

Briefing Note – 01 June 2017

# BANGLADESH

## Tropical Storm Mora



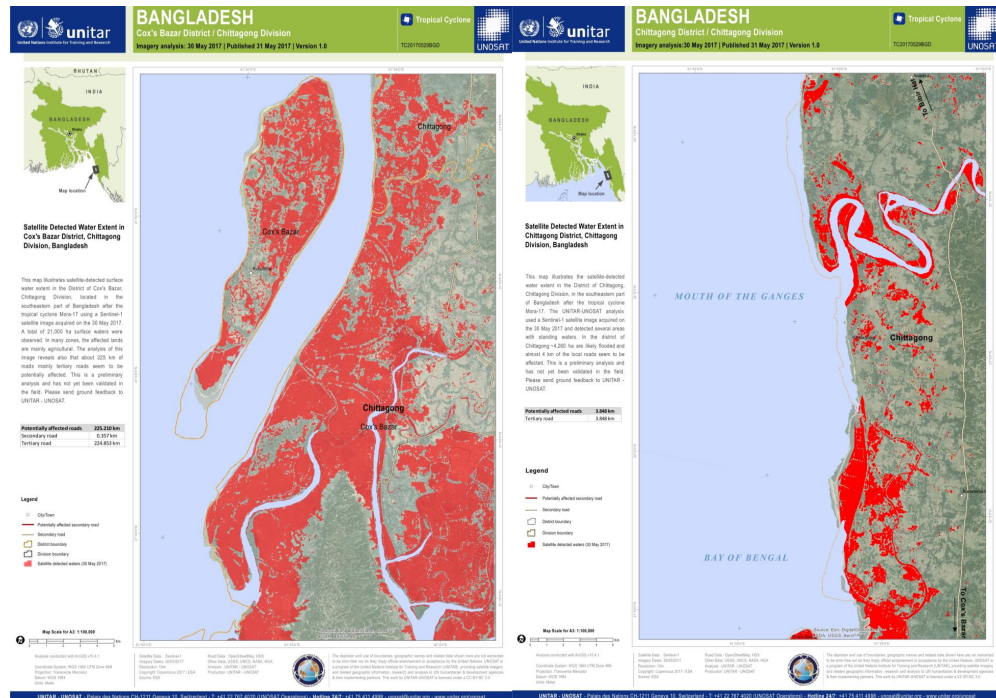
Need for humanitarian assistance	Not required	Low	Moderate	Significant	Major
	Very low	Low	Moderate	Significant	Major
Expected impact	Very low	Low	Moderate	Significant	Major

Cyclone Mora made landfall near Kutubdia *upazila*, Cox’s Bazar district, southeast Bangladesh on 30 May, with winds of 114 km/h at St Martin’s Island, 85 km/h at Cox’s Bazar, and 135 km/h in Teknaf. As of 31 May, the Bangladesh Meteorological Department has lowered the danger signal related to the cyclone from 10 to 3, as the storm weakened.

Initial assessments estimate that over 280,000 people have been affected. The impact across districts is unclear, as information is only available for Cox’s Bazar and Chittagong. Vulnerable settlements where refugees and undocumented migrants and refugees, many of whom are Rohingya, reside in Cox’s Bazar have been hit particularly hard. Over 475,000 were evacuated to cyclone shelters before the storm made landfall and people have started to return home.

### Crisis overview

#### Water extent in Chittagong and Cox’s Bazar\*



\*See page 7 for full-size maps.

### Key findings

#### Anticipated scope and scale

The storm is not expected to create further damage as it has weakened and left the Bangladesh. The immediate impact has been low in terms of mortality and damage. However, the affected area has been hit by two cyclones since 2015, causing concerns regarding recovery. Waterlogging as a result of embankment breaches could lead to an interruption to livelihoods and WASH services in the longer term.

#### Key priorities

**WASH:** Initial estimates are that at least 30% of household latrines in Cox’s Bazar have been damaged. In makeshift settlements where refugees and migrants, the vast majority undocumented, live, up to 70%–80% of latrines have been either damaged or destroyed.

**Shelter:** Overall, 52,000 houses have been damaged or destroyed.

#### Limitations

There is no information on recovery from previous disasters in the affected areas, on the severity of needs, or on negative coping strategies.

