

BANGLADESH

Impact of Tropical Cyclone Remal

CRISIS IMPACT OVERVIEW

On 26 May 2024, Cyclone Remal, the first of the March–July cyclone season, made landfall near the Mongla and Khepupara coasts, in the Khulna and Barishal divisions of Bangladesh, causing waves up to 12ft and leading to the overflow of major rivers (the Bhadra, Bhairab, Dharla, Rupsa-Pasur, and Shibsra) (NYT 28/05/2024; CARE 31/05/2024). The storm surge, accompanied by wind speeds of up to 111km/h and heavy rainfall, caused flooding of 5–8ft in coastal districts. By 2 June, the cyclone and subsequent flooding had resulted in widespread destruction across 19 districts, affecting an estimated 4.6 million people (UNICEF 02/06/2024). Over 808,500 people had sought refuge in evacuation shelters established throughout the affected districts, which included, by 3 June, Bagerhat, Barguna, Barishal, Bhola, Chandpur, Chattogram, Cox's Bazar, Feni, Gopalganj, Jashore, Jhalokathi, Khulna, Lakshmipur, Narail, Noakhali, Patuakhali, Pirojpur, Satkhira, and Shariatpur (Dhaka Tribune 03/06/2024). Of these, Bagerhat, Barguna, Barishal, Bhola, Khulna, Patuakhali, Pirojpur, and Shatkhira were the most severely affected (UNICEF 27/05/2024; CARE 31/05/2024).

By 2 June, at least 16 deaths had been reported across seven districts as a result of the storm (UNICEF 02/06/2024; IFRC 29/05/2024).

By 29 May, more than 170,000 houses had sustained damage from the cyclone (IFRC 29/05/2024). The floods have also affected livelihoods in Khulna division, one of the largest shrimp-producing areas in the country, with more than 80% of Khulna's shrimp enclosures washed away by 3 June (Dhaka Tribune 03/06/2024).

According to the State Minister for Disaster Management and Relief, the cyclone had resulted in losses amounting to BDT 6,880 crore (USD 81,593,927) in 19 districts by 2 June (Dhaka Tribune 02/06/2024; UNICEF 02/06/2024). By 2 June, an initial government assessment of the cyclone's impact, conducted by authorities on forestry and wildlife infrastructure, estimated damages at BDT 6.27 crore (USD 535,000) (Dhaka Tribune 02/06/2024).

Anticipated scope and scale

Bangladesh typically experiences tropical cyclones during two peak seasons: March–July and September–December. May and October see the highest frequency of these storms (AJ 27/05/2024). According to a February report by NASA, the intensity of cyclones is anticipated to increase during the two cyclone seasons in the northern Bay of Bengal, affecting India, Bangladesh, and Myanmar, as a result of a rise in sea surface temperatures (NASA 21/02/2024).

By 28 May, more than 25,000 Rohingya refugees in camps were at risk of landslides (UN News 28/05/2024). Cox's Bazar, once minimally affected by landslides, has seen a rising risk since 2010. The district's rolling hills and cliffs along the coastline are naturally susceptible to landslides, especially when heavy rains saturate the soil. This vulnerability is aggravated by extensive deforestation for agriculture, fuelwood, and the establishment of refugee settlements (ACAPS/Start Network 05/06/2018).

Humanitarian constraints

By 29 May, the cyclone had destroyed embankments in many coastal areas, submerging roads and villages, challenging access to affected populations (IFRC 29/05/2024).

On 28 May, high wind speeds damaged power lines, leaving up to 3 million people without electricity in affected districts. Power outages resulting from damage to roads and power lines, alongside disruption to mobile and internet connectivity, are likely to affect humanitarian responders' movement and response to affected districts (IFRC 29/05/2024; Dhaka Tribune 02/06/2024; NYT 28/05/2024). By 5 June, it was still unclear if power had been restored.

