



Rohingya Crisis 2017–2018  
Draft Rapid Impact, Vulnerability and  
Needs Assessment  
Executive Summary



**GFDRR**  
Global Facility for Disaster Reduction and Recovery

## Introduction

Bangladesh is facing a crisis along its borders with Myanmar. Since 25 August 2017, targeted violence against Rohingya communities in Rakhine State, Myanmar, has forced 671,000 people - mostly women and children - to flee their homes. This exodus has become one of the fastest growing refugee crises in the world,<sup>1</sup> and brings the total number of displaced Rohingya to about 884,000.<sup>2</sup> 87 percent of the 884,000 displaced Rohingya are living in camps while the remaining 13 percent are residing among host communities in Cox's Bazar Sadar, Ukhaia, Teknaf and Ramu sub-districts.<sup>3</sup>

This influx is straining existing infrastructure and degrading an already resource-constrained social service delivery system and the environment in Cox's Bazar District. The large influx of displaced Rohingya population outnumbers the host community by almost a factor of four in the two Upazilas where the refugees have settled. The influx has also exposed the displaced population to natural and health risks and potential conflict with the host communities.

This Rapid Impact, Vulnerability and Needs Assessment (RIVNA) assessed needs of displaced Rohingya population and host communities, and estimated the costs to be over USD 1.15 billion. The RIVNA based its findings on a rapid, multi-sectoral methodology. These needs cover a one-year transitional phase (short-term) and the following two years focusing on a recovery phase.

This report is intended as an input to inform a discussion with the Government of Bangladesh and development partners on potential recovery interventions. The analysis and results recognize there is uncertainty and the assumptions should not be taken as endorsements of any policy or set of interventions. The underlying data, assumptions and calculations should be adjusted as the situation evolves.

## Methodology, Assumptions and Limitations

The needs are the estimated cost of proposed recovery interventions. Values are based on available information as of March 31, 2018 and sources are noted in each respective sector analysis.<sup>4</sup> Total target population considered is 1.2 million, which includes 884,000 displaced Rohingya population

(including 671,000 new arrivals since August 2017), and 336,000 people from host communities.<sup>5</sup> Unless otherwise noted in the respective section, the recovery objective is to bring services back to the pre-crisis baseline (i.e. August 2017). For public services, the estimates target a basic level of coverage for the entire population, considering existing and forecasted gaps.

The period covered by the assessment is 3 years, from April 2018 to March 2021. Calculations assume a transitional support phase for the first year with 50 percent of all needs covered by humanitarian assistance, and a recovery phase for years 2 and 3 with humanitarian assistance covering 30 and 15 percent of needs respectively.

Where possible, needs are disaggregated between host communities and displaced Rohingya population based on population (i.e. 72:28 displaced Rohingya population-host community ratio) unless otherwise noted.

Estimates do not take into account possible changes in the number and/or spatial distribution of the population and will have to be adjusted as the situation evolves. The proposed recovery interventions are based on discussions with development partners, country experience, and international best practices.

## Transition between humanitarian assistance and proposed recovery interventions

This report and the estimated needs builds upon the Joint Response Plan 2018 (JRP), looking to bridge the humanitarian needs with short and medium-term recovery interventions. The JRP needs estimates the cost for humanitarian agencies to fulfill all needs from March until December 2018 to be USD 950.8 million. The RIVNA is designed to assess: (a) early recovery interventions, building upon current and planned coverage of humanitarian needs, over the expected 6 to 12 month period of transition to full-fledged recovery, and; (b) medium term recovery needs extending to 2 years beyond the early recovery period.

The nature and scope of some early recovery activities is closely aligned with, and can be a continuation of the humanitarian response, and will require close coordination during planning and implementation to ensure a smooth transition. Interventions such as food assistance, health and education services, and shelter improvement are currently covered under the JRP for the first year and are assumed to

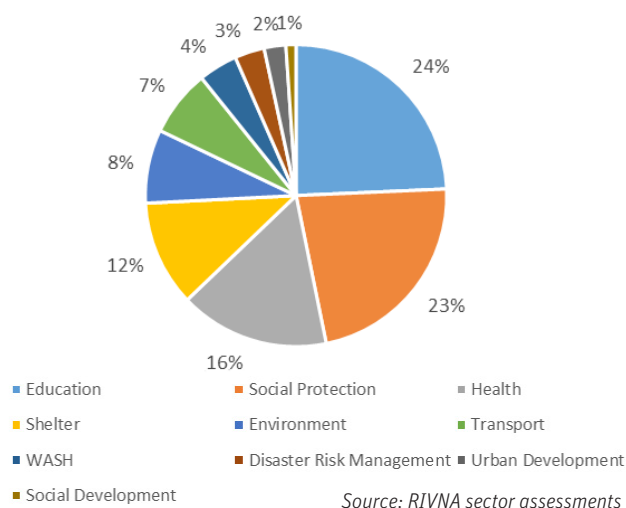
1 United Nations (UN) Joint Response Plan for Rohingya Humanitarian Crisis, March-December 2018.

