascading was mentioned by several sectors as being less effective than synchronous WhatsApp messaging; however, it was observed during the season that many actors observed less rigorous verification standards for spreading information on WhatsApp than through email. Use of WhatsApp and e-mail for cascading purposes relies on cell phone network coverage, which is not robust close to and within certain parts of the camps. Language barriers related to messages passing from English to Bangla to Rohingya, or the reverse, were also noted.



LESSONS LEARNT - SECTORAL EXPERIENCES



Protection

The Protection sector's disaster and monsoon mitigation and preparedness measures focused on support to relocation of at-risk families and raising risk awareness using information products tailored to the refugees' context and a community-based protection approach. In the first quarter of 2018, this included participation in the cross-sectoral Early Warning working group, which reviewed a) cyclone and landslide early warning options and b) core communication needed to prevent loss of life due to exposure to hazards and extreme weather. Subsequently, the Protection sector worked with other sectors and CwC actors to develop IEC materials presenting risk reduction information in an understandable and useful manner to enable the refugees to make choices to protect themselves from injury, illness and loss of life. Examples of this include information materials on how to identify signs of possible soil erosion and what to do to reinforce a shelter site, or information on flood risk coupled with WASH information about contamination. With regards to landslide and flash flood risk, a critical role played by the protection actors in the camps was assisting with the relocation of hundreds of households to safer locations, focusing on the most vulnerable persons/households with protective accompaniment.

The Protection Working Group established an internal EPR Task-Force from February 2018 on, open for participation to operational sector partners, to coordinate and strengthen preparedness and response activities. Protection outreach activities supported vulnerable individuals affected by landslides, flooding and heavy storms, including the identification of families who lost their shelters, food and belongings to find a dry place for temporary residence as well as referring them to service providers to receive core relief items and food.

At field level, Protection Emergency Response Unit teams (PERU) consisting of staff from 25 different organizations were established to ensure that protection essential services (including gender-based violence and child protection services) could continue even when weather and disaster impact disrupted regular service delivery. For visual identification and organizational visibility, the sector provides team members with coloured vests. PERU members were trained in first aid, psychological first aid and emergency and protection response. To ensure readiness for the changing seasons and compensate for staff turnover, the Protection sector organized focus group discussions to capture lessons learnt, as well as regular refresher training for the old and new PERU members. PERU members were also integrated at camp level with the existing camp focal points structure, with a reporting link.

The PERU team experience from facing a challenging operational environment and multiple demands in the monsoon indicates that the exhaustion of team members will be a challenge to respond to post-cyclone spikes in caseload. The adoption of on-foot service delivery during and after challenging weather overcomes road access issues, but increases the time and energy needed to deliver regular services, exhausting staff. Options for enhancing capacity of the PERUs include training of back-up team leaders and members and working with PERU members' direct line managers for stronger agreement on prioritization.

The planned Protection sector preparedness actions mapped in the October 2018 OCHA review include updating the sector plan, ensuring harmonization of plans with other sectors, and supporting communication with communities on sheltering with neighbours in stronger houses. The list of priority

actions includes: updating the sector plan including ensuring that the PERUs are ready to support with clear roles and responsibilities vis a vis other mobile and volunteer groups in the camps; the immediate aftermath of events; reviewing and supporting reissuing of guidance on what constitutes a stronger or weaker household shelter; provision of protection training for medical teams and working with the CwC Working Group to ensure that plans for using info hubs to support family tracing are supported by clear mapping of facilities and available, trained human resource. According to community focus groups consulted for the present exercise, their usual go-to locations for family reunification if a child is missing are the CiC offices and mosques - planning for family tracing services should take this existing practice into account.



Site Management and Site Development

At the forefront of discussions of extreme weather and disaster risk since the beginning of the influx, the Site Management and Site Development sector played a key role in facilitating successful risk reduction and preparedness planning, tracking impacts, delivering monsoon and storm response and communication with communities. The Site Management and Site Development sector covers camp level coordination and community representation, site planning and development, site improvements, and environmental issues. Based on this scope of activities, the sector coordination team and sector partners played a leading role in identifying hazards and risks, promoting camp-level preparedness planning and coordination response, establishing and rolling out a Category 1 daily incident tracking system, creating catalogues of risk-mitigating site improvement works and implementing them, preparing and developing new sites, facilitating re-location of at-risk families, as well as development of awareness messaging with the CwC working group.

To reduce risk to prevent loss of life from rain-triggered hazards, a broad array of site development and site improvement activities were implemented - this type of risk reduction contributes not only to monsoon risk reduction, but also reduces impact of cyclone-triggered rainfall. The nature of the activities ranged from minimally intrusive planting and covering hillsides with tarpaulin, via slope stabilization and drainage construction, to levelling of hills and establishing new plateaus with filler soil. A key takeaway from the 2018 landslide mitigation activities is to retain natural features and integrate bio diverse planting to the greatest extent possible. Implementing maintenance activities of roads, pathways and drainage in advance of the cyclone seasons and when depressions are detected in the Bay of Bengal should be a priority reduces cyclone-associated landslide risk.

Voluntary relocation of vulnerable households to areas less landslide and flash flood prone reduced the number of people at risk from rainfall-triggered hazards but was complex and resource-demanding. Due to limitations in the initial landslide and flash flood hazard maps, actual exposure of households had to be verified on the ground. In addition to the practical challenges related to development of new camps and the logistics of moving people and assets, the sector had to contend with household resistance to being moved. Oft-cited reasons for household resistance to relocation was anxiety about separation from neighbours and family who were not being relocated, and reluctance to move to new areas further away from access, services and markets. Lessons from the relocation process should be used to inform any discussions around temporary relocation of individuals and households to cyclone-robust structures inside and outside the camp.

Lack of clarity about the different sectors' focal point ToRs and mechanisms made preparations of camp-level plans challenging and contributed to delays in responding to monsoon- and storm-affected

households' needs. Although the key preparedness and response actions of the different sectors are briefly described in the ISCG Monsoon plan and within certain sectors' preparedness plans, detailed information about the sector focal points' duties was not available to site management support actors. For future preparedness planning, site management support actors are requesting clear and concise information about what can be expected from which actors and groups, at what time, under whose direction. Similarly, during the monsoon season site management support agencies faced challenges in getting inputs from other actors on the ground for needs assessment and reporting after incidents. Without this information, it becomes difficult to prepare of camp-level plans and hold sectoral duty-bearers accountable for delivering timely response.

The planned Site Management and Site Development sector preparedness actions mapped in the October 2018 OCHA cyclone preparedness review include updating, drilling and consolidating camp-level cyclone contingency plans, planning for emergency clearance of drainage and strengthening key infrastructure, ensuring clarity on volunteers and staff roles, responsibilities, and access to equipment after landfall, and developing a plan for safe sheltering for storm-surge exposed areas in Teknaf. The list of priority actions includes: updating and consolidating all camp-level cyclone contingency plans and testing these through camp-level drills and exercises; planning for emergency clearance of drainage; finishing repairs on bridges, planning for emergency strengthening of roads, and updating access plans with Logistics sectors; enhancing information management by formulating SOPs, emergency 3W tools and plans for utilizing aerial imagery of damaged areas; ensuring that lists of volunteers and staff who are expected to be on the ground within 72 hours are updated and that their roles and responsibilities are clear; and working with the ISCG to map local safe sheltering capacity and plan for evacuation of refugees settled in storm-surge prone areas of Teknaf such as Shamlapur.

Food Security

Food Security sector preparedness was facilitated by an internal task force and focused on ensuring continuity of food distribution despite adverse weather. Within the Food Security sector, an emergency task force was established to produce an emergency preparedness plan. The key focus for the cyclone and monsoon preparedness was the development of a helper system (i.e. system for using daily labourers to distribute food to remote areas when navigability deteriorates) to ensure continuity of food distribution, prepositioning of stocks in and near the camp, and reinforcement of food distribution and centres. Fortified Biscuits were integrated as part of the Minimum Multi-Sectoral Response Package for prepositioning in the camps for distribution to affected families. Buffer stocks for ready to eat food were stockpiled and contingency plans were developed for increasing the capacity of kitchens providing cooked food in the aftermath of an incident.

The helper system using daily labourers to transport food to remote areas or distribution points with disrupted road access is critical for ensuring access to food and should be further strengthened in 2019. The 25th July extreme monsoon rains triggered occasional activation of the helper system, and it will highly likely be activated in the case of a cyclone. Reduced navigability due to rainy conditions and debris will negatively affect access to food distribution for all, and in particular extremely vulnerable individuals and those with mobility issues, due to slippery terrain, damaged paths and longer walking times. Similarly, road disruptions have the potential to cut off vehicle-delivered supply to food distribution points. The helper system is critical part of the Food Security sector's continuity plan and should be continued and further strengthened in line with protection mainstreaming principles in 2019.