## Crisis impact

Cyclone Mora made landfall near Kutubdia *upazila*, Cox's Bazar district, southeast Bangladesh on 30 May, with heavy winds of 114 km/h at St Martin's Island, 85 km/h at Cox's Bazar, and 135 km/h in Teknaf (The Daily Star 30/05/2017).

Over 280,000 people were affected. The impact across districts is unclear, as information is only available for Cox's Bazar and Chittagong. At least six people were killed and 61 injured. 21 fishermen were reported missing (Dhaka Tribune 30/05/2017; The Independent Bangladesh 31/05/2017; UNICEF 30/05/2017). Three villages in Cox's Bazar and three villages in Chittagong have been flooded. 52,000 houses were damaged or destroyed (UN 31/05/2017). Vulnerable settlements where mainly undocumented migrants and refugees reside in Cox's Bazar have been hit particularly hard.

As of 31 May, the Bangladesh Meteorological Department has lowered the danger signal related to the cyclone to 3 (distant cautionary signal), as the storm weakened (Bangladesh Meteorological Department 30/05/2017). Around 475,000 people were evacuated to shelters, and people have started to return home (Dhaka Tribune 30/05/2017; The Daily Star 30/05/2017; The Daily Star 31/05/2017; Dhaka Tribune 30/05/2017; The Independent Bangladesh 31/05/2017).

**WASH:** Initial estimates are that at least 30% of the household latrines in Cox's Bazar district have been damaged. There is an increased risk of water- and vector-borne diseases, especially for those living in temporary or basic housing and with poor water and sanitation facilities (Save the Children 31/05/2017). In makeshift settlements where undocumented refugees and migrants live, up to 70–80% of latrines are either damaged or destroyed (UNICEF 30/05/2017).

**Shelter and NFIs:** 52,000 houses have been damaged or destroyed (UN 31/05/2017). 70% homes on St Martin's island have been damaged (Dhaka Tribune 30/05/2017). A similar degree of damage (70% of houses) was reported in Kutubdiapara and Shomitipara, Cox's Bazar (Dhaka Tribune 31/05/2017). Shelter is the main priority in undocumented migrant and refugee settlements, where the extent of houses damage ranges from 50 to 80%.

**Food:** Food distribution has been reported by UNICEF as a key priority (UNICEF 30/05/2017). However, specific information on food needs is not available beyond food stock damage across undocumented migrant and refugee settlements.

**Health:** At least six people died, while 61 people have been injured. Health facilities in St Martin's Island, Balukhali and Leda makeshift settlements have been heavily damaged (UNICEF 30/05/2017; The Independent Bangladesh 31/05/2017). There are no shortages of emergency drugs in affected areas for the moment (UN 30/05/2017).

**Livelihoods:** The dry fish industry in Cox's Bazar is facing a loss of nearly BDT 10 million (USD 121,500). Around 10,000ha of Aush paddy are at the risk of damage in Chittagong (Dhaka Tribune 30/07/2017).

**Protection:** Children are at risk of exploitation, abuse and violation as they are taking shelter with people who are not immediate family members. All UNICEF-supported Child Friendly Spaces (CFS) covering over 22,000 children in makeshift settlements and host communities in Cox's Bazar have been damaged (UNICEF 30/05/2017).

**Education:** There are reports of significant damage to a large number of schools (Save the Children 31/05/2017). Schools have been used as shelters which will likely impede the timely resumption of classes, and result in damage (JNA 2014). The number of schools which require repair is being assessed. Preliminary findings show that almost half the UNICEF supported learning centres constructed with bamboo, covering over 5,400 children in makeshift settlements, have been damaged (UNICEF 30/05/2017).

## Impact on critical infrastructure

Power infrastructure was badly damaged as of 31 May (The Daily Star 31/05/2017). Power supply to Chittagong, the hill tract regions of Khagrachhari, Rangamati, Bandarban, and Cox's Bazar has been disrupted (The Daily Star 30/05/2017).

## Vulnerable groups affected

**Undocumented migrants and refugees:** Up to 500,000 migrants and refugees from Myanmar are undocumented and living in southeast Bangladesh. They live in makeshift settlements and host communities, often under harsh conditions. They lack access to basic services and are subjected to exploitation and unfair employment practices. Shelter, WASH, and food were the most pressing needs, according to a IOM survey in March (IOM 25/04/2017). These are also the sectors that have been most severely impacted by the storm. Diarrhoea was reported in Leda camp at the beginning of May (Kaladan Press Network 01/05/2017).

