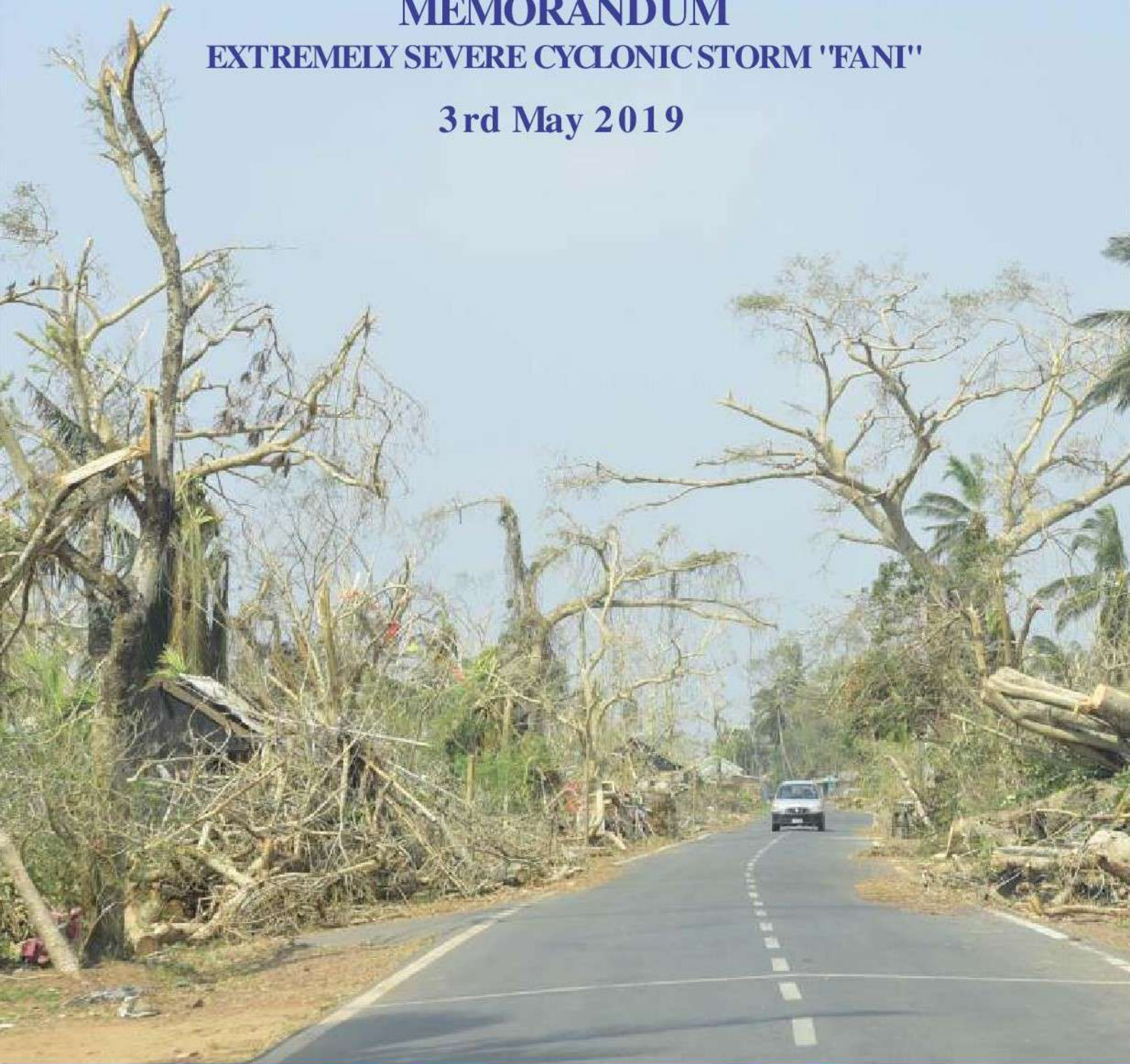




Government of Odisha

**MEMORANDUM**  
**EXTREMELY SEVERE CYCLONIC STORM 'FANI'**

**3rd May 2019**



**SPECIAL RELIEF COMMISSIONER**

Revenue & Disaster Management Department  
Government of Odisha

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# Chapter- I

## INTRODUCTION

The geographical location and physical environment make Odisha Coastal Zone vulnerable to frequent cyclonic disturbances. The high wind speed together with torrential rain and storm surges associated with the cyclones bring damage to the coastal settlements. Generally, two cyclone seasons i.e., one during pre-monsoon period (April, May & June up to onset of monsoon) and another post monsoon (October to December) prevail over the Odisha. If the disturbances are grouped in terms of pre and post monsoon season, they are more in the post-monsoon season. The cyclones which had affected Odisha coast normally originated in the sea and dissipated in the land. The cyclones of land origin and land dissipation or sea dissipation are negligible. There are some cyclones which originate in the sea adjacent to the Odisha coast and dissipate in the sea. Such events had not much impact on the Odisha Coastal Zone.

The Building Material Technology Promotion Council (BMTPC) of Ministry of Urban Development, based on Hazard Vulnerability identified cyclone prone districts of Odisha taking into consideration cyclone hazards of the coastal area. As per Wind and Cyclone Hazard Zones Map of Odisha, out of 30 districts of the state, 14 districts are categorized as high damage risk zone either fully or partially.



The East Coast of India is one of the six most cyclone-prone areas in the world. Although the North Indian Ocean (the Bay of Bengal and Arabian Sea) generates only about 7% of the World's cyclones (5 to 6 TCs per year) their impact is comparatively high and devastating, especially when they strike the coasts bordering the North Bay of Bengal. In the last century, the Indian subcontinent has experienced 1019 cyclonic disturbances, of which 890 were along the eastern coast and 129 were along the western coast and 260 cyclonic disturbances had their landfall along the Odisha coast. Out of the 260 disturbances, there were 180 depressions (69%), 57 storms (22%) and 23 severe storms (9%). In comparison to all the coastal states of India, the Odisha coast has the highest vulnerability in terms of landfall. With 29% of the total disturbances affecting Odisha coast, the vulnerability of the Odisha Coastal Zone is relatively high in comparison to other states like West Bengal (14%), Andhra Pradesh (13%) and Tamil Nadu (7%). Although the total number of cyclonic disturbances is more along the Odisha coast, the severe storms are of greater public concern in view of their large scale damage potentiality, loss of life and property. By taking together the figures of the storms and severe storms which mostly create havoc and incur greater amount of damage, the Odisha Coastal Zone is twice more vulnerable in comparison to the other eastern states. The revisit or recurrence time of a severe storm to the Odisha coast is around four years; for West Bengal coast it is 5 years. As far as cyclones are concerned, the revisit time for the Odisha coast is nearly 2 years which is much shorter than that of the other states indicating that Odisha is the most frequently cyclone affected coastal state in the country.

During the last decade, the State has faced one or other forms of disasters like flood, cyclone, tornado or drought every year. From 1891 to 2000, 98 nos. of cyclones/ severe cyclones had crossed the Odisha coast. This is more than that of the coast of West Bengal, Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra, Goa, Gujarat & Kerala. Most of the cyclones cross coast of Odisha, followed by Andhra Pradesh, West Bengal and then Tamil Nadu.

**Total number of cyclones crossing different coasts (1891-2000)**

<b>State</b>	<b>Total No.</b>
West Bengal	69
Odisha	98
Andhra Pradesh	79
Tamil Nadu	62

Karnataka	02
Maharashtra & Goa	18
Gujarat	28
Kerala	03

[Source: IMD]

The distribution of the cyclonic disturbances in the Indian Ocean region is confined between the months of May and November. The depressions are evenly distributed between June to September i.e., in the monsoon period but in the post monsoon season their frequency decreases up to December. The disturbances which develop in the pre and post monsoon period intensify into severe storms of devastating nature. The most vulnerable months for the occurrence of a severe cyclone is October followed by the month of September.

### **Cyclone Occurrences in the recent past**

The coastline of Odisha is only about 17% of the Indian east coast, it has been affected by nearly 35% of all cyclonic and severe cyclonic storms that have crossed the east coast and associated storm surges that have often inundated large tracts of coastal districts. On an average, about five to six tropical cyclones form in the Bay of Bengal every year, of which two to three are within the mild to severe range. The severe cyclonic events in the Bay of Bengal which had severe impacts on the Odisha coast are given in following Table.

<b>Sl. No.</b>	<b>Date/Year</b>	<b>Category of Cyclone</b>	<b>Landfall and loss</b>
1	7-12 October, 1737	Super Cyclone	Crossed West Bengal Coast over Sunderbans and had impact over Odisha
2	31 October, 1831	Very Severe Cyclonic Storm	Crossed Odisha Coast near Balasore, Loss of life-50,000
3	2-5 October, 1864	Very Severe Cyclonic Storm	Crossed West Bengal Coast near Contai and had impact over Odisha
4	1-2 November, 1864	Very Severe Cyclonic Storm	Crossed Andhra Pradesh near Machilipatnam and had impact over Odisha
5	22 September, 1885	Super Cyclone	Crossed Odisha Coast at False Point, Loss of life- 5000
6	14-16 October, 1942	Very Severe Cyclonic Storm	Crossed West Bengal Coast near Contai and had impact over Odisha

7	8-11 October, 1967	Very Severe Cyclonic Storm	Crossed Odisha Coast between Puri and Paradeep
8	26-30 October, 1971	Very Severe Cyclonic Storm	Crossed Odisha Coast near Paradeep, Loss of life- 10,000
9	14-20 November, 1977	Super Cyclone	Crossed Andhra Coast near Nizampatnam and had impact over Odisha
10	4-11 May, 1990	Super Cyclone	Crossed Andhra Pradesh Coast about 40 Km S-W of Machlipatnam and had impact over Odisha
11	25-31 October, 1999	Super Cyclone	Crossed Odisha Coast near Paradeep at noon of 29 October
12	12-14 October, 2013	Very Severe Cyclonic Storm, Phailin	Crossed Odisha Coast near Gopalpur at evening of 12 October
13	12-14 October, 2014	Very Severe Cyclonic Storm 'Hudhud'	Crossed Andhra Pradesh Coast at Vishakapatnam and impact on south Odisha
14	10-12 October, 2018	Very Severe Cyclonic Storm Titli	Crossed Andhra Pradesh Coast at Palasa and severe impact on south Odisha

The most recent cyclone to hit the coast of Odisha was the very severe cyclonic storm Titli in 2018. The very severe cyclonic storm Phailin which hit the state in 2013, affected 13.2 million people.

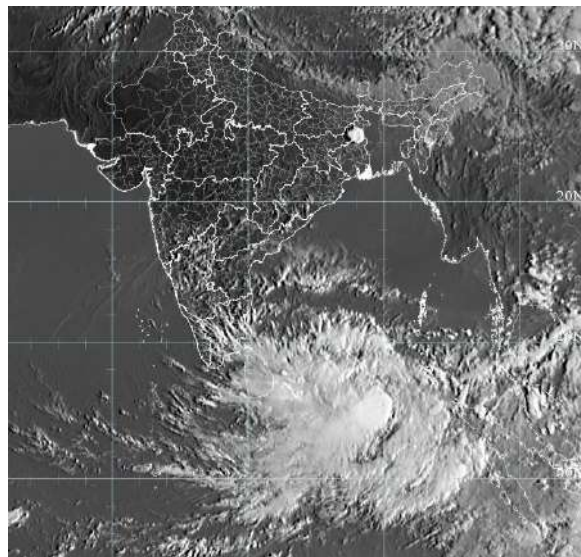
# Chapter- II

## CYCLONE TRACKING

India Meteorological Department (IMD) reported on 25.4.2019 that a well marked low pressure area was formed and centered over East Equatorial Indian Ocean & adjoining southeast Bay of Bengal. It would very likely intensify into a depression during next 24 hours over East Equatorial Indian Ocean & adjoining central parts of south Bay of Bengal and into a Cyclonic Storm during subsequent 24 hours over southwest Bay of Bengal & adjoining Equatorial Indian Ocean. It would very likely move northwestwards along & off east coast of Sri Lanka near north Tamil Nadu coast on 30<sup>th</sup> April 2019.

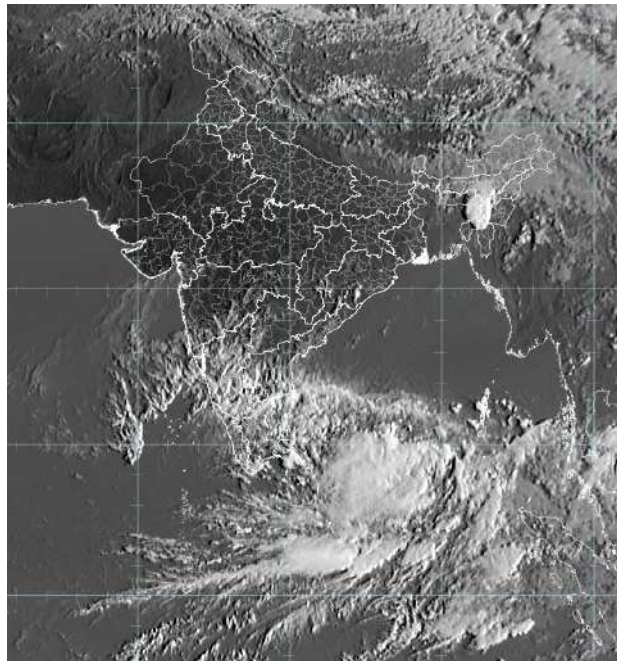
On 26.4.2019, IMD informed that the well marked low pressure area over east Equatorial Indian Ocean & adjoining southeast Bay of Bengal concentrated into a depression over the same region and lay centered at 0830 hrs IST of 26th April 2019 near Lat. 2.7°N and Long. 89.7°E, about 1140 KM east southeast of Trincomalee (Sri Lanka), 1490 KM southeast of Chennai and 1760 KM south southeast of Machilipatnam. It would very likely intensify further into a deep depression during next 24 hours and into a Cyclonic Storm during subsequent 12 hours. It would very likely move northwestwards off Sri Lanka coast during next 96 hours and reach near north Tamil Nadu & south Andhra Pradesh coasts on 30th April 2019 evening. **No warning was issued for the Odisha coast.**

IMD's bulletin issued on 27.4.2019 indicated that the Depression over East Equatorial Indian Ocean & adjoining southeast Bay of Bengal intensified into a Deep Depression at 0530 hours IST of 27<sup>th</sup> April, 2019 near latitude 4.5°N and longitude 88.0°E about 870 km east-southeast of Trincomalee (Sri Lanka), 1210 KM southeast of Chennai (Tamil Nadu) and 1500 KM south-southeast of Machilipatnam (Andhra Pradesh). The Deep Depression over East Equatorial Indian Ocean & adjoining southeast Bay of Bengal moved north-northwestwards with a speed of about 18 kmph in last six hours and lay centred at 0830 hrs IST of 27<sup>th</sup> April, 2019 near latitude 4.9°N and longitude 88.0°E, about 850 KM east-southeast of Trincomalee (Sri Lanka), 1180 KM southeast of Chennai (Tamil Nadu) and



1460 KM south-southeast of Machilipatnam (Andhra Pradesh). On the same day, IMD in another bulletin mentioned that the deep depression over East Equatorial Indian Ocean & adjoining southeast Bay of Bengal intensified into Cyclonic Storm and named as 'FANI' (pronounced as 'FONI') over southeast Bay of Bengal & adjoining East Equatorial Indian Ocean and lay centred at 1130 hrs IST of 27th April, 2019 near latitude 5.2°N and longitude 88.5°E, about 880 KM east-southeast of Trincomalee (Sri Lanka), 1190 KM southeast of Chennai (Tamil Nadu) and 1460 KM south-southeast of Machilipatnam (Andhra Pradesh). It would very likely intensify into a Severe Cyclonic Storm during next 24 hours. It would very likely move northwestwards off Sri Lanka coast during next 72 hours and reach near north Tamil Nadu & south Andhra Pradesh coasts on 30<sup>th</sup> April, 2019 evening. **Again, no weather warning was issued by IMD for the Odisha coast.**

On 28.4.2019, IMD indicated that the Cyclonic Storm 'FANI' over southeast Bay of Bengal & neighbourhood moved northwards with a speed of about 07 KMPH in last 06 hours and lay centred at 0830 hrs IST of 28th April, 2019 near Lat. 7.3°N and Long. 87.9°E over southeast Bay of Bengal & neighbourhood, about 745 km east-southeast of Trincomalee (Sri Lanka), 1050 KM southeast of Chennai (Tamil Nadu) and 1230 KM south-southeast of Machilipatnam (Andhra Pradesh). It would very likely intensify into a Severe Cyclonic Storm during next 12 hours and into a Very Severe Cyclonic Storm during subsequent 24 hours. It



would very likely move northwestwards till 01<sup>st</sup> May evening and thereafter re-curve north-northeastwards gradually. There was also forecast and warnings for Odisha that light to moderate rainfall very likely to occur at a few places over the districts of south coastal and adjoining districts of interior Odisha on 2<sup>nd</sup> May, 2019. Heavy rainfall likely to occur at one or two places over Koraput, Rayagada, Gajapati & Ganjam districts of Odisha on 2<sup>nd</sup> May, 2019. It was likely to increase in intensity with heavy rainfall over coastal Odisha from 3<sup>rd</sup> May, 2019.

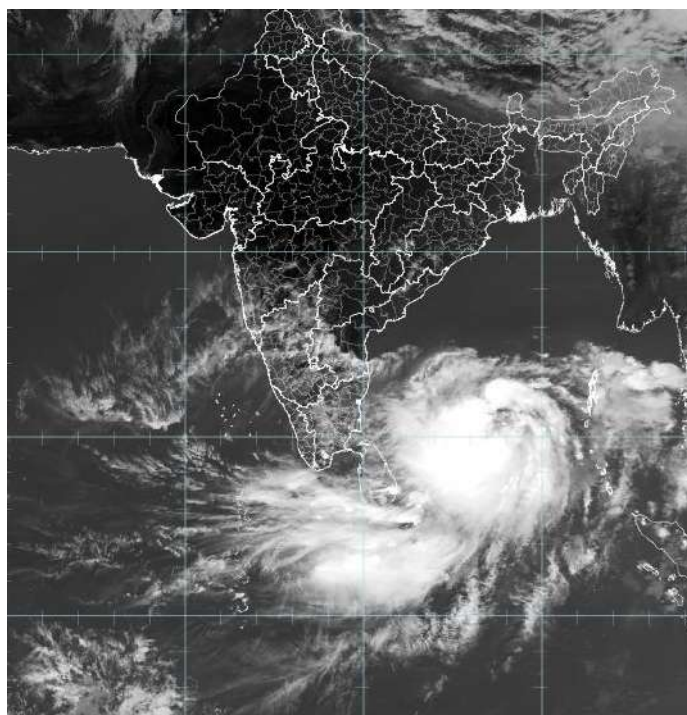
Though there was no warning issued by IMD for the Odisha Coast, the State Government started closely monitoring the situation. Based on the forecast issued from



IMD and other international Agencies like Regional Integrated Multihazard Early Warning Systems (RIMES), Thailand, Joint Typhoon Warning Center (JTWC), USA, the tracking of the system was thoroughly done by the Experts of Odisha State Disaster Management Authority (OSDMA) in GIS platform with regard to possibility of its likely impact over the Odisha.

On 29.4.2019, IMD reported that the Cyclonic Storm 'FANI' over Southeast Bay of Bengal & neighbourhood moved north-north-westwards with a speed of about 16 KMPH in

last six hours, intensified into a Severe Cyclonic Storm and lay centred at 1730 hrs IST of 29<sup>th</sup> April, 2019 near latitude 10.1°N and longitude 86.7°E over Southeast & adjoining Southwest Bay of Bengal, about 620 KM east-northeast of Trincomalee (Sri Lanka), 770 KM east-southeast of Chennai (Tamil Nadu) and 900 KM south-southeast of Machilipatnam (Andhra Pradesh). It would very likely intensify into a Very Severe Cyclonic Storm during next 24 hours and into an Extremely

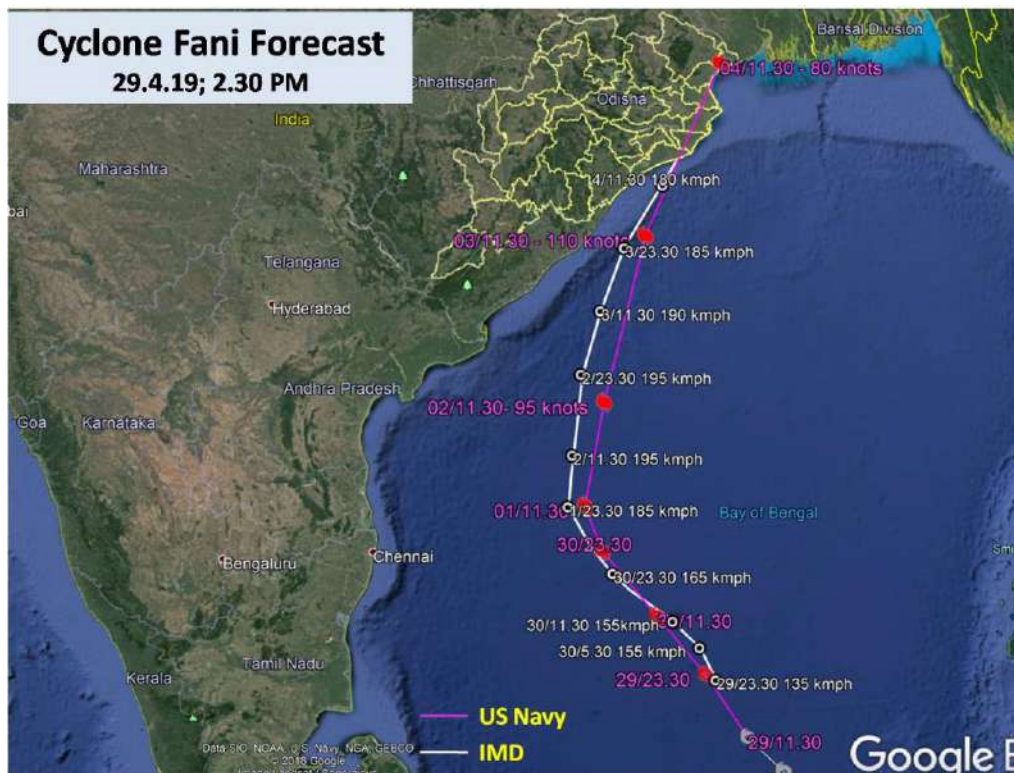


Severe Cyclonic Storm during subsequent 24 hours. It would very likely move northwestwards till 01<sup>st</sup> May evening and thereafter recurve north-northeastwards towards Odisha Coast. Light to moderate rainfall at few places very likely over the districts of south coastal Odisha and adjoining districts of interior Odisha on 2<sup>nd</sup> May. Heavy to very heavy rainfall likely to occur at one or two places over Coastal Odisha on 3<sup>rd</sup> May, 2019. Thundersquall with speed reaching 50-60 KMPH gusting to 60 KMPH and lightning activities likely to occur at one or two places over the districts of coastal Odisha on 2<sup>nd</sup> and 3<sup>rd</sup> May. IMD issued the forecast track and intensity as per the following table.