The planned Food Security sector preparedness actions mapped in the October 2018 OCHA cyclone preparedness review include updating the sector plan, prepositioning of stocks for regular distribution and emergency actions, expanding porter capacity, and sensitizing refugees on how to store food and fuel stocks. The list of priority actions includes review of the sector preparedness plans including the plans for distributing High Energy Biscuits; strengthening preparedness for hot feeding centre services including reinforcement of building, prepositioning of food and reviewing plans for establishment after hazardous events; ensuring adequate prepositioning of High Energy Biscuits upon cyclone early warning; expanding the helper system capacity with a particular views towards reaching most vulnerable and remote groups; and supporting sensitization of refugees on keeping food stocks and cooking fuel safe.

Nutrition

The nutrition sector structured its preparedness activities around sector-specific emergency levels:

- 0 Normal operations: assessing and meeting nutrition needs
 - 1 Implementing preparedness activities: supply chain, storage, prepositioning, training mobile teams
 - 2 Remediating moderate to severe impacts on individual camps such as damage to service facilities, household displacements and restricted access to beneficiaries, and readiness to provide double allotments to beneficiaries in anticipation of service interruption
 - 3 Responding to a catastrophic district-wide hazard event, e.g., direct hit of a cyclone 2 days before landfall, by closing facilities, dismantling and tying down structures, securing nutrition stocks and evacuating staff.

During the 2018 monsoon season, the June heavy rain event triggered nutrition emergency Level 2, including prepositioning of two weeks' supplies, decommissioning of facilities, and readiness of mobile teams. The sector experienced unexpectedly high impacts of access limitations on service delivery and coverage.

The nutrition sector has a well-articulated, practical sectoral preparedness plan which could serve as a template for other sectors. The plan describes expected impacts on sector operations in relation to the three ISCG categories of impact, outlines coordination SOPs and critical actions for sectoral response, contains the contact details and terms of reference for sectoral focal points, and guidelines for action and related necessary equipment. The information contained in this template makes it easy to understand and verify what can be expected by whom, at what time.

The planned Nutrition sector preparedness actions mapped in the October 2018 OCHA cyclone preparedness review includes updating the sector plan and SOPs, ensuring identification bracelets for Severe Acutely Malnutrition cases, and increasing storage capacity. The list of priority actions includes reviewing and recirculating the SOPs for closing and reopening nutrition centres; updating the general cyclone preparedness plan of the sectors; identifying less at risk facilities and increasing storage capacity if possible; and having plans for modified rations for scenarios of decreased accessibility.

Health

Health sector preparedness and response was shaped by systematic learning and analysis of conditions. Health sector preparedness is based on the assumptions that a) the impacts of the monsoon and cyclone on the population and facilities will necessitate mobile delivery of medical services to affected areas or to fill in for damaged facilities; and that b) wet conditions could lead to an outbreak of acute watery diarrhoea or other water or vector-borne disease. In 2018, the sector had a strong system of learning and

adjusting following high-intensity events; a sector simulation exercise was organized in advance of the monsoon season, while a dedicated sector lessons learnt exercise took place following the mid-June heavy rainfall episode. In response to these lessons learnt, the health and WASH sectors developed joint SOPs for monitoring and managing water-borne disease risks.

In the first half of 2018, the health sector focused on establishing mechanisms and resources for ensuring continued health service delivery under adverse weather conditions and preparedness for epidemiological management. The sector established and trained volunteers to serve on Mobile Medical Teams (MMT) to ensure continuity of primary health services in case of facility disruptions (coordinated through a disaster response unit). Buffer stocks of essential equipment and medicines were purchased, and critical medical equipment was prepositioned in the camps. To enhance preparedness for community first response to landslides, over 2,000 community health workers were trained on first aid. Additionally, preparedness for an outbreak response was prioritized, with development of guidelines for epidemiological management, establishment of isolation facilities for acute water diarrhoea, and training of community health workers in case management and referral for acute water diarrhoea. The office of the Civil Surgeon was extensively involved.

The 4-day heavy rain event in late July 2018 led to the closure of a limited number of health facilities and tested the Mobile Medical Teams. As reported in the Health sector bulletin, weather-related incidents did cause temporary closure of 37 health facilities during the monsoon. However, the maximum number of facilities closed at any one time - during the 25th July rains - was only ten. Health partners were informed of facility closures daily through a daily monsoon update email. During closures, the MMTs functioned as intended and proceeded on foot when vehicle access was not possible. As reported by ACAPS based on NPM round 11, the percentage of the Rohingya population whose access to health facilities at night is limited by terrain conditions increased from 16.8% in March to 24.3% in July. Considering the limited extent of facility closures, this deterioration is most likely caused by site deterioration affecting navigability.

Based on the experience from the 2018 monsoon, the health sector considers its monsoon response plan robust, but cyclone preparedness is threatened by health sector actors' lack of access to VHF/HF facilities. Community messaging developed in 2018 is largely considered adequate. Concerns about VHF/HF access in case of cellular network failure remains a concern and a threat to the robustness of response. Strengthening the coordination with the AFD is a key preparedness priority for the 2019 monsoon. Night time incident protocols and ambulance dispatch systems should also be further developed. Although dead body management is not the mandate of the health sector, a simple protocol for dead body management is needed so that health care providers can be trained on how manage dead bodies.

The planned sector preparedness actions mapped in the October 2018 OCHA review includes updating the sector plan, reviewing plans and lists for MMTs and their equipment, increasing cyclone proof prepositioning, and advising and on dismantling or battening down facilities. The list of priority actions includes reviewing the cyclone contingency plan including protocol for MMT's movement and coordination with the AFD; increasing prepositioning of safe water and water purification/treatment items at health facilities; ensuring plan for access to prepositioned First Aid Kits; reviewing the health volunteer lists and coordination/command mechanism for these volunteers; and advising Health Facilities on how to dismantle or batten down to protect structures and supplies as much as possible.

Water, Sanitation and Hygiene

In the first half of 2018, WASH sector worked with the Department of Public Health Engineering (DPHE) and area/camp sector focal points to reduce risk of disease outbreak, as well as prepare for events causing mass contamination of drinking water sources. Under the leadership of the DPHE and the WASH Sector Coordination unit, a WASH emergency response unit was formed at the Cox's Bazaar level with implementation and follow-up led by the Area and Camp focal agencies.

In the first half of 2018, a broad set of activities were initiated to reduce risk to WASH facilities as well as WASH-related public health risks. From the beginning, WASH sector partners actively decommissioned latrines and other facilities that fell in the high risk-floods, landslide zones. The use of sand bags and soil stabilization around latrines mitigated adverse effects of the rains and landslides. Decommissioning further included facilities that posed a public health risk due to functionality status, siting and proximity to dwellings, and contamination risk to water sources. Extensive latrines desludging ensured that filled up latrines were emptied before the heavy rains to reduce potential to overflow and subsequent contamination risks. Routine sweeps were carried out to monitor functionality and volume of pits which determined the need for desludging of latrines. The use of transfer tanks allowed for increased capacity to empty and move sludge and black water to management sites. Emergency trainings conducted in preparation for and during the heavy rains include on-site fecal sludge management, lime and barrel use for fecal sludge management in floods, and chlorine dosing at water points. Household water treatment ensured hotspot communities were engaged and trained in the use of aqua tabs. Changing behaviour was acknowledged as a major challenge, and some sector partners suggest stronger post-distribution monitoring of materials to ensure proper use.

Road access and navigability issues experienced during the monsoon were managed through use of on-foot delivery and stockpiling. When road access and navigation became challenging in 2018, WASH sector partners involved in construction of emergency facilities worked with casual workers and laborers to move materials in hard-to-access areas of the camps. Involvement of the refugee population in the exercise was key. Stockpiling of supplies including hygiene and top up kits, water purification tablets (aqua tabs), chlorine, lime, bottled water and emergency latrines/bathing facilities materials allowed for timely response when required. Area Focal Agencies led the stock pile procurement and prepositioning in selected storage facilities in and around camps.

The sector strategy and guidance allowed for a mixed response of the unified agreed latrine designs and emergency latrines in the event of floods, mass displacement and cyclone. Working with the DPHE, investment was made for mobile water treatment trucks and standby water bowsers for trucking water in the event of mass displacement.

While major disease outbreak did not occur in 2018, and sector provision was not disrupted by the monsoon, rain and hazard impacts did impact the quality of WASH facilities available to the refugees. As reported by the ACAPS on the basis of ISCG situation reports, over 500 latrines were damaged during the heavy rains from 24th to 28th July, of which 300 underwent repairs and 40 were decommissioned. Based on NPM round 11, the ACAPS report further reports that water and latrine access remained almost unchanged in July in comparison to March. Some NGOs interviewed for this exercise, however, reported that households whose usual latrine had been damaged often accessed other household clusters' latrines - in some cases causing conflicts requiring arbitration.