**Women:** Gender-based economic and sociocultural disparities make women more vulnerable to hazards. Women have limited or no access to resources, lack decision-making power, and often have limited or no mobility (Roanu JNA 26/05/2016).

## Aggravating factors

### Recent tropical storms and cyclones

Cox's Bazar and Chittagong have been hit by two more cyclones in the last two years, Cyclone Roanu in May 2016 and Cyclone Komen in July 2015. These recurrent disasters also mean that damage to physical infrastructure has not yet been repaired (Roanu JNA 26/05/2016).

	Cyclone Roanu	Tropical Storm Komen <sup>1</sup>	Cyclone Mahasen
Date	21.05.16	30.07.15	16.05.13
Wind speed	Over 100km/h	62–88km/h	85km/h
Categorisation	1	1	1
Three worst-affected districts	Cox's Bazar Noakhali Bhola	Cox's Bazar Chittagong Noakhali	Bhola Barguna Patuakhali
Number of people affected	1,297,010	2,600,000	1,042,340
Reported priority needs	Shelter Sanitation Livelihood	Food Shelter Sanitation	Food Livelihoods Shelter

<sup>1</sup> This assessment was not conducted using the Joint Needs Assessment methodology, which may explain the larger number for affected people, although overall it was a lower-impact disaster.

Sources: Roanu JNA 26/05/2016; Komen Impact Assessment Report 31/07/2015; ECHO 30/07/2017, ACCUWEATHER

### Population density

Population density in both locations is high: 920/km<sup>2</sup> in Cox's Bazar, and 1,400/km<sup>2</sup> in Chittagong (JNA 2015).

### Location and type of housing/infrastructure

Poorer communities in low-lying areas where housing is of a lower quality have been heavily impacted, especially those whose homes are made largely from corrugated iron (Save the Children 31/05/2017).

## Embankment breaches

The storm caused breaches in embankments flooding many villages in Chittagong division, and this can cause prolonged waterlogging (The Daily Star 31/05/2017). This was experienced after Cyclone Aila and Komen. Significant parts of embankments in Kutubdia, Pekua, Moheskhali, Ramu, and Chakoria were affected during last year's flooding. Waterlogging can be expected during the whole rainy season, unless embankments are repaired as a priority (Roanu JNA 26/05/2016).

### Unwillingness to relocate to emergency shelters

Despite warnings, people prefer not to go to shelters, for fear of looting, among other things. From a river island in Cox's Bazar with 14,000 inhabitants, only 130 went to a cyclone shelter (The Daily Star 31/05/2017).

## Response capacity

### Government response

The Government's Cyclone Preparedness Project (CPP) evacuated around 475,000 people. Of these, at least 200,000 were from Cox's Bazar and 150,000 from Chittagong (Dhaka Tribune 30/05/2017; The Independent Bangladesh 31/05/2017). 479 cyclone shelters for up to 445,000 people were made available in Chittagong district. Control rooms have been opened for monitoring the situation. Leave was cancelled for all doctors and nurses in Chittagong district (The Daily Star 30/05/2017). One hundred medical teams with 5,000 health workers have been kept on stand-by in the district. In Cox's Bazar, 538 cyclone centres were made available to function as emergency shelters (The Daily Star 30/05/2017). 88 medical teams have been formed. Food and relief distribution channels have been set up. Over 6,000 volunteers of 414 Disaster Management Activity units were on alert (Dhaka Tribune 31/05/2017).

The Ministry of Disaster Management and Relief allocated BDT 2.2 million (USD 26,800) and 1,050 metric tons of rice to seven vulnerable districts including Chittagong, Cox's Bazar, Noakhali, Laxmipur, Feni, Bhola, and Patuakhali prior to the landfall. Smaller amounts of rice and emergency funding have been provided to Khulna, Bagerhat, Satkhira, Barisal, and Barguna districts (UN 30/05/2017). The Department of Health has prepositioned nutrition supplies for 3,300 children (UNICEF 30/05/2017).