Date/Time(IST)	Maximum sustained surface wind speed (KMPH)	Category of cyclonic disturbance
29.04.19/1730	100-110 gusting to 125	Severe Cyclonic Storm
29.04.19/2330	110-120 gusting to 135	Severe Cyclonic Storm
30.04.19/0530	120-130 gusting to 145	Severe Cyclonic Storm

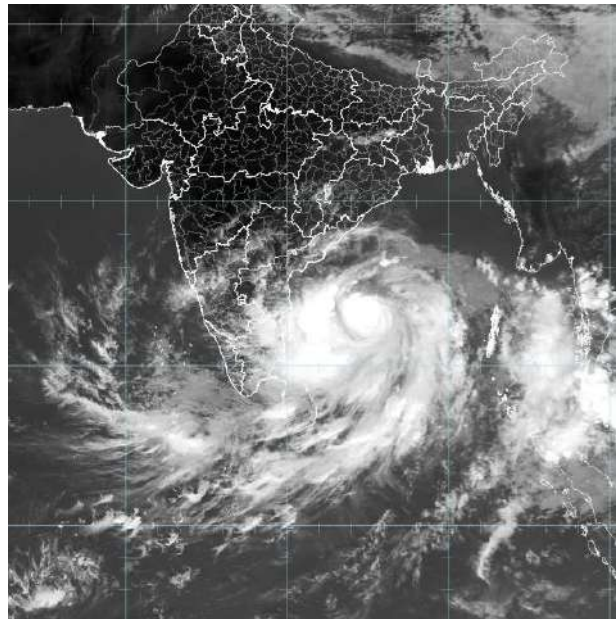
30.04.19/1130	130-140 gusting to 155	Very Severe Cyclonic Storm
30.04.19/1730	135-145 gusting to 160	Very Severe Cyclonic Storm
01.05.19/0530	150-160 gusting to 180	Very Severe Cyclonic Storm
01.05.19/1730	160-170 gusting to 190	Extremely Severe Cyclonic Storm
02.05.19/0530	170-180 gusting to 200	Extremely Severe Cyclonic Storm
02.05.19/1730	170-180 gusting to 200	Extremely Severe Cyclonic Storm
03.05.19/0530	170-180 gusting to 200	Extremely Severe Cyclonic Storm
03.05.19/1730	170-180 gusting to 200	Extremely Severe Cyclonic Storm
04.05.19/0530	160-170 gusting to 190	Extremely Severe Cyclonic Storm
04.05.19/1730	150-160 gusting to 185	Very Severe Cyclonic Storm

On the same day, Forecast of other met Agencies were analysed. It was observed from the Joint Typhoon Warning Center of USA that the cyclone would cross Odisha coast on 3<sup>rd</sup> May late evening/ night. A comparative forecast between IMD and JTWC is shown in the following figure.



On 30.4.2019, IMD's bulleting indicated that the Severe Cyclonic Storm 'FANI' over Southeast & adjoining Southwest Bay of Bengal moved north-northwestwards with a speed of about 16 KMPH in last six hours, intensified into a Very Severe Cyclonic Storm and lay centred at 0530 hrs IST of 30<sup>th</sup> April, 2019 near latitude 11.7°N and longitude 86.5°E over Southeast & adjoining Southwest Bay of Bengal, about 670 KM east-northeast of

Trincomalee (Sri Lanka), 690 KM east-southeast of Chennai (Tamil Nadu) and 760 KM southeast of Machilipatnam (Andhra Pradesh). It would very likely intensify further into an Extremely Severe Cyclonic Storm during next 36 hours. It would very likely move northwestwards till 01<sup>st</sup> May evening and thereafter recurve north-northeastwards towards Odisha Coast.



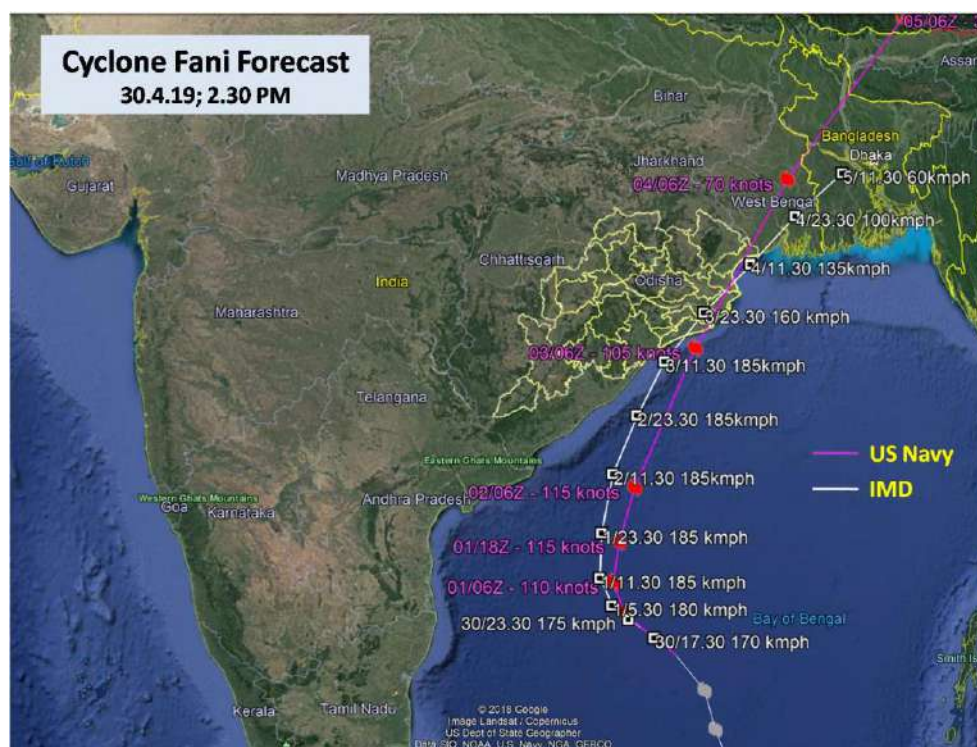
IMD issued the rainfall warning over Odisha as light to moderate rainfall at few places with isolated heavy rainfall very likely over the districts of south coastal Odisha and adjoining districts of Interior Odisha on 2<sup>nd</sup> May. Light to moderate rainfall at most places with heavy to very heavy rainfall likely to occur at one or two places over Coastal Odisha on 3<sup>rd</sup> May, 2019.

Further, IMD issued a cyclone watch message for Odisha coast at 1.00 PM on 30.4.19 and reported that the Very Severe Cyclonic Storm "FANI" over Southeast & adjoining Southwest Bay of Bengal moved north-northwestwards with a speed of about 23 KMPH in last six hours and lay centred at 0830 hrs IST of 30<sup>th</sup> April, 2019 near latitude 12.3°N and longitude 86.2°E over Southeast & adjoining Southwest Bay of Bengal, about 830 KM nearly south of Puri (Odisha) and 670 KM south-southeast of Vishakhapatnam (Andhra Pradesh) and about 680 KM northeast of Trincomalee (Sri Lanka). It would very likely intensify further into an Extremely Severe Cyclonic Storm during next 12 hours. It would very likely move northwestwards till 01<sup>st</sup> May evening and thereafter recurve north-northeastwards and reach Odisha Coast by 3<sup>rd</sup> May afternoon with maximum sustained wind of speed 170-180 gusting to 200 KMPH. The Forecast track and intensity are given in the following table:

<b>Date/Time(IST)</b>	<b>Position (Lat. °N/ long. °E)</b>	<b>Maximum sustained surface wind speed (KMPH)</b>	<b>Category of cyclonic disturbance</b>
30.04.19/0830	12.3/86.2	135-145 gusting to 160	Very Severe Cyclonic Storm
30.04.19/1130	12.5/85.9	145-155 gusting to 170	Very Severe Cyclonic Storm
30.04.19/1730	13.1/85.3	160-170 gusting to 185	Very Severe Cyclonic Storm
30.04.19/2330	13.5/84.7	165-175 gusting to 195	Extremely Severe Cyclonic Storm
01.05.19/0530	13.8/84.3	170-180 gusting to 200	Extremely Severe Cyclonic Storm

01.05.19/1730	14.4/84.0	170-180 gusting to 200	Extremely Severe Cyclonic Storm
02.05.19/0530	15.4/84.0	170-180 gusting to 200	Extremely Severe Cyclonic Storm
02.05.19/1730	16.7/84.3	170-180 gusting to 200	Extremely Severe Cyclonic Storm
03.05.19/0530	18.0/84.8	170-180 gusting to 200	Extremely Severe Cyclonic Storm
03.05.19/1730	19.2/85.4	160-170 gusting to 190	Extremely Severe Cyclonic Storm
04.05.19/0530	20.3/86.3	140-150 gusting to 165	Very Severe Cyclonic Storm
04.05.19/1730	21.4/87.3	125-135 gusting to 150	Severe Cyclonic Storm
05.05.19/0530	22.5/88.4	90-100 gusting to 110	Severe Cyclonic Storm

The track and intensity were closely monitored by OSDMA and compared with other Met Agencies' forecast. The analysis map is given in the following Figure.



IMD mentioned that the gale wind speed reaching 145-155 kmph gusting to 170 KMPH was prevailing over Southwest Bay & adjoining Southeast of Bengal. It was very likely to increase gradually becoming 175-185 KMPH gusting to 205 KMPH over West-central & adjoining Southwest Bay of Bengal off north Tamilnadu, Puducherry and south Andhra Pradesh Coast from 1<sup>st</sup> May morning onwards.

Squally wind speed reaching 40-50 KMPH gusting to 60 KMPH is very likely to commence along & off Odisha Coasts from 2<sup>nd</sup> May and very likely to become gale wind, speed reaching 60-70 KMPH gusting to 85 KMPH from 3<sup>rd</sup> May morning and become 175-185 gusting 205 KMPH over Odisha Coast by 3<sup>rd</sup> May evening.

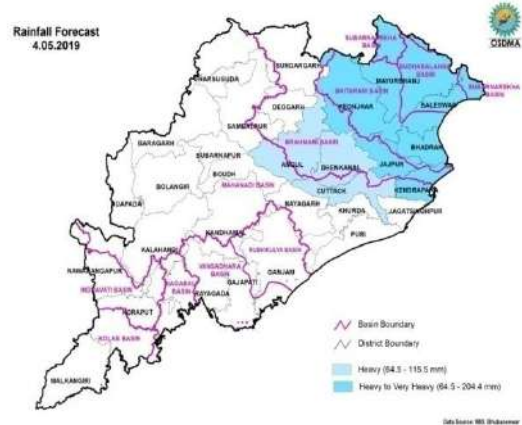
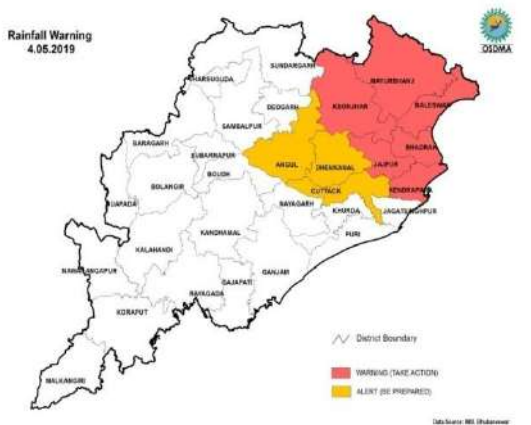
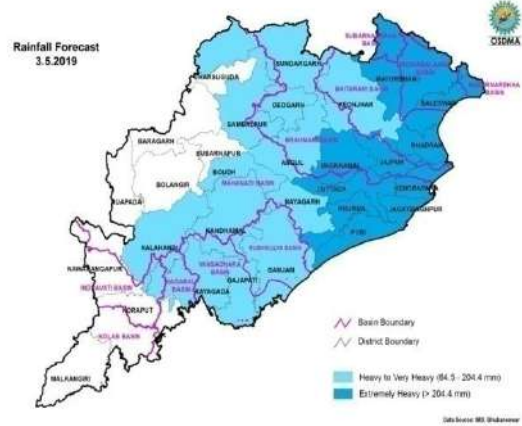
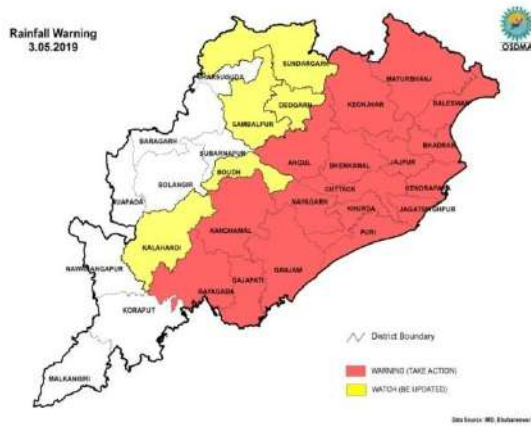
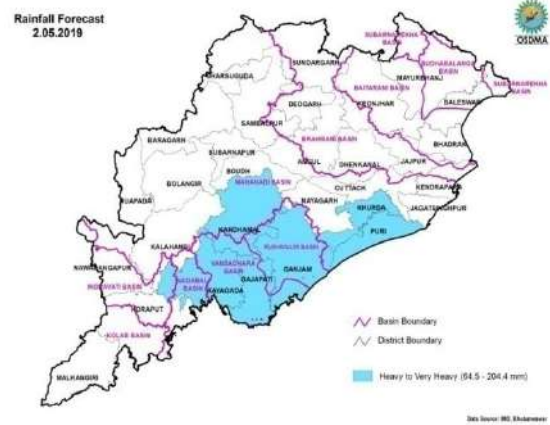
At 10.00 PM on 30.4.2019, IMD reported that the Very Severe Cyclonic Storm 'FANI' over Southwest and adjoining westcentral & southeast Bay of Bengal, moved west-northwestwards with a speed of about 22 KMPH in last six hours, intensified into an Extremely Severe Cyclonic Storm and lay centred at 1730 hrs IST of 30<sup>th</sup> April, 2019 over Southwest and adjoining westcentral & southeast Bay of Bengal near latitude 13.3°N and longitude 84.7°E, about 730 KM south-southwest of Puri (Odisha) and 510 KM south-southeast of Vishakhapatnam (Andhra Pradesh). It would very likely move northwestwards till 1<sup>st</sup> May noon and thereafter recurve north-northeastwards and cross Odisha Coast between Gopalpur and Chandbali, to the south of Puri around 3<sup>rd</sup> May afternoon with maximum sustained wind of speed 175-185 KMPH gusting to 205 kmph. Squally wind speed reaching 40-50 KMPH gusting to 60 KMPH is very likely to commence along & off Odisha Coast from 2<sup>nd</sup> May and very likely to become gale wind speed reaching 60-70 KMPH gusting to 85 KMPH from 3<sup>rd</sup> May morning and become 175-185 KMPH gusting 205 KMPH over Odisha Coast around landfall area by 3<sup>rd</sup> May evening. The forecast track was also indicated by IMD.

<b>Date/Time(IST)</b>	<b>Position (Lat. °N/ long. °E)</b>	<b>Maximum sustained surface wind speed (KMPH)</b>	<b>Category of cyclonic disturbance</b>
30.04.19/1730	13.3/84.7	165-175 gusting to 195	Extremely Severe Cyclonic Storm
30.04.19/2330	13.6/84.2	165-175 gusting to 185	Extremely Severe Cyclonic Storm
01.05.19/0530	13.9/83.8	170-180 gusting to 200	Extremely Severe Cyclonic Storm
01.05.19/1130	14.5/83.6	175-185 gusting to 205	Extremely Severe Cyclonic Storm
01.05.19/1730	15.0/83.6	180-190 gusting to 210	Extremely Severe Cyclonic Storm
02.05.19/0530	16.1/83.8	180-190 gusting to 210	Extremely Severe Cyclonic Storm
02.05.19/1730	17.4/84.2	180-190 gusting to 210	Extremely Severe Cyclonic Storm
03.05.19/0530	18.7/84.9	175-185 gusting to 205	Extremely Severe Cyclonic Storm
03.05.19/1730	20.0/85.9	150-160 gusting to 175	Very Severe Cyclonic Storm
04.05.19/0530	21.0/86.9	125-135 gusting to 150	Very Severe Cyclonic Storm
04.05.19/1730	22.0/88.2	90-100 gusting to 110	Severe Cyclonic Storm
05.05.19/0530	23.1/89.7	50-60 gusting to 70	Deep Depression

Gale wind with speed 150 -160 KMPH gusting to 170 KMPH was also likely over the districts of Ganjam, Puri, Jagatsinghpur, Kendrapara, and gale wind speed reaching 110-120 KMPH gusting to 130 KMPH was likely over the districts of Gajapati, Khurda, Cuttack, Jajpur, Bhadrak, Balasore and 80-90 KMPH over the districts of Nayagarh, Angul, Keonjhar,

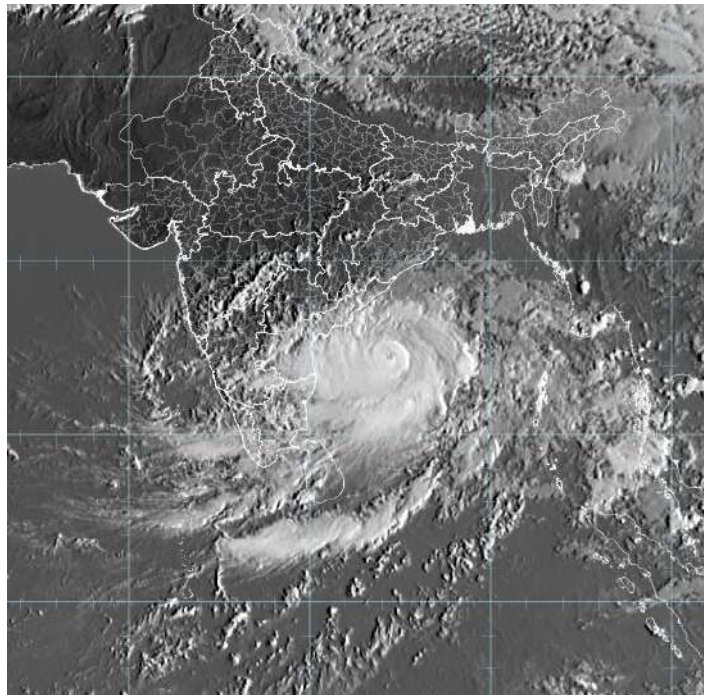
Mayurbhanj, Dhenkanal and squally wind speed 30-40 KMPH gust to 50 KMPH over the rest districts of Odisha by 3<sup>rd</sup> May, 2019 evening.

IMD issued the rainfall warnings for the Odisha. The rainfall prediction with colour code was given by IMD in its bulletin. Maps were prepared in GIS platform and shared to the districts for taking further action.



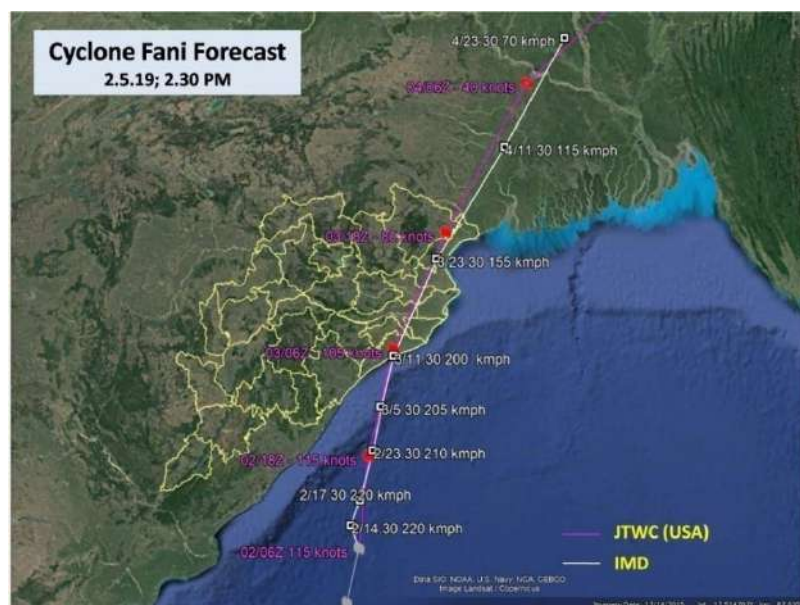
IMD issued yellow message for the Odisha coast on 1.5.2019 at 6.30 hrs. It was indicated that the Extremely Severe Cyclonic Storm 'FANI' over Westcentral & adjoining Southwest Bay of Bengal, moved west-northwestwards with a speed of about 07 KMPH in

last six hours and lay centred at 0230 hrs IST of 01st May, 2019 over Westcentral and adjoining Southwest Bay of Bengal near latitude 13.6°N and longitude 84.2°E, about 710 KM south-southwest of Puri (Odisha) and 460 km south-southeast of Vishakhapatnam (Andhra Pradesh). It was very likely to intensify further and move northwestwards till 01<sup>st</sup> May noon and thereafter recurve north-northeastwards and cross Odisha Coast between Gopalpur and

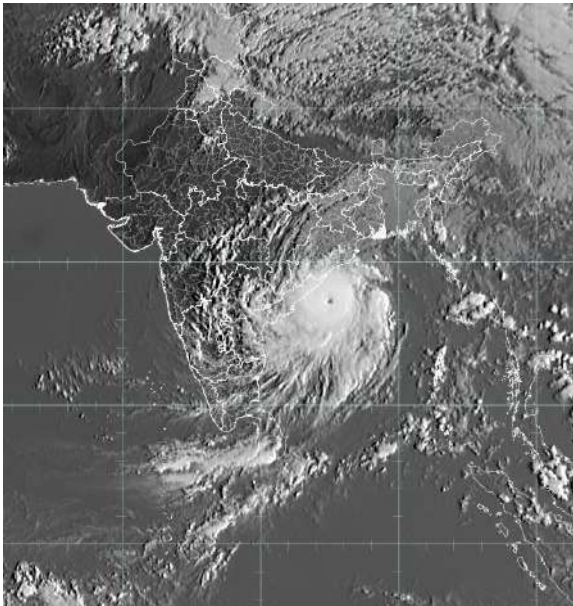


Chandbali, to the south of Puri around 3<sup>rd</sup> May afternoon with maximum sustained wind of speed 175-185 KMPH gusting to 205 KMPH. IMD forecasted that Gale wind with speed 150 - 160 KMPH gusting to 170 was also likely over the districts of Ganjam, Puri, Jagatsinghpur, Kendrapara, and gale wind speed reaching 110-120 KMPH gusting to 130 KMPH over the districts of Gajapati, Khurda, Cuttack, Jajpur, Bhadrak, Balasore and 80-90 KMPH over the districts of Nayagarh, Angul, Keonjhar, Mayurbhanj, Dhenkanal and squally wind speed 30-40 KMPH gust to 50 KMPH over the rest districts of Odisha by 3<sup>rd</sup> May, 2019 evening.

