BANGLADESH
Flooding

CRISIS IMPACT OVERVIEW

On 20 August 2024, heavy monsoon rains, alongside a low-pressure area over the Bay of Bengal, caused widespread flooding in eastern Bangladesh, increasing the water levels in Dhalai, Feni, Gomti, Halda, Khoai, Manu, Muhuri, and Surma-Kushiara Rivers (Reuters 26/08/2024; ECHO 30/08/2024; Crisis24 22/08/2024; CARE 31/08/2024).

By 27 August, the flooding, considered the worst in Bangladesh in three decades, had **affected more than 5.8 million people** and left **more than 1.2 million people stranded** without relief, according to the Ministry of Disaster Management and Relief (MoDMR) (ECHO 30/08/2024; UNICEF 30/08/2024; DT 27/08/2024 a). Sylhet and Chattogram divisions had been the most affected, with the floods reaching 545 municipalities across 74 upazilas (subdistricts) in **11 districts** (Brahmanbaria, Chattogram, Cox's Bazar, Cumilla, Feni, Habiganj, Khagrachari, Lakshmipur, Moulvibazar, Noakhali, and Sylhet). Reports indicate that the flooding has **killed 52 people** (17 in Feni, 14 in Cumilla, 8 in Noakhali, 6 in Chittagong, 3 in Cox's Bazar, and 1 each in Brahmanbaria, Khagrachhari, Moulvibazar, and Lakshmipur (MODMR 27/08/2024; DT 27/08/2024 a). **The number of casualties is likely higher than reported as the flooding continues to impede access, rescue operations, and data collection.** By 30 August, the flooding had also **inundated close to 296,900 hectares of farmland in the affected districts** (OCHA/UNCT Bangladesh 30/08/2024).

The release of water from the Dumbur dam in India, which the Indian authorities claim was a consequence of the high water levels in the dam, has significantly worsened the floods by substantially increasing river water levels in Bangladesh (CNN 22/08/2024; New Age 28/08/2024). Until 30 August, around 502,500 displaced people were sheltering in 3,403 evacuation shelters in the affected districts, with needs including food, clean water, dry clothes, and water purification tablets (ECHO 30/08/2024; CARE 22/08/2024; DT 27/08/2024 b).

Map 1: Flood-affected districts of Bangladesh
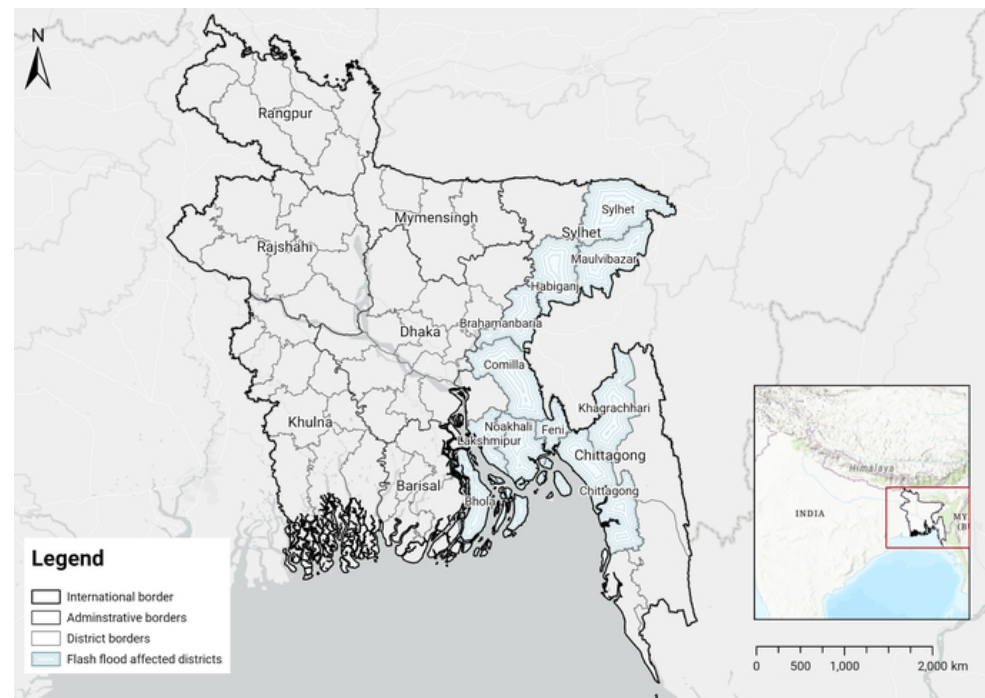
Source: ACAPS with data from OCHA