2 As of 15 February, according to IOM Needs and Population Monitoring (NPM) Round 8 site assessment as quoted in 11 March ISCG Situation Report.

3 ISCG Situation Report, 11 March 2018.

4 The World Bank team did not carry out any primary data collection for this assessment.

5 As of 15 February, according to IOM Needs and Population Monitoring (NPM) Round 8 site assessment as quoted in 11 March ISCG Situation Report.

**Figure 1. Proportion of needs across sectors (percentage)**

### Impact on Cox's Bazar Service Delivery and Infrastructure and Recovery Needs

In line with the JRP, the main challenges identified by this assessment are congestion, access to drinking water and adequate sanitation, potential disease outbreaks, weather-related hazards, access to fuel and associated environmental degradation, addressing needs and vulnerability of women, and psychosocial issues.

Most of these challenges are inter-related, and the strain on resources, gaps in service delivery, and the exposure to shocks directly influence the relationship between host communities and the displaced Rohingya population.

The needs and recovery strategy is needs - and not status based, covering both displaced Rohingya population and host communities and it takes an area-based approach. Improving public service delivery infrastructure and government capacity in Cox's Bazar will have long-term development benefits for the population, independent of the evolution of the current crisis. At the same time, supporting education and skill development of the population will contribute to the sustainability of durable solutions (i.e. repatriation to the country of origin, resettlement to a third country or local integration in the country of asylum).

### Principles of Recovery Strategy

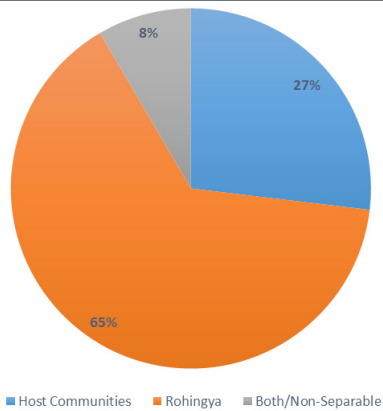
- A recognition that both the displaced Rohingya population and host communities are poor must underpin all investments.
- Improving the relations between host communities and the displaced Rohingya population is essential for social resilience. Ensuring the needs of both groups are met equally, addressing the environmental impacts and improving communications to prevent misperceptions and misinformation from creating conflict are the top priorities for social cohesion. Providing opportunities to promote joint deliberation of development needs and implementation of development projects will contribute to this goal.
- Much of the displaced population is traumatized, having experienced and/or witnessed extreme violence.

**Table 1. Distribution of needs by sector**

Sector	Cost USD	Cost Break-down		
		Host	Rohingya	Both/Non-Separable
Education	280,500,000	113,500,000	159,000,000	8,000,000
Social Protection	259,560,200	70,716,856	188,843,344	-
Health	185,385,159	84,555,782	85,104,377	15,725,000
Shelter	130,935,000	-	130,935,000	-
Environment	91,152,285	22,190,000	57,060,000	11,902,285
Transport	82,198,869	-	40,410,000	41,788,869
WASH	48,278,875	13,221,585	34,557,290	500,000
Disaster Risk Management	36,903,600	3,300,000	21,800,000	11,803,600
Urban Development	26,848,381	1,622,600	24,219,781	6,000
Social Development	12,500,000	1,400,000	3,600,000	7,500,000
<b>Total Sector Needs Estimate</b>	<b>1,154,262,369</b>	<b>310,506,823</b>	<b>746,529,792</b>	<b>97,225,754</b>

Source: World Bank sector team assessments

**Figure 2. Disaggregation of recovery needs by population**



Source: RIVNA March 2018

Addressing psychosocial problems and sexual and gender-based violence is essential from a health perspective and to equip people to effectively contribute to their own resilience and development.

- Sector investments should promote community-driven approaches that give target groups who have long been neglected and denied dignity a say in how resources are spent.

- Rohingya women have long been denied roles in leadership and education, with many highly vulnerable, illiterate and suffering from sexual and gender-based violence. Sector investments will need to be based on meaningful consultation with women to ensure their specific needs are met, particularly around safety.