District	General relief cash (BDT)
Chittagong	500,000
Cox's Bazar	500,000
Noakhali	500,000
Laxmipur	200,000
Feni	100,000
Bhola	200,000
Patuakhali	200,000
<b>Total</b>	<b>2,200,000</b>

District	General relief rice (metric tons)
Chittagong	200
Cox's Bazar	200
Noakhali	200
Laxmipur	100
Feni	100
Bhola	100
Patuakhali	150
<b>Total</b>	<b>1,050</b>

Allocation to replenish district stock	Rice (metric tons)
Khulna	50
Bagerhat	50
Shatkhira	50
Barishal	50
Borguna	50
<b>Total</b>	<b>250</b>

## Bangladesh Red Crescent

The Bangladesh Red Crescent volunteers working with local authorities assisted evacuation from low-lying coastal areas. Preparations are now underway to deliver relief supplies, including food, emergency shelter and clean water to displaced people (IFRC 30/05/2017). The Bangladesh Red Cross and Red Crescent Society (BDRCS) has allocated BDT 600,000 (USD 7,300) to six districts to procure dry food for affected people (UN 30/05/2017).

## International response capacity

WFP has 112 metric tons of fortified biscuits available. The initial deployment of food support will target the most vulnerable areas, especially Cox's Bazar district. WHO and other partners are monitoring the situation. 1,169 medical teams have been formed to manage the health situation as the cyclone passes. Emergency medical buffer supplies are in place (UN 30/05/2017).

UNICEF is ready to provide WASH support. UNICEF has an implementing partner in Ukhiya and Teknaf and has prepositioned hygiene kits, water purifying tablets, plastic buckets, squatting plates and tarpaulins in Chittagong and Cox's Bazar for approximately 11,000 people. It has prepositioned psychosocial and recreational kits for children aged 6–14 in Cox's Bazar for 9,000 children. 300 Education in emergencies kits for children aged 6–10 years in Cox's Bazar will also be distributed as soon as assessment results are finalised. UNICEF has an ongoing nutrition programme in Ukhiya, Teknaf, Ramu and Cox's Bazar town and can scale up as necessary (UNICEF 30/05/2017).

Save the Children is planning the distribution of hygiene items like jerrycans, soaps and water purification tablets, as well as distribute plastic sheeting for temporary shelter (Save the Children 31/05/2017).

## Information gaps and needs

- To understand the impact of this cyclone requires an understanding of the underlying vulnerability. There are no reports illustrating the scale of the recovery gap after Komen and Roanu or how this recovery gap has affected overall vulnerability in these areas.
- While the number of people affected is high, there is no specific information on how severely they are affected. Negative coping strategies have not been reported so far.
- No information is available some extremely vulnerable groups, such as people with disabilities.
- Information management has been identified as a critical area where the humanitarian community can play a particularly critical role, especially in providing needs assessments (UN 30/05/2017).
- There are no reports as yet on damage to embankments, this will be critical to understanding immediate and recovery needs in the affected areas.

- There are very few publicly available evaluations and lessons learned documents from either Komen or Roanu, analysis of this type would contribute to understanding underlying vulnerabilities and lesson learning.

## Lessons learned

- Cyclone Aila in 2009 made landfall in southwestern Bangladesh. With relatively low mortality and natural protection provided by the Sundarban mangrove forest, the initial assessments showed a low impact. However, broken embankments led to chronic waterlogging and displacement for some families, which lasted a number of years. This was compounded by the health risks associated with the stagnant water around the areas where people were living, and which was used for bathing. (Roanu JNA 26/05/2016)
- 49% of cyclone-affected schools in one study area reported no recovery at all in the school's physical infrastructure. School WASH facilities are identified as a main neglected focus of recovery efforts (Plan and SCI 2010)
- Clarity of the roles and responsibilities of stakeholders managing a shelter to minimise damage to the school and learning environment while the school is used as shelter remain vague (KI, Education Cluster, 2013).
- There is a demand for separate, safe latrines for women in shelters. Some information, such as that on the availability of private latrines and spaces to breastfeed, can be considered as proxy indicators of potential protection issues if the situation continues (Roanu JNA 26/05/2016).
- One constraint to assessing shelter damage after tropical storm Mahasen in 2013 was distinguishing between houses damaged by the storm and the chronic problem of sub-standard housing (Roanu JNA 26/05/2016).
- Lessons learned from previous disasters in the areas have indicated that there is reduced food supply, reduced income and employment and reduced availability of agricultural inputs. People are known to resort to negative coping strategies such as reducing the size of meals or lowering the quality of food intake. Past experience shows that most of the markets remained functional or recovered quickly but food prices immediately rose in most locations (Roanu JNA 26/05/2016).