ANTICIPATED SCOPE AND SCALE

The Bangladesh Meteorological Department projects moderate rainfall between 2–5 September in northeastern Bangladesh and its upstream areas, including Barishal, Chattogram, Dhaka, and Sylhet divisions, with the decrease in river levels concurrently leading to a decrease in flooding (BMD accessed 04/09/2024; DT 28/08/2024).

As the floodwaters recede, there is a high likelihood of further structural damage, as many rural flood-affected areas feature kancha housing made of mud and other water-soluble materials. As these structures weaken, the risk of collapse increases, potentially trapping people under rubble and leading to more casualties (TBS 28/08/2024; Shelter Cluster 22/08/2019).

HUMANITARIAN CONSTRAINTS

Communication disruptions and flooded roads and highways have been hindering rescue operations (BRAC 22/08/2024).

Power outages and limited connectivity are hindering communications and coordination efforts. Until August 24, approximately 928,000 people in nine districts remained without power, and 1,807 cell towers were out of service. According to the Bangladesh Telecommunication Regulatory Commission, around 22% of communication towers in the 11 flood-affected districts were not operational, with the floods affecting 42.4% and 41.5% of the towers in Feni and Khagrachari districts, respectively (BSS 22/08/2024).

The floods have also damaged 462km of roads across 11 districts, as well as road and rail links between Dhaka and Chattogram (UNCT Bangladesh 27/08/2024). Several roads, including parts of the Dhaka-Chattogram Highway in Cumilla district, are submerged. Flooded tracks have also halted train services from Chattogram to the rest of the country and across Sylhet division. Floodwaters and debris may have also rendered some bridges impassable, disrupting overland movement for relief efforts and hindering access to assistance in flood-affected areas (Crisis24 23/08/2024; CNN 26/08/2024).

CRISIS IMPACTS

Health

The flooding has disrupted healthcare facilities and services in the affected areas, submerging Sadar hospitals, upazila health complexes, and community clinics in some subdistricts. Healthcare centres remaining functional are struggling to manage the influx of patients needing emergency care, particularly those dealing with waterborne diseases and flood-related injuries (OCHA/UNCT Bangladesh 30/08/2024).

Between 21–28 August, the National Health Emergency Operations Centre and Control Room of the Directorate General of Health Services recorded 4,786 cases of illnesses and injuries. In the same period, health facilities in the affected districts reported a total of 1,397 cases of acute watery diarrhoea, 782 cases of skin diseases, 264 cases of acute respiratory infections, 279 injuries, 209 snake bites, 22 near-drowning incidents, 11 eye infections, and 1,822 other medical cases (OCHA/UNCT Bangladesh 30/08/2024).

By 1 September, there was a significant shortage of medical supplies, including medication, vaccines, and equipment needed for emergency care and disease prevention (DT 01/09/2024).

Power shortages have disrupted hospital operations. By 28 August, Feni General Hospital in Feni district had been operating without power in sections of the hospital for a week, relying on candles and mobile torch lights to provide maternal delivery and surgical services. The hospital also faced shortages of food, medicine, and potable water, forcing many patients to leave (Bdnews24.com 28/08/2024).

Flooded roads and a lack of funds for alternative transportation, such as boats, have disrupted people's movement, preventing many pregnant women from reaching healthcare facilities. As a result, they are unable to access antenatal care, institutional delivery by midwives, postnatal care, and postpartum family planning services (UNCT Bangladesh 27/08/2024).

