

# INDIA

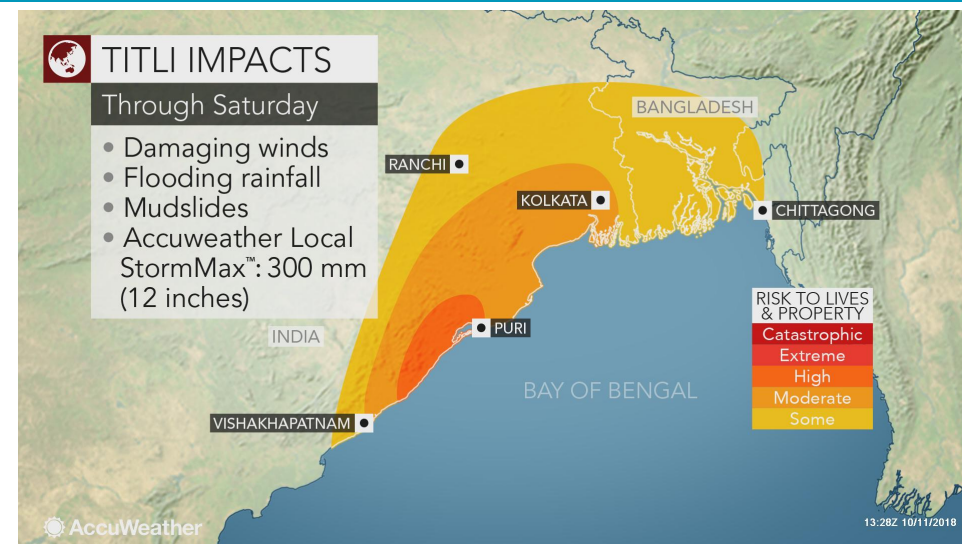
## Tropical Cyclone Titli Category: 2 Saffir-Simpson

Tropical cyclone Titli made landfall on the south-west coast of Gopalpur in Andhra Pradesh in the early morning of 11 October, before moving north-west, crossing north Andhra Pradesh and south Odisha with maximum winds of approximately 165 kmph. Some 360,000 people, particularly from low-lying and coastal areas, were evacuated prior to the cyclone, but only 9,000 were still in relief centres as of 16 October. Strong winds have damaged approximately 29,000 houses and disrupted roads, communication and electricity supply across Odisha state and Andhra Pradesh states. The most severely affected areas are Ganjam, Gajapati and Rayagada districts in Odisha and Srikakulam, Vizianagaram districts in Andhra Pradesh.

### NEED FOR INTERNATIONAL ASSISTANCE



### IMPACT



### Anticipated scope and scale

Over **six million people** have been affected by the cyclone and subsequent rainfall. Although the majority of the 360,000 people who had been evacuated were able to return home, needs for **food and livelihood assistance** remain high as vast areas of crops have been flooded and damaged. There is an increased risk for water and vector-borne disease outbreaks and a risk of landslides remains.

### Key priorities



**+6,000,000**  
people affected



**Crops**  
flooded and damaged



**9,000**  
still in relief centres

### Humanitarian constraints



Floods and strong winds have caused significant damage to roads and infrastructure across both states. Some affected populations live in remote and isolated areas that are difficult to reach.

#### Limitations

Information is mostly separate for both states. Limited information on damaged houses and crops. Needs in emergency shelters are not detailed. The actual number of casualties and needs may be higher, as the official reports are disputed, and assessments are not yet complete.

## Crisis impact

Tropical cyclone Titli made landfall on the south-west coast of Gopalpur in Andhra Pradesh in the early morning of 11 October, before moving north-west, crossing north Andhra Pradesh and south Odisha with maximum winds of approximately 165 kmph (IMD, 11/10/2018; ERCC, 11/10/2018; Economic Times, 11/10/2018). Titli weakened into a depression by midnight of 11 October as it moved towards West Bengal (IMD, 12/10/2018; ERCC, 11/10/2018).

Strong wind and rainfall affected more than six million people in 16 districts in Odisha state (Gajapati, Ganjam, Rayagada, Puri, Kandhamal, Kendrapada, Keonjhar, Cuttack, Dhenkanal, Khorda, Jagatsinghpur, Jajpur, Nayagarh, Balasore, Mayurbhanj, Angul) and two northern districts of the neighbouring Andhra Pradesh state (Srikakulam, Vizianagaram) (Times of India, 12/10/2018; Times of India, 15/10/2018; OCHA, 15/10/2018, IMD, 11/10/2018; Orissa Post, 16/10/2018). The districts of Ganjam, Gajapati and Rayagada in Odisha have been most severely affected and flooding remained serious as of 15 October (OCHA, 15/10/2018; The better India, 15/10/2018). Particularly Srikakulam and also Vizianagaram district in Andhra Pradesh are also among the worst affected areas.

