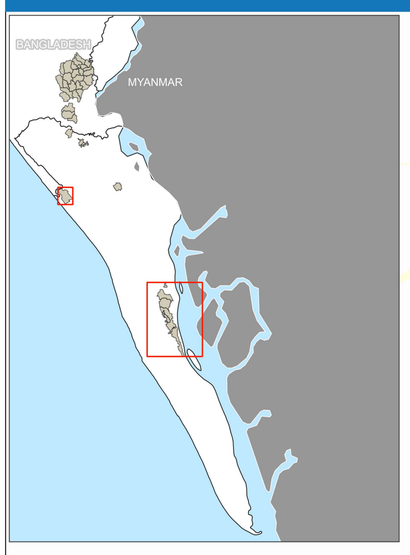
ISCG | Inter Sector Coordination Group

BANGLADESH - Rohingya Refugee Crisis - Cox's Bazar District
Storm Surge Hazard - Maximum Extent

VERSION 2.0
For Humanitarian Purposes Only
Production Date: 2019-06-17



CAMP 25
CAMP 24
CAMP 26
NAYAPARA RC
CAMP 26
NAYAPARA RC
CAMP 27
Camp 23
CAMP 23

N
W
E
S
0
0.5
1 km

Description:
This map indicates the potential inland wave penetration of a storm surge considering two cyclone scenarios:

Likely scenario: category 1 cyclone (135 km/hr wind)
Unlikely scenario: category 5 cyclone (260 km/hr wind)

Typical storm surge characteristics in Bangladesh were derived from Table 1 (source: Multi-purpose Cyclone Shelter Project Bangladesh, 1993). The inundation limits were modelled by intersecting the corresponding values from Table 1 with a digital elevation model (ASTER-GDEM, 30m resolution). The remote sensing analysis has been simplified and does not truly account for wave attenuation between the coast (max wave height) and zone of maximum inland penetration.

Usage and limitations:
The aim of this map is to help planners and decision makers to identify priority areas for interventions at camp level. It is NOT designed as a stand-alone tool for detailed site planning decisions. Map results need to be ground verified and decisions combined with specific on-site evaluation and appropriate technical expertise. Results are derived from remote sensing data and computational modelling; they are not ground-proofed and entail errors inherent to the quality of the input data and/or model assumptions. The storm surge zones do not necessarily imply exposure and, similarly, the remaining zones are not necessarily free from any danger.

Because of these limitations, the following guidelines should be considered as indicative only and verified in the field:

People and infrastructures are severely exposed in both zones; no protection measures are possible except for specifically designed cyclone shelters. The main aspect to take into consideration is the probability of the scenario to materialize. A cat.1 cyclone hitting the east coast of Bangladesh can be expected every 4-8 years on average, while two cat.5 and one cat. 4 cyclone hit Bangladesh in the past 50 years (1970, 1991 and 2007). None of them made landfall in this area.

This map is an integral part of the Summary report (status 10.06.2019) produced by the Natural Hazards and Risk Analysis Taskforce. Refer to it for further details. Please submit any requests to the ISCG Information Management Unit. This map product is part of on-going analysis and is expected to be updated by October 2019.

Data Sources:
Background: Hillshade derived from NPM - UAV Orthographic DEM, January 2019
Structure footprint: UNOSAT-REACH, 2019
Storm Surge: REACH, 2019
Roads - ©OpenStreetMap contributors
Camp Boundary: ISCG, 2019
Coordinate System: WGS 1984 UTM Zone 46N

Wind Velocity (km/h)	Storm Surge Height (m)	Limit to Inundation (km) from Coastline
85	1.5	1.0
115	2.5	1.0
135	**3.0**	**1.5**
165	3.5	2.0
195	4.8	4.0
225	6.0	4.5
235	6.5	5.0
260	**7.8**	**5.5**

Table 1. Typical storm surge inundation characteristics for cyclones of varying strength in Bangladesh (source: Multi- purpose Cyclone Shelter Project Bangladesh, 1993)

Potentially Affected Area
<135 km/hr wind
<260 km/hr wind
Camp Boundary
Road/ Footpath
Structure Footprint

Funded By:
European Union Civil Protection and Humanitarian Aid