Snakebites are common in Bangladesh during monsoon floods. Since 21 August, Feni General Hospital has seen a significant increase in snakebite cases, with 55 patients, including 42 men and 13 women, receiving treatment. According to hospital officials, the emergency department is treating seven to eight snakebite victims daily. Although there is an adequate supply of antivenom in the hospital, some patients may encounter access issues because of the floods (Bdnews24.com 28/08/2024).

Without adequate shelter, food, and clean water, displaced individuals are exposed to the elements and are vulnerable to various health hazards, including waterborne diseases, respiratory infections, and skin ailments. The impeded access to basic healthcare services prevents many affected people from receiving timely medical attention, further aggravating their situation.

WASH

The floods have caused disruptions in sewerage and drinking water distribution services. According to the Department of Public Health Engineering, the floods had damaged an estimated 26,600 water points and 62,500 toilets by 25 August (UNCT Bangladesh 27/08/2024). Until 30 August, a total of 1,397 acute watery diarrhoea cases had been reported (OCHA/UNCT Bangladesh 30/08/2024). Stagnant water can become a breeding ground for vector-borne and waterborne diseases. Floodwaters may also overflow sanitation systems, contaminating the environment and water sources. This contamination can disrupt the supply of or access to safe water, introducing infectious agents to previously unaffected areas (Rieckmann 05/03/2018).

WASH services have been heavily disrupted in 520 unions across 77 upazilas in ten districts. In some subdistricts, all WASH facilities remained submerged until 30 August. Floodwaters have damaged or destroyed potable water sources, contaminating many with faecal matter, oil, agricultural chemicals, industrial waste, and other pollutants. Flooding has also damaged or washed away sanitation facilities, creating significant risks to water quality and public

health and adding a strain to already overburdened health services. According to the Department of Public Health Engineering, by August 27, the floods had destroyed around 42,400 latrines and damaged 121,100 (OCHA/UNCT Bangladesh 30/08/2024).

The lack of access to water and sanitation facilities disproportionately affects women and girls, exposing them to increased health risks, particularly in managing menstrual hygiene. They also face a heightened risk of gender-based violence when accessing these facilities, especially in temporary shelters, where overcrowding often compromises privacy and safety (Kayser et al. 01/06/2019).

Certain affected areas, such as Cox's Bazar, are particularly vulnerable to saltwater intrusion given their proximity to the Bay of Bengal and the complex network of rivers and canals in the region. The resulting water salinity issues have made its residents reliant on water treatment for access to safe drinking water (University of Southampton et al. 06/2018). Until 25 August, the flood-affected communities needed water purification tablets and oral rehydration salts to manage active and potential disease outbreaks, especially in remote areas (UNCT Bangladesh 27/08/2024).

Shelter and displacement

By 30 August, the floods had affected more than 5.6 million people, leading to the establishment of at least 3,400 flood shelters in the affected districts. Authorities report that 502,501 people have sought refuge in these shelters, while another 1.2 million remained stranded because of floodwaters (OCHA/UNCT Bangladesh 30/08/2024; DT 27/08/2024 a). Until 2 September, there was no information on the number of shelters open in Cox's Bazar, Lakshmipur, and Sylhet.

Traditional housing in southern and rural Bangladesh often lacks the resilience to withstand flooding, as many homes are constructed with relatively flimsy materials, such as mud walls, bamboo frames, and thatched roofs (Shelter Cluster 09/2018). In the affected districts, there are around 4.5 million kancha[1] and jhupri[2] houses in the affected districts, which are most vulnerable to damage during flooding events (BBS 11/2023; UNCT Bangladesh 27/08/2024).

Table 1: Number of shelters opened and number of people in shelters by district

DISTRICT	NUMBER OF SHELTERS OPENED	NUMBER OF PEOPLE IN SHELTERS
Brahmanbaria	724	44,747
Chattogram	94	9,067
Chandpur	0	0
Cumilla	724	44,747
Feni	78	40,000
Habiganj	125	901
Khagrachari	99	8,130
Lakshmipur	0	0
Moulvibazar	47	7,145
Noakhali	502	76,231
Rangamati	55	1,500

Source: Start Network (24/08/2024).

