

INDIA

Flooding in Assam State

Heavy rainfall due to the beginning of the 2019 monsoon season triggered severe flooding in northeast India. Flooding affected Assam state since 8 July but worsened considerably since 12 July, affecting 4.3 million people in 30 of 33 districts (as of 15 July). At least 83,000 people are sheltered in approximately 500 government-established relief camps and centres, with more people displaced to makeshift shelters. At least 11 people have lost their lives while the risk of more flooding and landslides persists. Urgent shelter, NFIs, food and WASH needs have been reported.

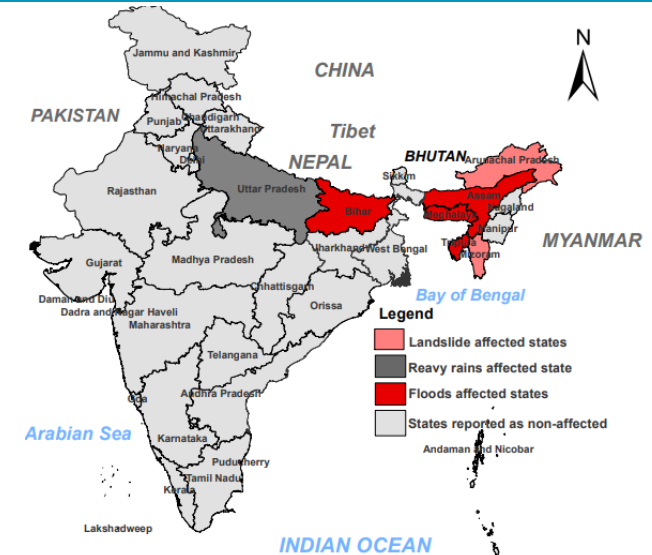
IMPACT



NEED FOR INTERNATIONAL ASSISTANCE



Flood affected areas



Source: Sphere India, 15/07/2019

Anticipated scope and scale

Impact and scale of flooding are likely to increase over the following days as additional rainfall is forecasted, several rivers, including the Brahmaputra, have risen above danger levels across various location and assessments are ongoing. The monsoon season lasts until September, severe flooding in north-eastern states usually takes place in July and August.

The impact on agriculture and infrastructure is likely to lead to longer-term effects on livelihoods and food security, as 80% of the population depend on agriculture for their livelihoods.

Hard-to-reach populations and minority groups may be excluded from assessments and assistance.

Gaps in responding to the needs of populations outside of camps was observed after previous flooding.

Key priorities



+4.3 million
people affected



+83,000
people sheltered in camps



Food assistance
in relief camps and affected villages



WASH assistance
in affected villages

Humanitarian constraints



Brahmaputra river and its tributaries cross vast parts of Assam state; populated areas near the river basins have become cut off. At least 15 districts report damaged or flooded roads and bridges.

Limitations

Data is largely based on government sources and may be biased. Variations of available data across districts may further distort the picture. Given the rapid-onset and dynamic situation, assessment results as well as impact of more flooding is subject to change over the next days.

Crisis impact

Incessant rains due to the ongoing monsoon season (July to September) caused severe flooding across 30 of 33 districts in Assam state. As of 16 July, close to 4.3 million people have been affected and 83,000 people are currently sheltered across 494 relief camps and centres (ASDMA 15/07/2019; ECHO 16/07/2019). The number of affected people has increased drastically over recent days, with Barpeta (735,000), Morigaon (350,000) and Dhubri (338,000) districts among those worst affected (ASDMA 15/07/2019; IMD CRIS 16/07/2019; Times of India 15/07/2019). As of 15 July, 11 people lost their lives in flash floods and river flooding (ECHO 15/07/2019; Sphere India 15/07/2019).

Major rivers have risen above danger levels in various locations. On 15 July, the Brahmaputra water level rose 2 to 3 cm per hour (India Today 15/07/2019; IMDB 16/07/2019; IMD 16/07/2019). Impact and scale are likely to increase as more heavy rainfall is forecasted in at least some locations across most districts and river water levels are rising. There is an heightened risk for landslides, especially as soil erosions have already occurred in some places in Assam, such as Baksa district (Times of India 15/07/2019; Xinhuanet 13/07/2019). Temporary shelter, food and WASH assistance and NFIs such as mosquito nets and other household items are reported as urgent priority needs of the affected population. Fodder for livestock, medicines and shelter materials to rebuild homes once the water recedes is needed (Sphere India 15/07/2019; ASDMA 15/07/2019). However, assessments are ongoing, and needs may vary depending on the location of affected people, particularly between relief camps, makeshift shelters and those in affected villages that are likely to not have received assistance so far.

