

Updated Briefing Note – 3 August 2016

India

Floods in Assam



Need for international assistance	Not required	Low	Moderate	Significant	Major
		X			

Expected impact	Very low	Low	Moderate	Significant	Major
		X			

Crisis overview

The northeastern state of Assam has been particularly hard-hit by monsoon rains and flooding this season. Rainfall this year has been 20% above average in some areas of India, including in Assam.

Flooding worsened in Assam on 22 July, when new areas were submerged by the rising waters of the Brahmaputra River and its tributaries. As of 1 August, official figures show over 1.1 million people and over 3,300 villages across 21 out of 32 districts are affected. At least 32 people have died, most since 22 July.

As of 1 August, 125,812 people are reported to be sheltering in 273 temporary relief centres. This is a decrease from 28 July, when over 229,500 people were reported to be sheltering across 500 centres. It is likely that some people have been able to return home as floods have started to recede as a result of no rainfall since 28 July. More than 100,651 hectares of agricultural land have been lost (ASDM 01/08/2016; GoI 25/07/2016; ASDMA 25/07/2016; 28/07/2016; Economic Times 24/07/2016; Sphere 28/07/2016; IFRC 02.07/2016; Deccan Herald 03/07/2016).

Heavy rainfall has occurred across much of India since June, as is typical during the seasonal monsoon, which lasts from June to September.

Key findings

Anticipated scope and scale

There has been a decrease in rainfall since 28 July and floods are beginning to recede. However, more rain is expected over the coming days and most of the river levels continue to flow above the danger level. People may go home during the lull in rainfall and later have to return to relief sites.

Priorities for humanitarian intervention

- **Shelter:** over 3,300 villages have been affected by flooding and homes have been submerged.
- **WASH** needs are likely given the destruction of shelters and number of people affected.
- **Health:** People stranded by floodwater will be susceptible to illness and most likely to be in need of health assistance.

Humanitarian constraints

- Roads are submerged and many are closed across the state.
- In rural areas, roads are blocked by debris as a result of landslides and erosion.
- Damage to infrastructure, including bridges and communication networks, is further hindering humanitarian assistance.

Limitations

- More rain is expected and river levels remain high. The situation is likely to continue to evolve rapidly, making an accurate assessment of the situation challenging.
- It is difficult to understand the total number of people affected and to what extent, as numbers are changing dramatically over the course of a few days.
- As the number of people staying in relief centres fluctuates it is difficult to understand the extent of people's needs both inside and outside of relief centres.

Crisis impact

Assam districts affected by flooding: numbers affected on 25 July, 28 July and 1 August

Affected areas	Resident pop.	Estimated no. people affected, 25/07	Estimated no. people affected, 28/07	Estimated no. people affected, 01/08
Dhemaji	688,077	175,857	171,586	13,180
Barpeta	1,693,190	135,590	Number being verified	295,086
Jorhat	1,091,295	133,823	200,684	37,010
Golaghat	1,058,674	112,421	150,326	83,135
Lakhimpur	1,040,644	107,981	100,617	12,697
Biswanath		78,763	88,175	4,519
Dibrugarh	1,327,748	74,282	63,630	573
Bongaigaon	732,639	72,038	177,012	46,760
Dhubri	1,948,632	55,000	11,827	24,620
Tinsukia	1,327,929	45,248	279	N/A
Sonitpur	1,924,110	32,394	100,199	2,234
Svisagar	1,151,050	25,159	59,560	8,215
Goalpara	1,008,183	24,822	144,913	133,025
Nagaon	2,823,768	21,052	96,093	43,107
Chirang	481,818	19,246	12,696	14,916
Kokrajhar	886,999	6,790	50,427	32,637
Morigaon	957,423	11,012	6,831	265,339
Darrang	928,500	1,320	185,877	21,000
Nalbari	769,919	N/A	38,400	9,225
Karbi-Anglong	965,313	N/A	N/A	654
South Kamrup	1,517,542	N/A	69,893	39,150
Kamrup (M)	1,253,938	N/A	29,115	13,491
TOTAL		1,247,752	1,794,554	1,100,618

On 1 August, over 1,100,600 people were affected by floods in Assam state. This is almost double the number reported on 24 July.