As of 16 October, the death toll has risen to 27, although opposition leaders claim the number to be at least 45 in Odisha alone (Economic Times, 12/10/2018; Times of India, 15/10/2018). Initial casualties were fishermen unable to return to shore, but the increase in deaths has been attributed to floods and landslides. A landslide on 13 October killed at least 18 people in Gajapati district in Odisha (Times of India, 15/10/2018). However, the number of casualties is expected to increase as people are still thought to be missing. (New Indian Express, 16/10/2018).

Some 360,000 people were reported to have been evacuated due to the cyclone and incessant rains (ERCC, 11/10/2018; NDTV, 12/10/2018; Times of India, 15/10/2018). However, most of the evacuated people returned to their houses by 15 October, and less than 9,000 people remain in relief centres (Times of India, 15/10/2018).

**Shelter and NFIs:** As of 15 October, the impact of the cyclone and floods on housing remains unclear as reported numbers vary. In Andhra Pradesh, at least 9,000 houses have been damaged (OCHA, 15/10/2018). In Odisha, the Special Relief Commissioner estimates 19,985 houses damaged whereas news outlets estimate the number to be slightly higher (SRCO, 15/10/2018; Orissa Post, 16/10/2018, New Indian Express, 16/10/2018). As 85,000 households in Andhra Pradesh and 354,000 households in Odisha live in less resistant katcha structures, the impact of the cyclone is likely to be

widespread and numbers are likely to increase as needs assessments advance and access remote and isolated areas.

**Food:** In Andhra Pradesh, 139,000 acres of crops were damaged in Srikakulam and 4,000 acres in Vizianagaram (Times of India, 12/10/2018). In Odisha, at least 148,000 hectares of paddy crop and 65,000 hectares of non-paddy crops have been damaged and fish ponds left devastated (Orissa Post, 16/10/2018). Fishing operations are temporarily suspended and the impact on food shortages and livelihoods is not yet clear. Although the government started distributing urgent food supplies, the losses and damages are likely to have short to mid-term impact on food security in the affected areas (New Indian Express, 16/10/2018).

**Livelihood:** In Odisha, the primary source of employment is in agriculture, hence the loss and damage to crops is likely to have an impact on livelihood means in the affected areas (Care, April 2018).

**WASH:** Shortages of drinking water are a concern due to a combination of lack of electricity and higher risks for contamination of drinking water sources. The government started supplying drinking water in Gajapati, Ganjam and Rayagada (BBC, 11/10/2018; New Indian Express, 16/10/2018).

**Health:** No outbreaks have been reported as of 16 October, however stagnant water and debris in the affected areas is increasing the risk of water-borne and vector-borne diseases like cholera, diarrhoea and hepatitis A and E (News 18, 15/10/2018). Despite a major push in the last five years to improve WASH indicators, there remains a risk of contaminated water sources due to ongoing open defecation practices (Times of India, 24/05/2018).

## Impact on critical infrastructure and humanitarian constraints

Fallen trees and floods have damaged and blocked off several roads and train tracks in both states. More than 800km of roads in Odisha have sustained significant damages and have only partly been restored in Gajapati, Ganjam and Raygada by late 15 October (New Indian Express, 16/10/2018; Times of India, 15/10/2018).

Electricity and communication has been disrupted but is projected to be restored in Gajapati by late 16 October and until 19 October in more heavily damaged areas of Odisha (Times of India, 15/10/2018; New Indian Express, 16/10/2018; BBC, 11/10/2018) On 16 October, officials claimed to have restored 34% of power lines and 81% of the communication network in the affected areas (New Indian Express, 15/10/2018; New Indian Express, 16/10/2018)

## Vulnerable Groups

Some seven million people in the state of Odisha are subject to heightened vulnerability due to their caste or tribe (Care, April 2018; Census 2011). Similarly, in Srikakulam and Vizianagaram in Andhra Pradesh more than five million people belong to a scheduled tribe or caste (Census 2011, Scheduled Tribes).

## Aggravating factors

### Monsoon season and El Nino

The 2018 monsoon started to withdraw in late September, almost a month behind normal schedule. Overall, however, the monsoon season was 24% below normal rainfall levels (Economic Times, 24/09/2018, IMD, 10/10/2018). Some districts still experienced above average rains: Srikakulam district for example has seen 35% above average rainfall activity this season (IMDH, accessed 12/10/2018). Heavy rains previous to the cyclone had already affected 2,273,728 people in Odisha, with 57,952 in emergency shelters (NERC, 9/10/2018).