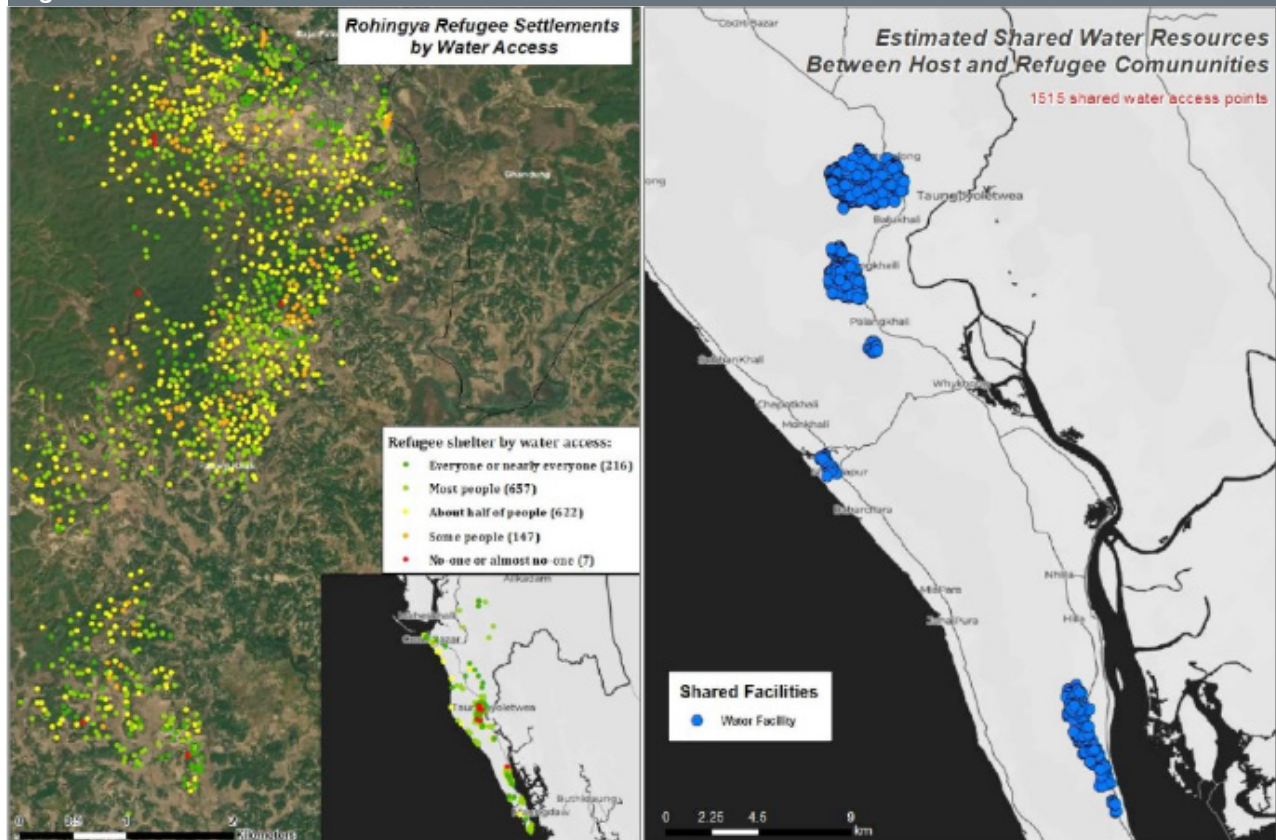
The RIVNA estimates that the highest proportions of needs have emerged in service delivery, followed by infrastructure rehabilitation. These needs are in line with the disproportionate impact and strain the crisis has had on basic service delivery, especially in the areas of education, food security, nutrition, health, water, sanitation and shelter.

### Water, Sanitation and Hygiene

**Crisis Impact:** Thousands of poorly installed shallow tube wells have contaminated shallow aquifers with major impacts on health and nutrition. Some communities found a change in the ratio of tube wells to households from 1:5 prior to the influx of August 2017 to 1:100. Of the existing 5,731 tube wells, some 21 percent are estimated in need of immediate rehabilitation or replacement.<sup>6</sup> In addition, many existing water sources are losing the capacity to supply the minimum water requirement,

6 WASH Sector Strategy for Rohingya Influx March to December 2018

**Figure 3. Access to water resources**



Source: IPSOS, March 2018

and soon may no longer be viable sources of water supply. In some areas, as much as 30 percent of the water points need immediate rehabilitation or replacement. Close to 40 percent of latrines are about to get filled.