According to the Assam State Disaster Management Authority (ASDMA), the worst-hit of the 21 affected districts on 1 August are Barpeta, Morigaon and Goalpara, with over 100,000 people affected in each district. One week earlier, Dhemaji, Jorhat, Golaghat, and Lakhimpur, were also reported to be among the worst affected, with over 100,000 people affected in each district. It is likely that as flood waters begin to recede, due to no rainfall since 28 July, some people have been able to return home. More rainfall is anticipated in the coming days and river levels remain above the danger level, therefore needs are unlikely to change significantly (ASDMA 25/07/2016; 01/08/2016).

Shelter and NFIs: Over 3,000 villages across 21 districts have been affected by floodwater. The extent of damage to homes is unclear; however, there are reports that water is several metres high in some areas. An unknown number of homes have been entirely submerged. While up to 229,500 people have been reported to be sheltering in relief camps others are without adequate shelter on roads or bridges. Relief centres report a lack of tarpaulins and candles (ASDMA 25/07/2016; The Indian Express 23/07/2016; Indian Express 16/07/2016; ECHO 25/07/2016; India Today 01/03/2016; Reuters 29/07/2016).

Food and livelihoods: Food assistance, including baby food, is needed in the 70 temporary shelters and relief camps (ECHO 25/07/2016; Nyooz 25/07/2016).

Flooding has damaged over 100,000 hectares of agricultural land. Paddy fields, tea gardens, and horticultural fields are affected. Livestock has been lost. This will have an immediate impact on livelihoods in the region: close to 85% of the population depend on agriculture for the livelihoods (ASDMA 25/07/2016; Deccan Herald 25/07/2016; India Today 24/07/2016; Times of India 25/07/2016; Assam State Agricultural policy 2016).

WASH: WASH needs are likely given the destruction of shelter and number of people affected.

Education: Many schools are flooded and are likely non-functional (ASDMA 25/07/2016; The Asian Age 25/07/2016). Others are closed because they are being used as relief camps (The Hindu 02/08/2016).

Health: An increasing number of fevers have been reported. There are calls for medicines to be provided to the affected population. As floodwater stagnates there is an increasing risk of a waterborne disease epidemic (Times of India 25/07/2016; Nyooz 25/07/2016).

Impact on critical infrastructure

Floodwater has cut off road access in many urban and rural areas of Assam state. Erosion has caused river embankments to collapse. A number of bridges have also collapsed. Power supply has been disrupted, affecting communication channels (The Indian Express 20/07/2016; Hindustan Times 23/07/2016; Economic Times 24/07/2016; The Asian Age 25/07/2016).

Vulnerable groups affected

- The people living on sand islands on the Brahmaputra river are especially vulnerable as they are easily marooned and more at risk of the strong river currents that surround them (Times of India 25/07/2016).
- Floods disproportionately affect the poor, who generally live in more vulnerable areas and in housing that is susceptible to damage by floods (ACAPS 06/06/2011).

Humanitarian and operational constraints

Roads are submerged across the state, hindering humanitarian access. Continued rain and the risk of further erosion and landslides, leading to increased debris on roads, means access will likely be further hindered.

Majuli, an island subdivision of Jorhat district, is cut off from the rest of the state. Residents from 136 hamlets are stranded.

Ferry services along the Brahmaputra River have been suspended due to the increasing water level and faster river currents (The Indian Express 23/07/2016; Nyooz 25/07/2016).

There are reports that some people are swimming to relief camps due to roads being entirely submerged (India Today 01/08/2016).