A possible el Nino event forecasted to take place after November might adversely impact winter rains that are crucial for crops such as wheat, mustard and chana. (Indian Express, 20/09/2018)

### Location and type of housing/infrastructure

The majority of Odisha's population lives in rural areas (34,970,562 as opposed to 7,003,656 in urban areas). The dispersion across Andhra Pradesh is more balanced with 56,361,702 in rural areas and 28,219,075 in urban centres. (Census 2011) The majority of people in urban and rural areas of Andhra Pradesh and Odisha live in pucca houses (solid and permanent structures). Roughly 25% of the rural population of Odisha lives in semi-pucca structures and another 25% in katcha housing (with thatch roofs or walls i.e. made of grass or mud). (Government of India 2012)

## Key characteristics

- **Demographic profile:** Population in Odisha: 41,974,218; 50,5% male and 49,5% female; 16,7% living in urban areas and 83,3% in rural areas. Population in Andhra Pradesh: 84,580,777; 50,2% male and 49,8% female; 66,6% live in rural areas and 33,4% in urban areas. 35.69% of Odisha's population and 10,96% of Andhra Pradesh's population live below the poverty line. (Government of India, 2013)

- **Food security figures.** More than 190 million people are food insecure in India (WFP, June 2018) 37% of Odisha's population live below the poverty line (UNDP, 2012).
- **Nutrition levels.** Approximately 14.9% of India's population is undernourished. (IFB, accessed 12/10/2018) Prevalence of calorie undernourishment is 21.4% in Odisha and prevalence of underweight children under five years is 40.9%. Child malnutrition for under 5 years is 37.9% (UNDP, accessed 16/10/2018)
- **Health statistics:** Life expectancy is at 68.8 years; Infant mortality rate is 34.6 per 1,000. Mortality rate for under 5 year-olds is 43 per 1,000 births. (UNDP, accessed 16/10/2018)
- **WASH statistics:** 1,779,000 households in Odisha and 1,894,000 households in Andhra Pradesh have an improved source of drinking water. The major source of drinking water in rural India are tube well/boreholes, which is the main source of for more than half of the rural population. (Government of India 2012)  
  
The major source of drinking water in rural India are tubewell/boreholes, which is the main source of drinking water for more than half of the rural population according to a 2012 study. (Government of India 2012)
- **Literacy levels.** Odisha: 81,6%; Andhra Pradesh: 74,9% (Census 2011)
- **Population density:** Andhra Pradesh state is the fifth largest state with 160,205 km<sup>2</sup> and the fourth largest by population with a population density of around 308 persons per square kilometre, which is below the national average of 324 people per square kilometre. Odisha state is 155,707 km<sup>2</sup> and has a population density of 270 persons per square kilometres. (Census 2011; EPTRI, March 2012)

## Response capacity

### Local and national response capacity

The Indian Meteorological Department issued a warning and urged action in preparation of the cyclone on 10 October. (IMD, 10/10/2018) The National Disaster Response Force and the Odisha Disaster Rapid Action Force have been deployed in Ganjam, Gajapati, Puri, Kendrapada, Nayagarh, Bhadrak, Jagatsinghpur, Jajpur, Khordha, Cuttack, Balasore, Mayurbhanj, Kalahandi, Boudh and Sambalpur districts. (ERCC, 12/10/2018) Over 300,000 people in low-lying affected areas were evacuated pre-cyclone and accommodated in the 1,112 cyclone shelters. An additional 879 multi-purpose shelters are on standby. (ERCC, 12/10/2018; Economic Times, 11/10/2018) The state of Andhra

Pradesh improved its response and disaster preparedness capacities over the past years. (South Asia Disasters, April 2018)

## International response capacity

International non-governmental organisations and UN Agencies are working on WASH, Shelter, NFI, FOOD, livelihood and health response in the country. There is no detailed information on other activities in relation to cyclone Titli available.

## Information gaps and needs

Initial needs assessments are being conducted but as some areas are harder to access, current needs might change or aggravate within the following days.

There is a lack of information on:

- Total number of houses partly or completely damaged.
- Information on reparation of roads and power lines.
- Scale of damages to buildings and infrastructure.
- Needs of people in evacuation centres.
- Needs of people who are not in evacuation centres.

## Lessons learned

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: floods are often followed by epidemics. An increased amount of stagnant water increases the risk of mosquito- and waterborne diseases. (ACAPS 07/2011)

Indirect losses, such as livelihood impact, are often much higher than direct damage. (ECLAC 2003)

Generally, women and girls are also a particularly vulnerable group affected by cyclones and floods due to the risk of gender-based violence for those staying in evacuation centres, where abuse and exploitation are of great concern. Overcrowding at evacuation centres, with a lack of privacy and inadequate toilets and washing facilities, increases the risks and vulnerability of women and girls to gender-based violence, sexual exploitation and abuse (GBV Working Group 24/08/2017). However, there is no disaggregated data on women and girls in evacuation centres.