The planned WASH sector cyclone preparedness actions mapped in the October 2018 OCHA cyclone preparedness review includes updating the sector contingency plan and distribution plans,

decommissioning latrines in high-risk areas, pre-positioning, and desludging. The list of priority actions includes reviewing the cyclone contingency plan including repositioning plans and distribution plans for aquatabs and fresh-water; decommissioning latrines in high-risk areas as per sector guidelines and pre-positioning lime for treatment of overflowing latrines or pits; de-sludging latrines; prepositioning safe water and water purification/treatment items for health facilities; and considering an assessment of CGI sheet infrastructure.



Emergency Telecommunication Sector

The planned sector preparedness actions mapped in the October 2018 OCHA cyclone preparedness review includes continuing ongoing efforts for updating the sector contingency plan, expanding and upgrading the district VHF network, and establishing protocols for radio/equipment sharing to ensure that critical partners have access. ETS engagement in cyclone preparedness planning in 2018 focused on strengthening of the VHF/HF radio network against a high wind scenario. The sector upgraded VHF repeaters at two sites; as of February 2019, the UNDSS radio room has clear communications with all camps. The sector is also planning training for radio room operators and staff of critical response actors to strengthen preparedness.

Concerns remain about the general reliance on cellular networks for emergency response and coordination purposes and strong VHF/HF radio capacity is needed to mitigate these risks. The information cascading and reporting SOPs of many stakeholders rely on WhatsApp and cell phone calls both in normal and response situations. Lack of access to VHF/HF radio resources by NGOs severely limits emergency response coordination when cellular networks have failed or are blocked. This is a major vulnerability since a cyclone may take down network towers causing general network failure and even when cell networks return to service, they may still be weak and unreliable. A widespread emergency is likely to overtax network capacity with voice and data traffic.

Critically important agencies and sectors such as Health do not have sufficient radio capacity. National regulations prohibit NGO use of VHF and HF radios so protocols for message forwarding on their behalf need to be agreed and drilled. The ETS approached the AFD in November 2018 about establishing information points where NGOs and other partners can use AFD communication infrastructure, but no agreement has been made to date. Arrangements for use of radio and other communication tools in the immediate aftermath of the cyclone should be clarified with authorities.



Logistics

Procurement and installation of additional warehousing by the Logistics sector enabled prepositioning of agreed Minimum Multi-Sectoral Response packages, but the efficiency of this investment depends on the accuracy of risk scenarios underpinning planning. As a support sector providing common services, the engagement of the Logistics sector in the preparedness planning in the first half of 2018 was crucial in enabling other sectors to implement contingency measures. One observation from the Logistics sector regarding the 2018 experience is that other sector's planning scenario affects the demand for storage services. Reliable, well-founded planning scenarios can help optimize use of storage space and reduce unnecessary costs.

Unless there is stronger enforcement of weight limitations and traffic control measures, vehicle congestion and exacerbation of hazard-induced damage are likely to be major issues in a post-cyclone

scenario. During the initial rains around 10th June, it was announced that certain arterial and internal roads in Kutupalong camp were closed, prompting clarification of lines of responsibility and authority. Working with civil and military authorities, the sector communicated with military engineering, SMEP and RRRC to advise on limitations and communicated these advised limitations to the humanitarian community. However, there was only self-enforcement these limitations during the 2018 monsoon. Work on traffic management and weight/size limitations was initiated in 2018 and will continue in 2019, including the construction of guard huts to support traffic management within the camp.

With conditions changing rapidly during episodes of heavy or sustained rains, precise communications from the Logistics sector regarding physical road access constraints are crucial to guide stakeholders' actions. During the mid-June rain event, there was confusion among actors regarding a) whether vehicle access restrictions applied to emergency vehicles, b) whether access constraints applied to vehicles or to on-foot traffic as well, and c) whether access constraints were inside the camps or on arterial roads leading to the camps. Agreement was reached that communications about access should continue to be specific with regards to locations and nature of constraints and should always be forwarded in their entirety when cascaded within the humanitarian coordination structure.

The planned Logistics sector cyclone preparedness actions mapped in the October 2018 OCHA cyclone preparedness review includes development of an access control/traffic management plan and access maps which identify vulnerable locations for blockages, review robustness of logistics bases and options for locating temporary emergency operations centres in them, and updating maps of stockpiles and storage locations. The list of priority actions includes continuing and finalizing access control/traffic management plans with government; working with Site Management and Site Development sector to develop consolidated access maps showing the most vulnerable locations for traffic blockages; reviewing the ability of the logistics bases to withstand high winds and whether they can function as locations for temporary emergency operations centres; and updating maps of stockpiles and storage locations with particular attention to containers and other hardened storage structures.

Shelter

The fragility of the bamboo-, CI sheet-, and tarpaulin-based built environment of the camps against wind hazard spurred early and sustained Shelter sector engagement in monsoon and cyclone risk management beginning from January 2018. Recognising the fragility of not just household shelters but also facilities, the Shelter sector conducted extensive research and development into robustness of different shelter designs throughout the pre-monsoon period. The Shelter sector also participated in the inter-sectoral Early Warning working group which worked to review early warning options and core communication needed to prevent loss of life due to exposure to hazards and extreme weather. The preparedness and response approach of the sector, approved by the Shelter Strategic Advisory Group, also included key advocacy messages for dialogue with government and other stakeholders. Shelter upgrades were accelerated to facilitate improvement of shelter quality before the monsoon.

Recognizing the limitations of the refugees' shelters to withstand hazard impacts, shelter sector preparedness focused on readiness for replacement of materials so refugees could repair their shelters if affected. Emergency Shelter kits were included in the Minimum Multi-Sector Response Packages provided to affected families and were accorded priority for pre-positioning within the camp. Several times during the year, training and refresher sessions on Shelter Emergency Response and rapid damage verification were provided to sector partner staff.

Despite intense risk reduction and preparedness efforts by the sector, the baseline fragility of the permitted shelter materials proved unable to withstand regular seasonal weather in 2018 - affecting refugees' well-being and perceptions of safety. As reported by the ACAPS in its report on changes in the camp during the monsoon, shelter safety concerns rose at the primary safety concern of 30.5% of the refugees in March, to being one of three primary safety concerns of 62.6% of the population in July. An increase in percentage of refugees concerned about landslide risk to shelters was also observed, up from 6.2% in March to 22.7% in July. Following the initial rains, it was also mentioned in lessons learnt discussions that families were hesitant to report shelter damage due to fears of being relocated, even if staying in a known area of high risk.

The planned Shelter sector cyclone preparedness actions mapped in the October 2018 OCHA cyclone preparedness review includes updating the sector contingency plan, emergency shelter kit distribution plans before and after cyclone, supporting replacement or strengthening existing CGI sheet structures, reinforcing communication on how to secure and upgrade shelters properly, and ensuring informed coordination with SMS agencies and CiCs. The list of priority actions includes reviewing and updating the sector contingency plan; support SMS agencies and CiCs to communicate about appropriate use in different storm conditions; review distribution plans for Emergency Shelter Kits, Tie-Down Kits, and plans for shelter improvements in exposed areas; review post-disaster emergency shelter kit distribution plans, including distribution plans and portering; work with appropriate partners to complete mapping of cyclone shelters in Teknaf and their capacity; supporting the replacement, dismantling or reinforcement of existing CGI sheet structures; and support re-distribution of IEC materials on how to secure shelters immediately before a cyclone.

Additionally, there is an acute need to strengthen communications with communities' efforts on shelter to complement structural interventions. Spot-checks and inspections of use of different strengthening kits show that shelter owners do not necessarily understand how to use the kits properly, making the kits less effective. There is agreement in the sector that for 2019, there needs to be an increased focus on complementing hardware with software - guidance, training and IEC. This would also be an important response to the feedback from the refugees on extreme weather and monsoon events and issue - documented through What Matters? Bulletins, Internews snapshots, NPM, and confirmed again in FGDs conducted for this exercise - in which questions and concerns about shelter support, shelter strengthening and shelter upgrading consistently show up as a central concern.

Education

Education sector preparations in 2018 focused on minimizing monsoon impact and secondary impacts such as displacement of households on children's access to learning. Preparedness activities focused on developing SOPs for temporary closure of learning spaces during adverse weather, mainstreaming of disaster and climate information in learning spaces, identification and reinforcement/closure of particularly vulnerable learning spaces, and development of protocols for which spaces could or could not be used for temporary sheltering of displaced households.

In response to monsoon impacts and temporary sheltering of monsoon-affected households in learning spaces, tracking of usable learning spaces became a priority for the sector. Altogether, 180 learning centres were damaged by landslides or flooding. The reduction in available learning spaces during the season was recognised as a big challenge, and eventually led to the development of a harmonised methodology and dataset for the facility tracking under the ISCG information management working group.