KEY FIGURES

4,6M

AFFECTED PEOPLE

170,000

DAMAGED OR
DESTROYED HOUSES

19/64

DISTRICTS AFFECTED

5.7

INFORM CLIMATE
CHANGE RISK SCORE

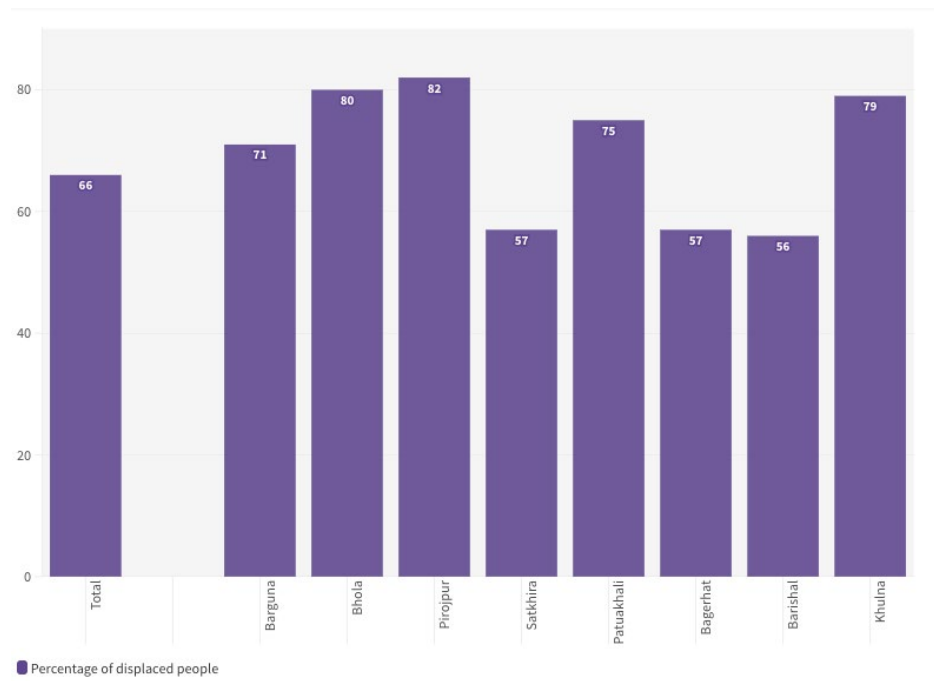
FUNDING & RESPONSE CAPACITY

- UN organisations (WFP, UNICEF, IOM).
- Several INGOs including Oxfam, Save the Children, and Care have started initial response activities.
- National Red Cross has started activities.
- Start Network has allocated USD 800,000 for response in Bagerhat, Khulna, Patuakhali, and Satkhira.
- UNCT has allocated USD 7.5 million for critical assistance.

CRISIS IMPACTS

Shelter and displacement

Table 1. Percentage of people experiencing displacement



Source: CARE (31/05/2024).

By 2 June, displacement was particularly high in Pirojpur (82%), Bhola (80%), and Khulna (79%) (UN Women 02/06/2024). According to the Shelter Cluster, by 29 May, more than 807,000 displaced people had been moved to more than 9,500 evacuation shelters both before and after the cyclone's landfall (ECHO 29/05/2024; Shelter Cluster 29/05/2024). By 5 June, it was unclear how many people were still remained in evacuation shelters and temporary housing.

By 31 May, according to the Ministry of Disaster Management and Relief, more than 173,800 houses had been damaged in total, over 133,500 partially damaged and over 40,300 fully damaged (CARE 31/05/2024).

Around 96% of damaged houses are in the eight most affected districts. In Khulna division, by 29 May, 190 unions in 14 upazilas (sub-districts) across four districts (Bagerhat, Jashore, Khulna, and Satkhira) had been affected. 123,000 houses had also been damaged, either fully or partially, affecting more than 1.1 million people (UNICEF 29/05/2024).