Access to sources of water supply is more difficult in rural areas. Even prior to the influx, only about 33 percent of households in Cox's Bazar had access to water sources less than 15 minutes away, compared with the national average where 75 percent of people have water on their premises.<sup>7</sup> Host communities use alternative routes and travel longer distances to collect water from tube-wells due to overcrowding on roads.<sup>8</sup>

### Proposed Recovery Strategy

In the short-term, the focus will be on:

- Expansion, maintenance, rehabilitation and upgrading of temporary water supply, sanitation and hygiene services in temporary camps and sustainable water supply, sanitation and hygiene services for host communities in support of displaced Rohingya population assistance programs.
- Operation and maintenance of infrastructure and service provision.
- Technical assistance including capacity building for the ministerial and local authorities, partnership organizations, community-based organizations and the hosting communities, and program management including monitoring and evaluation.

In the medium-long term, focus will be on:

- Shift from reliance on tube wells to piped water systems to meet water supply needs.
- Provision of safe drinking water through community-based water supply systems that include treatment facilities, storage and distribution drawn from safe and reliable water sources, deep aquifers and surface water depending on hydrogeological conditions.
- Development of management models to ensure that water supply and sanitation facilities are operated and maintained effectively, and would benefit both the host and displaced Rohingya population communities.
- Development of piped water treatment, storage and supply systems from surface water sources such as the Naf river in Teknaf area to supplement existing water supply.

- Rainwater harvesting, mobile maintenance facilities (until ground capacity is improved), and household water storage and filtration systems are some of the other sought interventions.

### Health, Nutrition and Population

**Crisis Impact:** The displaced Rohingya population includes large numbers of women, children and other vulnerable groups who require basic HNP services. There are significant needs in the areas of reproductive, maternal, infant, child and adolescent health and nutrition. Large family sizes among the refugees indicate high fertility and it is estimated that 60,000 women among the population are pregnant at any one time.<sup>9</sup> The prevalence of child malnutrition is high, with surveys measuring rates exceeding emergency thresholds. The refugee population is highly vulnerable to disease outbreaks, including cholera, diarrhea, malaria and dengue. Coverage of routine immunization among the refugee population is extremely low, so that it is vulnerable to infectious diseases that have largely been controlled in Bangladesh. In particular, the refugee population has experienced outbreaks of diphtheria and measles. It is expected that violence experienced by the refugees has caused psychosocial trauma and mental health issues, while the population is experiencing ongoing risk of violence, particularly gender-based. Chronic conditions are not being managed. Seasonal rains and possible cyclones will have important health impacts, including injuries, drowning, exacerbation of water-borne diseases, and limiting access to health services.

### Recovery Strategy

- Continue to improve access to primary and first-referral (secondary) health services;
- Ensure provision of reproductive, maternal, neonatal child, and adolescent health and nutrition services;
- Prevent and respond to disease outbreaks; and
- Strengthen coordination, monitoring and service quality.

Areas of work will include:

- Maintaining and developing government planning, coordination, monitoring, disease surveillance and outbreak response capacities;
- Maintaining and filling gaps in referral and inpatient health services, including increasing the capacities and quality of services delivered by the District Hospital

<sup>7</sup> NPM -ACAPS Analysis Hub, January 2018, Rohingya crisis Host Communities Review: Thematic report.

<sup>8</sup> Ibid.

<sup>9</sup> United Nations (UN) Joint Response Plan for Rohingya Humanitarian Crisis, March-December 2018.

and the two Upazila Health Complexes located in areas settled by the refugees, developing surgical and laboratory services, and improving referral and transport systems for obstetric and other emergencies;

- Ensuring and improving primary and outpatient health services, including routine immunization, sexual and reproductive health services including family planning, maternal and neonatal care, management of childhood illnesses, adolescent health services, infectious disease prevention and control, and management of chronic diseases.
- Maintaining services for the diagnosis and treatment of severe and moderate acute malnutrition that have been put in place in the refugee settlements, along with implementation of behavior change communication and counselling for infant and young child feeding, ideally in conjunction with hygiene, gender and psychosocial issues; and
- Improving HNP services for the population of Cox’s Bazar District as a whole, including investments and support to the network of primary and first-referral services in order to raise utilization and improve quality of provision of the Essential Services Package.

## Transport

**Crisis Impact:** The settlements of Shamlapur in Baharchhara, Jadimura, Leda A, Leda B, Leda C, Leda D and Nayapara EXP in Nhillia upazila and Shahporir Dwip in Sabrang upazila host more than 1,000 refugees per site. Of these, settlements at Jagdimura require relocation because of flooding hazards, and settlements at Leda A, Leda B, Leda C, Leda D and Nayapara EXP face relocation as they are on private land. The LGED database shows that about 50 percent of upazila roads and 70 percent of other roads in Teknaf and Ukhia require some sort of maintenance. 25 percent of the road length, identified for maintenance, need rehabilitation to make them suitable for traffic during the monsoon season. 1,585 m of bridges and culverts also need to be maintained or rehabilitated to make them motorable throughout the year. Although the displaced Rohingya population settlements are connected by about 567 km of various roads as shown below, they are not reachable throughout the year. Furthermore, environmental implications factor significantly in decisions to construct new roads because the settlements are located in forested areas.