The planned Education sector cyclone preparedness actions mapped in the October 2018 OCHA cyclone preparedness review includes updating the sector contingency plan including SOPs for closing learning centres and learning spaces when conditions require, strengthening communication with CiCs, SMS and community members on what emergency uses of the learning centres and spaces are safe, mainstreaming DRM communication, and prepositioning. The list of priority actions includes reviewing and updating the sector contingency plan; revising and redistributing SOPs for the closure of learning centres and spaces and protection of assets therein; coordinating with CiCs and SMS partners to clarify that learning centres and spaces are not safe for use as cyclone shelters and for how long and under what condition they can be used as temporary post-disaster shelters for affected people; utilize learning activities to disseminate DRR messages including family tracing and reunification services; and prepositioning supplies for re-establishing learning centres and spaces following a cyclone. The sector is also collaborating with other sectors and government partners on designs for more robust facilities.

Good practice: Inter-sectoral collaboration to solve preparedness challenges

- Protection sector, Shelter sector, Site Management and Site Development Sector and the CwC Working Group worked together to identify information needs, options and barriers for cyclone and landslide early warning in the camps in the first quarter of 2018.
- Protection sector and Health sector collaborated to ensure protection mainstreaming in medical first response. Protection Officers were embedded into the Medical Mobile Teams, taking part to their preparedness training, facilitating referrals for protection cases, including child protection and GBV, and establishing a strong inter-Sector collaboration and an integrated response mechanism
- The Health sector and the Shelter sector collaborated in advance of the 2018 monsoon to strengthen and reinforce health facilities
- WASH sector and Health sector lessons learnt exercises took place following the mid-June heavy rainfall episode. In response to these lessons learnt, the sectors developed joint SOPs for monitoring and managing water-borne disease risks and conducted simulation exercises with hygiene promotes.
- Shelter sector worked closely with the Health, Education, and Protection sectors to support mapping, decommissioning and strengthening of facilities within the camps.

...but critical inter-sectoral gaps remain:

The issue of dead body management in the event of mass casualties has been on the preparedness agenda for most of 2018 without reaching a resolution. While there is a national guideline on dead body management, it does not cover all necessary bases for mass casualties in the Rohingya camps. Involving health, WASH legal, site and religious concerns, the issue of dead body management does not sit easily under a single sector, and in the absence of consistent follow-up from ISCG, discussions have largely not crystallized into concrete plans. While Health sectors has procedures for infectious DBM and has prepositioned bags and tags, arrangements for identification, informing next of kin, issuing death certificates, assigning burial sites and transfer thereto are unresolved.



RECOMMENDATIONS FOR ENHANCING CYCLONE PREPAREDNESS

While simultaneously dealing with the influx of and needs over 700,000 refugees into a small area, government, host community, and humanitarian stakeholders' efforts have resulted in the establishment of a dedicated disaster response mechanism, extension of cyclone early warning, and significant risk mitigation in the camps. However, significant vulnerability remains and preparedness plans at all levels must be strengthened to ensure that needs-based first response and humanitarian aid will be delivered in a timely manner to affected populations.

Risk Monitoring and Risk Reduction

There are no grace periods between seasons to focus on preparedness only - strengthening preparedness for cyclone is a year-round concern and must continue throughout with the Joint Response Plan cycle, dry-season mitigation and monsoon response. The experience from 2018 was that natural hazard impacts began to affect the population at risk from late April onwards, with spikes during isolated May storms; plateauing and isolated peaks during the monsoon; and generally declining from September onwards - but with occasional spikes during Cyclone Titli in October and again with the unexpectedly late Cyclone Phetai in December. Management of the monsoon season was demanding on all stakeholders and government and individual sectors and agencies/NGOs did continue internal work on specific DRR issues throughout the year. However, the pause in coordinated cyclone preparedness planning between June and September 2018 and again between November 2018 and late January 2019 has led to less advance in humanitarian cyclone preparedness planning for the Rohingya camps as a whole than could otherwise have been achieved.

Unseasonal, atypical events such as mid-December cyclones or February Nor'westers do happen - ISCG and agency risk management strategies should include ensuring that staff are informed about credible sources and that internal forecast monitoring protocols are in place. While Bangladesh historically has experienced six distinct seasons with associated hazards - leading to terms such as cyclone season and rainy season - unseasonal weather does occur. In this local context, individual agencies and NGOs can strengthen continuity of services and risk management by ensuring that focal points for monitoring reliable weather forecast sources and internally cascading weather information are in place, drilled and known to staff and partners. Likewise, ISCG should establish and make known protocols for monitoring and cascading extreme weather warnings through sectors and heads of agencies. International staff in leadership and decision-making positions should be briefed on entry on duty about reliable sources and protocols, regardless of time of year they join the response. In 2018, the IRI/NASA COMPAS project supported response stakeholders to advocate with BMD for scaled-down forecast products for Ukhia and Teknaf, and efforts continue to work with BMD on this matter in 2019.

To ensure robust, timely cascading of reliable cyclone monitoring information to actors on the ground, the UN should advocate for the inclusion of the ISCG Senior Coordinator in the Bangladesh Meteorological Department special weather bulletin distribution list. Because a situation such as the Rohingya influx was not anticipated in the Standing Orders on Disaster, the ISCG Senior Coordinator is not on the direct recipient list of Bangladesh Meteorological Department bulletins and marine warnings. The recipient lists have historically included government departments, concerned districts's Deputy Commissioners, TV channels, the UN Resident Coordinator's Office, and even particularly large disaster

management programmes such as the CDMP. Considering the particular vulnerability of the Rohingya, there are strong arguments for inclusion of the ISCG Senior Coordinator on the direct recipient list.

The lack of safe cyclone sheltering options leaves the Rohingya extremely exposed to risk of injury and death as well as shelter and asset loss due to wind impacts. Coordination between humanitarian actors and the government and development actors now planning for construction of multi-purpose cyclone shelters in the camps will help manage risks. The refugees are at present extremely vulnerable to cyclone impacts due to high levels of baseline vulnerability combined with exposure to cyclonic winds without access to safe sheltering options. This vulnerability is compounded when considering expected delays in reaching all affected households with first response and aid in the immediate aftermath of a cyclone. Experience from 2018 shows that a large number of households in most-exposed locations are vulnerable to shelter and asset loss even from regular summer storms and monsoon rains. While development actors have shared their intentions to support government to construct cyclone shelters in the camp, the process will take time and the facilities will require space. Close coordination is required to enable site planning, service planning, and that first response capacity remains adequately high until constructions are completed.

Because of the degree of risk to the population and the long lead time before safe cyclone sheltering options will be in place in the camps, it is critical to communicate with the community down to the sub-block level about cyclone risk, forecasts, preparedness plans, and their options must be addressed as a critical priority to enable households to make informed decisions. Throughout 2018, the feedback of the Rohingya in individual surveys has consistently been that dominated by questions and feeling under-informed. During and immediately after cyclone, there will be limited support available to the population at risk. In this context, it should be considered a critical imperative to strengthen communication, feedback mechanisms, and systematic monitoring of the refugees' knowledge and access to information on weather and disaster-related issues, including forecasts and the early warning system. A Knowledge, Attitudes and Practices survey could help identify the most critical gaps and create a baseline against which improvements can be measured. The range of communication methods need to be expanded to ensure that information is disseminated to all segments of the camp population, including women and children.

Experiences from collaboration efforts such as the 2017/2018 diphtheria campaign and the 2018 expansion of the CPP should be applied to initiate and sustain collective communication efforts on cyclone risk and preparedness. Strong CwC working group guidance on process, sector ownership of messages, and commitment from a large number of organizations and agencies to spread messages through regular operations enabled successful, large scale communication on diphtheria risk. Broad collaboration and consistent engagement in common lessons learning between national government, the RRRC and CiC's, UN, NGOs, host community members, and Rohingya community members have enabled rapid expansion and local adjustment of the CPP in the camps. Similar approaches should be applied to strengthen Rohingya's access to information on weather and disaster risk, building on practical information and communication developed in 2018.

Training and clear assignment of Rohingya and host community men and women for roles in cyclone risk reduction, management and response will increase community resilience, but efforts should be coordinated and - where applicable - lines of command need to be clear and recorded at camp level. In acknowledgement of the vulnerability and capacity of the communities at risk in Ukhia and Teknaf, many actors have invested in training Rohingya and host community volunteers for disaster-related purposes. While an overview of different groups and overarching agreements on training content is useful at the

response level, the training plans, volunteer lists and reporting lines of volunteer groups must most importantly be recorded in camp-level preparedness plans accessible to the CiC and supporting agencies. Plans for new training, refreshment and regular meetings of volunteers should be recorded. Finally, it should also be noted that not all disaster-related training of community members needs necessarily lead to formal volunteer responsibilities. For example, providing first aid training to children and women observing purda strengthens the resilience of households, even if they are not formal volunteers. However, communication on training purpose, curriculum and intended purpose should be clearly stated and communicated to relevant stakeholders including the training participants.