In Chattogram division, more than 27,400 houses had been damaged and more than 126,300 people affected in 67 unions of 14 upazilas in three districts (Chattogram, Lakshmipur, and Noakhali) (UNICEF 29/05/2024). It is likely that the majority of those affected by the cyclone are without proper shelter and exposed to the elements, increasing the risk of health problems, including respiratory infections, waterborne diseases, and other illnesses.

Table 2. Number of people affected by 2 June by sector

PEOPLE IN NEED								
DISTRICT	POPULATION TOTAL	NUMBER OF AFFECTED PEOPLE	CHILD	EDUCATION	GENDER-BASED	HEALTH	NUTRITION	WASH
Barguna	1,010,531	505,000	35,238	33,258	71,592	57,105	47,446	191,900
Bhola	1,932,518	223,303	16,536	21,369	38,787	15,901	44,692	118,351
Pirojpur	1,198,195	900,000	45,389	66,444	89,374	130,451	115,388	216,000
Satkhira	2,196,582	221,176	12,485	16,015	23,962	18,914	17,175	70,776
Patuakhali	1,727,254	327,000	19,474	22,451	52,143	56,610	40,946	124,260
Bagerhat	1,613,076	500,000	22,183	31,854	67,089	67,512	73,205	135,000
Barishal	2,570,446	185,500	6,386	11,266	23,923	23,101	23,624	50,085
Khulna	2,613,385	452,200	13,964	26,449	42,628	64,151	49,966	113,050
Total	14,861,987	3,314,179	171,655	229,106	409,498	433,745	412,442	1,019,422

Source: UNICEF (02/06/2024)

Education

By 2 June, approximately 198,400 children in 992 government primary schools (745 in Barishal, 169 in Khulna, and 78 in Chattogram) had been affected by cyclone-related damage. The damage is mainly to schools' infrastructure, alongside the loss of education materials including text books, stationery items, and teaching and learning materials (UNICEF 02/06/2024).

By 2 June, 688 educational institutions in coastal districts had been converted into temporary evacuation centres as the cyclone made landfall (IFRC 29/05/2024; UNICEF 02/06/2024). At least 3.2 million children's access to education in affected districts has been disrupted (UN News 28/05/2024). With the new school term starting in July, affected students risk missing school.

Schools have suffered significant damage; however, with the financial year ending in June, delays to receiving the necessary funds from the Directorate of Primary Education (DPE) to cover repair and replenishment costs are expected (UNRC/UNCT 09/06/2024).

Table 3. Literacy rate of population aged five years and above by location, 2022

LOCATION	TOTAL	RURAL	URBAN
National	74%	70.9%	80.8%
Barishal	77%	75.4%	81.9%
Khulna	74.6%	72.5%	80.9%

Source: BBS (11/2023)

WASH and health

By 3 June, the cyclone had caused widespread damage to water sources and sanitation infrastructure in the 19 affected districts. According to preliminary Department of Public Health Engineering assessments of eight of the most affected districts (Bagerhat, Barguna, Barishal, Bhola, Khulna, Patuakhali, Pirojpur, and Satkhira), 20,260 water points and 134,269 latrines have been damaged, of which 1,536 water points and 24,407 latrines are fully damaged (UNICEF 02/06/2024). The cyclone also resulted in the contamination of freshwater sources with salty seawater, severely limiting access to safe drinking water. Khulna Water Supply and Sewerage Authority provides water through pipelines, but not water suitable for drinking. As a result, residents rely on tube wells for potable water. Many, however, cannot afford the high cost of installing submersible pumps. Over the past nine years, the water level in 14 city wards has dropped from 1.98–4.04m (13.25ft), rendering many tube wells and pumps inoperative (TDS 28/04/2024; Daily Sun 27/04/2024).