## Recovery Strategy

- Upgrades of roads directly feeding the camps to all-weather standard. This would imply constructing the remaining cross-drainage structures on the roads and to bring the roads to minimum gravel standard.
- Construction of pedestrian walkways within the established camps to facilitate internal accessibility or communication.
- Segregation of motorways from the camps and host communities, and posting of additional warning signs will be required to minimize accidents that are on the rise because of the camps’ proximity to N1 highway.
- Phase-wise construction of remaining cross-drainage structures on village roads in Teknaf and Ukhia as well as improvement of the roads on which these structures are located.
- Construction of walkways and their links to existing road heads within makeshift settlements. A part of the improvement cost of such footways is recommended for inclusion in WASH costs and in school or community development programs as planning for these footways requires considerable community consultation and field surveys. Walkways could also be built as a part of a broader income generation program, should the repatriation process take a number of years (as is anticipated).
- Construction of new roads should be avoided until the government policy on a durable solution is clear. However, a few short walkways to water sources, schools and community centers in the settlements, of about 78 kilometers, within host communities should be prioritized. These selected footways should be built as a part of the overall development of transport infrastructure in the area.

## Shelter

**Crisis Impact:** An overwhelming majority of displaced Rohingya population (approximately 87 percent of total displaced Rohingya)<sup>10</sup> live in spontaneous or makeshift camps, which – while offering basic shelter – are affected by poor structural stability (e.g. jhupri shacks are made of temporary materials like bamboo, stick, plastic sheets, etc.), and insufficient or non-existing electricity. Compared with those living in established camps (home to 5 percent of displaced Rohingya populations in

10 Combined Displaced Rohingya population (before influx and after) collected in round 8 (February 2018) of Needs and Population Monitoring (NPM) and Baseline & Assessment for Rohingya population in Cox’s Bazar. Data provided by International Organization for Migration.

Cox's Bazar), individuals inhabiting makeshift locations are more likely to experience food shortages, and water and sanitation issues. Nearly one in four (22 percent) report instability of shelter structures and 66 percent report inadequate lighting.<sup>11</sup>

### Recovery Strategy

The sector response targets about 200,000 households for shelter upgradation to reduce disaster vulnerability. In addition to the provision of shelter materials, technical guidance is urgently required to ensure that the displaced Rohingya population households can build safer shelters. Shelter recovery strategy proposed to achieve these outcomes includes:

- Relocation of houses located in vulnerable locations: Of the total 1,650 settlements in Cox's Bazar, 74 settlements with about 8,400 households are identified highly exposed to landslide and floods, as well as to wild animals. These settlements will have to be relocated to transitional shelters in a safer location.
- Upgrading existing temporary in-situ houses: Close to 200,000 households have built their temporary houses in Cox's Bazar. Jhupri shacks, made of temporary materials, bamboo, stick, and plastic sheets, account for about 172,000 of the total. The remainder of about 25,000 houses are kutcha made of mud or brick or woven bamboo, roof made of either sun-grass, tarps or wood or a combination of such materials. These houses require immediate upgrades with tin roof sheets, walling material and overall strengthening to be able to withstand rains. Localized site improvements, such as drainage, safe water, sanitation and safe access must accompany shelter upgrades.

### Environment

**Crisis Impact:** The environmental impact of camps on both the displaced Rohingya population and host communities, and ecologies has become a key area of concern. This impact includes deforestation, soil erosion, loss of habitat and wildlife, air pollution, water depletion and contamination, as well as energy issues. Large numbers of trees were cut to construct makeshift houses, and the displaced Rohingya population had terraced suitable hills during the previous influx of the 1990s. Most of the forested hills of the initial settlements were thus degraded and denuded. Later, the authorities moved displaced Rohingya populations to camps. Setting up of camps and other facilities in what used to be "reserved forest" land has led to the forest cover almost being completely denuded and degraded.

Wood collection for fuel has degraded the existing forest areas, and can destroy the remaining forested areas in the next few months. A remote sensing analysis, conducted as part of RIVNA of approximately 18780 hectares, shows a loss of 2687 hectares in a one-year period since March 2017.