It is critical to utilize all currently permissible solutions for increasing structural robustness of shelters and facilities - short and mid-term - to reduce risk of death and injury. The fragile structures in the camp contribute to create risk of acute trauma from flying objects while offering no safe sheltering. Advocacy and resource mobilization for structural shelter and facility improvement is vital. However, stop-gap solutions such as Tie-Down Kits should be utilized at the same time as mid-term processes of transitional shelter assistance, mid-term shelter construction, and cyclone shelter construction are still being planned or ongoing. Structural interventions need to be complemented by non-structural support such as training, provision of IEC materials and post-hoc inspections of owner-driver improvements. Enforcement of minimum standards for the design and construction of community facilities is critical to lower risk.

If pursued, planning for temporary relocation of extremely vulnerable individuals to cyclone-robust structures inside or outside the camp should only be pursued if protection risks are managed, efforts are coordinated, agreed with government and documented. There are significant protection concerns about removal of extremely vulnerable individuals (EVIs) from their homes, even for a short period of time. Removal of EVIs from their support networks and families risks doing harm. While there is general consensus among humanitarian actors that the evacuation of extremely vulnerable individuals to robust structures inside the camp (such as CiC offices) or outside the camp (such as local cyclone shelters) should be considered, mitigation tactics for managing these risks need to be put in place before pursuing this option. Relocation should not be undertaken without clear plans, safeguards and prior communication with the EVIs, caregivers and the community. There are currently no approved agreements in place between government and the humanitarian community. Efforts to this end should not be pursued agency by agency in 2019; dialogue with Government counterparts at district and upazila level on this issue should be overseen by the Senior Coordinator to ensure a coordinated, risk-sensitive effort. Data on sheltering capacity of alternate locations is needed to support any decision-making on this issue.

Preparedness for effective response

ISCG must pursue further dialogue with government counterparts to agree and document how the humanitarian community as a collective will be represented, report on needs and situation, and respond to host community requests as part of the government-led disaster response. Agreement on automatic participation in the Deputy Commissioner-led EOC and District Disaster Management Committee meetings by ISCG, the RRRC and AFD was an important milestone reached in 2018. However, exact protocols and SOPs should be formulated for how collaboration and coordination between the ISCG-coordinated partners and the EOC will be maintained at all stages of a cyclone. This applies to both the district and subdistrict level.

Considerable uncertainty about the exact scenario for casualties, fatalities, loss and damage still remains, and rigorous modelling of most likely and worst-case scenario should be undertaken and regularly updated in response to changes in settlement patterns. Sectors, agencies and NGOs needs

scenarios to enable effective human resource management, stockpiling and pre-positioning. While a cyclone impact modelling exercise is being initiated for Ukhia and Teknaf to update the planning scenario for the most likely and worst-case scenario cyclone, the exercise will only address the present settlement pattern. If there are any major changes in settlement pattern or location of the Rohingya, the exercise should be repeated. The same scenarios should be consistently applied at all levels of preparedness planning.

All agencies and NGOs should share their plans for forward prepositioning of staff, communications equipment and tools with ISCG and sectors to enable a review of what will be the resources on the ground in the first 72 hours after a cyclone - and ISCG tracking of key prepositioned stocks be resumed.

At present, the majority of humanitarian stakeholders rely on daily travel from Cox's Bazaar town to the Rohingya camps in Ukhia and Teknaf to deliver services and facilitate relief distributions. The resumption of regular or scaled-up volume of staff travel to the field following a cyclone is likely to be delayed due to security assessment and road access disruptions. Road access disruptions are also likely to delay delivery of additional relief distributions from other locations in the region. Prepositioned staff, tools and communications equipment will be crucial to initiate response in the first 24 hours after landfall. Having a consolidated overview of what resources will be on the ground is important to ensure planning is realistic in terms of not just response, but also coordination, needs assessment and response delivery functions such as sectoral focal point and mobile response team purposes.

Knowledge and information management practices on disaster and extreme weather management and preparedness must be strengthened to mitigate the effects of planned and unplanned turnover of staff.

Preparedness planning documents (including key relevant points from UNDSS plans for cyclone), relevant maps and planning figures must be made available on the existing platforms for humanitarian document and data, to enable easy cross-referencing. An overview of the document set should be made for quick overview and printed hard copies must be kept available. Anticipating turnover in critical positions, ISCG should recirculate the comprehensive set of plans with publishing dates to government counterparts, heads of sub-offices, the NGO platform and sector coordinators at quarterly basis to eliminate confusion about which versions are current. Previous versions of the plan contained guidance on reliable sources of forecast and warning information, this could be reinstated. ISCG, sectors, agencies and organizations should review internal information management practices for cyclone preparedness-related information and data. General improvements in the quality of information on the Rohingya population and response - such as sufficiently disaggregated data, updated 4Ws and technically assured site and hazard maps - could improve the quality of preparedness planning and decision-making further.

Following review of camp-level plans, agencies and NGO's plans and available government plans, ISCG should advise the Heads of Sub-Office Group and Senior Executive Group in Dhaka about whether a temporary shift in modality for district-level Rohingya response coordination is necessary to enable emergency response to cyclone.

The established routines for coordination and decision-making in the Rohingya response rely on concentration of the refugee population in the established camps, relative ease of travel between locations, a functioning cell phone network, a relatively low and stable caseload of people in acute need, no humanitarian response requirements in other locations in the district, and oversight by the RRRC. This has enabled relatively predictable work schedules, a regular schedule of coordination meetings at Cox's Bazaar and upazila level, and relatively little regulation of contact with designated government counterparts. In the event of a cyclone these conditions are all likely to temporarily change and humanitarian support to the cyclone response must be delivered under the oversight of the Deputy Commissioner. A more explicit, agreed upon and drilled protocol for triggering,

executing and ending an emergency modality/phasing of coordination can enable coordinated use of resources more effective delivery of response following a cyclone. Effective and transparent criteria for triaging of needs should be documented.

Emergency phase triggers, accountable stakeholders, and arrangements for information cascading, decision-making should be described through clear standard operating procedures in the ISCG cyclone contingency plan, sector plans, and camp-level plans. The existing ISCG cyclone and monsoon preparedness plans already describe three categories of incidents. The standard operating procedures for category 3 - a cyclone scenario - should be updated in line with agreements reach on emergency phasing. To align plans on different levels, information about the emergency phase should be described consistently in the ISCG, sectoral and camp plans.

Already known but unresolved critical inter-sectoral and sectoral issues should be resolved as soon as possible. This includes: agreement on standing operating procedures for camp and subdistrict administration response coordination; agreement and readiness to implement dead body management protocols; development and readiness for implementation of a post-cyclone road access/traffic control plan camp-adjacent roads; electronic telecommunications capacity and access; agreement and plans for host community post-disaster needs assessment; and arrangements for medical referrals. The suggested solutions should be tested through field-level drills.

The ISCG sectors should be provided support to ensure that sectoral contingency plans follow a harmonized template, provide necessary information for planning at camp and upazila level, and are updated regularly. While all sectors have developed basic cyclone preparedness plans in 2018, additional information is required to enable camp-level planning and upazila-wide response. Cyclone preparedness planning comes in addition to the refugee response workload of the sectors, including day to day operations, coordination and reporting. Technical support should be provided to support effective harmonization with other ISCG and HCTT planning documents and regular updating to reflect changes.

Camp-level government officials and their Site Management Support partners should be provided support and training to ensure that camp levels cyclone contingency plans follow harmonized templates, address critical issues, assign realistic roles and responsibilities, and take into account catchment areas of multi-camp facilities. Disaster preparedness planning is not necessarily a core competency of assigned officials and SMS staff, and the Rohingya camps are a nationally unique disaster context. The existing camp cyclone preparedness plans vary from camp to camp and are not all informed by actual agency, NGO and SMEP plans for field presence in the first 24 and 72 hours after cyclone landfall. Technical support should be provided to support effective harmonization of camp-level plans and overarching plans for coordination with subdistrict administration and armed forces, ensure documentation of camp-level stakeholders roles and accountable responsibilities, identify gaps in capacity and regular updating to reflect changes. Formation of camp Disaster Management Committees headed by the CiCs and mirroring those at the union level in the host community has been mentioned by some stakeholders as a possible supporting structure, and should be considered.