Aggravating factors

Continuing monsoon season

Flooding is seasonal in Assam on account of the monsoon, which traditionally lasts June–September. Adverse weather is therefore expected to continue over the coming months. Due to the effects of El Niño, a stronger than average monsoon season is expected this year.

Location and type of housing

In rural areas, Assam dwellings are often single-storey, made of wood with mud and cow dung used as plaster. They are not especially flood resistant (archinomy 2014; The Indian Express 15/04/2015).

Assam is particularly prone to flooding during the monsoon season because it is surrounded by hills from neighbouring Arunachal Pradesh state. It is therefore a basin for a large amount of run-off water from higher ground. The majority of the state of Assam is within the valley of the Brahmaputra river, making it further prone to flooding (The Indian Express 13/07/2016; Reuters 29/07/2016).

Waterborne diseases

Stagnant floodwater will create new breeding grounds for mosquitoes and likely exacerbate the spread of the disease. Dengue, malaria, chikungunya, and Japanese encephalitis are all active diseases in the paddy belts of Assam. There has been a marked increase in the number of dengue fever cases recorded since 2014. Areas of Assam are especially prone to Japanese encephalitis due to the many paddy fields in the state – an increase of cases has been noted in Morigaon district since June (Business Standard 16/07/2016; The Hindu Times 23/07/2016; Times of India 17/05/2016).

Agricultural dependency

The most severe impact of flooding can be the long-term effects. Each year vast areas of agricultural land is lost or damaged during the monsoon season. This significantly affects livelihoods in the state. Around 85% of the population of Assam depend on agriculture for their income (Assam State Agricultural policy 2016).

Key characteristics for Assam

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 rate is 54 deaths per 1,000 live births (2013). Maternal mortality is 328 per 100,000 live births (2012) (Statewise Info).

WASH: Water: access to tap water 10.5%, access to wells 19%, access to tube wells 60%. Sanitation: toilet/WC 28.5%, pit latrines 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 government is responding to the crisis via the Assam State Disaster Management Authority (ASDMA). The army has been mobilised to monitor the flood situation and coordinate relief efforts. Helicopters and boats are in service to evacuate people. The government has opened 200–500 temporary relief centres and over 50 distribution centres. Food, medicine and clothes are being provided in relief camps. The army is also attempting to distribute supplies to people who have taken shelter along highways (Reuters 29/07/2016; India Today 01/08/2016; The Indian Express 20/07/2016; ndtv 23/07/2016; ASDMA 25/07/2016; 28/07/2016; 01/08/2016).

In response to a rising number of Japanese encephalitis cases since June, the government has launched a vaccination drive in the affected areas of Assam state (Business Standard 16/07/2016).

International response capacity

No international assistance has been requested (ECHO 25/07/2016).