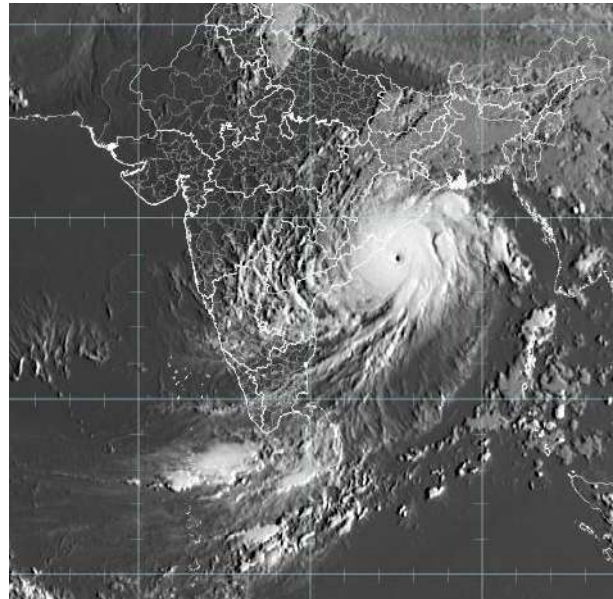
On 2<sup>nd</sup> May, 2019, IMD reported that the Extremely Severe Cyclonic Storm 'FANI' over Westcentral Bay of Bengal moved further north-northeastwards with a speed of about 16 KMPH in last six hours and lay centred at 1130 hrs IST of 2<sup>nd</sup> May, 2019 over Westcentral Bay of Bengal near latitude 16.7°N and longitude 84.8°E, about 360 KM south-southwest of Puri (Odisha), 190 KM south-southeast of Vishakhapatnam (Andhra Pradesh) and 550 KM south-southwest of



Digha (West Bengal). It would very likely move north-northeastwards and cross Odisha Coast between Gopalpur and Chandbali, around Puri by the afternoon of 3<sup>rd</sup> May with maximum sustained wind speed of 170-180 KMPH gusting to 200 KMPH.



02.05.2019: 14.30 IST



02.05.2019: 20.30 IST

On 3.5.2019, the cyclone made landfall near Puri. The landfall process started at 0800 hours IST and continued nearly for next 03 hours.

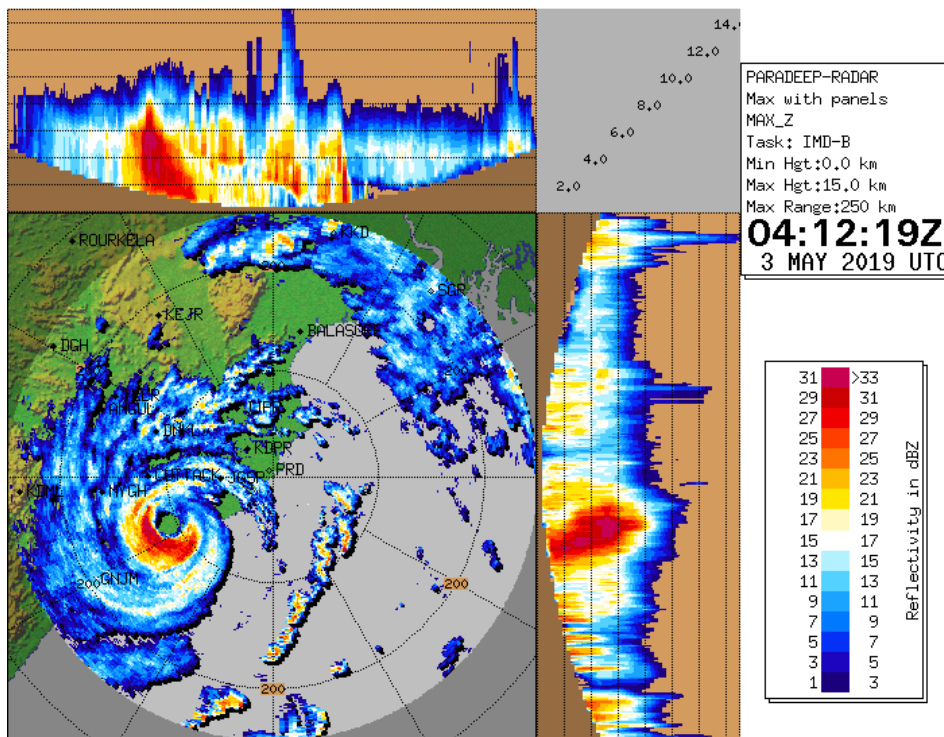


# Chapter – III

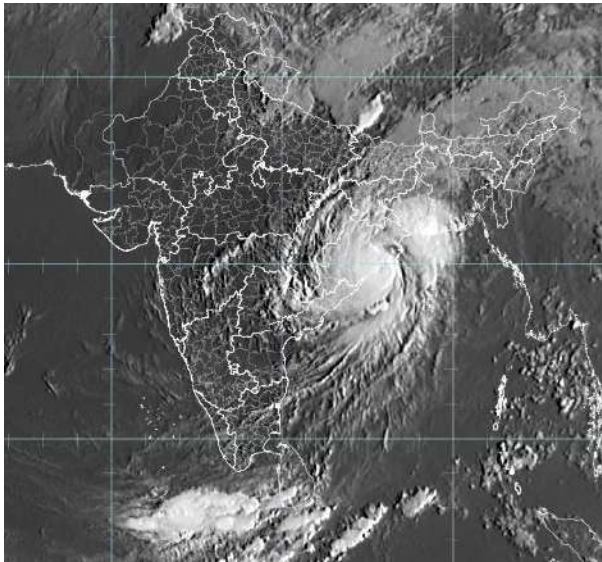
## OCCURRENCE & INTENSITY

### Landfall & Wind Speed

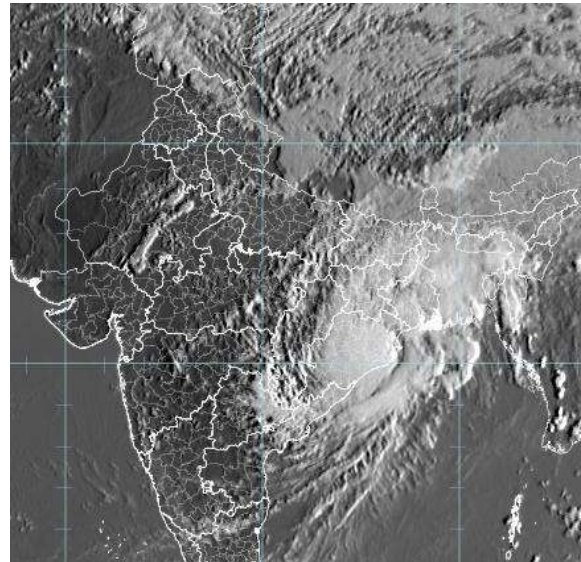
The Cyclone 'Fani' made landfall at about 8.30 AM on 3<sup>rd</sup> May 2019 between Satapada and Puri as an Extremely Severe Cyclonic Storm. As reported by IMD, the maximum sustained surface wind speed of 170-180 kmph gusting to 205 kmph was observed during landfall. After the landfall, the cyclone with nearly same intensity continued for next 06 hours. The Doppler radar image at Paradeep showed that the eye of the storm crossed the coast at 9.42 AM on 3<sup>rd</sup> May 2019.



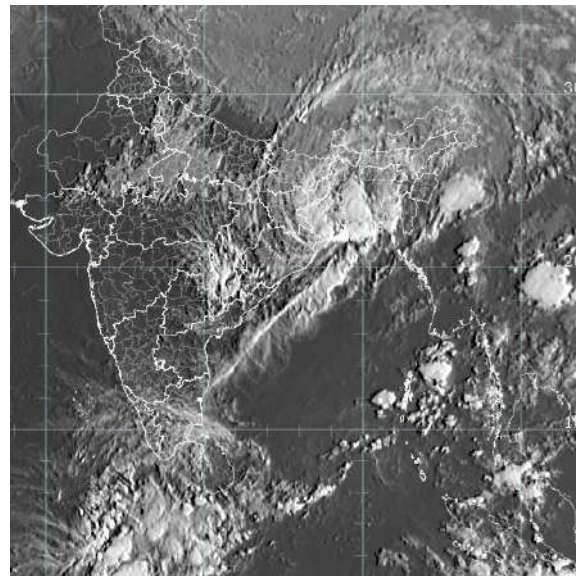
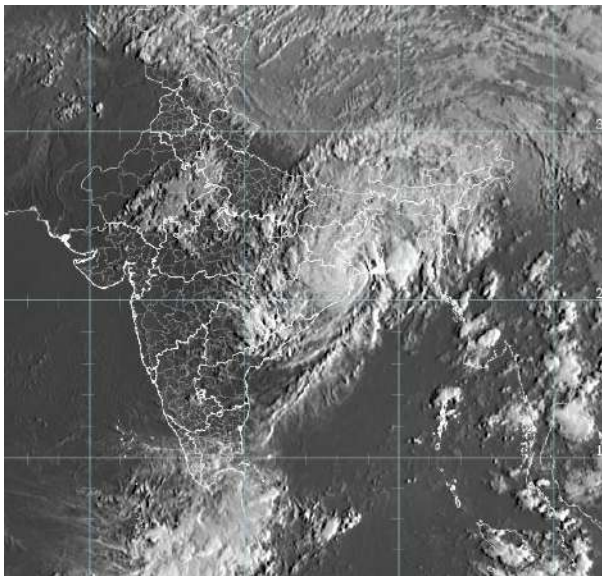
After the landfall, the system continued to move north-northeastwards and entered the Khurda district around Bhubaneswar. Then it passed over Cuttack, Jagatsinghpur, Kendrapara, Jajpur, Bhadrak, Balasore and Mayurbhanj. Then, it emerged into Gangetic West Bengal as a Severe Cyclonic Storm with wind speed of 90-100 KMPH gusting to 115 KMPH by early morning of 4<sup>th</sup> May. Further, it moved north-northeastwards and emerged into Bangladesh on 4<sup>th</sup> May evening as a Cyclonic Storm with wind speed 60-70 KMPH gusting to 80 KMPH.



03.05.2019: 8.30 IST

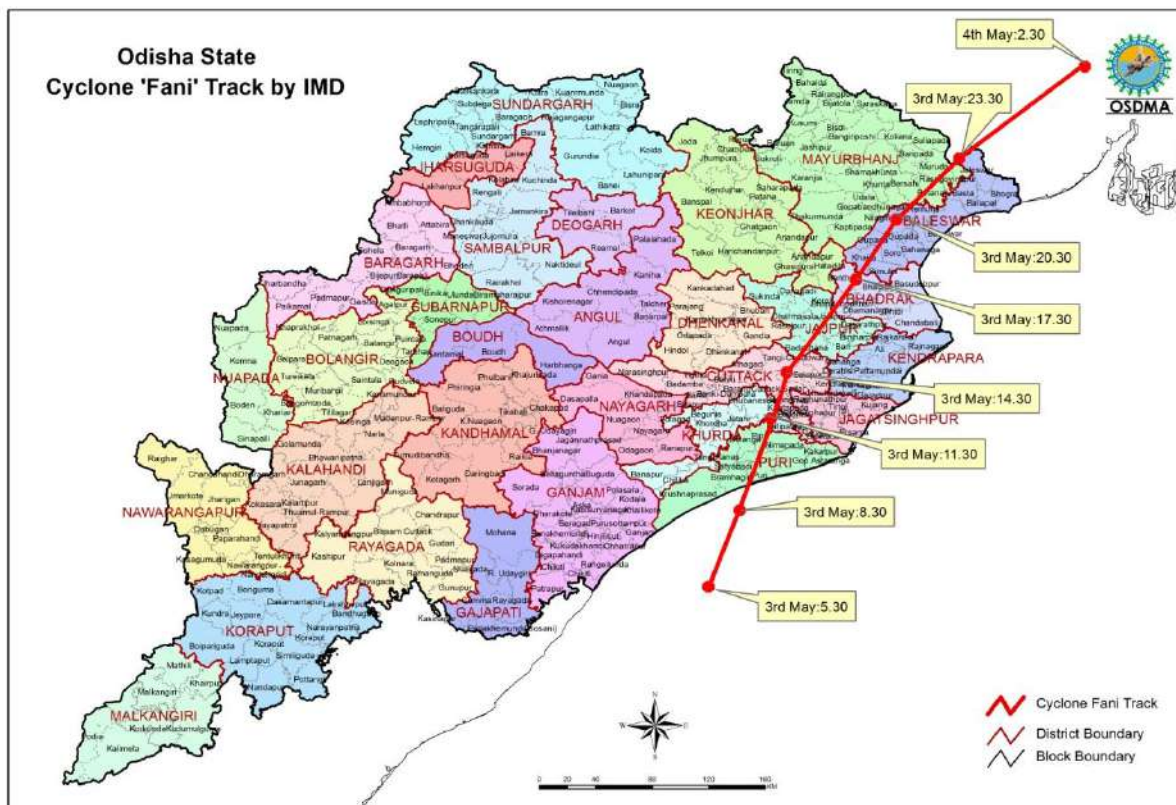


03.05.2019: 14.30 IST



The Extremely Severe Cyclonic Storm 'FANI' was more severe than 'Titli' and 'Phailin.' According to government records, Odisha has witnessed a major cyclone in the month of May only five times during the last 126 years.

The state was hit by a cyclone in the month of May for the first time in 1893 followed by 1914, 1917 and 1981. The last time the state experienced a cyclone in the month of May was 30 years back in 1989.



### Severity of Cyclone Fani

Fani was the strongest cyclone to have passed Odisha since the super cyclone in 1999. It's also the first time since 1976 that a cyclone of such intensity blew through India in April, IMD records show. While severe cyclones (defined as generating maximum wind speeds of 89-117 kmph) can form any time, they tend to be concentrated in November — after the monsoon — or around May, when the monsoon prepares to arrive in Kerala.

Disaster	Year	No. of Districts Affected	No of Villages Affected	No. of Deaths	Affected Population	Livestock Loss	Houses Damaged	Damage and loss of Crop Area (in Hectares)
Cyclone	2013-14	18	18,374	21	1,32,35,000	4,502	5,41,200	6,51,590
	2014-15	15	9,657	3	33,43,966	670	44,236	2,47,557
	2019-20	14	16,659	64	1,65,55,507	5413	5,08,467	181711.4

# FANI FAULTS

Cyclone Fani made a landfall six hours before the last forecast

**11**

The number of days Fani meandered over the sea, making it the longest ever observed lifecycle of a cyclone over the Bay of Bengal

**9\***

The number of times forecast had to be revised due to the cyclone's unpredictable trajectory

**128 years**

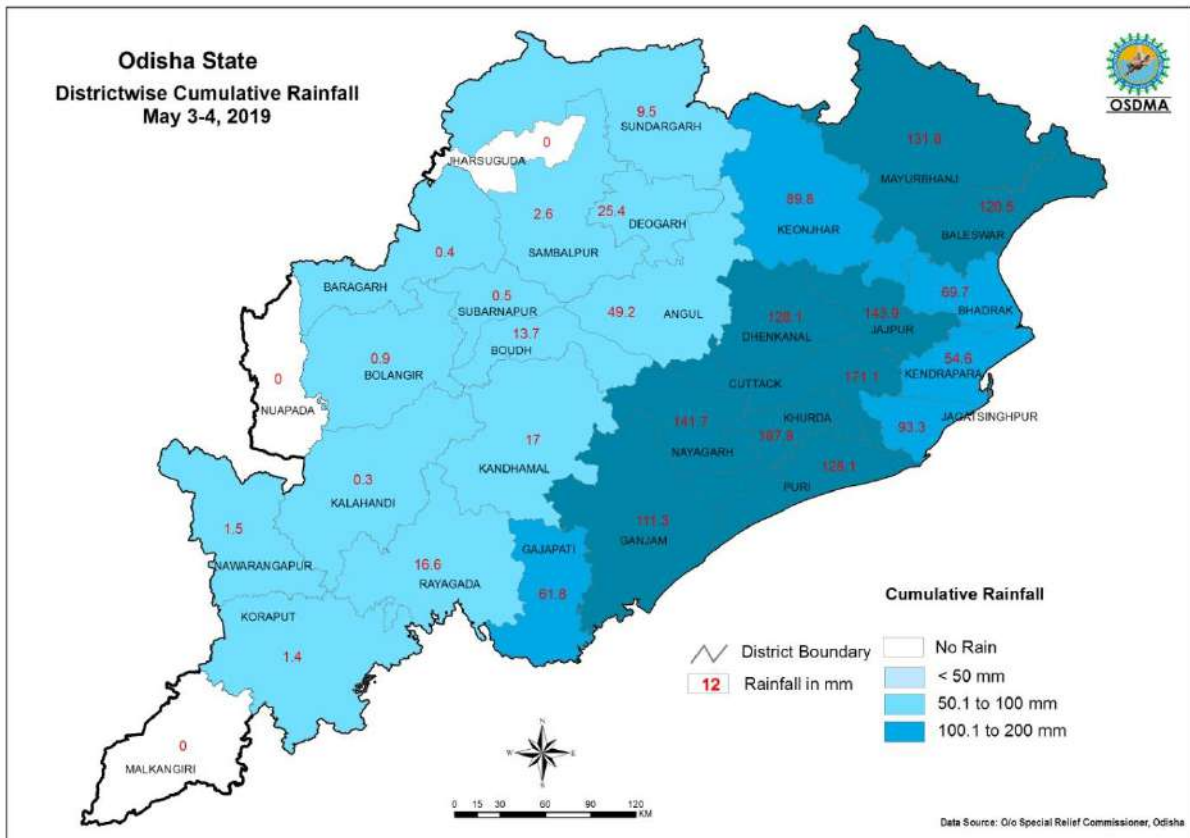
Fani is the second severe cyclone which formed in April and made landfall in India in the last 128 years



## Rainfall

Under the influence of the cyclone, very heavy rainfall occurred in many parts of the state on 3<sup>rd</sup> and 4<sup>th</sup> May, 2019. Nine districts have recorded average rainfall of more than 100 mm. The Khordha district recorded highest 187.8 mm rainfall followed by Cuttack- 171.1 mm, Jajpur- 143.9 mm and Nayagarh- 141.7 mm. Five more districts have received average rainfall between 50 mm and 100 mm. The average rainfall of the affected districts is indicated below:

<b>DISTRICT AVERAGE RAINFALL</b>				
<b>(Rainfall in mm)</b>				
<b>Sl. No.</b>	<b>District</b>	<b>3.5.2019</b>	<b>4.5.2019</b>	<b>Total</b>
1	Khordha	50.8	137.0	187.8
2	Cuttack	55.9	115.2	171.1
3	Jajpur	25.5	118.4	143.9
4	Nayagarh	69.5	72.2	141.7
5	Mayurbhanj	18.2	113.6	131.8
6	Dhenkanal	29.4	98.7	128.1
7	Puri*	52.0	76.1	128.1
8	Balasore	39.9	80.6	120.5
9	Ganjam	92.2	19.1	111.3
10	Jagatsinghpur	39.4	53.9	93.3
11	Keonjhar	17.2	72.6	89.8
12	Bhadrak	28.7	41.0	69.7
13	Gajapati	57.9	3.9	61.8
14	Kendrapara	19.7	34.9	54.6
15	Angul	16.5	32.7	49.2
16	Deogarh	4.7	20.7	25.4
17	Kandhamal	17.0	0.0	17.0
18	Rayagada	16.1	0.5	16.6
19	Boudh	7.0	6.7	13.7
20	Sundargarh	1.4	8.1	9.5
21	Sambalpur	1.6	1.0	2.6
22	Nawarangpur	0.0	1.5	1.5
23	Koraput	0.0	1.4	1.4
24	Balangir	0.0	0.9	0.9
25	Subarnapur	0.5	0.0	0.5
26	Bargarh	0.0	0.4	0.4
27	Kalahandi	0.3	0.0	0.3
28	Jharsuguda	0.0	0.0	0.0
29	Malkangiri	0.0	0.0	0.0
30	Nuapada	0.0	0.0	0.0
<b>State Average</b>		<b>22.0</b>	<b>37.0</b>	<b>59.0</b>



### Rainfall of Different Blocks

Banki-Dampada Block in Cuttack district recorded rainfall of more than 300 mm on 3<sup>rd</sup> and 4<sup>th</sup> May 2019. Similarly, 10 Blocks recorded rainfall between 200 mm and 300 mm, 85 Blocks recorded rainfall between 100 mm and 200 mm, 58 Blocks between 50 mm and 100 mm and 76 Blocks below 50 mm during 3<sup>rd</sup>- 4<sup>th</sup> May 2019. The Block-wise rainfall status is given below:

(Rainfall in mm.)