Plans and coordination mechanisms should be tested and drilled to eliminate confusion regarding who does what how and when before a disaster happens. Training, drills and simulations are essential for inculcating emergency response procedures in humanitarian actors across sectors and agencies, and vertically in chains of command or reporting. The value of frequent drilling has been demonstrated by tangible improvements in CPP early warning and Site Management and Site Development/NPM-facilitated Category 1 incident report in 2018. Regular exercising of critical plans and mechanisms with relevant

government and national-level humanitarian stakeholders is essential, especially in a humanitarian response context which has been characterized by frequent staff and leadership turnover.

The division of responsibility between the Humanitarian Coordination Task Team (HCTT) clusters and the ISCG sectors for response in Cox's Bazaar district must be operationalized at a greater level of detail. Although both based on IASC-equivalent coordination model based on thematically clustered stakeholders, the HCTT clusters and ISCG sectors operationalize their responsibilities and response in different ways. The details of how the ISCG secretariat and sectors will coordinate humanitarian actors' cyclone response in host communities must be worked out in collaboration between HCTT and ISCG, and sectors and their corresponding national clusters, documented and circulated broadly to minimize confusion. This includes arrangements for Joint Needs Assessment.

Annex 1: ToR 2018 Cyclone Preparedness Lessons Learnt Exercise

Background

Having been requested by the ISCG Heads of Sub-Office Group to serve as technical advisor to ISCG on disaster risk reduction-related issues, UNDP maintains a Cox's Bazaar-based DRR Technical Advisory Unit to support the ISCG decision-making fora and secretariat to support better extreme weather, seasonal variation and disaster risk management in the refugee response. BDRCS/American Red Cross/IFRC is supporting the CPP, RRRC office and MoDMR to expand cyclone early warning and disaster management in the Rohingya camps and settlements.

As staff turnover has emerged as one of the key challenges to managing and progressing on extreme weather and disaster risk management within the response, capturing and collecting lessons learnt for future reference is key. UNDP in collaboration with BDRCS/American Red Cross/IFRC will prepare a Cyclone Preparedness Lessons Learnt jointly.

As part of its ECHO-funded support to ISCG, UNDP has already conducted one round of lessons learnt reviews regarding the spring cyclone season, the findings of which has fed into the September 2018 cyclone preparedness review, review of the contingency plans and the JRP 2019 process. A second round of lessons learnt interviews was conducted in October 2018 focusing on the monsoon and Cyclone Titli. BDRCS/American Red Cross/IFRC have already conducted lessons learnt discussions with key CPP partners following instances of cyclones and depressions in the Bay of Bengal in 2018. As the 2018 two cyclone seasons [April-June and October-December] has now come to an end, analysis of the existing interview materials and supplementary interview on specific topics are being planned, with the end product to be a Cyclone Preparedness Lessons Learnt report. Moreover, this paper will also seek to incorporate GoB agencies lessons learnt in response to cyclone preparedness apropos of humanitarian crisis.

Purpose

The 2018 Cyclone Preparedness Lessons Learnt activity aims to capture knowledge, experience and preparedness for response by humanitarian actors, CPP, RRRC and MoDMR for the impacts in the Rohingya refugee camps. This is an important knowledge management action that sustains community memory of successful and failed practices for the benefit of humanitarian actors and GoB agencies who follow them in the next cyclone seasons.

Methodology

The lessons learnt will be collected through KIIs and document review, interviews with government stakeholders in preparedness and early warning system as well as FGDs on selected topics. Key points noted will be shared back to KIIs after the interview, while the draft report will be shared to the sector coordinator group, MoDMR, RRRC and CPP before finalization. The exercise and write-up will be facilitated by two national and two international staff in UNDP Cox's Bazaar's DRR Technical Advisory Unit and a team of five staff from BDRCS, IFRC and AmCross.

Key Informants

GoB officials (MoDMR, RRRC, CiC's, CPP officials), Humanitarian sector coordinators, ISCG secretariat, key operational UN agencies, IFRC and partner national societies, NPM, UNDSS, REACH, ECHO, DFID, BBC Media, TwB.

Timeline

The lessons learnt exercise and report is expected to be completed by mid-February 2019.

Contact

Ms. Cathrine Tranberg Haarsaker, cathrine.haarsaker@undp.org, UNDP Cox's Bazaar

Mr. Saad Mahmood, saad.mahmood@undp.org, UNDP Cox's Bazaar

Mr. Achala Navaratne, Achala.Navaratne@redcross.org, American Red Cross Dhaka

Ms. Resty Talamayan, restylou.talamayan@redcross.org, American Red Cross Cox's Bazaar

Annex 2: KII Guide Aug 2018 - Cyclone Preparedness Lessons Learnt

Thank you for taking the time to let us interview you. This should not take more than 30 minutes of your time, unless there are specific topics which you would like to go in-depth on which are key to your sector.

We're working with a definition of the spring cyclone season as lasting roughly from mid-April till mid-June.

As there was no cyclone during the 2018 Spring Cyclone season, this interview will focus on the preparedness work, the two occasions on which the CPP flags were raised in the camps (rightly so on 29th May; wrongfully on 9th June), and other weather phenomena associated with this season, such as thunderstorms, wind bursts and high temperatures. This lessons learnt review is meant to result in a short report to be shared with both the humanitarian community and the government.

1. Could you please state your designation, the duration of your mission in Cox's Bazaar so far, and your role in the natural disaster preparedness and response work of your sector/agency.
2. As far as you are aware, when did your sector/agency first begin preparations for the 2018 spring cyclone season? Was this too early or too late? (If not mentioned in answer to the above: As far as you are aware, was your sector/agency consulted in the development of the December 2017 draft of the cyclone contingency plan?)
3. What were the key actions taken and processes initiated within your sector/agency in preparation for the 2018 spring cyclone season? (If it is unclear whether the respondent is talking about cyclone or monsoon preparedness, ask follow-up question.) Were these actions and processes completed by mid-April? If yes, what enabled this; if no, what were the barriers; if mixed, what was what?
4. Which intersectoral actions, platforms and processes did your sector engage in, in preparedness for the 2018 spring cyclone season? In your opinion, which of these intersectoral a/p/ps were productive, and which were not? Why?
5. How did the workload associated with the cyclone preparedness affect other processes and work in your sector/agency?
6. Was your agency/sector's work or outcomes for the Rohingya affected by any of the weather phenomena associated with the season - thunder storms, high temperatures, and/or gusts of high winds? How would you change planning for spring 2019 considering this experience with regular weather conditions during this season?
7. As mentioned, the CPP flags were raised twice during the season. In your opinion, what actions need to be taken to ensure that both Rohingya and humanitarian agencies are fully aware of the cyclone early warning system? What can your agency/sector do to support this?
8. In your opinion, what are the most important processes and actions which need to be followed up on to ensure adequate preparedness for the Autumn 2018 cyclone season? Are there any processes/actions which should be reconsidered or pursued differently?
9. What - if any - support does your sector/agency require from the ISCG Emergency Coordination Cell,

Heads of Sub-office and/or disaster management technical specialists to push forward on these actions and processes?

10. Is there something I have not asked you about, which you would like to highlight or stress in terms of lessons learnt from preparedness for cyclone and operations during the cyclone season? Are there any specific agencies or NGOs in your sector who you believe should be interviewed as part of this process.

This last question is not related to the cyclone preparedness work, but since I have you here I would like to ask if you have any feedback on how UNDP can improve its disaster technical advice services to the humanitarian community. This answer will be taken down on this separate sheet and can be done anonymously if you would like it to; we welcome and value all constructive criticism and suggestions.

11. Do you have any feedback on what UNDP could have done better or differently to support the humanitarian community, your sector/agency in preparedness for the 2018 spring cyclone season?

Thank you. Once interviews are done, key lessons learnt will be presented to the EMPRTF, ISCG, the meeting of the sectoral coordinators, and Heads of Sub-Office meeting. The final report will be made available in the beginning of August.

Annex 3: KII, Cyclone preparedness lessons learnt, Aug 2018

CwC coordinator interim (WHO),	Carolyn Davis
Education sector co-coordinator,	Jacklin Rebeiro
ETS Coordinator,	Min Sun
ETS coordinator interim,	Haider Baqir
Former ETS coordinator,	Michael Dirksen
Food Security coordinator interim (FAO),	Peter Agnew
GBV sector coordinator,	Saba Zariv
Health sector IMO,	Patricia Thornhill
Health sector IMO,	Rosie Jeffries
Logistics sector coordinator,	Lucy Styles
Nutrition sector coordinator,	Ingo Neu
Protection sector officer (coordination),	Maria Ferrante
Former protections sector officer,	Hanane Fellahi
Shelter sector coordinator,	Hani Chatila
Former Shelter sector coordinator,	Victoria Bannon
Site Management sector co-coordinator,	Kate Holland
WASH sector coordinator,	Bob Bongomin
Former WASH sector co-coordinator,	Ewan Chainey
American Red Cross,	Achala Navaratne, Harun-al Rashid
BBC Media Action,	Shafaat Ahmed
IOM Communications with Communities,	Virginia Moncrieff
IOM Needs and Population Monitoring,	Benedetta Cordaro
IOM Site Management,	Clementine Favier
ISCG Field Coordination team,	Naim Talukder
OCHA Bangkok,	Daniel Gilman
UNHCR Site Management,	Paer Westling
Translators Without Borders,	Ben K. Noble
WFP,	Sudip Joshi

Annex 4: KII Guide, Monsoon lessons learnt, Oct 2018

Thank you for taking the time to let us interview you. This should not take more than 30 minutes of your time, unless there are specific topics which you would like to go in-depth on which are key to your sector.