Impact overview, Assam State Disaster Management Authority as of 15 July

District	Villages affected	People Affected	Relief camps/ centres	Crops affected (hectares)	Houses destroyed	Houses damaged
Dhemaji	411	126,523	10	8,806	17	01
Lakhimpur	129	64,622	22	3,967.71	n/a	n/a
Biswanath	135	81,654	03	6,574	n/a	n/a
Sonitpur	70	83,898	35	2,828.51	n/a	n/a
Darrang	158	174,708	05	6,731	n/a	n/a
Udalguri	10	1,350	x	270	-	50
Baksa	26	4,809	10	48.16	n/a	n/a

Barpeta	612	996,190	69	6,187	25	-
Nalbari	150	164,645	28	6,243.50	n/a	n/a
Chirang	13	5,710	04	2,356.70	n/a	n/a
Bongaigaon	11	146,304	06	526	13	n/a
Kokrajhar	69	72,069	08		n/a	n/a
Dhubri	680	937,268	32	18,934.20	04	n/a
South Salmara	65	183,336	x	1,142	n/a	n/a
Goalpara	187	119,210	11	4,247	n/a	n/a
Kamrup	208	49,200	03	5,839.50	n/a	n/a
Morigaon	364	47,254	13	52,443	n/a	n/a
Hojai	65	563,049	03	1,221.20	n/a	n/a
Nagaon	164	43,991	17	4,592.24	n/a	n/a
Golaghat	116	129,900	101	5,060.23	n/a	n/a
Majuli	91	78,567	19	2,367	n/a	n/a
Jorhat	75	64,692	04	2,120	n/a	n/a
Sivsagar	54	32,904	37	377	01	n/a
Dibrugarh	102	64,478	19	4,489.35	n/a	n/a
Tinsukia	62	23,178	21	1,095	n/a	n/a
Cachar	41	10,131	06	94.80	n/a	n/a
Karbi Anglong	02	1,072	05	x	n/a	n/a
Hailakandi	86	3,150	x	1,652.50	n/a	n/a
Karimganj	01	3,268	03	x	n/a	n/a

Source: ASDMA 15/07/2019

Shelter and NFIs: The need for temporary shelter and shelter materials to rebuild damaged and destroyed shelters once the flood water recedes is high. At least 71 houses have been destroyed and 97 houses have been damaged by the flood. However, as information is currently only available for seven districts, the number is likely much higher (ASDMA 15/07/2019). 183 camps and 311 distribution centres have been opened across all districts, sheltering some 83,000 people as of 15 July. In Assam, 15.3% of the rural population (26 million) live in so-called katcha structures made with grass or mud, that are particularly susceptible to floods and are likely un-inhabitable in the aftermath of the floods (GoI 2012). More people are estimated to have been displaced to makeshift shelters, although their location and number is unclear. Affected populations have also lost personal belongings in the floods and therefore require NFI assistance.

In 2017, it was observed that only those taking shelter in camps were provided with relief materials (Sphere India 02/08/2017). To avoid gaps in the response, affected people outside of camps, particularly in more remote and isolated locations, need to be assessed and assisted.

Food and livelihoods: Vast areas of agricultural lands and livestock have been lost which will have an immediate impact on livelihoods and food security in Assam where close to 85% of the population depend on agriculture for their livelihoods. According to government estimates, at least 150,213 hectares of crops have been affected (ASDMA 15/07/2019). Standing crops such as rice and maize have been lost before the harvest (September to October) and soils are likely in degraded conditions for the upcoming agricultural season (Government of Assam, assessed 17/07/2019).

Information on livestock lost in the floods is currently lacking. However, a lack of fodder for the remaining livestock is likely to compound food insecurity. Fodder distributions have commenced in some districts.