Sl.	District	Block	3.5.2019	4.5.2019	Total
<b>Rainfall above 300 mm</b>					
1	Cuttack	Banki-Dampada	165.0	190.0	355.0
<b>Rainfall between 200 mm and 300 mm</b>					
1	Jajpur	Dharmasala	15.0	276.0	291.0
2	Nayagarh	Ranpur	106.0	175.0	281.0
3	Khordha	Khordha	46.0	206.0	252.0
4	Khordha	Balipatna	39.4	186.0	225.4
5	Dhenkanal	Gondia	26.0	199.0	225.0
6	Cuttack	Kantapada	62.0	160.0	222.0
7	Ganjam	Chikiti	213.0	7.0	220.0
8	Khordha	Bhubaneswar	55.0	161.2	216.2

9	Khordha	Balianta	42.0	173.0	215.0
10	Puri	Krushnaprasad	143.5	70.0	213.5
<b>Rainfall between 100 mm and 200 mm</b>					
1	Mayurbhanj	Khunta	39.4	160.5	199.9
2	Mayurbhanj	Gopabandhunagar	39.4	160.5	199.9
3	Jajpur	Badachana	20.0	179.0	199.0
4	Balasore	Khaira	55.0	142.0	197.0
5	Puri	Puri	52.0	145.0	197.0
6	Cuttack	Badamba	63.0	131.0	194.0
7	Cuttack	Niali	66.0	126.0	192.0
8	Mayurbhanj	Besoi	13.0	177.0	190.0
9	Ganjam	Ganjam	160.0	28.4	188.4
10	Puri	Satyabadi	46.0	140.0	186.0
11	Ganjam	Rangeilunda	176.0	9.0	185.0
12	Cuttack	Tangi-Choudwar	34.0	150.0	184.0
13	Khordha	Tangi	64.2	115.0	179.2
14	Dhenkanal	Bhuban	14.0	163.0	177.0
15	Jagatsinghpur	Biridi	53.0	124.0	177.0
16	Khordha	Chilika	76.0	101.0	177.0
17	Ganjam	Chhatrapur	155.3	21.0	176.3
18	Jajpur	Binjharpur	33.4	139.8	173.2
19	Mayurbhanj	Suliapada	30.0	142.3	172.3
20	Cuttack	Athagarh	39.0	132.0	171.0
21	Cuttack	Narasinghpur	67.0	102.0	169.0
22	Mayurbhanj	Kuliana	12.3	155.4	167.7
23	Dhenkanal	Hindol	46.3	120.4	166.7
24	Khordha	Begunia	36.0	130.0	166.0
25	Mayurbhanj	Bangriposi	9.3	155.8	165.1
26	Mayurbhanj	Betanati	32.0	133.0	165.0
27	Mayurbhanj	Badasahi	27.0	137.0	164.0
28	Mayurbhanj	Udala	16.2	145.2	161.4
29	Ganjam	Patrapur	127.0	33.0	160.0
30	Jagatsinghpur	Raghunathpur	32.0	127.0	159.0
31	Khordha	Jatani	24.0	133.0	157.0
32	Nayagarh	Nuagaon	53.0	102.6	155.6
33	Mayurbhanj	Baripada	15.0	140.0	155.0
34	Mayurbhanj	Kaptipada	43.0	112.0	155.0
35	Puri	Nimapara	36.0	118.0	154.0

36	Ganjam	Kukudakhandi	118.0	35.0	153.0
37	Kendrapara	Garadapur	32.0	120.0	152.0
38	Mayurbhanj	Samakhunta	14.0	138.0	152.0
39	Cuttack	Cuttack Sadar	35.0	116.0	151.0
40	Jajpur	Jajpur	25.0	125.0	150.0
41	Mayurbhanj	Sarasakana	6.0	144.0	150.0
42	Jajpur	Korei	36.6	112.4	149.0
43	Khordha	Bolagarh	53.0	96.0	149.0
44	Cuttack	Barang	90.0	55.0	145.0
45	Balasore	Nilagiri	48.0	95.0	143.0
46	Ganjam	Purusottampur	120.0	22.0	142.0
47	Puri	Pipili	39.0	103.0	142.0
48	Khordha	Banapur	72.0	69.0	141.0
49	Mayurbhanj	Morda	25.0	116.0	141.0
50	Cuttack	Nischintakoili	18.0	122.0	140.0
51	Balasore	Remuna	22.0	117.0	139.0
52	Balasore	Balasore	68.0	70.0	138.0
53	Nayagarh	Gania	78.0	58.0	136.0
54	Keonjhar	Ghatgaon	37.6	97.4	135.0
55	Ganjam	Sanakhemundi	125.0	7.0	132.0
56	Nayagarh	Bhapur	70.0	60.0	130.0
57	Jajpur	Sukinda	31.2	98.5	129.7
58	Balasore	Oupada	33.0	95.0	128.0
59	Balasore	Soro	46.0	79.0	125.0
60	Keonjhar	Keonjhar	13.2	110.2	123.4
61	Mayurbhanj	Bijatala	4.0	119.1	123.1
62	Nayagarh	Nayagarh	75.0	48.0	123.0
63	Jagatsinghpur	Tirtol	82.0	40.0	122.0
64	Puri	Brahmagiri	54.7	67.0	121.7
65	Keonjhar	Ghasipura	23.3	97.5	120.8
66	Ganjam	Kodala	86.2	34.4	120.6
67	Balasore	Simulia	66.0	53.0	119.0
68	Cuttack	Tigiria	42.0	77.0	119.0
69	Mayurbhanj	Kusumi	10.0	109.0	119.0
70	Nayagarh	Khandapara	67.0	52.0	119.0
71	Ganjam	Hinjilicut	111.0	7.0	118.0
72	Mayurbhanj	Rasgovindapur	31.4	86.2	117.6
73	Gajapati	R.Udaygiri	105.8	7.4	113.2



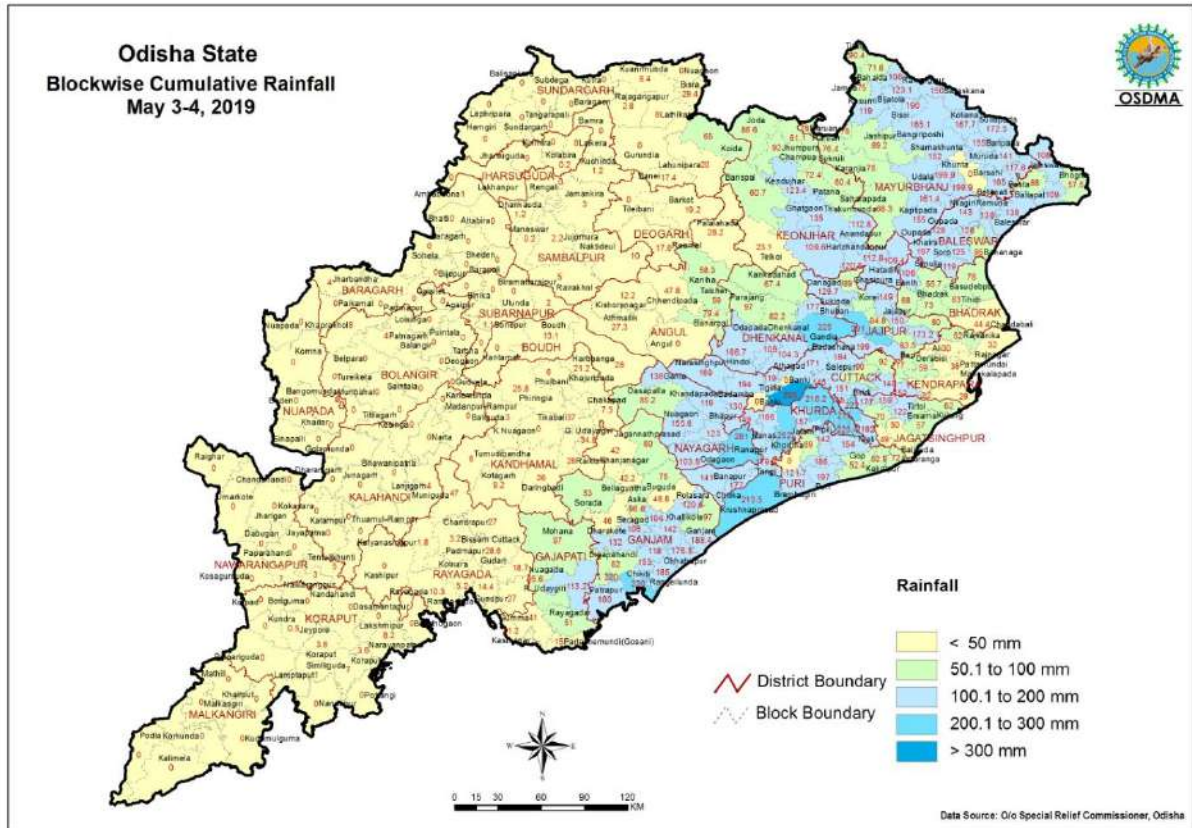
74	Keonjhar	Anandapur	23.5	89.3	112.8
75	Keonjhar	Harichandanpur	35.4	74.2	109.6
76	Keonjhar	Hatadihi	29.1	80.3	109.4
77	Balasore	Baliapal	26.0	83.0	109.0
78	Balasore	Jaleswar	19.0	89.0	108.0
79	Bhadrak	Bonth	22.0	84.0	106.0
80	Ganjam	Sheragada	100.0	6.0	106.0
81	Mayurbhanj	Rairangapur	10.0	96.0	106.0
82	Dhenkanal	Odapada	31.0	74.0	105.0
83	Dhenkanal	Dhenkanal	29.1	75.2	104.3
84	Ganjam	Kabisuryanagar	82.0	22.0	104.0
85	Nayagarh	Odagaon	55.8	47.7	103.5
<b>Rainfall between 50 mm and 100 mm</b>					
1	Dhenkanal	Parjang	35.0	62.0	97.0
2	Gajapati	Mohana	89.2	7.8	97.0
3	Ganjam	Khalikot	71.0	26.0	97.0
4	Ganjam	Aska	69.0	27.6	96.6
5	Gajapati	Nuagada	86.6	9.0	95.6
6	Balasore	Bahanaga	41.0	54.0	95.0
7	Jajpur	Rasulpur	33.6	61.2	94.8
8	Cuttack	Mahanga	20.0	72.0	92.0
9	Keonjhar	Jhumpura	6.8	85.2	92.0
10	Mayurbhanj	Tiring	0.0	90.4	90.4
11	Cuttack	Salepur	25.0	65.0	90.0
12	Mayurbhanj	Joshipur	17.0	72.2	89.2
13	Jajpur	Danagadi	27.0	62.0	89.0
14	Puri	Delang	52.3	36.7	89.0
15	Balasore	Basta	35.0	53.0	88.0
16	Keonjhar	Joda	3.2	83.4	86.6
17	Nayagarh	Daspalla	51.0	34.2	85.2
18	Jajpur	Bari	15.5	68.0	83.5
19	Dhenkanal	Kamakhyanagar	39.2	43.0	82.2
20	Ganjam	Digapahandi	82.0	0.0	82.0
21	Angul	Angul	27.8	53.2	81.0
22	Jajpur	Dasarathpur	18.0	62.0	80.0
23	Angul	Banarpal	30.8	48.6	79.4
24	Bhadrak	Basudevapur	38.0	40.0	78.0

25	Mayurbhanj	Raruana	20.0	58.0	78.0
26	Kendrapara	Derabis	25.0	52.0	77.0
27	Mayurbhanj	Sukuruli	22.0	54.4	76.4
28	Ganjam	Buguda	36.0	39.0	75.0
29	Mayurbhanj	Jamda	4.0	71.0	75.0
30	Mayurbhanj	Karanja	17.0	58.0	75.0
31	Bhadrak	Dhamnagar	35.0	38.0	73.0
32	Keonjhar	Patna	22.2	50.2	72.4
33	Puri	Astarang	34.0	38.0	72.0
34	Mayurbhanj	Bahalda	0.0	71.6	71.6
35	Jagatsinghpur	Jagatsinghpur	10.0	60.0	70.0
36	Mayurbhanj	Thakurmunda	17.3	51.0	68.3
37	Bhadrak	Bhandaripokhari	30.0	38.0	68.0
38	Dhenkanal	Kankadahad	14.2	53.2	67.4
39	Sundargarh	Koira	22.0	43.0	65.0
40	Bhadrak	Tihidi	35.0	28.0	63.0
41	Jagatsinghpur	Kujanga	39.0	23.0	62.0
42	Keonjhar	Champua	3.1	58.0	61.1
43	Keonjhar	Banspal	6.2	54.5	60.7
44	Keonjhar	Saharpada	12.2	48.2	60.4
45	Gajapati	Gosani	59.4	1.0	60.4
46	Ganjam	Jagannathprasad	28.0	32.0	60.0
47	Angul	Talcher	22.0	37.0	59.0
48	Kendrapara	Kendrapara	22.0	37.0	59.0
49	Angul	Kaniha	15.3	43.0	58.3
50	Balasore	Bhograi	20.2	37.3	57.5
51	Jagatsinghpur	Erasama	30.0	27.0	57.0
52	Bhadrak	Bhadrak	6.4	49.3	55.7
53	Ganjam	Sorada	38.0	15.0	53.0
54	Puri	Kakatpur	32.0	20.9	52.9
55	Puri	Gop	30.2	22.2	52.4
56	Kendrapara	Rajkanika	36.0	16.0	52.0
57	Gajapati	Rayagada	45.0	6.0	51.0
58	Jagatsinghpur	Balikuda	20.0	30.0	50.0
<b>Rainfall below 50 mm</b>					
1	Jagatsinghpur	Naugaon	49.0	0.0	49.0
2	Ganjam	Polasara	48.8	0.0	48.8
3	Angul	Chhendipada	13.4	34.4	47.8

4	Rayagada	Muniguda	47.0	0.0	47.0
5	Ganjam	Dharakote	10.0	36.0	46.0
6	Bhadrak	Chandbali	34.7	9.7	44.4
7	Ganjam	Belaguntha	41.2	1.0	42.2
8	Ganjam	Bhanjanagar	30.0	12.0	42.0
9	Gajapati	Gumma	41.0	0.0	41.0
10	Deogarh	Barkote	4.6	35.0	39.6
11	Kendrapara	Pattamundai	12.0	26.0	38.0
12	Kandhamal	Tikabali	37.0	0.0	37.0
13	Kandhamal	G.Udayagiri	34.8	0.0	34.8
14	Kendrapara	Rajnagar	21.0	11.0	32.0
15	Kendrapara	Aul	3.0	27.0	30.0
16	Sundargarh	Bisra	0.0	29.4	29.4
17	Kendrapara	Mohakalpara	18.0	11.0	29.0
18	Rayagada	Gudari	28.6	0.0	28.6
19	Angul	Pallahara	7.0	21.2	28.2
20	Boudh	Harabhanga	15.0	13.0	28.0
21	Kandhamal	Raikia	28.0	0.0	28.0
22	Angul	Athamalik	9.3	18.0	27.3
23	Rayagada	Gunupur	27.0	0.0	27.0
24	Rayagada	Chandrapur	22.0	5.0	27.0
25	Kandhamal	Daringibadi	26.0	0.0	26.0
26	Kandhamal	Phiringia	25.8	0.0	25.8
27	Keonjhar	Telkoi	8.2	14.9	23.1
28	Kendrapara	Marshaghai	8.0	14.0	22.0
29	Gajapati	Kasinagar	21.2	0.0	21.2
30	Kandhamal	Khajuripada	21.2	0.0	21.2
31	Sundargarh	Lahunipara	0.0	20.0	20.0
32	Deogarh	Deogarh	5.2	14.0	19.2
33	Rayagada	Padmapur	18.7	0.0	18.7
34	Deogarh	Reamal	4.4	13.2	17.6
35	Sundargarh	Bonai	0.4	17.0	17.4
36	Gajapati	Paralakhemundi	15.0	0.0	15.0

37	Rayagada	Ramanaguda	14.4	0.0	14.4
38	Boudh	Boudh	6.1	7.0	13.1
39	Angul	Kishorenagar	6.2	6.0	12.2
40	Rayagada	Rayagada	9.5	0.8	10.3
41	Sambalpur	Naktideul	4.0	6.0	10.0
42	Kandhamal	Kotagarh	9.2	0.0	9.2
43	Sundargarh	Kuarmunda	1.0	7.4	8.4
44	Koraput	Narayanpatna	0.0	8.2	8.2
45	Bolangir	Khaprakhol	0.0	8.0	8.0
46	Sundargarh	Lathikata	0.0	8.0	8.0
47	Kandhamal	Chakapad	7.3	0.0	7.3
48	Koraput	Similiguda	0.0	7.0	7.0
49	Nawarangpur	Nawarangpur	0.0	7.0	7.0
50	Kandhamal	Phulbani	6.0	0.0	6.0
51	Kandhamal	Tumudibandh	6.0	0.0	6.0
52	Rayagada	Kolnara	5.2	0.0	5.2
53	Nawarangpur	Tentulikhunti	0.0	5.0	5.0
54	Sambalpur	Rairakhol	3.0	2.0	5.0
55	Sundargarh	Nuagaon	0.0	5.0	5.0
56	Sundargarh	Gurundia	0.0	5.0	5.0
57	Baragarh	Jharbandh	0.0	4.0	4.0
58	Bolangir	Patnagarh	0.0	4.0	4.0
59	Kalahandi	Lanjigarh	4.0	0.0	4.0
60	Koraput	Koraput	0.0	3.6	3.6
61	Rayagada	Bissam Cuttack	3.2	0.0	3.2
62	Kandhamal	Baliguda	3.0	0.0	3.0
63	Nawarangpur	Nandahandi	0.0	3.0	3.0
64	Sambalpur	Jamankira	2.5	0.5	3.0
65	Sundargarh	Rajgangpur	0.0	2.8	2.8
66	Sambalpur	Jujumura	2.2	0.0	2.2
67	Subarnapur	Birmaharajpur	2.0	0.0	2.0
68	Rayagada	Kalyansingpur	1.8	0.0	1.8
69	Sambalpur	Dhankauda	1.2	0.0	1.2

70	Sambalpur	Kuchinda	1.2	0.0	1.2
71	Subarnapur	Sonepur	1.1	0.0	1.1
72	Baragarh	Ambabhona	0.0	1.0	1.0
73	Koraput	Lamataput	0.0	1.0	1.0
74	Koraput	Jeypore	0.5	0.0	0.5
75	Jharsuguda	Kolabira	0.2	0.0	0.2
76	Sambalpur	Maneswar	0.0	0.2	0.2



# Chapter- IV

## Preparedness



Fani was one of the rarest of rare summer cyclones, the first one in 43 years to hit Odisha and one of the three to hit the state in last 150 years. It struck India at a time when the general election for Lok Sabha was on. In Odisha where Fani made landfall, the four-phase poll for LS in the state, and Odisha Legislative Assembly, was just over on April 29, only four days before the cyclone made landfall. It was a challenge for government authorities to ensure safety of polled EVMs, kept in strong-rooms. It was a challenge to mobilise manpower in poll mode to work for disaster.

Since the formation of the cyclonic system, the State Government started closely monitoring the situation. Based on the forecast issued by India Meteorological Department and other International Agencies like Regional Integrated Multi-hazard Early Warning Systems (RIMES), Thailand and Joint Typhoon Warning Centre (JTWC), USA, the system was continuously tracked and analyzed on GIS platform. Massive preparedness measures were undertaken by the Government soon after receipt of warning from IMD and analysis of forecast from different Meteorological Agencies. The districts were alerted based on the probable cyclone track and impact area.

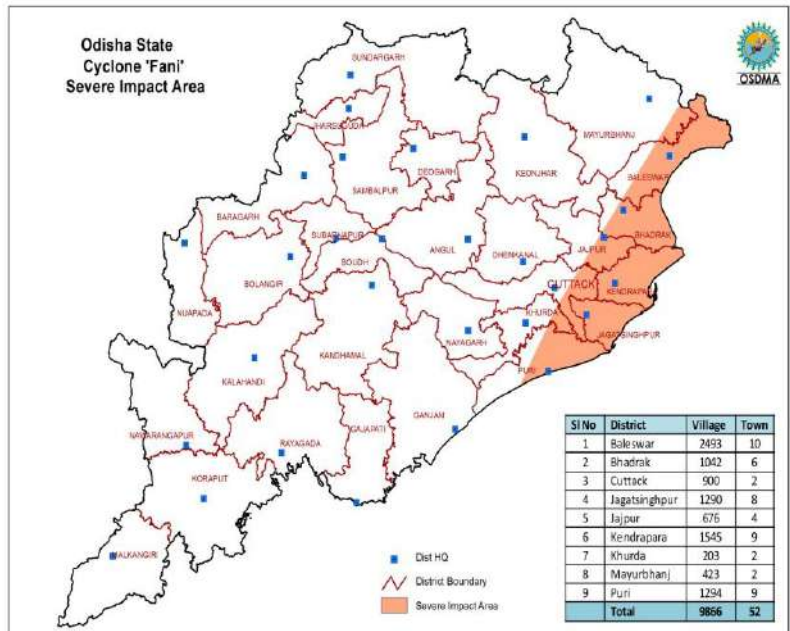
Following measures were taken at State and District levels to face the imminent disaster and to minimize loss of life and property.

- Instructions were issued to all Collectors to keep the district administration in readiness to meet any eventuality.
- Collectors in the six coastal districts namely Ganjam, Puri, Jagatsinghpur, Kendrapada, Bhadrak & Balasore and adjoining districts of Gajapati, Nayagarh, Khordha, Cuttack, Jajpur, Dhenkanal, Keonjhar and Mayurbhanj were advised to identify all vulnerable people living in kutcha houses or living near the coast or in low lying areas and shift them to multipurpose cyclone/ flood shelters and other safe shelters.
- Arrangements were made for free kitchen, safe drinking water, lighting, health and sanitation facilities at the shelters.
- Collectors of the coastal districts were also directed to evacuate the tourists from vulnerable locations.
- District Emergency Operation Centres and control rooms of other offices were activated round the clock.
- 300 Power boats of Special Relief Organisation were readied with crew and POL for emergent relief operation.
- 879 Multi-purpose cyclone/ flood shelters of OSDMA were kept in readiness for sheltering people to be evacuated. Meetings of the Cyclone/ Flood Shelter Management and Maintenance Committees (CSMMCs/FSMMCs) were organised and proper preparedness was ensured at the shelter level.
- Advisory was issued for taking special care of old, differentially abled persons, women and children.
- GO-NGO coordination meetings were conducted at OSDMA, Office of Special Relief Commissioner and in various districts to streamline the involvement of NGOs in managing the disaster.
- Regular Inter-Departmental Coordination meetings with Department Nodal Officers were conducted to assess the preparedness and to ensure timely response.
- 02 numbers of helicopters were requisitioned from Ministry of Defence, Govt. of India and kept ready for the possible rescue and air dropping of relief materials in the cyclone affected areas.
- Work for preparing 1,00,000 number of food packets for air dropping was expedited with the help of ORMAS, IDCO and Food Supplies and Consumer Welfare Department.
- All educational institutions (both private and government) were closed with effect from 02.05.2019 and examinations were re-scheduled.

- Senior IAS and IPS officers from the state level were assigned to districts likely to be severely affected to render all possible support to the District Collectors in managing the cyclone.
- 5,97,006 numbers of Polythene Stocks (1,84,000 buffer stock at the state level and 4,12,541 nos. available in 30 Districts) was kept ready for distribution.
- 55 satellite phones provided to Districts and response forces were kept in readiness for emergency communication.
- Boat operation in Chilika Lake was suspended and traditional fishermen in coastal areas were barred from venturing into the sea.
- Running of 81 Trains was cancelled and Air Services in Bhubaneswar was suspended for 24 hours.