We're working with a definition of the monsoon season as lasting roughly from 15th June to 7th October (when the BMD website announced that the monsoon had withdrawn from Bangladesh).

The interview will focus on preparedness and response efforts in humanitarian sectors with particular attention to episodes of heavy rain: e.g., July 24 - 26.

This lesson learnt review is meant to result in a short report to be shared with both the humanitarian community and the government.

[Show the ToR, if not already seen. Also show the ISCG monsoon lessons learned if relevant.]

Please state your designation, the duration of your mission in Cox's Bazaar so far, and your role in the natural disaster response work of your sector/agency

1. Which rain, flash flooding and landslide mitigation and preparedness activities were undertaken in your sector before the start of the season in mid-June?
2. How did the impact of the monsoon affect operations in your sector - did it cause any disruptions, delays, damage or implementation challenges compared to the dry season?
3. (If applicable: What disruptions, delays or damage affected your sector/agency's capability to implement your core activities? Were there any notable events?)
4. What key actions were taken and/or what processes were initiated in your sector to manage the impacts and maintain operational continuity during the 2018 monsoon season?
5. (If applicable: did the sector manage to follow up on lessons learnt identified after the initial rains in June?)
6. What are the key best practices and lessons learnt during this monsoon that must be considered in planning for the 2019 monsoon?
7. Are there remaining gaps or weaknesses in preparedness or mitigation which must be addressed before the beginning of the 2019 monsoon?
8. In your experience, were the pre-monsoon risk assessments accurate in determining geographical areas and severity of landslide and flash flood risk? On a scale of 1 to 10?
9. Which sources did you consult for weather forecasting information during the monsoon period? On a scale of one to ten, how accurate did you find them?
10. Is there something I have not asked you about, which you would like to highlight or stress in terms of lessons learnt from operations during the monsoon season? Are there any specific agencies or NGOs in your sector who you believe should be interviewed as part of this process?
11. While this interview has focused on the monsoon, we are just a few weeks out from the Cyclone Titli. Do you have any observations on Cyclone Titli which you would like to share, so we can follow up on them in the Cyclone Lessons Learnt Review?

Thank you. Once interviews are done, key lessons learnt will be presented to the Emergency Task Force, ISCG, the meeting of the sectoral coordinators, and Heads of Sub-Office meeting. The final report will be made available at the end of November.

Annex 5: KIIs, Monsoon lessons learnt, Oct-Nov 2018

ETS Coordinator,	Min Sun
Food Security sector coordinator,	Stella Atiti
Food Security sector IMO,	Habia Hasan
Health sector IMO,	Rosie Jeffries
GBV sector coordinator,	Saba Zariv
Logistics sector coordinator,	Andriy Nechay
Nutrition sector coordinator,	Ingo Neu
Protection sector officer (coordination),	Maria Ferrante
Shelter sector coordinator,	Hani Chatila
Site Management sector -coordinator,	Oriane Bataille
ACTED,	Timon Bulthuis (focus group)
Danish Refugee Council,	Lama El Batal (focus group)
IOM Site Management,	Bruce Spires (focus group)
UNHCR Site Management,	James Macharia (focus group)
UNHCR Site Management,	Richard Hannah (focus group)
Action Against Hunger (ACF),	Md. Abdul Malek
BBC Media Action,	Shafaat Ahmed
BRAC,	Hasibul Mannan, Shuvo Sk
Danish Refugee Council,	Tom Stork
OXFAM GB WASH,	Zulfiqar Ali Haider
SMEP,	Damon Elsworth, Aloysius James

Annex 6: KII Guide, Cyclone Preparedness Lessons Learnt, Jan 2019

Thank you for taking the time to meet. This should not take more than 30 minutes unless there are specific topics which you would like to discuss in depth.

We are working with a definition of the two cyclone seasons lasting roughly from mid-April till mid-June and October-November.

As no cyclone directly made landfall in Bangladesh during the 2018 Cyclone seasons, this interview will focus on preparedness activities, response procedures and coordination mechanisms. This lesson learnt review will produce a short report to be shared with the humanitarian community and the government.

1. Please state your designation, the duration of your mission in Cox's Bazaar so far, and your role in the natural disaster preparedness and response work of ISCG.
2. As far as you are aware, when did (your agency/sector) first begin preparations for the 2018 cyclone season? Was this too early or too late?
3. What were the key actions taken and processes initiated within (your agency/sector) in preparation for the 2018 cyclone season? Were these actions and processes completed by mid-September? If yes, what enabled this; if no, what were the barriers; if mixed, what was what?
4. Which intersectoral actions, platforms and processes did (your agency/sector) engage in, in preparedness for the 2018 cyclone seasons? In your opinion, which of these intersectoral actions, platforms and processes were productive, and which were not? Why?
5. What is the planned mechanism for conducting Joint Needs Assessment in camps and district?
6. What challenges and opportunities are there related to the use of facilities and in-camp community buildings for disaster management purposes?
7. What civil-military coordination achievements and gaps were apparent in preparation for the cyclone season?
8. Please describe arrangements in place for emergency stockpiling. How have they been improved since Cyclone Mora?
9. Please describe the division of responsibilities between ISCG and HCTT in the event of a cyclone. Which issues require further discussion and documentation?
10. How did the workload associated with cyclone preparedness affect other processes and work in (your agency/sector)?
11. Were (your agency/sector) work or outcomes affected by weather phenomena associated with the season such as heavy rains or high winds? How would you change planning for spring 2019 considering experience with typical weather conditions during the previous cyclone seasons?
12. What actions need to be taken to ensure that humanitarian agencies and camp inhabitants are fully aware of the cyclone early warning system? What can (your agency/sector) do to support this?

13. In your opinion, what are the most important processes and actions which need to be followed up on to ensure adequate preparedness for the 2019 cyclone season? Are there any processes/actions which should be reconsidered or pursued differently?
14. What - if any - support does (your agency/sector) require from the (your agency/sector) Emergency Coordination Cell, Heads of Sub-office and/or disaster management technical specialists to push forward on these actions and processes?
15. Is there something I have not asked you about, which you would like to highlight or stress in terms of lessons learnt from preparedness for cyclone and operations during the cyclone season? Are there any specific agencies or NGOs who you believe should be interviewed as part of this lessons learnt process?

Thank you. Once consultations and analysis are complete, key lessons learnt and best practices will be presented for validation at meetings of the EMPRTF, ISCG, sectoral coordinators and Heads of Sub-Office. We intend that the final report will be available in mid-February.

(NB! Not all questions were applied to all KIIs during this stage of the exercise. -Ed.)

Annex 7: KIIs, Cyclone preparedness lessons, Jan 2019

CPP,	Ahmadul Haq
CPP,	Hafiz Ahmad
BDRCS,	Joynal Abedin
BDRCS,	Md. Kamrul Hasan
ISCG,	Margo Baars
ISCG,	Daniel Adriaens
ISCG,	Saikat Biswas
ISCG,	Rafaelle Robelin
ISCG,	Amran Khan
OCHA,	Daniel Gilman
Site Management and Site Development sector Coordinator,	Oriane Battaille
Site Management and Site Development Co-coordinator,	Bidan Lasit
Shelter sector Coordinator,	Tonja Klansek
Shelter sector Co-coordinator:	Ratan Kumar Podder
IOM NPM Project,	Julie Dahan
ACTED,	Timon Bulthuis
Christian Aid,	Sytske Claassen
Danish Refugee Council,	Lama ElBatal
UNHCR,	Paer Westling

Annex 8: List of cyclone preparedness lessons FGDs, Jan 2019

1. Communications with Communities Working Group
2. CPP volunteers in the Host Community
3. CPP volunteers in the camp
4. Rohingya Mahjis
5. Rohingya community members

Annex 9: CPP Volunteers FGD guide, January 2019

Date:

Location:

Number of participants:

Our discussion will focus on experience sharing and learning around cyclone preparedness in the camp setting, considering the two cyclone seasons of 2018: Mid-April to Mid-June and Mid-September to Mid-November.