Education

The flooding has closed more than 7,000 schools, some submerged and others repurposed as temporary shelters, affecting an estimated 1.75 million primary school students (UNCT Bangladesh 27/08/2024; UNICEF 27/08/2024). Amid the current floods, the affected children are at risk of dropping out of school as a result of displacement, the loss of school supplies, and being unable to afford school fees because of families losing their livelihoods.

Even before the floods, children from rural areas of Bangladesh accounted for 80% of school drop-outs and 74% of those repeating one or more classes. Of the children who do not complete primary or secondary education, more than 80% reside in rural areas (TDS 03/04/2024). In other instances, children drop out of school to enter the workforce and help their family recover from the impact of the flooding. Young girls, in particular, face the risk of being entered into an early marriage to relieve the financial burdens of the family (UNICEF 03/05/2023; UNDRR 17/05/2024).

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1   A structure is defined as kancha if its floor is made of soil, wood, or any other material except brick, cement, or concrete and its roof is made of bamboo, golpata, palm leaves, straw, and other similar materials. If the floor is made of cement, concrete, brick, or terracotta but the wall and roof are made of any other material. (BBS 11/2023).

2   A structure is called jhupri if its floor is made of soil, wood, bamboo, tree trunk, etc. and the wall and roof are made of straw, bamboo, chhan, golpata, palm leaves, or polythene (BBS 11/2023).

Livelihoods and food insecurity

According to the Department of Agricultural Extension, the floods have inundated around 296,900 hectares of farmland across 11 districts. The damage has severely affected Aman rice, which accounts for over 35% of the country's total production (OCHA/UNCT Bangladesh 30/08/2024). Rural roadways and fish ponds, particularly in Chhagalnaiya, Fulgazi, and Parshuram upazilas in Feni district, have incurred extensive damage, significantly affecting livelihoods (OCHA 26/08/2024; UNICEF 27/08/2024). The inundation of farmlands and market access disruptions because of flooded roads could have a significant impact on food security in the district and the division at large.

From February–March, around 14.6 million people (20% of the total population) faced severe acute food insecurity, categorised as Crisis (IPC Phase 3) or worse. The flood-affected districts of Cox's Bazar, Moulvibazar, and Noakhali, in particular, faced IPC 3 acute food insecurity levels. Between April–October, the situation was expected to worsen as a result of anticipated severe weather phenomena, including cyclones and flooding, which have materialised. The number of individuals in IPC 3 or higher is expected to rise to 16.5 million (22% of the population) by October (IPC 02/04/2024). Because of the impact of the floods on farmlands and the resulting harvest disruptions, more people are likely to experience IPC 3 food insecurity or worse.

On 25 August, the Department of Fisheries reported a loss of USD 135 million in the affected districts. The Department of Livestock Services also reported an initial loss of USD 34 million (UNCT Bangladesh 27/08/2024). In Chattogram division, agriculture serves as the primary source of livelihood for the overwhelming majority of the population. More than 60% of the rural population relies on agriculture, forestry, fisheries, and horticulture for their livelihood (Rasul and Gurung 30/12/2023). The flooding of farmland in these divisions is expected to have a significant long-term impact on food security in eastern Bangladesh. The damage to livelihoods has weakened the purchasing power of the poor, and the reduced harvest is likely to lead to an increase in food prices.

CRISIS DRIVERS

Monsoon season

Bangladesh is a geographically low-lying country highly vulnerable to the recurring risk of floods. This susceptibility is primarily attributed to the country's exposure to tropical cyclones and the annual monsoon rains, typically from June–October (MOAS 31/07/2020). The current flooding has already affected low-lying areas in Brahmanbaria, Chandpur, Chattogram, Cumilla, Feni, Habiganj, Khagrachari, Lakshmipur, Moulvibazar, Noakhali, and Rangamati (CARE 22/08/2024). Intense rainfall during the monsoon season usually leads to severe flooding, resulting in the significant displacement of people, infrastructure and crop damage, and an elevated occurrence of waterborne diseases (MOAS 31/07/2020).