### Recovery Strategy

Measures to stop further forest degradation and destruction are a priority. Over the medium term, emphasis can shift to restoration and rehabilitation of degraded forest landscapes within the areas of interest (which is where the refugees live). Early recovery actions should launch before the 2018 monsoon season given that the monsoon is the only suitable time for afforestation and reforestation due to rainfall. The recovery strategy includes:

- Cessation of forest clearing activities and promotion of clean cooking: Rapid pace of forest clearing activities due to wood fuel extraction needs to be stopped. In the short term, liquefied petroleum gas (LPG) stoves and fuel, and improved biomass stoves can be provided to both displaced Rohingya population and host communities to minimize the use of biomass as a cooking fuel, complemented by behavior change and market development activities. Medium-term activities such as subsidizing supply of LPG fuel would aim to gradually shift host communities and displaced Rohingya population households to market-based sustainable cooking energy options, and reduce the cost of delivery of clean cooking fuel.
- Reforestation of deforested land or hills of displaced Rohingya population's early settlement areas: Necessary afforestation measures must be undertaken after the Forest Department (BFD) carries out an assessment to delineate areas that are under social forestry schemes. BFD's assessment must capture the degree of degradation and requirements of reforestation inputs by each individual scheme sites.
- Greening of deforested hills within camp areas: Spaces across hills, such as hilltops, slopes and valleys, allow for plantation or greening under different options. Greening measures could be implemented in about 10 percent of the total camp areas. Shade-bearing and fruit trees can be planted on an urgent basis along the hilltops, contours, valleys and roadsides.

<sup>11</sup> Camp characteristics provided by International Organization for Migration – Accurate as of February 2018 NPM.

## Education

**Crisis Impact:** Approximately 250,000 children (28 percent of total Rohingya population) still need access to education, and the key factor impeding progress in this sector is a lack of sufficient space within the camps.<sup>12</sup> Youth between the ages of 15 to 24 comprise 20 percent of the total refugee and host community populations. This demographic of young people has been underserved by outreach efforts of education sector partners. Risks they face include trafficking, drug abuse, early marriage, and hazardous and exploitative work. Education needs of highly vulnerable post-primary age groups are emerging as a priority, with a focus on increasing the resilience and self-reliance of refugee youth and children. Additionally, there is no approved curricula for the displaced Rohingya population, and schools require FD<sup>13</sup> approvals from the NGO Affairs Bureau (NGOAB).<sup>14</sup> Sanitation is also a challenge, with 200 schools or educational facilities in Cox’s Bazar lacking access to water and 979 lacking latrines.<sup>15</sup> A total of 244 learning centers are situated in flood and landslide risk areas, and no land has been allocated to new or replacement centers.<sup>16</sup>

### Recovery Strategy

Strategy to mitigate relevant risks would include the following:

- All involved parties continue to be supported and engaged in high-level advocacy activities that raise awareness for key decision makers on the importance of education. Increased awareness of their accountability ensures the right to education for every child in all situations.
- A multi-year learning framework for education of displaced Rohingya population children would help children to reintegrate easily in case they repatriate. Competencies have been derived from the Myanmar and Bangladesh curriculums, and the Burmese language.
- Implementing partners arranged to procure and distribute the high volume of required education-related supplies using a mixture of off-shore and in-country suppliers as appropriate.

12 The number decreased from January’s 262,000. Sources: January and February 2018 “Situation Report: Rohingya Refugee Crisis” reports prepared by Inter Sector Coordination Group (ISCG).

13 NGO Affairs Bureau form for “Proposal/Programme For Emergency Relief Operation For Disaster Victims”

14 <http://www.ngoab.gov.bd/>. According to ISCG’s report from February 25, approx. 2 Million USD is pending those approvals.

15 REACH, “Refugee Learning Centers”, February 2018.

16 Inter Sector Coordination Group (ISCG), “Situation Report: Rohingya Refugee Crisis”, February 2018.

- Host community schools require improvements, and allocation of additional land for education is a priority. Natural disaster-related risks will have to be managed and mitigated, and child-safeguarding policies will have to be effectively in place.

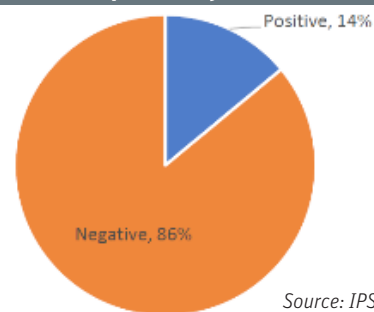
## Social Development

**Crisis Impact:** The influx of over 671,000 impoverished and traumatized displaced Rohingya population into a region that was already poor and fragile is generating a number of potentially serious social risks. Displaced Rohingya population have suffered systematic discrimination and violence in Myanmar. Displaced Rohingya women face high levels of discrimination. Many women stay in their shelters either to avoid sexual assault and trafficking, or because of cultural expectations that they have no role in public life or for both reasons. Insecure conditions, domestic violence, and forced sex work and trafficking in camps increase the risks of rape. Conditions in the camps are mostly secure during the day but criminal groups at night are said to vie for control of people, and are linked to trafficking and sex work.