**Identification of most severe impact area:**

Most vulnerable villages in the coastal area were identified using GIS platform based on forecasted track. 10 km buffer area on the landward side and entire area of the seaward side of the forecasted track were taken as the severe impact areas. A total 9886 villages and 52 towns in 9 districts were identified as severe impact area and the Collectors of the concerned districts were intimated for taking up the preparedness measures.



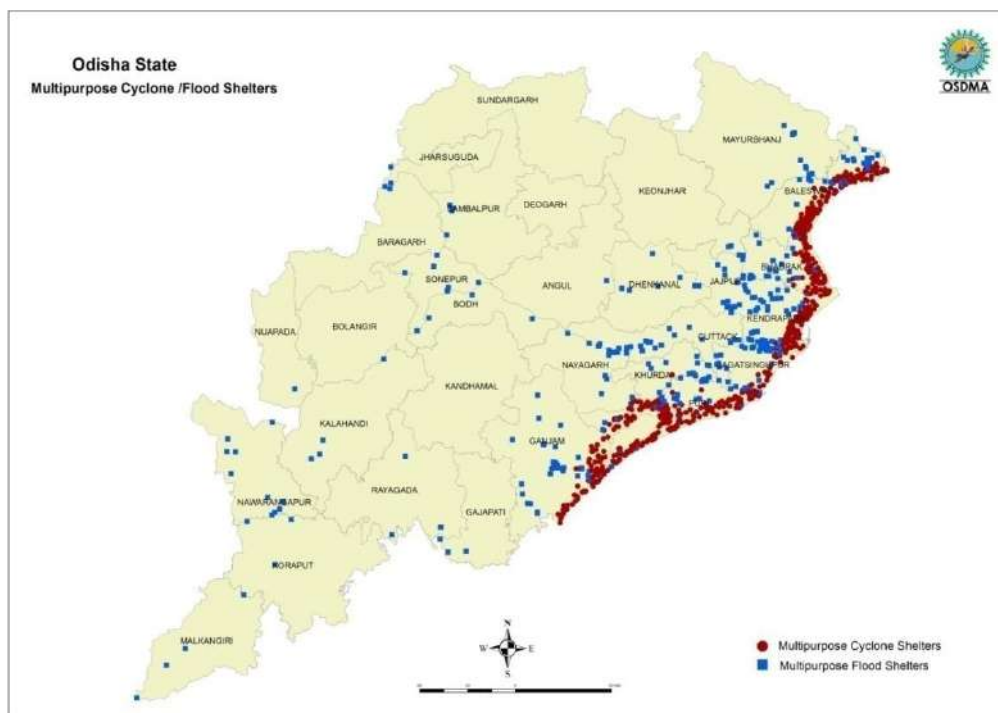
**Shelter Readiness**

Odisha State Disaster Management Authority (OSDMA) had constructed 879 Multipurpose Cyclone and Flood Shelters in 25 districts. All cyclone and flood shelters were kept ready to house the evacuated people. Water supply systems, generators, inflatable tower lights, mechanical cutters and other equipment available in shelters were put to test run and the defective ones were



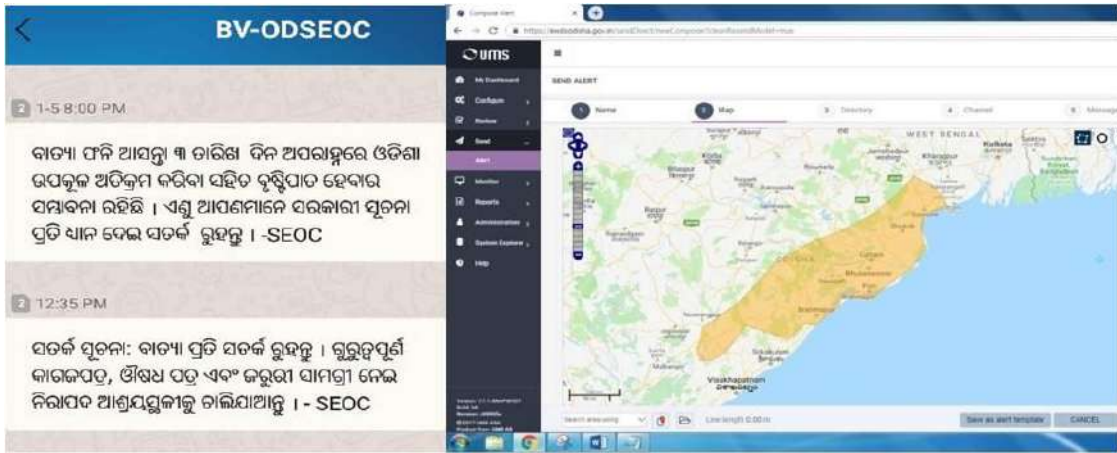


immediately repaired. Fuel arrangements for the generators and other equipment were arranged. An emergency meeting of the shelter management committees was organized at the shelter level. The shelter level task force volunteers were mobilized to assist the local community in evacuation and to tackle any eventuality due the cyclone. Adequate food material and arrangement for free kitchen were ensured at the shelters. Specific instructions were issued to the shelters in Odia language for better understanding of the measures to be taken to encounter the impending disaster.

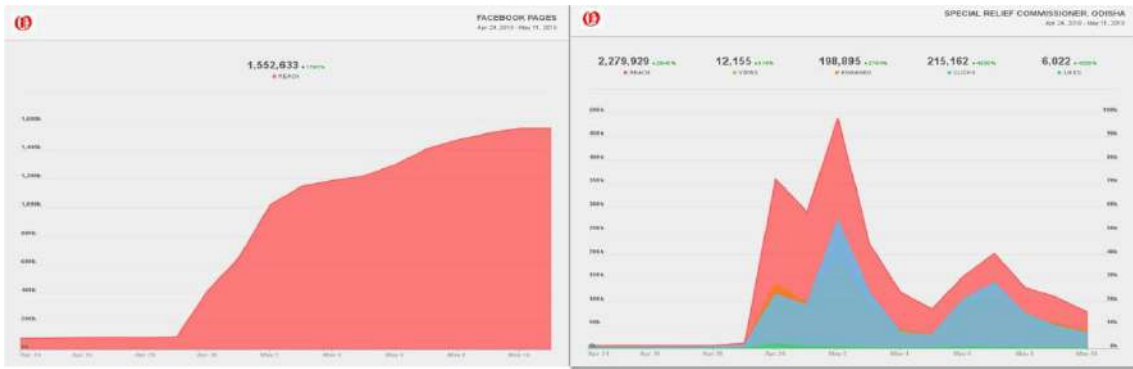
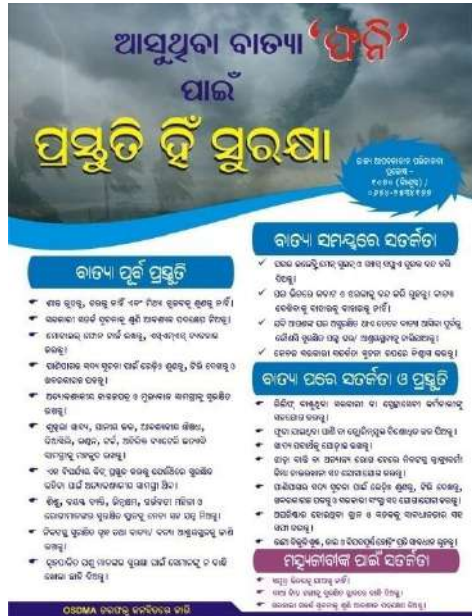


### Dissemination of Warnings:

- Cyclone related alert and suggested precautionary measures were delivered by SMSs through Location Based Alert System (LBAS), 1.8 crore nos. of SMS were sent to BSNL subscribers of the likely to be affected districts. Group based alert messages were also disseminated based on threat status to a particular area.
- Early warning sirens were activated and voice messages were disseminated every hour in the coastal area.
- District Administration disseminated the warning through official channels and PRI members. Public address systems were used for dissemination at local level.



- Fisheries and ARD Department communicated the warning messages to marine/ Chilika fishermen.
- 14 SBMDVT under EWDS were also activated for emergency communication.
- All cyclone bulletins and warning messages of IMD were disseminated with key State Level Officers, Collectors and Media.
- Cyclone Preparedness videos, safety tips broadcasted in major TV channels. Safety & preparedness voice messages have also been broadcasted in AIR, FM radios & community radios.
- Community Level Volunteers and Task Force Team members of Multipurpose Cyclone/ Flood Shelters were engaged for ensuring family preparedness, warning dissemination and expediting evacuation.
- Social Media platforms were effectively used not only for dissemination of warnings but also for sending vital information to the general public for safety and survival.



## Evacuation:

- Collectors of the coastal and adjoining districts were instructed to start the evacuation of vulnerable people living near the coast or in low lying areas and complete the process by 02.05.2019 (late night).
- The evacuation process started on 1st May, 2019. A total number of 15,57,170 people were evacuated from vulnerable areas in 19 districts to multi-purpose cyclone/flood shelters, schools and other safe buildings. More than 9000 safe shelters were identified and used in the likely affected area including existing cyclone and flood shelter buildings. Special care was taken to shift the old, differently abled, women and children to shelters much before the cyclone approaches.
- Safety of residential schools, child care institutions, old age homes and similar institutions were checked and the boarders were shifted to safe shelters, wherever necessary. Cooked food through free kitchen, health and sanitation facilities were arranged at the shelters. Basic amenities like lighting arrangement, safe drinking water was also ensured at the shelters.

The district wise details of evacuation taken prior to the disaster are given below:

Sl. No	Name of the district	No. of Person evacuated	Sl. No	Name of the district	No. of Person evacuated
1	Angul	5587	11	Khordha	84987
2	Balasore	238520	12	Mayurbhanj	84687
3	Bhadrak	62475	13	Nayagarh	52850
4	Cuttack	197744	14	Puri	129800
5	Dhenkanal	6147	15	Kandhamal	15255
6	Ganjam	301460	16	Gajapati	48975
7	Jagatsinghpur	92326	17	Rayagada	15375
8	Jajpur	96156	18	Koraput	691
9	Kendrapara	116693	19	Boudh	1090
10	Keonjhar	6352		<b>Total</b>	<b>1557170</b>



- As a precautionary measure, 24,889 no. of tourists were evacuated from Puri, Ganjam, Cuttack and Balasore. 23 number of trains and 18 number of OSRTC busses were pressed into service for the purpose in addition to other local transports.
- The cattle population was also shifted to safer places and cattle feed/ fodder arrangement was made.

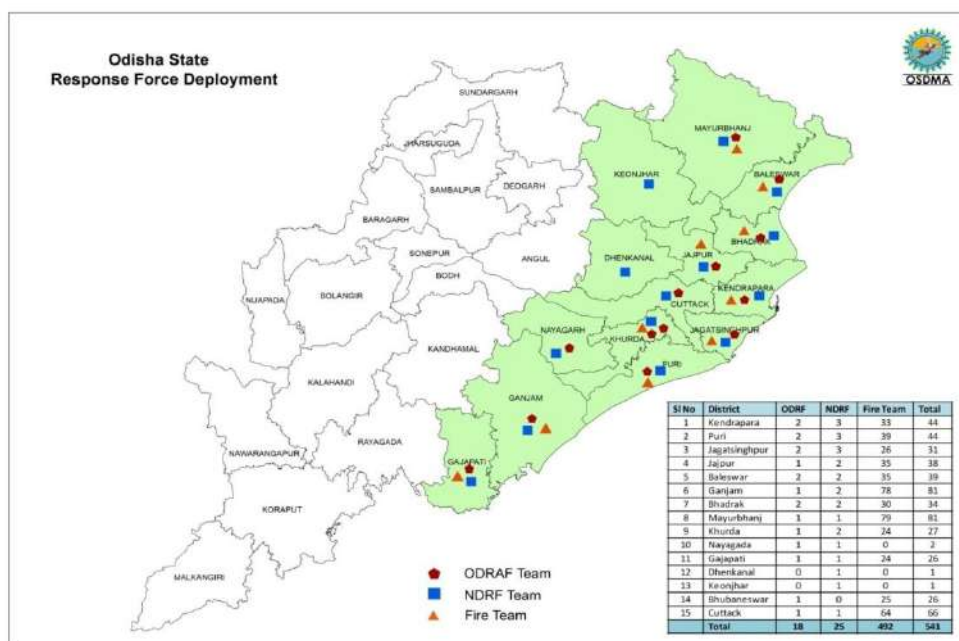
#### **Arrangement of Response Forces:**

- 20 units of Odisha Disaster Rapid Action Force (ODRAF) and 28 teams of National Disaster Response Force (NDRF) were prepositioned/ kept ready with requisite equipment at strategic locations of 14 districts for immediate response.
- Anticipating the severity of the event, request was made to IG, NDRF, New Delhi for mobilisation of additional 20 NDRF teams from the neighbouring NDRF battalions.
- Fire Service in all the districts with equipment were kept in readiness for immediate response. Fire Service personnel from districts not likely to be affected were deputed forthwith to coastal Fire Stations in order to augment the strength. The trainees from OFDRA, Bhubaneswar; OFDRI, Naraj and OSWALI, Ramchandi were detailed to Puri district & Bhubaneswar to undertake operations. In order to meet likely flood including



inundation of low lying and urban areas, power boats, lifebuoys etc. were kept ready for rescue. 30 numbers of high pressure pumps were detailed to Puri, 30 pumps to Bhubaneswar and 20 pumps to Cuttack for possible dewatering operations. Senior Officers of Odisha Fire Service were sent to likely to be affected districts to supervise the operations. Altogether 2984 Fire Service personnel along with 371 power saws, 292 tower lights and 95 numbers of power boats were deployed to different districts which were likely to be affected.

- Cutters with manpower of Odisha Forest Development Corporation (OFDC) were kept ready for immediate deployment in the cyclone affected areas for clearance of roads.



### Stockpile of relief materials:

Considering the fact that after the abatement of cyclone, required food assistance in shape of rice, chuda (flattened rice), gur (jaggery), etc. and other essential items would be provided to the affected people, prior arrangement for the same was ensured to avoid delay in providing assistance to the cyclone victims. To provide temporary shelter materials for the households whose houses expected to be damaged in the cyclone/ heavy rain, 5,97,006 Polythene Stocks were kept ready at the State and District levels for



emergency requirement. 1,00,000 food packets were made ready for air dropping. Adequate dry food stocks at the district and state level were also kept ready for emergent relief.

### **Department Level Preparedness and Advisories:**

#### *Panchayati Raj & DW Department:*

- 734 numbers of PVC tanks and 668 numbers of vehicles were kept ready.
- 337 numbers of DG sets with fuel arranged for PWS.
- 3840 numbers of overhead tanks were filled up with water.
- 3201100 numbers of water pouches were kept ready for distribution.
- 203 numbers of electricians were kept ready for immediate deployment.
- 373 numbers of mobile repairing units were kept ready.

#### *W & CD and Mission Shakti Department:*

- Adequate stocking of THR and Food Stuff in all AWCs, NGO run institutions such as Child Care Institutions, Swadhar and Ujjwala Homes was ensured.
- Instruction was issued for giving THR (Chhatua & dry provisions) and eggs for children of the age group 6 month-3 year and pregnant & nursing women in advance for 7 days.
- Prior arrangement was made for shifting of pregnant women with Early Expected Date of Delivery (EDD), preferably through ambulance service.
- Medical check-ups of high risk pregnant women, expecting mothers and severely underweight/ severely acute malnourished children were conducted in coordination with the local ANMs and ASHAs.
- Instructions were given for closure of AWCs and for safe upkeep of provisions/ rations and all essential items/ registers etc. and to undertake safety inspection of all AWC buildings.

#### *Department of Energy:*

- Skilled man power and materials like steel poles, cement concrete poles, conductors, cross arms, distribution transformers and other accessories were prepositioned for quick restoration of power supply in case of any eventuality.
- Control rooms were set up at Department, State Load Despatch Centre, Utility Corporate Offices and Circle & Division Offices.
- Existing stock of material like poles, transformers & lines etc. were diverted to vulnerable locations for early restoration.
- ERS gangs & towers were kept ready by OPTCL.

- Transport vehicles with adequate oil and other T & P like diesel gen-sets, cutters, emergency lights were arranged locally at Divisions.
- Enlisted vendor were coordinated for despatch of materials at short notice.
- Existing EPC contractors, rate contract holders & utility workmen were placed at strategic locations to speed up restoration works.
- Financial delegations were enhanced at Circle & Division level for taking up emergency procurement.
- Advance funds were placed with Divisions to meet contingent expenses.
- As a safety measure, it was decided to switch off power supply of respective feeders, when wind speed exceeds 50 Km. per hour.
- Plan of action for restoration priorities/ protocols were chalked out in advance and expenditure modalities were finalised for restoration works.

*Department of Rural Development:*

- All Rural Works Divisions were readied with men, material and machineries for immediate closure of breaches and resolve dislocation of traffic during the cyclone/ flood in their respective divisions.

*Works Department:*

- Sensitization of the entire field Executive Engineers was done for water-tightness of the EVM strong rooms and post cyclone restoration works of all PWD roads and Govt. buildings.
- Arrangement of materials, manpower and machineries was done for deployment in vulnerable locations.

*Department of Health and Family Welfare:*

- All pregnant women whose expected date of delivery was around 15 days as on 3rd May and critical patients were shifted to nearby hospitals to avoid any emergency. Prior to cyclone 1945 pregnant women in advance stage of pregnancy were shifted to nearby hospitals.
- Odisha State Medical Corporation Limited (OSMCL) supplied all emergency logistics (Antipyretic, antibiotics, Anti diarrheals, ORS, Halazone/chlorine tablets, Anti snake venom, IV fluids etc) in sufficient quantity to all 14 districts.
- Alternative water & power supply to the hospitals, storage of adequate rations for in-patients in hospitals, storage of DOL for generators etc. were ensured before the actual landfall of cyclone.

- In order to support and guide the vulnerable districts, senior officials from the Health Directorate were deployed to priority districts.
- 302 numbers of RRTs/ mobile teams were readied and plan for opening 936 numbers of MRCs was done.
- Power back up arrangement was made for 242 numbers of public health institutions and 494 numbers of ambulances were kept ready.
- Vaccines and other heat sensitive medicines shifted to district/ block head quarters for cold chain maintenance.

*Fisheries and ARD Department:*

*Fisheries-*

- All the Addl. Fisheries Officers (Marine) and District Fisheries Officers in the six coastal districts of Odisha were instructed to sensitise the marine fishers on the high intensity wind associated with the cyclone and possible storm surges.
- Due to uniform fishing ban imposed by GoI for east coast of the country, the state Government had issued one time notification on fishing ban for its territorial water from 15th April – 14th June every year. Hence, during this period, fishing by all types of vessels was completely banned.
- Mike announcement was started from 30.04.2019 at all Fishing Harbours & Fish Landing Centres of the State to sensitize the fishermen not to venture into sea for fishing. The field staffs of the department were deployed to all the landing centres to ensure that not a single fishing vessel ventured into sea for fishing. The Traditional Boat Owners Association was also involved in the effort and including community mobilization.
- All the fishing vessels were safely berthed at fishing harbours and fish landing centres by the boat owners. The traditional fishermen were also advised to shift their fishing boats to safer places in view of high tidal amplitude.
- The field officers were in close contact with the District Administration in evacuation work to shift the fishermen living near the sea shore and also in low lying areas to nearby cyclone shelters and other safer places.

*Animal Resources Development Sector-*

- Instructions were issued to field veterinarians to aware dairy farmers and small animal owners to take immediate measures by shifting their animals to safe places to avoid livestock loss.
- 635 animal shelter such as school premises and multipurpose cyclone shelters in the respective districts were identified with the help of District Administration and over



40,000 large animals like cow, buffalo, bullock, etc. were shifted to such shelter points.

- The department mobilised and stocked 300 MT of cattle feed at strategic locations at block level to meet the exigencies.
- Around 80,000 livestock farmers of such districts were made aware about safeguarding of animals and severity of the cyclone through sending of mobile voice messages under Mobile Advisory Programme.
- The control rooms at Department and District levels were made functional.
- All CDVOs were contacted well in advance to work out the requirement of cattle feed in the areas to be affected by the cyclone and to store cattle feed at strategic locations to prevent any situation of shortage of feed and distress to animals.
- Besides steps for health care services, measures for carcass disposal were also ensured.
- All necessary medicines and quick response teams were kept ready.

*Industries Department:*

- Instructions were issued to all companies to extend all necessary cooperation as regards to supply of earth movers, fire extinguishers and other necessary rescue equipment available with organisations to the district administration as well as to other response agencies.
- Instructions were also made for safe storage of the hazardous materials within industry/ factory campus to avoid spilling or leakage.

*Agriculture and Farmers' Empowerment Department:*

- Agro based crop advisory prepared by OUAT and Directorate of Agriculture on crop management during and before the cyclonic storm was issued to the district level officers for wide circulation among the field functionaries and farmers.
- The same crop advisory was also disseminated through All India Radio, 15 Community Radio Stations across the state and Door Darshan Kendras.
- PADIF and m-Kissan platforms also delivered the voice response and SMSs to 26.88 lakh farmers.
- A detailed crop management programme was telecasted through " Palishree" Programme of DD Odia.

*ST & SC Development Department:*

- Control Rooms was opened at the State Headquarters and also at the districts levels in the office of the PA, ITDA, office of the DWOs and office of the Special Officers of Micro Projects for coordination.

- Instructions were issued for closing of all educational institutions including Higher Secondary Schools, EMRS and Teacher Training Schools under the department w.e.f 2nd May 2019.
- Instruction were also issued to ensure safety and security of the student boarders staying in residential schools, including urban hostels, post-matric hostels and hostels of higher secondary schools, EMRS and teacher training schools.
- All Headmasters, Headmistress and Assistant Hostel Superintendents were directed to ensure sufficient stock of food grains, vegetables, other food stuff, fuel wood etc. in the Hostels.