The heavy winds and prolonged flooding associated with the cyclone also submerged latrines in residential areas, further contaminating water sources. Consequently, affected communities are currently experiencing inadequate sanitation facilities, placing them at heightened risk of waterborne diseases (IFRC 29/05/2024).

Since the end of winter in March, Khulna has experienced a significant increase in mosquito populations. The region's warm and humid climate, combined with the presence of stagnant water bodies as a result of flooding, creates ideal conditions for mosquito proliferation. This is likely to make residents more vulnerable to serious diseases such as malaria, dengue, yellow fever, and the Zika virus. Flooding has further aggravated the situation by creating more stagnant water bodies, conducive to the spread of mosquitoes (Mosquito Forecast accessed 05/06/2024; Daily Star 03/03/2024).

By 3 June, all routine immunisation programmes had been disrupted in all upazilas as a result of bad weather. Pregnant women were also at high risk of maternal complications as a result of the disruption to reproductive healthcare services (IFRC 29/05/2024).

Livelihoods

According to a rapid assessment conducted by the Needs Assessment Working Group, 84% of affected households have lost their primary sources of income, making self-recovery impossible and necessitating external assistance. Most households are unable to recover from their losses, as most of those affected are daily-wage workers in the country's main farming and fishing industries. The assessment revealed that 64% of households were increasingly dependent on relief aid and unable to repay loans as a result of income loss, leaving them in a state of continuous vulnerability (CARE 31/05/2024).

By 2 June, approximately 93.2% of livelihood activities had been disrupted, forcing 42% of households to sell assets as a coping mechanism (UN Women 02/06/2024). The cyclone has severely affected livelihoods across Khulna division, where fishing is the primary income-generating activity. In 2023, the districts in Khulna division exported more than BDT 2,800 crore (USD 2.4 million) worth of fish (TBS 25/07/2023). According to the Department of Fisheries, a total of 9,115 enclosures in Khulna district (80% of the district's enclosures), 27,500 in Bagerhat, and 3,900 in Satkhira had been submerged by 3 June including more than 53,100 ponds, enclosures, and crab farms across 81 unions in Bagerhat, Khulna, and Satkhira (Dhaka Tribune 03/06/2024). The affected area spans 35,555 hectares in Khulna division, resulting in a total loss of BDT 722.17 crore (USD 600,000). In Khulna division, the shrimp industry alone had lost more than BDT 323.65 crore (USD 275,000) by 3 June (Dhaka Tribune 03/06/2024).

With all this destruction, many people stand to lose their income in the months it takes all damaged fishing infrastructure to be repaired or replaced. The destruction to farms will also likely affect food security in affected districts.

Protection

According to the Shelter Cluster, overcrowding, lack of gender segregation, inadequate sanitary facilities, and insufficient lighting in evacuation shelters mean that women, children, older people, and people with disabilities are those most affected by the displacement crisis (Shelter Cluster 29/05/2024). In Khulna division, more than 494,900 women, 30,000 pregnant mothers, and 181,800 children under five had been affected by 29 May. In Chattogram division, more than 126,300 people had been affected, including 17,690 children under five, over 3,100 pregnant women, and more than 17,400 adolescent girls (UNICEF 29/05/2024). By 2 June, the cyclone had affected access to reproductive and antenatal care for over 61,800 pregnant and lactating women in affected areas, potentially leading to an increased risk of maternal complications (UN Women 02/06/2024). The elderly and people with disabilities are most affected during floods, as limited mobility, health vulnerabilities, dependence on others, and increased caregiving responsibilities hinder their ability to evacuate, access resources, and recover.

Concerns around gender-based violence are also growing within the affected regions. Factors such as income loss and the increased caregiving burden are anticipated to contribute to a rise in partner violence and safety issues for girls, particularly in Barishal (with a baseline of 44%) and Khulna (with a baseline of 57%) (UN Women 02/06/2024; CARE 31/05/2024).