## Key characteristics

Key indicators	Bangladesh	Cox's Bazar	Chittagong
Total population	156,186,882 (2016 est.)	2,088,442 (2017 est.)	4,543,693 (2017 est.)
% population in rural areas	65.7% (2015)	78.2% (2011)	58.7% (2011)
Gender distribution of population	49% male, 51% female	51% male, 49% female	50% male, 50% female
Capital	Dhaka	Cox's Bazar	Chittagong
Lighting and cooking sources	57% have access to electricity 88.2% use solid fuel for cooking	40% have access to electricity 97.1% use solid fuel for cooking.	74.6% have access to electricity 80.4% use solid fuel for cooking
<b>WASH</b>			
Improved drinking water sources	98.3%	99.8%	98.3%
Access to improved sanitation	55.9%	51.1%	50.3%
<b>Health</b>			
Under-five mortality rate	42/1,000 live births	41–50/1,000 live births	41–50/1,000 live births (2010)
Maternal mortality ratio	220/100,000 births (2010)	114/100,000 births (2010)	–
Literacy rates	53.34% (2011)	43.15% (2011)	56.96% (2011)

Sources: CIA World Factbook 2017, JNA Flash Floods 2015.

# Water extent in Chittagong and Cox's Bazar districts



**BANGLADESH**  
Cox's Bazar District / Chittagong Division  
Imagery analysis: 30 May 2017 | Published 31 May 2017 | Version 1.0



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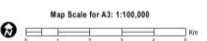


**Satellite Detected Water Extent in Cox's Bazar District, Chittagong Division, Bangladesh**

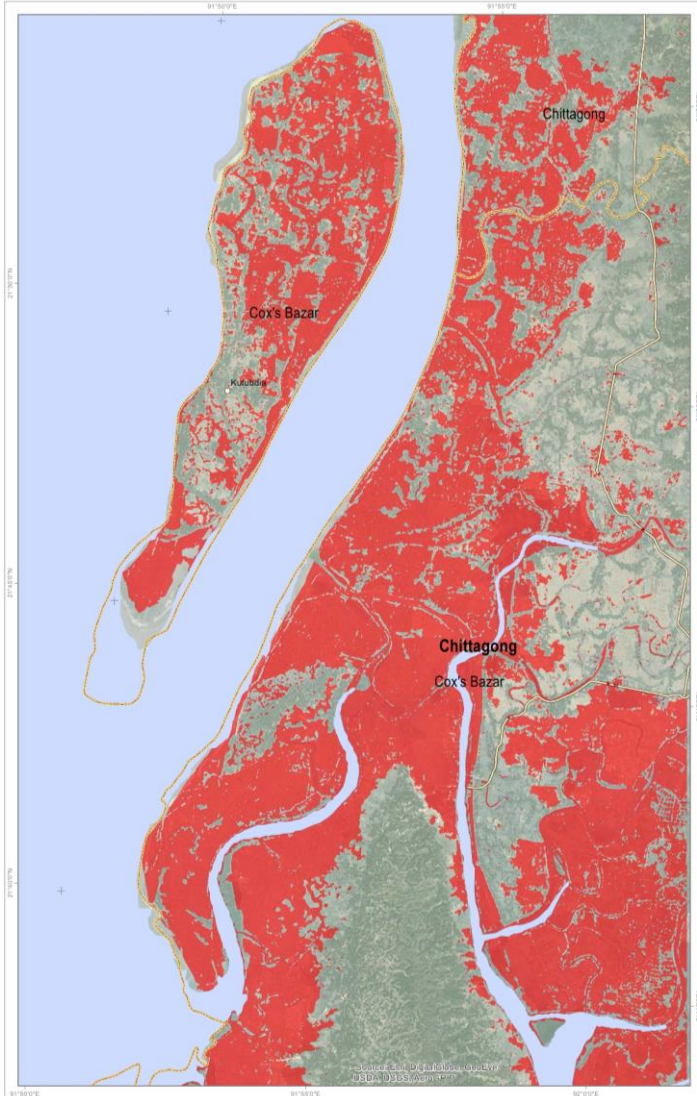
This map illustrates satellite-detected surface water extent in the District of Cox's Bazar, Chittagong Division, located in the southeastern part of Bangladesh after the tropical cyclone Mora-17 using a Sentinel-1 satellite image acquired on the 30 May 2017. A total of 21,000 ha surface waters were observed. In many zones, the affected lands are mainly agricultural. The analysis of this image reveals also that about 225 km of roads mainly tertiary roads seem to be potentially affected. This is a preliminary analysis and has not yet been validated in the field. Please send ground feedback to UNSTAR - UNOSAT.