In the aftermath of flooding in Assam in 2017 it was estimated that 90% of the affected population had limited access to food for a period of three weeks and the government response was insufficient to meet food needs (Sphere India 02/08/2017). In addition, 91% of affected people did not have sufficient fodder for livestock, consequently exacerbating food insecurity in the mid to long-term

WASH: Monsoon related flooding often leads to a drastic increase in WASH needs. Drinking water sources such as water pumps and boreholes were damaged, destroyed or contaminated, leading to critical shortages. Following the 2017 floods, 69% of the affected villages did not have access to safe and clean drinking water (Sphere India 02/08/2017).

At the same time, sanitation facilities were flooded, which increases open defecation practices in affected villages. Contaminated water sources, stagnating floodwater and

open defecation considerably increase the risk of water-borne diseases such as cholera and diarrhoea (ECHO 13/07/2019). A shortage of safe sanitation facilities also increases protection risks.

Protection: Vulnerable groups such as women, children, elderly, and physically disabled are likely to face an elevated risk of being exposed to protection risks during floods. In previous floods in Assam, discrimination due to gender, ethnicity, religion and scheduled caste has been highlighted in displacement sites as restricting access to assistance and safe spaces (India Today 17/05/2019).

Education: Government-run schools are currently on summer vacation, decreasing the direct impact on education for the moment. Nonetheless, damages to facilities and learning materials are likely to impact education on the long run (Sphere India 02/08/2017).

Impact on critical infrastructure

Roads and bridges have become damaged and inundated due to flooding, severely hampering access across the affected districts. Critical infrastructure including hospitals has been flooded (TNH 15/07/2019).

Bank erosions have been reported from several locations across the affected area (ASDMA 15/07/2019). Water logging has been reported in urban areas in three localities in Kamrup district (ASDMA 15/07/2019).

In Hojai district electric poles have been damaged due to flash floods, it is unclear how this is impacting electricity supply within the district (ASDMA 15/07/2019). Communication systems are disrupted (Christian Aid 16/07/2019).

Vulnerable groups affected

It is likely that people with disabilities as well as members of other minority groups including transgender persons, Dalits, scheduled tribes and scheduled castes will face considerable access constraints to assistance and are more likely to report discrimination when receiving assistance (India Today 17/05/2019). Scheduled tribes and scheduled castes are more likely to live in rural and isolated areas in poor living conditions where they are more susceptible to natural hazards. Similarly, people who have become trapped by rising water levels and flooding are more vulnerable to the impact of flooding and less likely to receive prompt assistance. In the aftermath of the 2017 floods, 38% of relief camps were inaccessible for people with disabilities (Sphere India 02/08/2017).

Floods disproportionately affect the poor, who generally live in more vulnerable areas and in housing that is more susceptible to damage (ACAPS 01/2012). Poorer households depending on unstable income are more vulnerable on the impact of floods due to their limited coping capacity and decreased livelihood opportunities, often within the agricultural sector that is affected by flooding, following floods.

Humanitarian and operational constraints

Outside of the monsoon season access across the state is relatively good as there is a functioning rail network and roads are mostly adequate. However, the wide spread of rivers exposes vast areas to river flooding that has damaged or submerged roads and bridges, hindering access (ASDMA 15/07/2019; Times of India 15/07/2019).

Some populations in Assam live in isolated and hard to reach areas, which are more difficult to reach during the monsoon season. Rising water levels led to the suspension of the ferry serving Majuli Island in Jorhat district since 7 July, cutting off the population from markets and services. Although evacuations by the Indian army and civil administration have been reported it is unclear if all people have been evacuated (India Today 14/07/2019).