By 29 May, more than 67 Child Protection Community Hubs, a network of local centres established to safeguard children's wellbeing and prevent child violence, exploitation, abuse, and neglect, especially during emergencies, had been affected. Barishal city experienced the most severe damage, with five hubs either completely or severely damaged (UNICEF 29/05/2024). Damage to these hubs is likely to increase children's vulnerability to the cyclone's effects.

DRIVERS OF THE CRISIS

Climate change

Bangladesh is highly vulnerable to climate change, facing acute challenges from cyclones, floods, storm surges, drought, river bank erosion, and deadly heatwaves (German Watch 01/2021). According to Bangladeshi authorities, one in every seven people will be displaced as a result of climate change by 2050 (BBC 07/12/2023; CRP 09/12/2021). On the 2024 INFORM Risk Index, Bangladesh scores very high in several areas: hazard exposure (10/10), hazard vulnerability (4.8/10), and lack of coping capacity (3/10). These high scores primarily result from the effects of river and coastal floods, drought, epidemics, displacement, and inadequate infrastructure and institutional capacities (EC accessed 03/06/2024).

COMPOUNDING/AGGRAVATING FACTORS

Rohingya refugee crisis in Cox's Bazar

Bangladesh faces a significant humanitarian challenge from the continuing Rohingya refugee crisis. This ethnic minority group fled violence in neighbouring Myanmar in 2017, with hundreds of thousands crossing the border. Since then, they have resided in overcrowded camps in southern Bangladesh. These camps, while providing some level of shelter, lack adequate sanitation facilities and clean drinking water. The recent devastation caused by Cyclone Remal has further compounded already existing problems, destroying shelters and straining resources (World Vision 20/09/2023; ICG 06/12/2023; UNHCR 23/08/2023).

According to the 2024 Joint Response Plan for the Rohingya Humanitarian Crisis released by the UN in March, an estimated 1.6 million people across Bangladesh – including Rohingya refugees and Bangladeshi host communities – will likely require humanitarian assistance in 2024 (UN 07/03/2023).

Cyclone season

Bangladesh typically experiences tropical cyclones during two peak seasons: March–July and September–December. May and October see the highest frequency of these storms (AJ 27/05/2024). Remal is the first cyclone of this year's tropical season. While destructive, Remal's impact has been less severe than some historical cyclones in Bangladesh. The effectiveness of the country's disaster preparedness programme likely played a role in mitigating the human cost.

The Bay of Bengal is widely recognised as one of the world’s most cyclone-prone regions. Research from Yale Climate Connections revealed that 22 of the 30 deadliest tropical cyclones of the past two centuries have occurred in this area. The region’s susceptibility to large storm surges is attributed to its funnel-like shape and shallow topography, which allows wind pressure to create massive surges that inundate the coastal belt during severe cyclonic storms. The West Bengal-Bangladesh area, intersected by numerous rivers and rivulets with islands only four–five meters above sea level, lacks sufficiently strong sea-dykes to withstand the powerful wind-driven waves during cyclones. Consequently, storms crossing this belt are significantly amplified, affecting their impact in the region (*Indian Express* 31/05/2024). Historically, Bangladesh experiences four cyclones a year on average, but the actual number can vary (*Fakhruddin et al.* 01/02/2022).

The prevalence of cyclones could be heightened by La Niña, a climate pattern characterised by cooler than average sea surface temperatures in the equatorial Pacific Ocean, which often leads to an increased number of cyclones in Bangladesh as a result of warmer ocean temperatures. La Niña is associated with stronger monsoons, above-average rainfall, and colder winters in India and neighbouring countries (*Hindustan Times* 13/05/2024; *Economic Times* 15/04/2024; *Rappler* 26/03/2024).

Fire in the Rohingya camp in Cox’s Bazar

Since January, several fires have destroyed shelters in refugee camps, compounding the challenges faced by refugees. In January, a fire in Camp 5 in Cox’s Bazaar destroyed shelters, affecting 7,000 Rohingya refugees, including at least 4,200 children (*Save the Children* 08/01/2024).