Potentially affected roads	225.210 km
Secondary road	0.357 km
Tertiary road	224.853 km

- Legend**
- City/Town
  - Potentially affected secondary road
  - Secondary road
  - ▭ District boundary
  - ▭ Division boundary
  - Satellite detected waters (30 May 2017)



Analysis conducted with ArcGIS v10.4.1  
Coordinate System: WGS 1984 UTM Zone 48N  
Projection: Transverse Mercator  
Datum: WGS 1984  
Units: Meter



Satellite Data: Sentinel-1  
Imagery Dates: 30/05/2017  
Resolution: 10m  
Copyright: Copernicus 2017 / ESA  
Source: ESA



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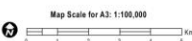


**Satellite Detected Water Extent in Chittagong District, Chittagong Division, Bangladesh**

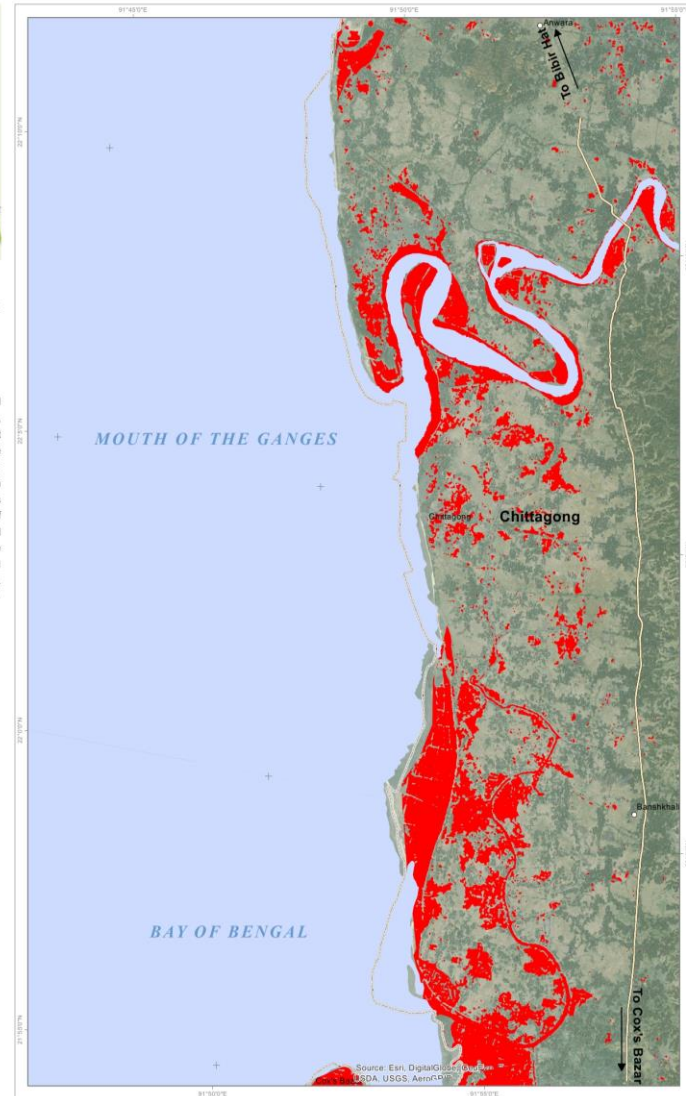
This map illustrates the satellite-detected water extent in the District of Chittagong, Chittagong Division, in the southeastern part of Bangladesh after the tropical cyclone Mora-17. The UNSTAR-UNOSAT analysis used a Sentinel-1 satellite image acquired on the 30 May 2017 and detected several areas with standing waters. In the district of Chittagong -4,260 ha are likely flooded and almost 4 km of the local roads seem to be affected. This is a preliminary analysis and has not yet been validated in the field. Please send ground feedback to UNSTAR - UNOSAT.

Potentially affected roads	3.848 km
Tertiary road	3.848 km

- Legend**
- City/Town
  - Potentially affected secondary road
  - Secondary road
  - ▭ District boundary
  - ▭ Division boundary
  - Satellite detected waters (30 May 2017)



Analysis conducted with ArcGIS v10.4.1  
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Satellite Data: Sentinel-1  
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