### Host community vs. displaced Rohingya population relationships<sup>17</sup>

Although the fleeing displaced Rohingya population was welcomed by local communities when they first arrived, their prolonged stay has started to strain previously friendly relationships. “As surrounding forests are removed, hills razed, prices rise, and wages fall, sympathy is fading fast.”<sup>18</sup> Significant negative sentiment toward the displaced Rohingya population is present in a number of host communities. The displaced Rohingya population sentiment toward their hosts is more positive, although interviews suggest resentment over lack on

**Figure 4. Host sentiment towards displaced Rohingya population from sample surveys**



Source: IPSOS, March 2018

17 Findings based on ground observations and interviews with hosts as well as refugees, which were conducted by five separate ground teams deployed by Ipsos in Cox’s Bazar during the second week of March 2018. These surveys were qualitative in nature and should not be perceived as representative of the entire host and refugee population.

18 UNDP, “Social impact assessment”, February 2018.



income and shortages of food and water. Specific problems affecting host communities include rising prices, shortage of water, alleged destruction of environment, as well as increases in alleged criminal activity and social unrest. The crowding of the already stretched health care facilities by the Rohingya has also added to the host population's discontent.

### Proposed Recovery Strategy

- Support community-driven, economic growth opportunities that give voice and agency to target groups on the basis of needs and not status (refugee or host). Link livelihood support to environmental protection.
- Strengthen and expand access to services and resources in and outside the camps to facilitate better-quality services for the host community.
- Support women-friendly centers in camps as well as non-government organizations (NGOs) working on legal protection for victims of trafficking and domestic violence. Ensure the needs and priorities of women (and youth) are incorporated in the design and delivery of basic services.
- Expand outreach networks that provide face-to-face information and collect feedback in and outside the camps. Support local media build capacity and promote messages of cohesion and counter anti-displaced Rohingya population sentiment.
- Train majhis and leaders in camps and community-based justice systems in the host communities to strengthen mediation and conflict-resolution capacities.

### Social Protection

**Crisis Impact:** It is estimated that at least 80 percent of the overall displaced Rohingya population is highly or entirely dependent on life-saving external assistance while the remaining 20 percent can only partially meet their needs through coping strategies including savings, sale of jewelry and purchase of food on credit. This will quickly deteriorate as coping capacities are exhausted. The addition of such large numbers of displaced Rohingya population has placed formidable pressures on an already weak and inadequately resourced social service delivery system. If the current status quo is maintained, it would deprive both the displaced population and poor host communities of social assistance, health and education services, as well as employment opportunities due to crowding effects. Over 400,000 were in need of emergency nutrition interventions as of February 22, 2018.<sup>19</sup> More than one in three (36 percent)

report using three or more coping strategies such as borrowing food, either or both of eating less than normal and eating fewer meals than usual. Natural disasters, disease outbreaks, and restriction of movement may prolong food insecurity situation of the displaced Rohingya population and host communities throughout 2018. The crisis has had a major impact on livelihood activities. Host communities are now facing increased competition and pressure on wages due to increased labor force availability.

### Proposed Recovery Strategy

- Where families have the choice, transition from food rations to food vouchers or cash to further strengthen households' capacity to access high quality food. Food assistance, especially amongst targeted vulnerable groups, plays a critical role in ensuring food access among those who have limited access to livelihoods.
- Support self-reliance and livelihood support programs that enable displaced Rohingya populations and host communities to reduce their economic vulnerability and strengthen local food supply chains.
- Vocational training and socio-economic empowerment initiatives need to be provided for the displaced Rohingya population, especially to women and youth. Programs, which aim to create socializing opportunities for the most marginalized in the camps, would also contribute toward limiting exposure to major risks especially for women and children.

### Disaster Risk Management

#### Disaster Scenarios and Impact

The Global Facility for Disaster Reduction and Recovery (GFDRR) carried out a high-level, scenario-based, multi-hazard assessment. The aim was to expand and improve on the existing risk assessment for the entire Cox's Bazar area including displaced Rohingya population in the camps and host communities (around 884,000 people). The assessment used Digital Terrain Model, Shuttle Radar Topography Mission (SRTM), global flood hazard data and land susceptibility maps for floods and landslides. Three scenarios for inland floods, cyclone wind and flooding, and landslides were evaluated for the monsoon season from May through November 2018:

1. A yearly averaged weather situation (with approximately 50 percent probability),
2. A severe weather situation (10 percent probability), and
3. A very severe weather situation (1 percent probability).