Monsoons usually occur in regions characterised by a significantly elevated landmass, such as the affected areas. This geographical feature intensifies the differences in temperature and pressure between the land and the ocean, facilitates the movement of moisture, and contributes to the formation of stronger subtropical highs (NWS accessed 23/08/2024 b). The increase in sea surface temperature in the Bay of Bengal plays a vital role in fostering the strong upward movement of air, facilitating winds blowing from the southwest at low altitudes, and enhancing the movement of moisture—overall intensifying the amount of rainfall during the summer monsoon over South Asia (Sakthivel et al. 25/06/2024).

Climate change and geographical location

Bangladesh is highly vulnerable to climate change, facing acute challenges from cyclones, floods, storm surges, droughts, river bank erosion, and deadly heatwaves (Germanwatch 25/01/2021).

Rising global temperatures are leading to rising sea levels, resulting in a constant threat of climate-related hazards. This has resulted in concern during cyclones, and recurring heatwaves are progressively becoming an annual norm (EI 17/07/2023). Rainfall in Bangladesh has also become more intense and frequent as a result of climate change. When air that contains a higher amount of moisture moves over land or comes together in a storm system, it has the potential to generate more intense precipitation, producing heavier rainfall (EPA accessed 04/09/2024).

The Indian Ocean is already 1° C warmer than in the pre-industrial period (1850–1900), and overall land and ocean temperatures have risen by 1.1° C since March 2023. Over the past year, this increase has shot up further to 1.5° C, exceeding global records from April–May

(TIE 29/05/2024; BBC 25/01/2017). Sea surface temperatures in the Bay of Bengal region are currently exceeding 30° C, with some areas in the central and northern parts of the bay measuring 32° C or higher. These high (31–32° C) temperatures supply the required warmth and moisture for cyclone formation (HAI 26/05/2024; TIE 29/05/2024).

According to Bangladeshi authorities, climate change will displace one in every seven people by 2050 (BBC 07/12/2023; CRP 09/12/2021). In the 2024 INFORM Risk Index, Bangladesh scores very high in several areas: 8.2/10 in hazard exposure, 4.6/10 in vulnerability, and 4.8/10 in lack of coping capacity. These high scores primarily result from the effects of river and coastal floods, droughts, epidemics, displacement, and inadequate infrastructure and institutional capacities (EC accessed 21/08/2024).

Opening of Dumbur dam in India

The Barak-Meghna River System is a river network in the Indian subcontinent, forming part of the Ganges-Brahmaputra-Meghna Delta, the largest delta in the world. The Barak-Meghna's course is among the most intricate in South Asia, with its basin extending across regions of Bangladesh, India, and Myanmar (ORF 18/01/2020).

Specifically, India and Bangladesh share 54 rivers, many of which originate in India and flow into Bangladesh (Kawser and Samad 04/01/2016). Since before the 1977 Indo-Bangladesh water-sharing treaty that stipulated the sharing of water between the two countries, particularly during the dry season, there has been mistrust between the two nations on the equitable management of water in the basin (Rahman et al. 01/04/2019).

On 22 August, water from the Dumbur dam in Tripura state of India was released after 31 years because of excessive rainfall, flowing downstream and worsening the monsoon flooding in Bangladesh (The Wire 22/08/2024).

Bangladeshi claims have surfaced that India released the water from the dam in Tripura state without prior notice (The Diplomat 23/08/2024; DTE 22/08/2024). In response, the Indian Ministry of External Affairs has disputed that the flooding in Bangladesh resulted from the opening of the dam. It claims that the floods were instead the result of "automatic releases" of water triggered by the heaviest rainfall of the year in catchment areas of the Gumti River, which flows through both countries (MEA 22/08/2024; The Diplomat 23/08/2024).