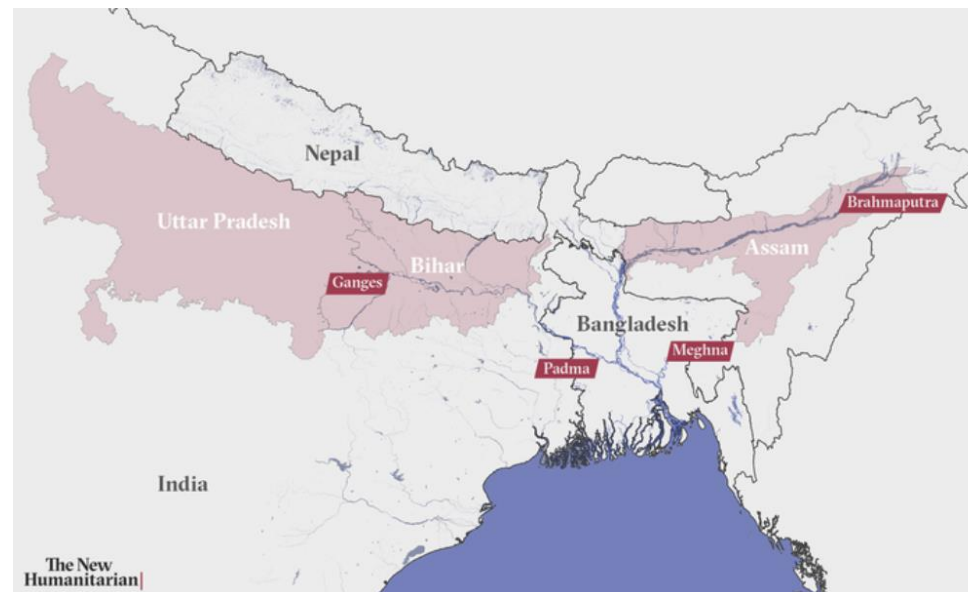
As 90% of the Kaziranga national park are inundated, animals are fleeing to higher elevations in Karbi Anglong district, the movements of elephants and other bigger animals can pose security risks and potentially restrict movement as they are crossing highways (Times of India 16/07/2019).

Aggravating factors

Ongoing monsoon season and topography

The southwest monsoon season typically lasts from June to September, which provides most of India's water needs and causes widespread flooding and landslides every year (BBC 15/07/2019; BBC 11/07/2019). This year's monsoon led to severe flooding in India, Nepal, Bangladesh, Myanmar and China, that are linked in a large interconnected river basin (ECHO 15/07/2019. BBC 15/07/2019; The New Humanitarian 15/07/2019). Regionally, more than 130 people have died because of flooding. Across India, more than 4.4 million people have been affected, hitting Bihar and Assam states particularly hard (PDC 16/07/2019; BBC 15/07/2019).

Major rivers in north-east India



Source: The New Humanitarian 15/07/2019

Agriculture and livelihoods

The socio-economic conditions in Assam are highly dependent on agriculture, as it marks the major source of income in Assam. It is estimated that more than 80% of Assam's population being dependent on agriculture and more than 50% are directly involved in agricultural activities. Around 55% of the total geographical area of Assam is used for agricultural production, many fields are located alongside the Brahmaputra river and its various streams (ENVIS 30/12/2015).

The main crops are rice, next to jute, sugarcane, tea and fruits (ENVIS 30/12/2015). Increasing population growth, deforestation, periodical flooding, and the Jhum cultivation practice (slash and burn agriculture practiced by locals) constitute the main reason of wide-spread soil erosion which limits agricultural productivity and increases the impact of floods (Maps of India 2017; ENVIS 30/12/2015).

Housing and infrastructure

In Assam, the majority of the total population, 26,807,034 of 31,205,576 people, live in rural areas (Census 2011). In rural areas, 15.3% of the population (opposed to 1.3% in urban areas) live in katcha structures with thatch roofs or walls i.e. made of grass or mud that are consequently more vulnerable to natural hazards. The main shelter type in rural areas are semi-pucca structures that are at least partly considered solid and permanent

(GoI 2012). People living in the Brahmaputra and Barak river basins and other smaller river sub-basins are particularly vulnerable to natural disasters.

Contextual information

Political stability and security

Between 11 April and 19 May India elected a new lower house of parliament (Lok Sabha). On 23 May, the results of the general elections were announced; that saw Bharatiya Janata Party (BJP), Prime Minister Modi's party, expanding its influence in parliament. Election related violence in Assam state led to some 20 civilian fatalities (ACLED 03/06/2019). Some of the protests and riots can be linked to several militant and separatist groups active in the seven north-eastern states that are connected to the rest of the country via the narrow Siliguri Corridor (India Today 02/12/2018; Times of India 16/02/2019). Mob lynchings of minority group members such as Dalits have increased since May, illustrating intercommunal tensions within the state that could increase in the aftermath of the floods and impact response (ACLED 02/07/2019).