1. What is your role in terms of early warning messaging and information dissemination around cyclone preparedness?
2. How often did you receive early warning messages in 2018? Through which channel? Did you receive the messages on time? If not, what would be a more effective way to receive the messages so that you can disseminate them to the camp community on time?
3. How were the messages disseminated to the camp community by you and other actors? Which equipment and channels were used? Is it enough? Based on your previous experience, what are the things to be considered for being better prepared for timely messaging and dissemination?
4. Does the flag system properly function for the camp population? If yes, how is it working? What are the key responsibilities of each actor? How could we make it more effective?
5. In which languages are the messages currently disseminated? Are the current communication channels and language appropriate for the camp setting? What needs to be improved for more effective dissemination in terms of language of early warning messages?
6. Do you think that the camp communities have enough knowledge on what to do when there is a high risk of a cyclone or a cyclone? Which knowledge is missing? How could this be improved?
7. Do you have any other comments or suggestions related to cyclone preparedness that we did not discuss yet? Please share.

CPP camp volunteers FGD in Camp 3	8 women, 5 men
Host community CPP volunteers FGD at Camp 3	12 men

Annex 10: Mahjis FGD guide, January 2019

Date:

Location (camp):

Number of participants:

Our discussion will focus on your experience with preparing for cyclones in the past year and on the early warning information that your community has received.

1. Do you know during which months there is a high risk of cyclones in Cox's Bazar?
2. In the past year, did you ever discuss about cyclones? If yes, what do you discuss, and which platforms do you use for discussions?
3. Have you received information on how to prepare for a cyclone?
4. Based on the previous experience, what needs to be improved to receive the message on time?
5. How are the messages currently disseminated? What needs to be improved for effective dissemination of early warning messages?
6. Do you know the risks of the cyclone?
7. Are the early warning messaging mechanisms/channels/equipment enough? If not, what should be improved?
8. Is anything missed in this discussion which is essential to be prepared in 2019?

Mahjis FGD in camps 3 and 4	10 men
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Annex 11: Community Members FGD guide, January 2019

Date:

Location (camp):

Number of participants:

Our discussion will focus on your experience with preparing for cyclones in the past year and on the early warning information that your community has received.

1. Do you know during which months there is a high risk of cyclones?
2. In the past year, did you discuss about cyclones in your community?
3. Do you know who the CPP volunteers are in your camp? How often do you talk with them?
4. Through which channel did you receive cyclone preparedness information in 2018? Are these channels right and enough for you? And for vulnerable people in your community?
5. Did your family receive the message on time? If not, what needs to be improved?
6. Are the messages enough for you? If not, what additional information do you need?
7. Are the messages in the language you understand? If not, which languages do you prefer to receive the message? Can you tell us how the flag system and the signal system works? Does everyone in your community understand this?
8. What would you do or where would you go in case of a cyclone? Are these places accessible for everyone, incl. vulnerable people?
9. Do you know what to do or where to go in case your child gets separated from you?
10. Do you have any other comments or suggestions in relation to cyclones?

12 focus group discussions were conducted in 6 different locations - camps 12, 18, 14, 19, 23 and 27	Total 135 FGD participants, including 68 men and 67 women.
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Annex 12: CPP Poster, January 2019




ঘূর্ণিঝড় প্রস্তুতি কর্মসূচি (সিপিপি)
CYCLONE PREPAREDNESS PROGRAMME (CPP)
A Joint Programme of Government of Bangladesh and Bangladesh Red Crescent Society



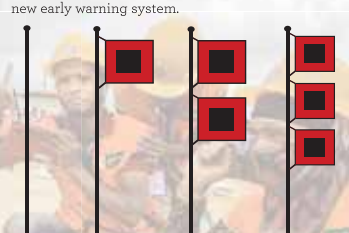
**EARLY WARNING AND
EARLY ACTION FOR
ONE MILLION REFUGEES
IN COX'S BAZAR CAMP
SETTLEMENT**

<p>3,400 CPP camp volunteers training and equipping ongoing through a phased approach</p>	<p>1,800+ out of targeted 3,400 CPP camp volunteers trained and equipped in 2018 with personal protection gear, first aid, search & rescue and early warning equipment</p>	<p>34 camps with CPP camp volunteer units; all camps to have 5 CPP units with 20 members with equal female and male representation to implement national early warning system and first response</p>	<p>1 million camp residents covered with coordinated early warning system by CPP and disaster preparedness activities in coordination with RRRCC, ISCG, UNHCR, IOM, UNDP and all site management agencies</p>	<p>4,000+ existing CPP host community volunteers in Cox's Bazar to be re-trained and re-equipped to support millions of host community residents</p>
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Steps to Success

- Extending CPP activities and training of camp volunteers in camp settlements with endorsement and directives of MoDMR and RRRCC
- CPP camp volunteer units were formed by selecting members from the existing safety volunteer units in each camp in close coordination with RRRCC, ISCG, UNHCR, IOM, UNDP and site management agencies with engagement of partner agency staff with a good command of Rohingya dialect and working experience in the camp settlements
- Representatives from IOM, UNHCR and Translators Without Borders were involved in order to ensure quality of trainings in Rohingya language
- Orientation sessions on cyclone early warning provided to communicators from several organizations in partnership with Communications with Communities (CwC) partners, EDC Media Action, Translators Without Borders, IOM, UNHCR and UNDP in order for them to educate the communities on cyclone early warning system and relevant preparedness actors
- Multiple Early Warning coordination mechanisms set up with RRRCC, CIC, ISCG and site management agencies to reduce miscommunication and information delays
- Based on the presence of CPP camp volunteer units, Disaster Risk Reduction activities expanded in the camp settlements in coordination with RRRCC, ISCG, IOM, UNHCR, UNDP and site management agencies

To ensure effective early warning messaging, the Ministry of Disaster Management and Relief made some changes in the system in November 2018. The Coastal DRR program is training CPP camp volunteers on the new early warning system.



<p>Signals 1-3 No flag. Verbal discussion on possibility of depression/ cyclone formation.</p>	<p>Signals 4 One flag. Raise awareness on formation of cyclone and possibility of impact. Public address through megaphones and loudspeakers.</p>	<p>Signals 5-7 Two flags. Public address through megaphones and loudspeakers. Preparation for evacuation.</p>	<p>Signals 8-10 Three flags. Public address through megaphones and loudspeakers and use of static and hand sirens. Ensure evacuation.</p>
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The Cyclone Preparedness Programme (CPP) is working with stakeholders in camp settlements for collective action



THE UNDP DISASTER RISK REDUCTION AND RECOVERY MANDATE

UNDP's mandate to conduct operational activities in disaster mitigation, prevention and preparedness was laid out by the United Nations General Assembly in 1997 and an additional mandate to ensure inter-agency recovery preparedness was added by the United Nations Emergency Relief Coordinator in 2006.

In Bangladesh, UNDP is a long-standing partner of the Government of Bangladesh in implementing comprehensive disaster management and recovery programming and chairs the standing national Early Recovery cluster with Government and co-chairs the Shelter cluster with IFRC. Prior UNDP disaster risk management activities in Cox's Bazaar include disaster preparedness planning, flash flood and cyclone risk reduction, community-based landslide risk management, and cyclone and flash flood shelter recovery. In the Rohingya Crisis response, UNDP serves as technical advisor on disaster risk, preparedness and risk reduction to the ISCG and the humanitarian community. As part of its Cox's Bazaar sub-office, UNDP maintains a Disaster Risk Technical Advisory Unit. Support for the core activities of the unit come from the European Commission, while additional technical support has been provided by RedR Australia, Swiss Agency for Development and Cooperation SDC and MSB (the Swedish Civil Contingencies Agency).

BANGLADESH RED CRESCENT DISASTER RISK REDUCTION AND RESPONSE MANDATE

Established in 1973, Bangladesh Red Crescent Society (BDRCS) has been working to prevent and alleviate human suffering through rendering humanitarian services throughout 68 country branches, in line with international humanitarian standards and the seven fundamental principles of the global Red Cross network. The BDRCS has several national commitments to promote disaster preparedness and response in Bangladesh. BDRCS's national mandate as stated in the country's Standing Orders on Disasters is to complement the government's emergency response efforts, and disaster preparedness plans and programs.

The most well-known of these programs is the Cyclone Preparedness Program (CPP), a joint program of Ministry of Disaster Management and Relief of Government of Bangladesh and BDRCS. The expansion of CPP within camp settlements is being supported through the Coastal Disaster Risk Reduction Program, supported by American Red Cross and International Federation of Red Cross and Red Crescent Societies (IFRC). The program focuses on enhancing institutional and community capacities for disaster readiness.

For more information, please contact:

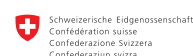
Disaster Risk Management in Cox's Bazaar District project
UNDP Bangladesh - Cox's Bazaar Sub-office
Hotel Shaibal, 2nd Floor
Motel Road
Cox's Bazaar, Bangladesh.



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