COMPOUNDING/AGGRAVATING FACTORS

Unsustainable land use practices

Bangladesh has a population of approximately 166 million and one of the world's highest population densities (about 1,200 people per square kilometre) (BBS 08/2022). This has meant that land cover is always changing to pave the way for agriculture and settlements.

Unsustainable land use practices in eastern Bangladesh have significantly worsened the region's vulnerability to flooding. Deforestation, particularly in the hilly areas of Chattogram division, for uses such as commercial plantation and settlement, has led to soil erosion and sedimentation in rivers, reducing their capacity to carry water and increasing the likelihood of overflow during heavy rainfall. The conversion of wetlands into agricultural land has also diminished the natural buffer provided by these ecosystems, amplifying the impact of flooding (Sarkar and Mukul 22/04/2024).

Unplanned urbanisation and industrialisation in coastal areas have also intensified the pressure on land resources. The construction of buildings and infrastructure in flood-prone zones has increased the risk of damage and displacement during flooding events (Rahaman et al. 19/10/2023). At the same time, the unplanned rapid urbanisation of areas results in inefficient wastewater management services, leaving wastewater no place to drain and causing it to recede to the rivers, amplifying health risks (Rahaman et al. 19/10/2023; Akter 22/03/2024).

The encroachment of agricultural activities into fragile ecosystems, such as mangrove forests, has also compromised their ability to protect coastal communities from storm surges and tidal flooding (Islam et al. 07/11/2014; Adnan et al. 01/07/2020).

Frequent cyclones

Bangladesh typically experiences tropical cyclones during two peak seasons: one from March–July and another from September–December. The months of May and October experience the highest frequency of these storms (AJ 27/05/2024; Asher et al. 24/02/2022). In late May, the devastating Cyclone Remal struck Bangladesh, affecting 1.3 million people across 19 districts. The cyclone damaged more than 173,000 houses and destroyed over 40,000 (UNICEF 21/08/2024; Reuters 28/05/2024; NIRAPAD 20/08/2024; IFRC 29/07/2024). It is likely that the majority of people affected by the current floods are still struggling to recover from the impact of this recent cyclone.

Heavy rainfall and water surges from tsunamis or cyclones frequently cause flooding in coastal areas, resulting in extensive destruction, fatalities, and damage to personal belongings and critical infrastructure (WHO accessed 23/08/2024 a). Usually, cyclones cause both flash and river flooding (NWS 03/2005). Cyclones can aggravate the humanitarian crisis in flood-affected areas. By causing further damage to infrastructure, crops, and livelihoods, cyclones can push more people into poverty. Many individuals may need to take on loans to rebuild their homes and replant their crops, increasing their financial burdens. This can create a vicious cycle of poverty and vulnerability, making it difficult for affected communities to recover (Care 30/04/2019; Sen et al. 03/11/2022).

The Bay of Bengal consistently ranks as one of the most cyclone-prone regions globally. Research by Yale Climate Connections reveals that 22 of the 30 deadliest tropical cyclones in global history over the past two centuries have occurred here (The DIplomat 05/06/2024). The bay's funnel-like shape and shallow topography, even far from the coast, make it especially vulnerable to large storm surges. During severe cyclonic storms, wind pressure generates massive storm surges that inundate the coastal belt. The West Bengal–Bangladesh region, crisscrossed by rivers and rivulets, also has islands that rise just four to five metres above sea level. Sea dykes in this area are often too weak to withstand the powerful, wind-driven waves that occur during cyclones, which frequently strike this belt, further intensifying the impact of storms in the region (TIE 29/05/2024).

La Niña, which tends to result in a higher occurrence of cyclones, and warmer ocean temperatures could potentially heighten the region's susceptibility to cyclones (Rappler 26/03/2024). La Niña is associated with a strong monsoon season, above-average rains, and colder winters in India and Bangladesh (ET 15/04/2024).