Key characteristics

Demographic profile: Population of Assam: 31,205,576; 49% female; 86% rural and 14% urban; 15% under six years old (Census 2011). Religion: Hindu 61.5%, Islam 34%, Christian 3.75% (Census 2011).

Food security and livelihoods: Poverty ratio: 38%. (IJHSS 2014/Census 2011) 60% of urban population and 84% of rural population are eligible for subsidised rice under the National Food Security Act (Government 2013; The Economic Times 19/12/2015).

Nutrition: 40% of infants are underweight at birth; 36% of children under five are underweight (2006) (IJHSS 2014).

Health: Infant mortality: 54 deaths per 1,000 live births (2013). Maternal mortality: 328 per 100,000 live births (2012) (Statewise Info).

WASH: Access to tap water: 10.5%; access to wells: 19%; access to tube wells: 60%. Access to toilet/WC: 28.5%; pit latrine: 34.5%; no toilet: 35% (ENVIS 2012).

Lighting and cooking sources: Firewood/chips: 85%; LPG: 14.2%; kerosene 0.05% (Government 2010).

Literacy: 72% (male 78% female 67%) (Census 2011).

Response capacity

Local and national response capacity

The Indian army, at least 15 National Disaster Response Force (NDRF) teams, and the State Disaster Response Force are conducting search and rescue operations (ASDMA 15/07/2019; GoI 12/07/2019; Sphere India 15/07/2019; NDTV 17/07/2019). Local Indian Red Cross societies are supporting government authorities in the search and rescue efforts (IFRC 16/07/2019).

As of 15 July, the local government of Assam released 56 crore rupees (7.2 million €) in response to the floods (GoI 15/07/2019). The government has set up 494 camps and centres that host some 83,000 people. A total of 311 relief distribution centres were established by the government. (ECHO 14/07/2019). Emergency relief items include food tarpaulins and sanitary kits (DD NEWS 15/07/2019; News Bharati 15/07/2019). The health department is preparing to address flood affected patients (NDTV 17/07/2019).

It remains unclear who is receiving the emergency support and if the delivered items are sufficient for the people's needs. Delayed and insufficient government assistance had been reported in previous flood disasters in the affected area (Economic Times 16/06/2017).

International response capacity

Information on the international response to the floods is limited. However, several INGOs are active in the area and responded, in coordination with national organisations, to the 2017 floods. The Inter Agency Group in Assam, responsible for coordinating humanitarian organizations in relief efforts, is still assessing the impact of the floods (Sphere India 15/07/2019).

Information gaps and needs

Lack of age and gender disaggregated data for displaced people. Lack of information on conditions and response gaps within relief centres. Limited information on needs in affected villages that may vary significantly.

Data on impact on shelter, agriculture and livestock is incomplete and may therefore distort the picture.

Data is based on government figures only, not triangulated with other sources; National surveys on WASH and shelter conditions are outdated.

Lessons learned

In the 2017 Assam floods, it was observed that relief items were not distributed according to needs in the past, sowing conflict between affected communities (Sphere India 02/08/2017).

Limited relief that does not provide support for the entire affected population can lead to exclusion and discrimination based on ethnicity religious belonging as seen in the response of Cyclone Fani (India Today 17/05/2019). As the response structure in Assam is similar and the same national authorities are involved, it is likely that similar response procedure are taking place. Historic violent clashes and political tensions between indigenous tribes, including Bodo tribe, and Bangladeshi Muslim migrants, could be fuelled, leading to further political and security challenges in the state (HAF, assessed 16/07/2019).

Implementing an improved real-time flood and drought control warning system can reduce the damage caused by floods. Improved forecasting, early warning system, and preparedness measures have helped to reduce the number of lives lost and impact on livelihoods (WFP 19/20/2014, JNA ACAPS 04/2014).

District Map of Assam



Map not to Scale
 Copyright © 2017 www.mapsofindia.com
 Source: Maps of India, assessed 16/07/2019