The cyclone hit just after a fire on 24 May in Camp 13, block B3, in Thainkhali, Cox’s Bazar, which destroyed over 400 shelters and left around 4,000 refugees, including women and children, without adequate housing (*UN News* 28/05/2024; *UNICEF* 27/05/2024; *CARE* 25/05/2024). The cyclone’s impact on Cox’s Bazar has compounded the already critical shelter situation for the refugees there, as lack of shelter can aggravate existing tensions within the camps, leading to social unrest (*Eurasia Review* 10/06/2024).

Prevalence of poverty in affected divisions

According to the Household Integrated and Economic Survey (HIES), 18.7% of Bangladesh’s population lived below the national poverty line in 2022 (*BBS* 22/06/2023). According to the HIES, Barishal division’s poverty rate was 26.9% and Khulna division’s was 14.8%. Economists note that Barishal division’s susceptibility to climate change – as it experiences severe impacts – and high salinity levels, which result in poor agricultural yields, contribute to the division’s high poverty rates. Compared to the national average, Barishal had the highest rural poverty rate in 2022 at 28.4%, while Khulna had the lowest at 16.2% (*BBS* 22/06/2023). Poor communities often live in flood-prone areas with inadequate housing and limited access to resources and livelihoods, making them more vulnerable to flood damage. The compounded effects of these losses hinder their ability to recover, perpetuating poverty.

Table 4. Poverty headcount rate by locality and division over survey period 2010–2022

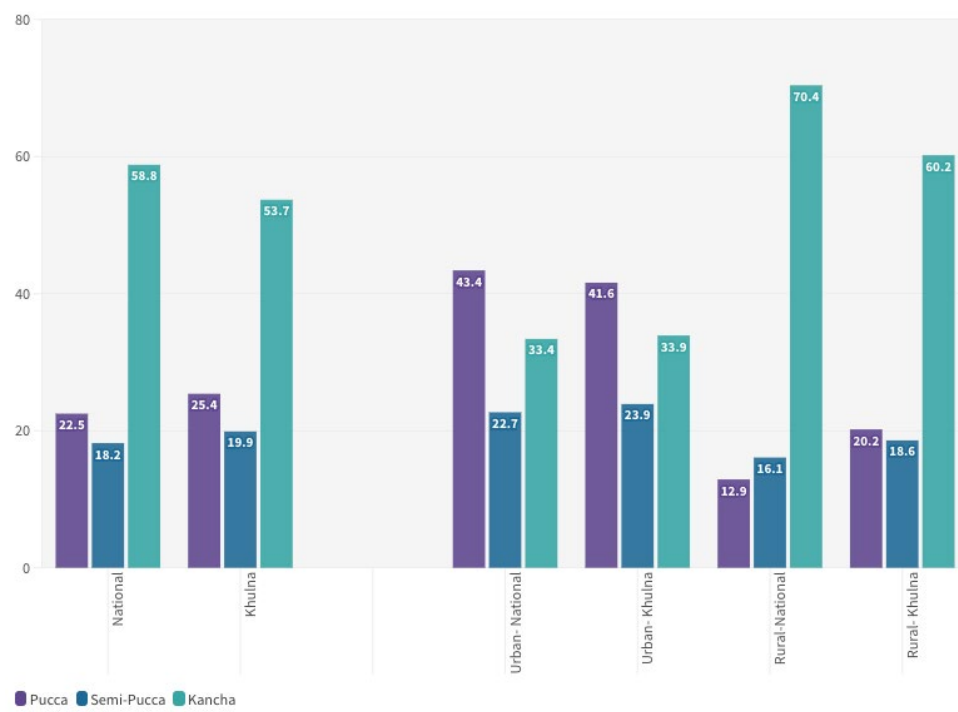
POVERTY LINE/ DIVISION	HIES 2022			HIES 2016			HIES 2010		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
Upper middle-income poverty line									
National	18.7%	20.5%	14.7%	24.3%	26.4%	18.9%	31.5%	35.2%	21.3%
Barishal	26.9%	28.4%	21.3%	26.5%	25.7%	30.4%	39.4%	39.2%	39.9%
Khulna	14.8%	16.2%	9.9%						
Lower middle-income poverty line									
National	5.6%	6.5%	3.8%	12.9%	14.9%	7.6%	17.6%	21.1%	7.7%
Barishal	11.8%	13.1%	6.7%	14.5%	14.9%	12.2%	26.7%	27.3%	24.2%
Khulna	2.9%	6.7%	12.4%	13.1%	13.1%	10%	15.4%	15.2%	16.4%