*Housing and Urban Development Department:*

- All logistics, chemicals required for smooth management of Water Supply in ULBs were arranged well in advance.
- 211 Tankers were readied and pre positioned. 1356 PVC tanks along with chemical were also prepositioned.
- 171 DG sets were prepositioned immediately along with sufficient stock of POL to meet exigencies.
- Around 5000 sanitation workers and 600 senior officers were mobilised in 42 ULBs for pre-cyclone management.
- Control rooms were setup in all ULBs to manage drinking water issues.
- All the storage reservoirs were kept full by continuous pumping operation to ensure availability of adequate stock in the 24 hours immediately after the cyclone.
- Rescue machineries and equipment were made available in the ULBS as precautionary measure.
- Arrangements were made in all ULBs for announcement over mike for evacuation from low lying areas in case of need.
- School, Colleges, Community Centre and other public buildings were identified and preparations made for sheltering people.
- WATSAN committee members were sensitized for required assistance.
- Removal of blockages & de-silting of critical drains were undertaken for ensuring free flow of storm water. High capacity diesel pump sets were in readiness for draining out water from low lying areas.

*Department of Tourism:*

- Advisory for tourists were issued by the department to evacuate from the coastal destinations of Odisha from 02.05.2019 till situation normalizes.
- District and Department level control rooms were set up to assist the tourists.

***Forest and Environment Department:***

- Control Rooms in the division offices of the vulnerable districts as well as in the office of the PCCF, Odisha and PCCF (Wild Life), were functional on 24X7 basis.
- Precautionary steps were taken by DFO, Puri Wild Life Division to sensitize the villagers located in and around the Balukhand- Konark sanctuary area. Deployment of special squads in vulnerable areas for protection and rescue of Wild animals was also made.
- Adequate quantity of feed and fodder, medicines, storage of drinking water, provision of Gen-set was ensured in Nandankanan and other captive facilities. The Nandankanan Zoo was closed from 2nd May to 4th May 2019.
- The DFO, Rajnagar Wildlife Division and Puri Wildlife Division were specifically asked to ensure safety of the Wild animals and also to take prompt action for rescue and rehabilitation of wild animals coming towards human habitations.
- The accommodation in Nature Camps/ Eco-tourism destinations in the coastal divisions were closed for tourists from 1st May to 6th May 2019.
- All power chain saws available with the department were made ready for cutting of uprooted trees for road clearance.

***Review of Preparedness:***

- Honourable Chief Minister reviewed the preparedness of the departments and likely to be affected districts for the impending cyclone on 01.05.2019 and 02.05.2019.
- Inter departmental coordination meeting were held regularly from 1<sup>st</sup> May 2019 onwards.
- The Chief Secretary took review of preparedness of the departments and likely to be affected districts regularly from 29<sup>th</sup> April 2019 onwards.
- GO-NGO coordination meeting were conducted regularly from 1<sup>st</sup> May 2019 to create massive public awareness and early warning dissemination, expediting evacuation, extend support in relief distribution and search and rescue activities.



## Role of Media: Print, Electronic and Digital

The cyclone path and predicted intensity was prominently highlighted by TV channels/ print media/ social media on a real time basis in the 72 hours before the landfall. It helped create massive awareness among people. Media played a proactive role in covering the government's move to shift more than 15 lakh people to safety. The reportage of one place, helped people elsewhere realize the gravity of the situation and cooperate in leaving their homes to cyclone shelters. This made evacuation process easier and helped reduce casualty.

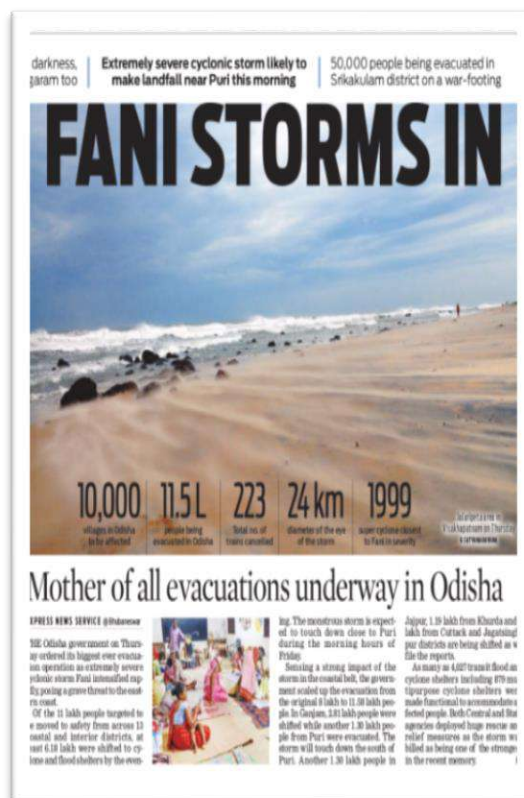
Apart from reporting on their own platforms such as newspapers or TV space, media outlets and journalists disseminated real time information in social media twitter, Facebook and WhatsApp groups. Information shared in government's social media handles such as SRC were immediately shared by media outlets making those spread to wider audience. "Cyclone Fani Updates and #Cyclone Fani was trending on twitter.

The media management was done by designated officers who organized press briefing at fixed timing. Emergency control room used to monitor various media channels to keep a track of media reporting

The media played a great role and undertook the following activities at different stages:-

### Pre Cyclone FANI:

- Spread Awareness and information to people.
- Plan and encourage people to face the situation.
- Remove fear of unknown & of all false perceptions.
- Built partnerships between media and other organizations.



5/12/2019 Cyclone Fani: UN praises India's response to devastating storm | News | Al Jazeera



NEWS / CYCLONE

#### Cyclone Fani: UN praises India's response to devastating storm

Cyclone leaves trail of devastation across Indian coastal state of 46 million people causing at least 33 deaths.

5 May 2019



Corrugated sheets used as roofing lie scattered after Cyclone Fani made landfall in the Penthakata fishing village of Puri (AP)

The United Nations and other experts have praised India for its early warning systems and rapid evacuation of more than a million people, which helped minimise the loss of life from a deadly cyclone that battered its eastern coast.

<https://www.aljazeera.com/news/2019/5/cyclone-fani-praises-india-response-devastating-storm-19050507204472.html>

1/9

## During Landfall:

- Announcements of the disaster and the preventive measures.
- Broadcast for the assistance of the Medical, Police, Civil Defence and food, water, medicines & other materials of immediate need.
- Taking lead in broadcasting damage assessment & details of measures being taken towards relief and rehabilitation.

## Post Cyclone FANI

- Arrest panic and provide the true picture.
- Mobilize State, National and International resources.
- Appeal for help in cash, kind and services.

## Role of Print Media

- Played big role in disaster management and preparedness.
- Had a qualitative role to play in preparing the community and other stakeholders for better management of disaster.

## Role of Electronic Media:

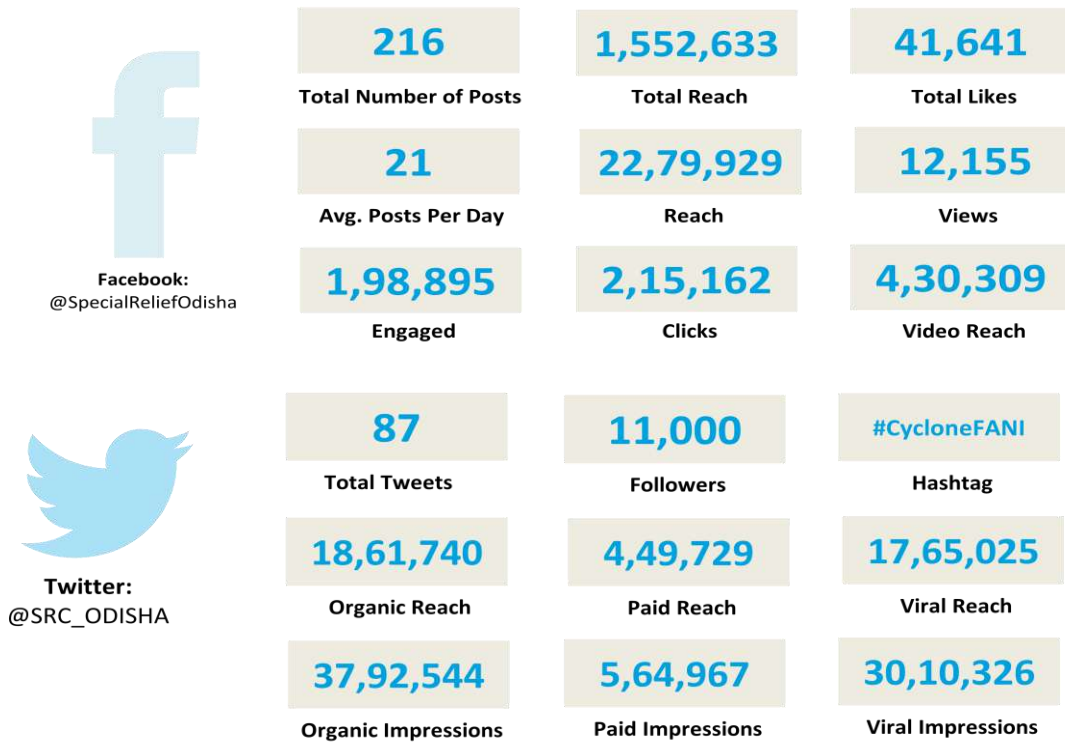
- Electronic Media played an important role in dissemination of warning to the public prior to disasters. A continuous contact and cooperation was maintained with the national and local TV and radio stations by the authorities. Activities for effective role of electronic media during the time of Cyclone FANI were as follows.
- Active involvement of professionals and specialists in broadcasts.
- On TV screen, scrolling script gave warning messages.
- Used sophisticated images, graphics like radar and satellite images, GIS maps, etc.
- Used Special Relief Commissioner's official Facebook page and twitter to update the latest happenings.
- Information on Occurrence of Cyclone Fani, Number of Injured and Casualties, Helpline Enquiry Booth and Control Room and media briefing at affected sites were relayed to the Press, Digital and Electronic Media.



# Role of Social Media



## Social Media Analytics from April 27<sup>th</sup> 2019 to 5<sup>th</sup> May 2019



## Chapter- V

### *Impact & Damages*

The damages caused by the cyclone were mainly due to gusting action of wind and heavy rainfall. As per report received from Collectors, 159.85 lakh people in 159 Blocks, 51 Urban Local Bodies and 20367 villages in 14 Districts have been affected. 64 persons have lost their lives due to cyclone. Agriculture and horticulture crops including orchards in 1.49 lakh hectares have been damaged. The fishing communities have been severely affected due to huge loss to their boats and nets. The handloom and handicraft artisans have lost their looms, equipment, accessories and raw materials. Livestock and poultry farmers have also sustained huge loss. Massive damage has been caused to public properties.

#### Extent of Damages

Abstract of extent of damages due to cyclone "FANI" is indicated below:

Sl.	Name of the districts	Blocks Affected (Nos.)	Villages Affected (Nos.)	ULB Affected (Nos.)	Population Affected (Nos.) due to flood & cyclone
1	Angul	5	67	0	5709
2	Balasore	12	2535	4	1133374
3	Bhadrak	7	910	4	1015742
4	Cuttack	14	2062	4	1689432
5	Dhenkanal	8	961	4	302461
6	Ganjam	22	2673	12	2000000
7	Jagatsinghpur	8	1321	2	1136971
8	Jajpur	10	1865	2	2192630
9	Kendrapada	9	1592	2	1522901
10	Keonjhar	9	163	1	7200
11	Khordha	10	1669	5	2502008
12	Mayurbhanj	26	1400	2	173095
13	Nayagarh	8	1377	5	344100
14	Puri	11	1772	4	1968228
<b>TOTAL</b>		<b>159</b>	<b>20367</b>	<b>51</b>	<b>15993851</b>

#### House Damage

1,35,876 pucca and kutcha houses have been fully/ severely damaged due to the cyclone. Besides, 1,40,782 pucca houses and 2,72,556 kutcha houses have been partially

damaged. Similarly, 7,547 huts and 1,19,694 cowsheds attached to houses have been damaged. The district-wise details are given under **Appendix-VII**.

### **Crop Damage**

146311.38 hectare of agriculture, horticulture and perennial crops have sustained crop-loss to the extent of 33% and above due to cyclone associated with heavy rain. The details are given under **Appendix-IV & V**.

### **Livestock affected**

34.39 lakh livestock and 53.71 lakh poultry birds were affected due to cyclone & heavy rain. The district-wise figures of affected livestock are given in following table.

Sl.	District	Livestock affected			Poultry affected
		Large	Small	Total	
1	Balasore	46355	15913	62268	0
2	Bhadrak	2762	1995	4757	1488
3	Cuttack	326659	151669	478328	1195462
4	Ganjam	64715	56224	120939	52770
5	Jagatsinghpur	302800	130466	433266	426016
6	Jajpur	508600	197050	705650	196166
7	Kendrapada	365590	123587	489177	61023
8	Keonjhar	568	735	1303	4500
9	Khurdha	359440	116749	476189	650787
10	Mayubhanj	450	324	774	550
11	Nayagarh	66869	25287	92156	374611
12	Puri	398521	176054	574575	2408000
<b>Total</b>		<b>2443329</b>	<b>996053</b>	<b>3439382</b>	<b>5371373</b>

### **Livestock Death:**

140 nos. of large draught animals and 700 nos. of small draught animals, 2510 nos. of large milch animals, 2931 nos. of small milch animals and 5326905 poultry birds have lost their lives due to Cyclone.

### **Loss of livelihood**

Due to cyclone, 71060 traditional craftsmen have been affected causing damage to their equipments and raw materials. Similarly, 42488 handloom weavers & 12135 sericulture farmers have been affected.



## Damage to Nets and Boats of Fishermen

6416 boats and 8828 fishing nets have been damaged due to cyclone.

### Loss to public properties and requirement of fund for relief measures on account of Extremely Severe Cyclonic Storm "FANI"-2019

Sl.	Departments	Quantity	Loss
			(Rs. in lakh)
<b>1</b>	<b>Water Resources Department</b>		
	Damage to rivers & saline embankment	785.28 Kms	17423.72
	Clearance of drainage channels & other cannels	509.20 Kms.	673.96
	Damage to CDs/ Bridges & Breaches	232 Nos.	120.4
	Damage to other infrastructure of Drainage Sector	43 Nos.	144
	Damage to Minor Irrigation Project		50
	Damage to Lift Irrigation Projects	1779 Nos.	4881.8
	Damaged to other Infrastructure Lift Irrigation sector	10 Nos.	55
	Damage to river & canal embankment roads	1524.16	6862
	Damage to damaged buildings of Major, Medium & Minor irrigation		6879.62
	<b>Total</b>		<b>37090.5</b>
<b>2</b>	<b>Works Department</b>		
	Damage to Roads of PWD	5393.35 Kms.	25973.73
	Damage to Culverts of PWD	377 Nos.	2238.5
	Damage to breaches of PWD	151 Nos.	75.5
	No. of road blocked due to uprooted trees, electric poles etc.	583 Nos.	1223.83
	Damage to IBs	185 Nos.	2560
	Damage to Electrical Installation	1 No.	60
	Damage to residential buildings	11612 Nos.	31590.72
	Damage to non-residential buildings	1801 Nos.	21970.55
	Damage to NHs maintained by State	272.619 Kms.	553.8
	Damage to Culverts of NHs division	6 Nos.	138
	Damage to Infrastructure of NH Division	151 Nos.	442
	<b>Total</b>		<b>86826.63</b>
<b>3</b>	<b>Rural Development Department</b>		
	Damage to Educational Buildings	1334 Nos.	14150.70
	RD Dept. Buildings	323 Nos.	1529.20
	F& ARD Dept. Buildings	194 Nos.	899.00

	Home Dept. Buildings	165 Nos.	793.00
	Agriculture Dept. Buildings	72 Nos.	310.00
	Other Dept. Buildings	24 Nos.	114.50
	Damage to EI & PH		3433.00
	Damage to Rural roads including breaches	6251.28 kms	20714.42
	Damage to CD/ Bridges	229 Nos.	1633.85
	<b>Total</b>		<b>43577.67</b>
<b>4</b>	<b>Housing &amp; Urban Development Department</b>		
	Damage to Roads	750.44 Kms.	16275.93
	Damage to Drainage	291.124 Kms.	2964.04
	Damage to Culverts	267 Nos.	906.40
	Damage to water supply system in Urban areas	258 Projects	9800.35
	Damage to street light in all ULBs		4609.55
	Damage to Aahar Centres in 52 ULBs		1620.00
	Damage to other infrastructure		13645.86
	<b>Total</b>		<b>49822.13</b>
<b>5</b>	<b>Panchayati Raj &amp; DW Department</b>		
	Damage to Rural Drinking Water Supply System	1397 Nos.	2346.02
	Damage to GP/ PS Building & Community Hall	2397 Nos.	6989.66
	Damage to Primary School Buildings	7105 Nos.	38093.85
	Damage to RWSS Buildings	87 Nos.	169.00
	<b>Total</b>		<b>47598.53</b>
<b>6</b>	<b>Agriculture &amp; FE Department</b>		
	Agriculture Dept. Buildings	229 Nos.	<b>17569.32</b>
<b>7</b>	<b>Energy Department</b>		
	Damage to 220KV/ 132 KV tower & lines (OPTCL)		9100.00
	Damage to Power Transformer	26 Nos.	1777.36
	33 KV line damaged	6078 Kms.	2450.00
	Damage to conductor up to 11 KV	107132 Kms	53565.51
	Damage to Distribution Transformer	12042 Nos.	12042.00
	Damage to Poles (up to 11 KV)	202690 Nos.	8107.60
	Damage to Poles ( 33 KV)	16715 Nos.	668.60
	Damage to VCB, insulators, switches, lightning arrestors & labour cost etc.		28266.00
	<b>Total</b>		<b>115977.07</b>

<b>8</b>	<b>Fisheries &amp; Animal Resources Department</b>		
	Damage to Infrastructure of Fisheries Sector		1053.00
	Damage to Veterinary Institutions like VD, LAC etc.		2039.00
	Damage to OPOLFED, Feed Plant & Chicken fresh outlets		99.00
	Damage to OMFED Plant & Building/ Cattle Feed Plant		152.85
	<b>Total</b>		<b>3343.85</b>
<b>9</b>	<b>ST &amp; SC Dev., Minorities &amp; Backward Classes Department</b>		
	Damage to Schools & its infrastructure	138 Nos.	592.24
	Damage to infrastructure of different Offices	09 Nos.	274.05
	<b>Total</b>		<b>866.29</b>
<b>10</b>	<b>Women &amp; Child Dev. Dept.</b>		
	Repair of Anganwadi Centres & other buildings	3039 Nos.	7248.50
	Food stock under SNP	357.66 MTs	18.18
	THR producing SHG units	39 Nos.	68.93
	Govt. run Child Care Institutes	3 Nos.	34.65
	HETC, Bhubaneswar		61.45
	<b>Total</b>		<b>7431.71</b>
<b>11</b>	<b>Handlooms, Textile &amp; Handicrafts Dept.</b>		
	Loss to infrastructure in Handicraft sector		652.12
	Loss to infrastructure in Handloom Sector		781.38
	Loss to Sericulture Sector including infrastructure		308.00
	<b>Total</b>		<b>1741.50</b>
<b>12</b>	<b>Cooperation Department</b>		
	Damage to Buildings & other infrastructure of Primary Societies		2084.53
	Damage to Buildings & other infrastructure of Cooperative Banks		452.25
	Damage to Buildings & other infrastructure of Central & apex Cooperative Institutions		641.81
	Composite Cooperative Building, Puri		110.00
	<b>Total</b>		<b>3288.59</b>
<b>13</b>	<b>Higher Education Department</b>		
	Govt./ Aided Colleges & University Buildings	388 Nos.	<b>29600.00</b>
<b>14</b>	<b>Health &amp; Family Welfare Dept.</b>		
	Medical Colleges & Hospitals/ District Headquarters Hospitals	12 Nos	2981.50

	Primary Health Centres, Community Health Centres, Su-Centres, etc.	1031 Nos.	12485.20
	Damage to equipment/ instrument & furniture		857.27
	<b>Total</b>		<b>16323.97</b>
<b>15</b>	<b>SSEPD Department</b>		
	Dwelling House, Hospital, Spl. School & Hostel Building, Leprosy Home, Old Age Home and Training Centres		1827.41
<b>16</b>	<b>Labour &amp; ESI Department</b>		
	Office/ Hospital/ Staff Quarters		<b>78.00</b>
<b>17</b>	<b>Forest &amp; Environment Dept.</b>		
	Damage to Infrastructure		7830.00
	Damage to uprooting trees inside forest area	9 lakh	27000.00
	Damage to trees outside forest area	5 lakh	15000.00
	Damage to Plantation, avenue plantation, urban plantation	7.90 lakh	3950.00
	<b>Total</b>		<b>53780.00</b>
<b>18</b>	<b>Tourism Dept.</b>		
	Buildings & other properties		2402.93
	Damage to Hotel Industries		50000.00
	<b>Total</b>		<b>52402.93</b>
<b>19</b>	<b>Skill Development &amp; Technical Education Dept.</b>		
	Govt. ITI	22 Nos.	2572.00
	Govt. Polytechnic/ Engineering Schools	18 Nos.	2200.00
	Govt. Engineering & Management Colleges	04 Nos.	864.00
	Directorate of Employment	01 No.	50.00
	Directorate of Employment Exchange	01 No.	10.00
	Skill Development Centre	05 Nos.	60.00
	<b>Total</b>		<b>5756.00</b>
<b>20</b>	<b>Damage to properties of E &amp; IT Dept.</b>		
	Damage to SHQ, DHQ & BHQ infrastructure & building		<b>1411.02</b>
<b>21</b>	<b>Science &amp; Technology Department</b>		
	Institute of Mathematics & Applications		130.00
	Odisha Bigyan Accademy		10.00
	Pathani Samanta Planetarium		182.00
	Odisha Space Application		17.30
	Odisha Renewable Energy Development Agency		323.89
	<b>Total</b>		<b>663.19</b>

<b>22</b>	<b>Home Department</b>		
	Damage to infrastructure of Odisha Police		8385.95
	Damage to infrastructure of Fire Service		200.23
	Damage to infrastructure of OS&TI, Bhubaneswar		1.50
	Damage to infrastructure of High Court		733.19
	Damage to infrastructure of other sub-ordinate Courts		1177.14
	Damage to infrastructure of Sate Guest House, BBBSR		2.73
	Damage to infrastructure of Odisha Police Housing Corporation		897.02
	<b>Total</b>		<b>11397.76</b>
<b>23</b>	<b>Industries Department</b>		
	IDCOL		35.37
	IDCO		15233.7
	<b>Total</b>		<b>15269.07</b>
<b>24</b>	<b>Odia language, Literature and Culture Dept.</b>		
	Damage to Infrastructure		<b>7834.00</b>
<b>25</b>	<b>Commerce &amp; Transport Department</b>		
	Commerce		262.00
	Directorate of Ports & IWT		11.64
	O/o the Transport Commissioner		47.79
	RTO Cuttack		44.32
	RTO Puri		46.05
	Maltipatapur Bus Stand, Puri		693.10
	Barmunda Bus Stand		39.50
	Badambadi Bus Stand		18.80
	Jatni Bus Stand		7.50
	OSRTC Press office		41.00
	OSRTC		7.50
	<b>Total</b>		<b>1219.20</b>
<b>26</b>	<b>Revenue &amp; DM Department</b>		
	Buildings of Revenue & DM Departments		<b>10000.00</b>
<b>27</b>	<b>General Administration &amp; PG Department</b>		
	Non-residential buildings (civil & electrical)		2089.14
	Residential buildings (civil & electrical)		21463.49
	Non-residential & residential buildings (PH)		2041.76
	<b>Total</b>		<b>25594.39</b>

<b>28</b>	<b>Micro, Small &amp; Medium Enterprises Department</b>		
	Damage to MSME Units/ Buildings(Civil/ Machinery)	573 Nos.	10556.18
	Damage caused to salt industries		1.50
	<b>Total</b>		<b>10557.68</b>
<b>29</b>	<b>Damage to Multipurpose flood/ cyclone Shelters</b>	770 Nos.	<b>5005.00</b>
<b>30</b>	<b>Damage to properties of Shree Jagannath Temple, Puri</b>		<b>510.00</b>
	<b>Total (Public Properties)</b>		<b>664363.41</b>
<b>31</b>	<b>Pure Relief Items</b>		
	Ex-gratia for loss of life		256.00
	Clothing & Utensils		5163.29
	GR kind for dire need of sustenance		60656.55
	Cost of evacuation, search & Rescue measure		2521.24
	Temporary accommodation		3009.91
	Temporary shelter		8570.82
	Emergence supply of drinking water		4563.03
	Clearance of debris		7314.88
	Draining of flood water from the affected areas		33.00
	Disposal of dead bodies/Carcasses		437.56
	Repair/restoration of fish ponds		4.13
	Agriculture input subsidy-SMF		14889.99
	Agriculture input subsidy-other than SMF		429.74
	Replacement of Milch/ Draught animals		950.92
	Provision of fodder and cattle health care		2432.85
	Assistance to fisherman		631.89
	Input subsidy-Fish seed farm		3.55
	Assistance for Artisan-Traditional crafts & Handloom weavers		9310.94
	House Building Assistance		148083.53
	<b>Total</b>		<b>269263.82</b>
	<b>Grand Total</b>		<b>933627.23</b>

# Chapter-VI

## Response

After abatement of the cyclone, emergency communication was established with the extremely severely affected districts using HAM, VHF & Satellite phones and other affected districts with the traditional communication systems and a quick assessment of the situation was made at the state level. The response forces were immediately mobilized to the extremely affected areas for search & rescue of the stranded people and transporting casualties for medical treatment. Restoration of road communication, electricity, drinking water supply, telecommunication and other critical services were taken up by the concerned District Administrations and Departments in the affected areas on war footing. To ameliorate the suffering of the affected people, Gratuitous Relief (GR) was extended in the extremely severely affected districts.