Information gaps and needs

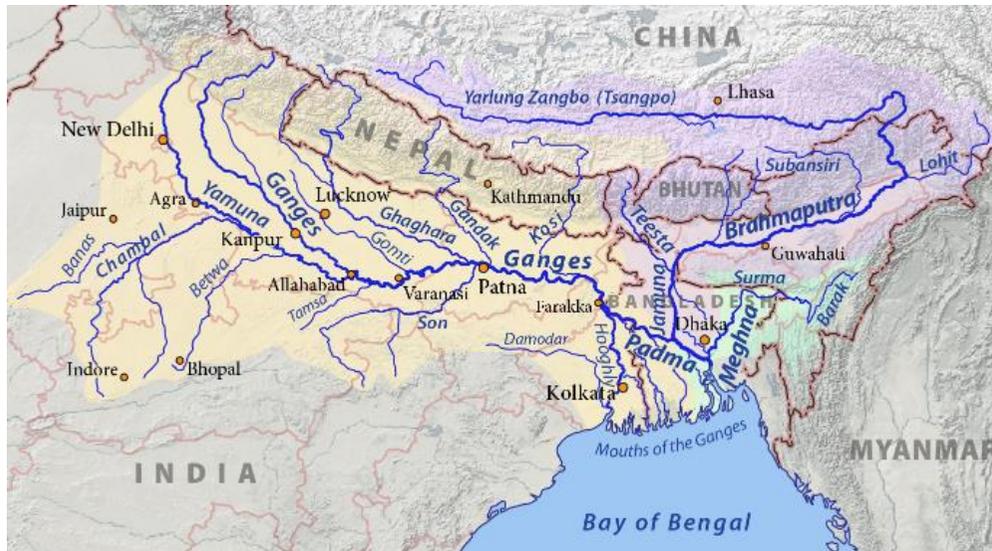
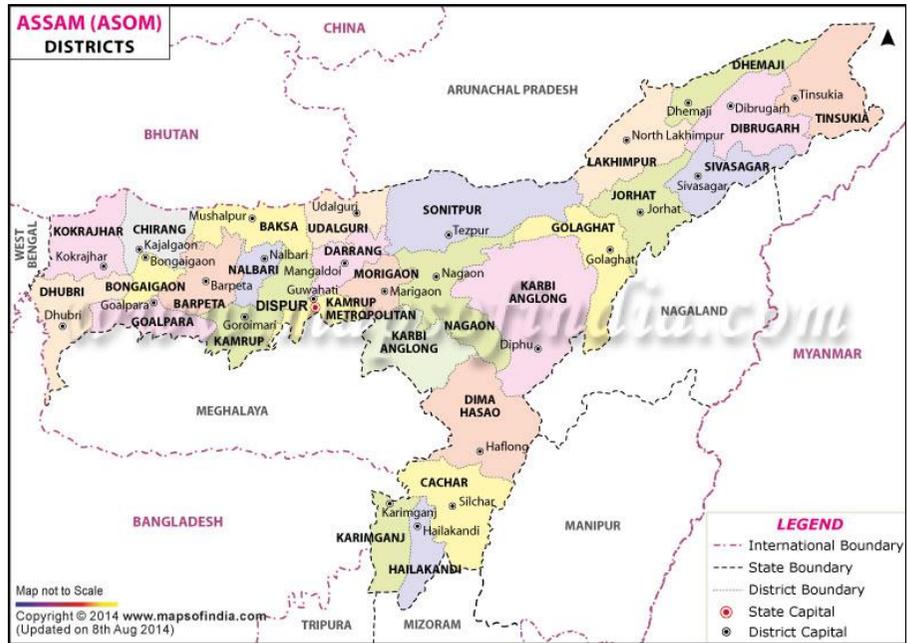
- There is no information available on sectoral needs.
- There is no information regarding the specific needs of people across different districts.
- Data regarding the number of damaged or destroyed houses is unavailable.

Besides the 88,000 people in relief centres it is unclear where the remaining population affected by floods are currently sheltering.

Lessons learned

- Floods are usually followed by epidemics. An increased amount of stagnant water increases the risk of mosquito and waterborne diseases.
- Indirect losses, such as livelihood impact, are often much higher than direct damage (ECLAC 2003).
- Water, sanitation and health are major issues in the aftermath of cyclones and floods, and a speedy response is crucial to prevent the spread of diseases (ACAPS 07/2011).
- 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).
- Drills should be regularly organised to inform people what to do if an alert is issued: lock up their homes, keep their cattle in a safe place, and take few clothes and important documents with them (First Post 14/10/2013). Different means of communication have proved essential in reaching a large population: constant news coverage before and throughout the event (emails, fax, telephone, print media, online news networks, loudspeakers) to communicate warnings and alerts, as well as distribution of satellite phones to representatives of the most vulnerable districts, to ensure that communications continue during the storm (UNEP 11/2013).

Maps of Assam and Brahmaputra River



Source: Maps of India 2014 (District map, prior to the addition of 5 districts in 2015).