Source: BBS (22/06/2023)

Shelter

Traditional housing in southern Bangladesh often lacks the resilience to withstand cyclone's powerful wind and storm surges, as many homes are constructed using flimsy materials such as mud walls, bamboo frames, and thatched roofs (Shelter Cluster 09/2018). According to the 2022 census, about 25% of Khulna division's population lived in single or multi-storeyed houses with concrete roofs, concrete floors, and brick walls (pucca), 20% in houses with tin roofs, mud or wooden floors, and brick walls (semi-pucca), and 54% in houses with tin roofs, mud or wooden floors, and walls made of thatch or bamboo (kutchha) (BBS 11/2023).

Table 5. Proportion of types of houses by national, urban, and rural in 2022



Source: BBS (11/2023)

FUNDING AND RESPONSE CAPACITY

Bangladesh's Cyclone Preparedness Programme is a key part of the country's disaster risk reduction strategy, which 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 Dhaka, Khepupara, and Cox's Bazar. This system disseminates warnings to communities residing near a network of over 3,763 cyclone shelters, each designed to accommodate up to 5,000 people. The Disaster Management Committees established at the national, district, and sub-district levels, work to coordinate local preparedness activities including raising awareness and conducting evacuation drills (GoB 07/06/2018).

Anticipatory and precautionary measures have been in place since 1972 ensuring low casualties from cyclones (CPP 10/2021; Start Network 08/04/2018). Challenges persist, however. While the Cyclone Preparedness Programme's infrastructure is extensive, there are concerns regarding the condition of some shelters and their capacity to meet the specific needs of populations vulnerable to displacement, including women, people with disabilities, and livestock (Start Network 08/04/2018; Prepare Center 02/05/2018; ADRC 01/01/2005). As cyclones are a frequent occurrence, several NGOs were prepared to provide both pre and post-cyclone response (Uttaran 14/01/2024; Friendship 30/05/2024).

By 27 May, around USD 1.26 million worth of supplies had been positioned in 35 warehouses across the country (UNICEF 27/05/2024). By 2 June, the Department of Public Health Engineering had distributed over 475,900 water purification tablets, over 4,700 jerry cans, 578 water buckets, and 627 hygiene kits in affected locations (Bagerhat, Barguna, Bhola, Khulna, Noakhali, Patuakhali, Pirojpur, and Satkhira districts) and evacuation shelters to prevent the outbreak of waterborne diseases (UNICEF 02/06/2024). By 2 June, BDT 5.75 crore (USD 50,000) cash, 5,500MT of rice, 9,000 packets of dry food, 200 bundles of cotton wool, BDT 2.45 crore (USD 20,800) for cattle feed, and BDT 2.45 crore (USD 20,800) for baby food had been distributed in 19 districts (Dhaka Tribune 02/06/2024). The high number of people affected mean that more response supplies are likely required.