Poverty

According to the 2022 Household Integrated Economic Survey (HIES), 18.7% of the population in Bangladesh lived below the national poverty line (BBS 22/06/2023). Specifically, the currently flood-affected eastern region of the country grapples with high poverty rates, with Sylhet and Chattogram rating below the national average in 2023 (MoEFCC 06/2023).

Poorer communities often live in flood-prone areas with inadequate housing and more limited access to resources and income-earning opportunities, making them less resilient to economic shocks and more vulnerable to the impact of floods. The compounded effects of these losses hinder their ability to recover in-between hazards, perpetuating poverty (Winsemius et al. 03/2018; Kabir and Hossen 10/2019).

Table 2. Poverty headcount rate by locality and division over survey period 2010–2022

POVERTY LINE/ DIVISION	HIES 2022			HIES 2016			HIES 2010		
	TOTAL	RURAL	URBAN	TOTAL	RURAL	URBAN	TOTAL	RURAL	URBAN
Upper-middle income class poverty line									
National	18.7	20.5	14.7	24.3	26.4	18.9	31.5	35.2	21.3
Chattogram	15.8	17.9	16.3	18.4	19.4	15.9	26.2	31.0	11.8
Dhaka	17.9	21.7	14.3	16.0	19.2	12.5	30.5	38.8	18.0
Sylhet	17.4	18.1	14.4	16.2	15.6	19.5	28.1	30.5	15.0

Source: BBS (22/06/2023)

FUNDING AND RESPONSE CAPACITY

Although relief has reached highways, roads, and urban shelter centres in flood-affected eastern districts such as Feni, information from hundreds of villages remains unavailable given disrupted communication systems (DT 27/08/2024 b; OCHA/UNCT Bangladesh 30/08/2024).

Bangladesh's Cyclone Preparedness Program (CPP) is a key part of the country's disaster risk reduction strategy. It includes early warnings, evacuation shelters, and post-cyclone aid. A central element of the programme is an early warning system triggered by data from Bangladesh Meteorological Department radar stations strategically positioned in Cox's Bazar, Dhaka, and Kehpupara. This system disseminates warnings to communities residing near a network of approximately 3,800 cyclone shelters, each designed to accommodate up to 5,000 people. At the same time, disaster management committees established at the national, district, and subdistrict levels work to coordinate local preparedness activities, including raising awareness and conducting evacuation drills (GoB/BDRCS accessed 28/08/2024).

These anticipatory and precautionary measures have been in place in Bangladesh for many years, cushioning the impact of cyclones over most years (CPP 10/2021; Start Network 08/04/2018). That said, challenges persist. While the CPP's infrastructure is extensive, concerns exist regarding the condition of some shelters and their capacity to meet the specific needs of vulnerable populations, including women and people with disabilities, and livestock (Start Network 08/04/2018; Prepare Center 02/05/2018; ADRC accessed 28/08/2024). Because of the frequent recurrence of cyclones, several NGOs have prepared to provide pre- and post-cyclone response (Uttaran 14/01/2024; Friendship 30/05/2024).

- On 14 July, the Bangladesh Humanitarian Coordination Task Team introduced its first multihazard humanitarian response plan for cyclone and monsoon floods, with a focus on assisting 1.2 million individuals (OCHA 26/08/2024).

- On 24 August, Start Network member groups activated Start Fund Bangladesh with approximately GBP 123,000 (USD 161,285) to help flood-affected communities in Feni, Khagrachari, and Noakhali districts (Start Network 24/08/2024).

- By 30 August, the Directorate General of Health Services had activated a total of 1,295 mobile medical teams, with the army, air force, navy, and border guards assisting in rescue and relief operations in the affected districts (Reuters 26/08/2024; DT 27/08/2024 a; OCHA/UNCT Bangladesh 30/08/2024).

- According to MoDMR, Tk3.52 crore (USD 293,000), 20,650 tonnes of rice, and 15,000 sets of dry foods and fodder had been allocated to communities in the flood-affected districts by 27 August (DT 27/08/2024 a).