The situation in different districts and areas were reviewed from time to time at different level of the Government and necessary manpower and materials were mobilized to restore critical services and bringing life back to normalcy. To streamline the relief rendered by the Non Government Organizations (NGOs), Philanthropic and others and for ensuring proper delivery, the GO-NGO platform at the State and District levels were activated. Nodal Officers were appointed and regular coordination meetings were conducted for the purpose. The Office of the Special Relief Commissioner also coordinated with the Office of the Chief Resident Commissioner-Odisha in New Delhi, Airport and Indian Railways Authorities for free transportation of relief materials, medicines and other essential supplies from various locations across the country. Considering the plight of the people whose livelihood had been severely affected due to the cyclone, special packages were also announced both for farm and non-farm sector for ensuring speedy recovery.

A detailed account of the relief, restoration and other measures undertaken by the Government of Odisha is given below:

### **Gratuitous Relief:**

Considering the fact that food reserve of the people were wiped out in the cyclone & associated heavy rain and in the immediate aftermath of the cyclone and food stuff was not available in the market for purchase, it was decided to provide GR in shape of grain i.e., rice along with cash and temporary shelter material (polythene sheet). Further, since the banking services were paralyzed due to power and internet failure, funds towards gratuitous

relief was disbursed among the beneficiaries in cash with due approval of the Government of India

District wise details of gratuitous relief extended to families under different categories were as follows:

1. Puri:

- For all families covered under food security, Fifty (50) Kg. of rice plus Rs. 2000/- (rupees two thousand) and polythene or Rs. 1000/- in lieu of polythene if the same is not available.
- 50 Kg. of rice and Rs. 2000/- to all families in the district of Puri not covered under food security (i.e. non- cardholders).
- Additional gratuitous relief amounting to Rs. 1000/- to all families in Puri district.

2. Khordha:

- For all families covered under food security, Fifty (50) Kg. of rice plus Rs. 2000/- (Rupees two thousand) and polythene or Rs. 500/- in lieu of polythene if the same is not available.
- Fifty (50) Kg. of rice plus Rs. 2000/- and Polythene or Rs. 500/- thereof also to the families living in various slums in Bhubaneswar Municipal Corporation (BMC), who do not possess card under NFSA/SFSS.
- Fifty (50) Kg. of rice to the non-card holders in the district of Khordha except BMC area.

3. Cuttack, Kendrapada and Jagatsinghpur:

- Rs. 500/- plus additional one month quota of rice for all families covered under food security.

4. Niali and Kantapada Blocks of Cuttack District:

- For all families covered under food security, 50 Kg of rice plus Rs. 2000/- and polythene or Rs. 500 in lieu of polythene if the stock is not available.
- 50 Kg. of rice to the families not covered under food security (i.e. non-cardholders.)

5. Ranapur Block of Nayagrh District:

- For all families covered under food security, 50 Kg of rice plus Rs. 2000/- and polythene or Rs. 500 in lieu of polythene if the stock is not available.
- 50 Kg. of rice to the families not covered under food security (i.e. non-cardholders.)

6. For all other affected districts, relief distributed as per NDRF/ SDRF norms.



### **Additional Gratuitous Relief to Pensioners:**

Considering the vulnerability of the old, widow and differently-abled persons in the aftermath of the disaster, additional Gratuitous Relief, equal to one month's pension has been provided to all pensioners under various pension schemes of the Central and State Government in the extremely and severely affected districts of Puri, Khurdha, Cuttack, Jagatsinghpur and Kendrapada.

### **Information and Awareness through SMSs:**

In the aftermath of the cyclone, between 7th and 20th May 2019, about **3,63,13,750** number of informative and awareness SMSs were sent through Location Based Alert System (LBAS) to BSNL subscribers of the 14 affected districts. The messages were advisories on health & hygiene, drinking water & sanitation, taking proper care of old, children & specially abled persons, taking care of domestic animals and information on provision of the gratuitous relief, provisions of SDRF norms towards input subsidy for agriculture, poultry loss, replacement of animals and as well as special packages announced by Govt. of Odisha for different sectors and the process and time line of damage assessment being conducted by the district administration.

Group Based Messages were also sent to Multipurpose Cyclone/ Flood Shelter Maintenance & Management Committee members and officials of the district and block administration for reporting the status of evacuees staying in the shelters and free kitchens and as well as for taking measures for cleaning the premises and repairing of the minor damages caused due to the cyclone.

### **Deployment of Response Forces for Search & Rescue and Post Cyclone Clearance:**

In addition to the 20 units of Odisha Disaster Rapid Action (ODRAF), 28 teams of National Disaster Response Force (NDRF) and teams of Odisha Fire Service prepositioned at strategic locations prior to the disaster, additional NDRF teams were mobilized from other battalions and engaged for search and rescue and clearance of roads. The teams of Odisha Forest Development Corporation (OFDC) were also engaged for fallen tree cutting and clearance of roads. At its peak the deployment of response forces in severely affected districts was as follows.

<b>ODRAF Units</b>	<b>NDRF Teams</b>	<b>Odisha Fire Service Teams</b>	<b>OFDC Teams</b>
20	50	265 (1584 personnel)	233 (233 cutters & 740 laborers)

06 NDRF teams from 2nd Bn. Kolkata, equipped with plasma cutters were engaged for clearing of fallen electric poles and assisting the teams of Energy Department for restoration of electricity in Puri district. NDRF teams have rescued 81 persons, cleared 4333 Km road, 19426 no. of uprooted trees, 2477 no. of electric poles and provided medical assistance to 1872 persons.

The ODRAF teams were engaged for clearing of uprooted trees and restoring important relief lines. The teams also assisted departments for clearing of fallen trees for restoring of electricity, pipe water supply and functioning of other critical services.

The fire service teams were engaged for clearing of roads to facilitate traffic and movement of relief goods. The teams also assisted Government departments to clear fallen trees from streets, public places like hospitals, airport premises, bus stands, railway station, parks, several Govt. offices. In the evening due to disruption of electricity, inflatable tower lights were also provided to the main streets, hospital and other important public places for illuminating the areas. Apart from clearing of fallen trees the Fire Tenders were also pressed into service for providing water to people in the affected areas and for sprinkling water on the dumping yards where debris of fallen trees were kept.

### **Health and Sanitation Measures:**

Following health and sanitation measures were taken up in the affected areas after the cyclone.

- Among the affected districts, all districts except Puri ensured 24X7 running water supply, alternative power back up and started critical services within 48 hours. Puri district took 7 days to restore these facilities.
- Around 20 state level officials were deployed to 5 worst affected districts and were stationed there for 15 days to oversee the restoration and disease surveillance activities with real time feedback to state. For Puri, one nodal officer from the state was deployed to the 6 worst affected blocks to oversee the restoration and disease surveillance activities with real time feedback to state.
- 281 numbers of Mobile Health Teams (MHT) were deployed.
- 778 numbers of Medical Relief Centres (MRCs) were opened in the affected areas.
- 74 number of doctors were deployed from outside to Puri, Cuttack, Jagatsinghpur, Kendrapada, and Khordha districts.
- 1,55,146 number of minor ailment/ injured treated by MRC/ mobile teams/ public health facilities.
- OSMCL ensured adequate supply of emergency drugs, consumables and other logistics to the affected areas.

- 24 lakh sanitary napkins were distributed free of cost to all adolescent girls and women in Puri district for 2 months.
- Daily disease surveillance reports as per SOPs were generated from each sub-centre and district wise reports were compiled and analysed at the state surveillance unit. Three EWS were raised, investigated by RRT. None of these were marked as outbreak after detailed investigation.
- Accredited Social Health Activist (ASHA) were engaged for shifting of women to the nearest hospital, disinfection of open wells, distribution of halazone/chlorine tablets, ORS and sanitary napkins. They were also engaged to raise awareness among the community regarding personal hygiene, safe drinking water, use of mosquito net and village cleaning.
- ASHA spearheaded in disinfection of 2,13,698 number of open wells in affected areas, distribution of 31,69,154 number of ORS sachets and 54,40,583 number of Halazone/ Chlorine Tablets.
- Additional funds @ Rs. 10,000/- were allocated to all Gram Kalyan Samiti (GKS) to take up special cleanliness drives and sanitation work in each village. GKS conducted 23,006 numbers of cleanliness drives in the villages of the affected districts which helped in preventing outbreaks.
- 83 unsafe water bodies (ponds with animal carcasses and decomposed organic matters) were barred from public use by putting appropriate signage and public awareness.
- State Institute of Health and Family Welfare (SIHFW) generated massive awareness regarding effect of FANI on public health through print, electronic and social media (Twitter, Facebook and WhatsApp). Till date 265 TV spots, 244 radio spots and 82 newspaper advertisement were given on health awareness.
- 6,16,000 health awareness leaflets were distributed at household level by ASHAs in 5 highly affected districts including Bhubaneswar and Cuttack Urban.

#### **Animal Care/ Veterinary Measures:**

Following measures were taken by the F & ARD department in the immediate aftermath of the cyclone.

##### *a. Supply of feed and fodder:*

- A total of 2006.5 MT of cattle feed were supplied to the severely affected districts, i.e., 99 MT to Cuttack, 1326.5 MT to Puri, 211 MT to Jagatsinghpur, 367 MT in Jajpur & 3 MT to Kendrapada district.

- Steps have been taken for supply two thousand quintals of green fodder from the departmental fodder farms to the affected areas.
- Efforts have been taken to procure 100 MT fodder from NDDB for supply to affected areas.

*b. Veterinary health care:*

- Mobile Veterinary Unit consisting of one Veterinary Doctor, one Livestock Inspector and one attendant was deployed in each affected block at the veterinary dispensary level to move about in the affected areas for treatment of animals. 115 Rapid Response Teams were used for conducting veterinary camps in the affected areas wherever necessary at District level by concerned CDVOs.
- Additional 64 Rapid Response Teams (RRTs) from nearby districts not affected by cyclone were deployed (61 in Puri district, 3 in Khordha), to carry out animal health camps, carcass disposal, distribution of cattle feed and fodder. 359 Veterinary Doctors, 1177 Para-Vets and support staff were engaged for ensuring Health Care measures in cyclone affected areas.
- 4105 number of Animal Health Camps were organised and 5.08 lakh animals were treated. The Department had ensured supply of required medicine for treatment of sick and injured animals at the door step of farmers in the cyclone affected villages.
- All blocks of severely affected districts of Puri, Khordha and Cuttack were kept under the supervision of senior officers to look after the restoration activities in Animal Husbandry sector.

*c. Carcass disposal:*

- Pro- active measures were taken by the department with the help of revenue authorities and NGOs and local people for disposal of animal carcasses including dead poultry birds to avert any public health problems. Arrangements of necessary logistics like JCBs were also made to facilitate quick disposal of carcasses.
- Carcasses of 3333 Large Animals, 2924 Sheep & Goats and over 53 lakh birds were disposed off.
- After recession of water in Chilika Lake, carcass of nearly 90 buffaloes were retrieved from Chilika near Gamhari of Krushnaprasad block and promptly disposed.
- All the carcasses have been disposed as per the standard protocol to prevent epidemic.

**Education:**

- School fees and School examination fees up to High School level in Government Schools have been waived off in the cyclone affected areas.
- It has also been decided to provide two extra pairs of school uniforms in the extremely affected areas and one extra pair in the severely affected areas to the children up to Elementary School level.
- Appeal has been made to all the private educational institutions to consider waving the school fee of the students for one month in the severely affected districts of Puri, Khordha, Cuttack, Jagtsinghpur and Kendrapada.

**ST & SC Development Department:**

- Funds @ Rs. 25,000/- each was provided to High Schools, Ashram Schools and Higher Secondary Schools. Similarly, Rs. 15,000/- each was provided to Sevashrams for taking up urgent repair works for pipeline maintenance, sanitary maintenance, minor electrical repairing etc. A total amount of Rs. 46.0 lakh was released to DWOs and PA, ITDAS of the affected districts to take up the restoration work out of the State Plan Funds.

**Women and Child Development and Mission Shakti:****Additional Provision of Chhatua for Puri district:**

- Additional quantity of chhatua for a month has been provided to the children of the age group 6 months- 3 years (normal/ severely under weight), 3-6 years (severely under weight) and pregnant & nursing women of Puri district, covered under SNP, during month of May, 2019.

**Districts were instructed for**

- Taking up repair and maintenance of AWC buildings in convergence with MGNREGS, out of CFC/ SFC funds wherever necessary.
- Making toilets in AWCs functional for use by the pre- school children and inspection and disinfection of water sources.
- Assessment of damage of food stock, replacement of damaged stock with fresh ones and making THR producing SHGs functional.
- Early resumption of AWCs, provision of supplementary nutrition and resumption of Early Child Care & Education (ECCE).
- Operation of AWCs in the nearest school building, wherever damage has been occurred.

- Provision of THR and eggs to all the children of the age group 6 months-3 years and pregnant and nursing women as per norms under SNP.
- Strengthening convergent activities like weight measurement of children, sensitization on proper washing of hands and maintenance of hygiene, conduct of VHND/ MAMATA Diwas and ensure immunization, health check-ups, referrals and health & nutrition education.
- Safety and well being women/ adolescent girls to prevent violence or abuse and ensure facility for privacy at shelters and provision of dignity kits.
- Psycho-social care & support and counselling to the distressed children with support of OSCPS functionaries. Passing on information on missing/ found children to the local police/ child line/ DCPO.
- Vigil on trafficking of women/ adolescent girls by sensitization of the community at large, particularly socio-economically vulnerable women/ adolescent girls to prevent trafficking; bolstering anti trafficking operations and deployment of adequate police personnel, particularly lady officers, in strategic locations such as railway stations, bus stands, local markets and any such vulnerable areas; tracking traffickers already booked in the past.
- Monitoring of CCIs/ Women's Homes (Swadhar/ Ujjwal) to ensure safety & security of children/ women.

Provisions made through partner agencies:

- Distribution of one lakh dignity kits, containing toiletries, sanitary napkins etc. amongst adolescent girls/ women with support from UNFPA.
- Distribution of Five lakh tetra packs of flavoured milk from NDDB.

## **Restoration Measures-**

### **Electricity (Department of Energy):**

Extensive damage occurred to both electrical transmission and distribution infrastructure starting from extra high tension towers, extra high voltage grid stations, high voltage lines and poles, primary sub-stations to low tension poles and lines, which require fresh construction.

- Immediately after the cyclone receded, restoration works were taken up on war footing basis. Manpower was mobilized from other DISCOMs, Electrical Contractors, CPSUs like NTPC, PGCIL & NALCO, Corporate houses like Tata Power and L& T and

other State Power Companies from West Bengal, Andhra Pradesh, Kerala & Karnataka.

- Around 6000 nos. of workmen were engaged for restoration of distribution infrastructure and around 800 nos. of workmen were engaged in reviving the transmission infrastructure.
- Materials were diverted from on-going schemes in the State and taken on loan from other DISCOMs.
- Immediate procurement of 60,000 steel (RS Joist) poles from SAIL and 40,000 PSC (cement) poles from State based manufacturers and from neighbouring states were taken up. Distribution transformers and other major materials were arranged through Odisha based manufacturers. Other minor materials were also arranged from local sources. Partial Turnkey contracts were devised to expedite rectification works.
- Department of Energy has specially approved higher labour rates @1.5 times of the existing rates for un-skilled, semi-skilled and skilled labourers and Rs. 150 per day as fooding charges for the workmen engaged in cyclone restoration works. Hiring charges of vehicle were also been communicated to executing agencies.
- As on date, restoration works in districts under SOUTHCO (Ganjam, Gajapati, Rayagada & Kandhamal) & NESCO (Jajpur, Bhadrak, Balasore, Keonjhar & Mayurbhanj) are completed. Rectification works are being taken up.
- As regards to districts affected under CESU, restoration in Angul, Dhenkanal, Nayagarh, Kendrapada, Jagatsinghpur are completed and are near completion in Khurdha (including Bhubaneswar) and Cuttack. Restoration works in Puri are being expedited and works will be completed within the targeted period.
- So far, power supply to 45.22 lakh consumers has been restored as against the affected 46.27 lakh. As against, affected EHV Grids all 31 nos. have been restored and further 1849 HT feeders and 57,264 DTRs are restored till now.

**Drinking Water and Sanitation in ULBs (Housing and Urban Development Department):**

- PHEO ensured water supply in the evening of 3rd May 2019 from the stored reservoirs by gravity and from Water Tankers and PVC tanks at different places to ensure availability of water in adequate volumes.
- Pre-positioned DG sets were made operational immediately after the cyclone to commence pumping from the production wells. Additional heavy duty DG sets, water tankers and PVC tanks were arranged from neighbouring States, Central &

State PSUs and Private sector organisations and required technicians were airlifted from Kolkata by IAF Helicopter in view of the emergent need for additional water.

- With the mobilization additional tankers and DG sets water supply was brought back to normalcy in 48 out of 53 affected ULBs (90%) within 48 hours.
- Normal water supply was restored in all cyclone affected 53 Urban Local Bodies in Odisha using DG sets, tankers and PVC tanks since 09.05.2019
- For clearing of roads, removal of fallen trees and piled up garbage and for maintaining sanitation in the urban areas, 5000 sanitation workers and 600 senior officers from within the ULBs and brought from various ULBs were working round the clock including night sweeping & cleaning.
- More than 860 JCBs, Dumpers, Tractors and Tata ACEs were pressed into service in these cleaning operations. Disinfectants are also used extensively in sanitation works to ensure preventive health care.

#### **Pipe Water Supply in Rural Areas (Panchayati Raj & DW Department):**

- All 2298 affected PWS in Puri, Khordha, Kendrapada, Jagatsinghpur, Cuttack, Bhadrak and Jajpur districts were restored and fully operationalized. Out of 2298 affected PWS, 611 have been operationalized through Gensets and 1687 have been operationalized through electrification or solar.
- Water supply was also ensured through 526 no. of water tankers.

#### **Restoration of Roads:**

- All PWD and NH roads affected due to the Cyclone were cleared and traffic was restored within 72 hours.
- All 1977 blocked roads under RW divisions were cleared and 144741 no. of fallen trees were removed.
- The uprooted trees in all rural roads including GP/PS roads were cleared within a week time.
- For clearing of GP/ PS roads in the cyclone affected Gram Panchayat areas the concerned GPs were advised to clear all roads within 2 days and were allowed to spend up to Rs. 1.00 lakh out of the CFC/ SFC funds of the GP for such clearing works.



## **Interventions for Livelihoods Support and Recovery:**

### **A. Honourable Chief Minister's Package for Livelihoods Support for the Persons Affected by Cyclone 'FANI'**

Considering extensive damage caused by the cyclone to the standing crops, fruit orchards, vegetable crops, plantation crops and various other cash crops along with severe damage to assets and infrastructure in the farmer's fields, thereby adversely affecting the farmers and the livelihoods of people depended upon animal husbandry, fisheries, and handlooms & handicrafts sectors, the State Government has decided to implement the following package for livelihood support:

#### **Agriculture Sector:**

1. Agriculture input subsidy will be provided to the small and marginal farmers who have sustained crop loss of 33% and above @Rs. 6,800/- per hectare of land in rain fed/non irrigated areas, Rs.13,500/- per hectare of land in areas under assured irrigation, and Rs.18,000/- per hectare for all types of perennial crops. Perennial crops will include mango, cashew, coconut, kewra, betel vine etc. The assistance shall be provided to the actual cultivators.
2. Agricultural input subsidy to any affected farmer shall not be less than Rs.2000/- for perennial crops and Rs.1000/- for other crops.
3. One lakh nos. of Vegetable Minikits shall be supplied to the FANI affected districts during Kharif 2019-20.
4. 50,000 acres of demonstration programmes of different crops will be taken up in affected districts in the current Kharif season.
5. Special assistance will be provided to the affected area of about 5,000 hectares under sugarcane for demonstration on Sustainable Sugarcane Initiative @ Rs.20,000/- per Ha. or Ratoon Crop Management @ Rs.12,500/- based on the farmer's requirement.
6. 5000 pump sets shall be provided with 50% subsidy limited to a maximum of Rs.15,000/-.
7. 10,000 sprayers will be made available to the affected farmers in the "FANI" affected areas at a subsidy of 50% limited to maximum of Rs.3800/- for battery operated sprayers and Rs.600/- for hand operated sprayers.
8. 2 lakh nos. of farmers will be trained in 2000 number of camps to adopt seed treatment with free supply of seed treatment chemicals to cover 2 lakh acres for increasing production in Kharif crops.
9. Immediate steps will be taken to arrange and distribute quality seeds and other inputs in sufficient quantity for the Kharif season.