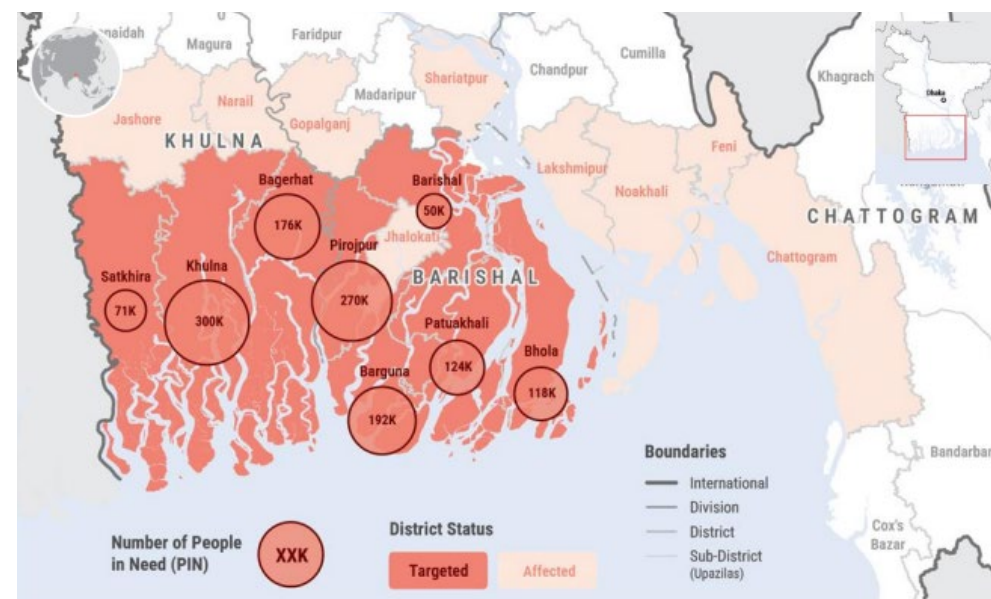
By 9 June, the UN Emergency Relief Coordinator announced the allocation of USD 7.5 million from the Central Emergency Response Fund to provide critical humanitarian assistance to those affected by Cyclone Remal (UNRC/UNCT 09/06/2024).

Table 6. Humanitarian response up until 31 May

ORGANISATION	DISTRICT	FUNDED AMOUNT (USD)	FUNDED AMOUNT (BDT)
Ministry of Disaster Management and Relief (allocation)	Khulna, Satkhira, Patuakhali, Cox's Bazar, Chattogram, Feni, Noakhali, Lakshmipur, Bhola, Barishal, Pirojpur, Barguna, Bagerhat, Jhalokathi, and Chandpur (GR rice, children's food, and fodder)	903,385	106,500,000
Government		903,385	106,500,000
Start Network	Satkhira, Khulna, Barguna, Patuakhali	197,000	23,224,330
BDRCS	Satkhira, Bagerhat, Khulna, Bhola, Barguna, Pirojpur, Jhalokathi, Patuakhali, Chattogram, Noakhali, Cox's Bazar	25,000	2,947,250
BRAC	Satkhira	6,500	766,285
Christian Aid	Khulna	84,683	9,983,315
CARE Bangladesh	Patuakhali	30,000	3,536,700
Save the Children	Patuakhali, Satkhira	3,393	400,000
WFP	Satkhira, Khulna, Barguna, Patuakhali, and Bhola	1,600,000	188,624,000
Oxfam	Barguna	28,065	3,308,583
Step Consortium	Satkhira, Bagerhat, Barguna, and Patuakhali	254,475	30,000,000
World Vision	Bagerhat	5,910	696,750
Non-government (compiled anticipatory actions – AAWG)		2,235,026	263,487,213
Start Network (emergency response allocation)	Khulna, Bagerhat, Patuakhali, and Satkhira	800,000	94,312,000
Total		USD 3,938,410	BDT 464,299,213

Source: CARE (31/05/2024)

Map 1. Affected population by district up until 9 June



Source: UNRC/UNCT (09/06/2024)