19 WHO, "Rohingya Refugee Crisis in Cox's Bazar, Bangladesh: Health Sector Bulletin #3", February. 2018.

Based on the scenarios, the assessment estimates the impact of various hazards on the displaced Rohingya population (summarized in Table 2). It estimates that, for the one-year event, around 30,000 people's households will be flooded, of which about 7,000 will be impacted with a significant flood depth of more than 0.5 meters. Depending on the scenario, around 3,000–30,000 people are likely to be affected by cyclone flooding. In all scenarios, severe damage to the shelters and facilities is very likely due to strong winds and coastal flooding.

For landslides, 40,000 are in the 'high' landslide susceptibility class and 300,000 in the 'moderate' susceptibility class. Since only a proportion of this population will be directly affected, based on the likelihood of occurrence of landslides, this translates to 60 – 600 directly affected people.<sup>20</sup>

Hazard	Affected displaced Rohingya population		
	Scenario 1 50% prob.	Scenario 2 10% prob.	Scenario 3 1% prob.
Inland Flood	30,000	60,000	140,000
Cyclone wind	Negligible	Entire population	Entire population
Cyclone flood	3,000	10,000	30,000
Landslide	60	300	600

A joint assessment released by IOM-UNHCR-ADPC in January 2018 estimated that at least 150,000 people are at risk from floods and landslides in their current locations. The population of the area under assessment was around 550,000 and focused on the main Kutupalong RC and extension site. This assessment used different scope, models and approaches (Table 3).

### Proposed Recovery Strategy

**Disaster preparedness:** In the short term, activities must focus on preparation for the 2018 monsoon, including relocating households at highest risk, reinforcing shelters and contingency planning by sectors and emergency management.

**Risk reduction activities:** Given the existing vulnerabilities and limitations, mainstreaming disaster risk into infrastructure planning for all sectors, land use planning in the sites, and ensuring community preparedness would be key. Risk reduction activities would include increase of community resilience to future flooding, landslides and storm surges.

**Strengthening institutional response capacity:** the Ministry of Disaster Management and Relief and local agencies require their

capacities strengthened to coordinate the response and recovery program. This includes building capacities of local disaster management committees in conducting post-disaster damage and needs assessments.

### Urban and Cross-Cutting Issues

**Crisis Impact:** The Kutupalong RC has evolved into permanent settlements with slum-like conditions—unpaved access roads, semi-permanent shelters, overhead tanks for water supply, existence of a vibrant internal market system, and concrete public toilet blocks. Only a few areas in the camps have access to electricity. Lights are usually powered by solar panels and therefore mostly not integrated within a local grid. The distribution of street lights is highly concentrated in the established sites in Kutupalong (in the northern part of the mega camp) and in Balukhali (in the southern part). Solid waste collection points are lacking within the camp. Roads are getting destroyed due to heavy truck traffic catering to displaced Rohingya population.

### Proposed Recovery Strategy

- Strengthening the governance capacity in the union parishads and upazilas:
- Involving the citizens and stakeholders of the host communities: Enabling the engagement of local communities and key stakeholders is crucial, particularly to plan, implement, enhance their capacity building efforts.
- Provisioning for solid waste management, street lighting, storm water drains, temporary waste disposal points, site planning support of new camp zones.

<sup>20</sup> Detailed methodology is provided in the full report.

<b>Table 3. Difference between IOM-UNHCR-ADPC January 2018 and GFDRR Hazard Risk Assessment</b>		
	<b>GFDRR</b>	<b>IOM-UNHCR-ADPC</b>
Geographical scope	Entire Cox's Bazar region where displaced Rohingya are present	Only Kutupalong RC and extension site
Population covered	Approx. 884,000	Approx. 550,000
Landslide vulnerability	First order assessment, 40,000 in 'high susceptibility' area. 60-600 population likely to be directly impacted. Methodology: uses landslide susceptibility area matrix, historical evidence, subsoil information	23,330 in landslide prone area. Methodology: uses the slope angle as the primary parameter to define the population inside and outside the landslide prone area
Flood vulnerability	60,000 affected people during a 10-yr event (based on globally available rainfall data, 90m grid and a probabilistic approach)	85,000 people affected by floods for a 10-yr event (based on specific event), using more detailed DTM with high resolution