10. Farm Mechanisation Subsidy of Rs 150 crores will be disbursed to the affected districts.
11. An incentive of Rs. 15,000 per farmer will be provided to 5000 farmers / WSHGs for Betel Vine cultivation (Pan Baroj).
12. Rs. 40,000/Unit will be provided for construction of Shade Net / thatched structure for development of 1000 Mushroom Units for farmers / WSHGs and Rs. 2,000/ Box will be provided to 500 farmers / WSHGs for livelihood support to honey bee growers.
13. Distribution of fruit seedlings @5 Mango grafts and 5 Coconut seedlings to each farmer will be provided for 50,000 affected farmers for their livelihood sustenance. 4 lakh numbers of Nutri-Gardens will be promoted in the affected households.
14. 10,000 Ha. of Fruit Tree Plantation (Cashew, Mango and Coconut, etc.) will be taken up along with support for inter-cropping package for three years, in order to provide income support in the initial period to the farmers, while the plantations reach the fruit-bearing stage.
15. Incentive of Rs. 25000/ Ha will be provided to banana farmers covering 1650 hectares.

#### **Farm Credit:**

16. Short Term Rabi Loans advanced in the affected areas during Rabi 2019 having crop loss of 33% and above shall be converted into Medium Term (Conversion) Loans.
17. Due date of Rabi Short Term Loans advanced in the affected areas shall be extended up to 30th June, 2020 to facilitate conversion of such loans into Medium Term (Conversion) Loans.
18. Expeditious steps will be taken to organise Joint Liability Groups (JLGs) by covering maximum number of share croppers / oral lessees to provide them credit during the current Kharif season.
19. Expeditious steps will be taken to conduct crop cutting experiments to settle the claims of the affected insured farmers under crop insurance scheme, PMFBY, with risks of localized calamity and mid-season adversity.
20. Government of India will be requested to provide interest incentive of 3% for Medium Term (Conversion) Loans i.e. at par with crop loans for prompt paying farmers.
21. Farmers affected by FANI shall be provided fresh finance for Kharif cultivation during current Kharif season, which has commenced from 1.4.2019.

#### **Animal Resources Development Sector:**

22. Assistance to farmers for replacement of animals - Compensation shall be provided towards loss of animals @ Rs.30,000/- per milch cow and buffalo, Rs.25,000/- per

draught animal (up to 3 animals), Rs.16,000/- per calf (up to 6 animals), Rs.3,000/- per goat (up to 30 animals), Rs.50/- per bird (maximum Rs.5,000/- ).

23. Construction of cow sheds damaged during cyclone - 50,000 affected farmers / WSHGs will be supported with construction of cow shed @ Rs. 0.50 lakh per shed.
24. Construction of goat sheds damaged during cyclone - 20,000 affected farmers / WSHGs will be supported with construction of goat shed @ Rs. 0.30 lakh per shed.
25. Support to Dairy Farmers
  - i. Cattle Feed Assistance to Dairy farmers - Support will be provided for nourishing 50,000 milch animals to overcome the stress with 40 Kgs of cattle feed per animal @ Rs. 32/- per Kg. (4 Kgs per cattle per day for 10 days) in the affected areas (maximum 2 animals per farmer).
  - ii. Deworming medicine, mineral mixture and nutritional supplementation for dairy animals - 50,000 dairy animals will be provided with deworming medicine, mineral mixture and nutritional supplementation @ Rs. 3000/- per animal (maximum 2 animals per farmer).
  - iii. Assistance for fodder cultivation to farmers - 1 lakh dairy farmers will be supported for seasonal fodder cultivation in the affected districts.
26. Livelihood support through goat farming - 5000 farmers / WSHGs will be assisted with 4 goats and 1 buck with unit cost of Rs. 20,000/- under Odisha livelihood Mission.
27. Livelihood support through backyard poultry - 30,000 farmers / WSHGs in the affected areas will be provided with 50 nos. of 4 weeks old chicks @ Rs. 50/- per chick and Rs. 500/- towards night shelter under Odisha Livelihood Mission. 30,000 farmers in the affected area will also be supported with poultry shed @ Rs. 15,000/-.
28. Support to farmers who have lost dairy animals - 3000 graded/ crossbred dairy cows and buffaloes will be provided to those dairy farmers who have lost dairy cattle for restoring their livelihood. Each such farmer will get assistance for only one dairy cow / buffalo @ 75% of the cost of milch animal limited to Rs. 37,500/- per milch animal.
29. Support to entrepreneurs for poultry farming - 3000 poultry farmers / WSHGs will be supported for renovation of the damaged poultry broiler unit under Mukhya Mantri Krushi Udyog Yozana (MKUY). Each farmer will be provided subsidy up to 50% of the unit cost, limited up to Rs. 4 lakhs per unit.

### **Fisheries sector:**

30. Assistance to the Marine & Chilika Fishermen for Boat & Net: Financial assistance @50% of Rs.80,000/- for a new FRP boat on replacement basis and @50% of Rs.20,000/- for net will be provided for fully & partially damaged boats & nets (6000 boats & 3000 nets) to the affected marine and Chilika fishermen.
31. Assistance to the Inland Fishermen for Boat & Net: Financial assistance @50% of Rs.30,000/- for a new FRP boat on replacement basis and @50% of Rs.20,000/- for net will be provided for fully/partially damaged boats & nets (500 boats & 500 nets) to the affected inland fishermen.
32. Assistance to the Fish Farmers for Freshwater/Brackishwater Aquaculture:
- (a) Financial assistance of Rs.12,200/- per Ha. shall be provided to the fish farmers (freshwater & brackishwater) for repair of damaged dykes of 500 Ha.
  - (b) Financial assistance of @Rs.0.75 lakh per Ha. shall be provided to the fish farmers (freshwater & brackishwater) as input assistance for 200 Ha.

### **Handicrafts sector**

33. Under Handicrafts sector, assistance of Rs.4100/- per artisan for replacement of tools/equipment and Rs.4100/- per artisan for loss of raw materials/goods in process/finished goods shall be provided to 70,000 artisans in the affected districts.

#### Handlooms sector

34. Under Handlooms sector, assistance of Rs.4100/- per weaver for replacement of tools/equipment and Rs.4100/- per weaver for loss of raw materials/goods in process/finished goods shall be provided to 60,000 weavers in the affected districts.

### **Support to Groups:**

35. Additional seed money of Rs.10,000/- will be given to the affected women SHGs in the affected areas who had taken up livelihood activities.
36. Common Facility Centre (CFC) - 268 CFCs will be provided at Gram Panchayat level @Rs.4 lakh per CFC in the extremely affected districts.
37. Financial inclusion - Community Investment Fund (CIF) @ 1 lakh per SHG to 15,000 SHGs will be provided to facilitate loans for needy households for livelihoods activities in the extremely affected districts.
38. Social security coverage - Over 10 lakh SHG members / households will be enrolled under Aam Admi Bima Yojana (AABY) in the affected districts.
39. Promotion of Livelihoods Value Chain and Cluster Promotion- 100 numbers of potential cluster formation will be supported for value addition and market linkage @Rs.2 lakh per cluster in the extremely affected districts.

40. Rs 50,000 will be provided to those THR (Take Home Ration) producing WSHGs whose infrastructure / machines have been damaged in the extremely affected districts.

**Land Revenue:**

41. 100 percent remission in respect of cess on land revenue for 2019-20 will be given to all cyclone affected villages.

42. 100 percent exemption of Water Rate will be given to farmers where the crop loss is 33% or more during Rabi season, 2019.

**Education:**

43. School fees and School examination fees up to High School level in Government Schools shall be waived in the affected areas.

44. Two extra pairs of School uniform shall be provided in the extremely affected areas and one extra pair in the severely affected areas to the children up to Elementary School level.

**B. Special Package for Street Vendors, Coconut Growers and Poultry Farmers affected due to extremely Severe Cyclonic Storm "FANI"**

- About 30,000 Street Vendors whose livelihood has been severely affected in 11 Urban Local Bodies due to cyclone "FANI" will be provided with a cash assistance @ Rs. 10,000 each to support the loss of livelihood.
- Cash assistance @ Rs. 500 per damaged coconut tree will be provided to the affected farmers, subject to a limit of 25 trees per farmer, to support their immediate livelihood.
- To revive the broiler units in the cyclone affected areas, each farmer will be provided an assistance of 75% subsidy, limited to Rs. one lakh per unit of 500 birds. 2000 small broiler poultry units will be supported through this intervention.

**C. Advisory to Banks to assist MSMEs:**

In the Special SLBC meeting held on 10.05.2019 and Sub-Committee of SLBC on MSME held on 15.05.2019, bankers have been advised to take appropriate remedial measures to assist MSMEs.

Bankers have been requested to:

- Consider rescheduling/ restructuring of the existing loan availed by micro, small/ medium units, traders, rural artisans, service providers etc. affected by FANI.
- To grant consumption loan up to Rs. 10,000/- to existing borrowers without any collateral, which may be enhanced beyond Rs.10,000/- at the banks discretion.

- Consider sanction of fresh loans/ loan repair of enterprise up to Rs. 10 lakh without any collateral under CGTMSE Scheme, which can be enhanced up to Rs. 25 lakh depending on credit assessment by financing bank.
- Expeditiously process, sanction and disburse assistance against pending and fresh application under PMEGP Stand-up, MUDRA/MSME loan.
- Banks have also been requested not to charge penal interest on current dues and penal interest on the restructured loans and wherever eligible fresh loan shall be sanctioned.
- Collectors have been advised to convene DCC meetings and also organize special camps for disbursement of loans.

#### **D. Tree Plantation and Greening Programme for ' FANI' affected areas:**

- Extensive damage has been caused to forest and green cover due to cyclone FANI. In order to restore the green cover, a Five Year Action Plan on revival of Coastal Shelter Belt and Afforestation Programme shall be implemented in Mission Mode at a cost of about Rs. 200 crore.
- Tree plantation programme will be taken up over an area of more than 8000 hectares over a period of 5 years.
- In FANI affected areas plantation and distribution of seedlings would be doubled from 65 lakh in 2018-19 to 130 lakh in 2019-20.
- 50 lakh seedlings shall be distributed to the public and institutions free of cost in the affected areas during this year.
- Five lakh trees will be planted under Urban Tree Plantation Programme during next 5 years, over one lakh tree to be planted this year.
- About 30,000 partially uprooted but surviving trees to be restored on war footing.
- For restoration of the livelihoods of people affected due to cyclone FANI, fruit tree plantations will be taken over 12000 hectares with the support for inter-cropping package for 3 years. Besides, 5 lakh fruit saplings will be supplied and 4 lakh nutri-gardens will also be promoted for the affected households.

#### **DAMAGE IN BANKING SECTOR AND RELIEF & REMEDIAL MEASURES**

Fani had a devastating effect on the banking sector in the affected districts. Particularly Puri, Khurda and Cuttack. Power supply was disrupted and net connectivity was not available. V-SAT sets mostly got damaged rendering the ATMs out of operation. No bank was in a position to carry on normal transaction. Although there was no dearth of cash in the currency chests in these districts but non-functioning of the bank branches and ATMs caused distress to the people to withdraw cash and make normal banking transactions.

Physical infrastructures of as many as 242 branches of Odisha Gramya Bank in 6 worst affected districts were severely damaged.

State Government took immediate pro-active steps to bring back normalcy in the banking sector in the affected districts. Principal Secretary, Finance held a discussion with the Regional Director, RBI and Controlling Heads of the major banks on 6<sup>th</sup> May, 2019. A detailed action plan was drawn up to bring the bank branches and ATMs to function normally in the affected areas. It was decided to closely monitor the functioning of the bank branches and ATMs at the level of SLBC, RBI and State Government on day today basis and take remedial steps wherever required. District Collectors were requested to extend cooperation to banks to resume functioning. Subsequently, a Special SLBC was convened on 10<sup>th</sup> May, 2019, which was attended by Chief Secretary, Senior Officers of the State Government, Deputy Governor, RBI and senior level officers of major banks. It took stock of the damages in the banking sector and issued suitable directions for smooth operation of the banks and ATMs, advised to press mobile ATMs into service and constituted a Special Task Force under the chairmanship of Principal Secretary, Finance. Additional Secretary, FID, Ministry of Finance visited Bhubaneswar on 16.05.2019 and reviewed the status of banking sector in the aftermath of Fani. He was glad to find the banking sector bouncing back to normalcy very fast in the affected districts.

First meeting of the Special Task Force was held on the same day. Additional Secretary, FID also participated in the meeting as a special invitee. It was observed that out of 2004 bank branches in six severely affected districts 1934 branches were operational. Similarly, out of 2915 ATMs in these districts 1974 ATMs had started functioning. The progress was found quite satisfactory. The Special Task Force made some recommendations to the banks as per Master Direction of RBI in respect of restructuring of loans and grant of fresh loans in the affected districts. There was a perceptible improvement in functioning of banks by this time in the affected districts except in Puri district. However, in order to tide over the situation, mobile ATMS were put in such places for disbursement of cash. The second meeting of the Special Task Force was held on 30<sup>th</sup> May, 2019 and reviewed the developments in restoration of banking sector in the cyclone affected districts. It was observed that there was significant improvement in normal operation of the banks and ATMs except in few places in Puri district owing to non-availability of electricity. Instructions were issued to fast track the operation of these branches and ATMs and not to withdraw the mobile ATMs from these places until normalcy is restored. As on 6<sup>th</sup> June, 2019 all the bank branches have been made operational and 88% of the ATMs have become functional.

# **Chapter-VII**

## **Assistance sought for**

### **Ex-gratia Payment to the families of deceased persons:** *[Item -1(a) of SDRF Norms].*

64 Persons have lost their lives due to cyclone in the State. Ex-gratia assistance @ Rs.4.00 lakh per person as per SDRF Norms has been disbursed to the NoKs of deceased persons. The requirement of funds for the purpose comes to **Rs.256.00 lakh**.

### **Clothing and utensils for families:** *[Item -1 (d) of SDRF Norms]*

135876 families whose houses have been fully damaged or severely damaged are to be provided with clothing and utensils as per the SDRF Norms. An amount of **Rs. 5163.29 lakh** is required for the purpose.

### **Gratuitous Relief for families in dire need of immediate sustenance after a calamity:** *[Item -1 (e) of SDRF Norms]*

The affected persons of who were in dire need of immediate sustenance after the cyclone were provided with Gratuitous Relief. The total expenditure incurred towards providing gratuitous relief comes to **Rs 60656.55 lakh**.

### **Cost of Search, Rescue and Evacuation of affected people:** - (Item 2(a) of revised SDRF norms)

20 units of ODRAF, 50 teams of NDRF and 525 Fire Service teams were deployed in the vulnerable/ affected areas for search & rescue operation and for post cyclone relief line clearance. 15.61 lakh people were evacuated and placed in cyclone/ flood shelters as well as earmarked school buildings. An amount of **Rs. 2521.24 lakh** has been spent on deployment of response forces, use of vehicles and ancillary expenditure for evacuation of the people.

### **Provision for temporary accommodation, food, clothing and medical care:**

*[Item -3(a) of revised SDRF Norms]*

a) 9180 nos. of relief camps were opened to accommodate 15.61 lakh people. An amount of **Rs.3009.91 lakh** has been spent towards cost of providing temporary accommodation, food, clothing and medical cares in the relief camps. The district-wise detail is given in **Appendix- III**.

b) 415979 families whose houses have been either fully or severely damaged along with the partially damaged kutcha houses and huts were provided with polythene sheets for use as temporary shelter materials. The total amount spent for 535673 polythene sheets @ Rs.1600/- per family comes to **Rs.8570.82 lakh**.



***Emergency supply of drinking water in rural areas and urban areas [Item -3 (c) of SDRF Norms]***

1437 nos. of water tankers were engaged for emergency supply of drinking water in the cyclone affected areas. Besides, 3201100 water pouches were also distributed. An amount of **Rs.4563.03 lakh** have been spent for the purpose.

**Clearance of Debris in the public areas:** (Item 4(a) of SDRF norm)

An amount of **Rs.7314.88 lakh** has been spent by the concerned departments for clearance of debris from public places in the cyclone affected areas.

**Draining of flood water in affected areas :** (Item 4(b) of SDRF norm)

An amount of **Rs.33.00 lakh** has been spent by the Housing & UD Department for draining of flood water in affected areas.

**Disposal of Carcasses:** (Item 4(c) of SDRF norm)

An amount of **Rs.437.56 lakh** has been spent for disposal of carcasses in the cyclone affected areas by the Fisheries & ARD Department.

**Assistance for repair/ restoration of fish ponds: [Item -5 (I) A (c) of SDRF Norms]**

**33.835** hectares of fish ponds have been damaged due to this cyclone & heavy rain. The requirement of fund for providing assistance for repair and restoration of damaged fish ponds @Rs 12200/- per hectare comes to **Rs.4.13 lakh**.

**Agriculture input subsidy to Small and Marginal Farmers where crop loss is 33% and above: [Item -5(i)B of SDRF Norms]**

Out of 181711.40 hectares of affected arable land, 143373.90 hectares of cropped area have sustained crop loss to the extent of 33% and above. An amount of **Rs.14889.99 lakh** is required for providing agriculture input subsidy to the affected farmers.

The District wise requirement of funds is given under **Appendix- IV**.

**Input subsidy to farmers other than small & marginal farmers: [Item -5(ii) of Revised SDRF Norms]**

Crops in 1006.48 hectares of irrigated land, 1931 hectares of perennial crops of farmers other than small and marginal farmers have sustained crop loss to the extent of 33% and above due to the cyclone and accompanied heavy rain. An amount of **Rs.429.74 lakh** is required for providing input subsidy to affected farmers.

The District wise requirement of funds is given under **Appendix- V**.

**Replacement of draught & milch animals:** [Item -6(i) of Revised SDRF Norms]

140 nos. of large draught animals and 700 nos. of small draught animals along with 2510 nos. of large milch animals and 2931 nos. of small milch animals have lost their lives due to Cyclone. The total expenditure for replacement of these animals along with poultry birds as per the norms and guidelines of SDRF comes to **Rs.950.92 lakh**. The detailed calculation is given at **Appendix-VI**.

**Provisions of fodder / feed concentrate including water supply and medicines in cattle camps:** [Item -6 (ii) of revised SDRF Norms]

Out of the affected 34.39 lakh cattle population, 28.65 lakh cattle were accommodated in 6367 cattle camps and provided with fodder/ feed concentrate. Vaccinations of Livestock were made to reduce the morbidity and mortality of the livestock. Health and De-worming camps were also conducted to check different contagious and infectious diseases. An amount of **Rs 2432.85 lakh** has been spent for the purpose.

**Assistance to fishermen:** [Item -7(i) of Revised SDRF Norms]

2957 nos. of boats, 4163 nos. of nets have been fully damaged and 3459 nos. of boats, 4665 nos. of nets have been partially damaged due to cyclone. An amount of **Rs.631.89 lakh** is required for providing assistance to the affected fishermen.

**Input subsidy for fish seed farms:** [Item -7(ii) of SDRF Norms]

43.31 hectares of fish seed farms have been damaged due to this cyclone & flood. The requirement for providing input subsidy @Rs 8200/- per hectare comes to **Rs.3.55 lakh**.

**Assistance to Artisans in handicrafts sector by way of subsidy for repair / replacement of damaged equipments:** [Item -8 of SDRF Norms]

71060 Artisans have been affected due to cyclone. Extensive damages have been caused to their equipment. 42488 handloom weavers have also lost their raw materials, finished goods, goods in process, tools and equipments. An amount of **Rs.9310.94 lakh** is required for replacement of damaged tools/ equipment and purchase of raw materials as per the revised SDRF Norms.

**Assistance for repair / restoration of damaged houses:** [Item -9 of revised SDRF Norms]

1,35,876 pucca and kutcha houses have been fully/ severely damaged due to the cyclone. Besides, 1,40,782 pucca houses and 2,72,556 kutcha houses have been partially damaged. Similarly, 7,547 huts and 1,19,694 cowshed attached to houses have been damaged. An amount of **Rs.148083.53 lakh** is required for providing assistance for repair/ restoration of the damaged houses of affected people. The detailed requirement of fund as per SDRF/ NDRF Norms is given in **Appendix- VII.**

**Repair/ restoration of immediate nature of the damaged infrastructure in eligible sectors:** - [Item -10 of revised SDRF Norms]

A sum of **Rs.253503.95 lakh** is required for repair / restoration of immediate nature of the damaged infrastructure in eligible sectors.

**Roads and bridges**

5393.35 Km of PWD roads & 377 culverts, 6251.642 Km of Rural Roads & 229 culverts and 272.62 Km of National Highway maintained by the State along with 6 culverts have been damaged due to cyclone associated with heavy rain. Besides, 750.44 Km of urban roads, 291.124 Km of drainage channel and 267 numbers of culverts have been damaged. An amount of **Rs. 71474.17 lakh** is required for immediate repair and restoration of the above damage. There is no amount available in the related schemes/ programme/ other sources for above repair/ restoration work.

**Rural Water Supply/ Urban Water Supply: (Repair/restoration of drinking water sources)**

1397 nos. of Rural Piped Water Supply Systems and 337 numbers of Urban water supply systems have been damaged due to the cyclone. An amount of **Rs. 13088.79 lakh** is required for immediate repair/ restoration of above damaged water supply systems.

**Irrigation**

785.28 km of river and saline embankments, 1524.16 km of canal embankment/ road along with 232 nos. of culverts/ bridges have been damaged due to cyclone & heavy rain. Further, 1779 nos. of lift irrigation projects have been damaged by the instant calamity. An amount of **Rs.29287.92 lakh** is required for immediate restoration of above infrastructure.

### **Community Assets owned by Panchayat**

6780 nos. of Community Assets like Anganwadi centres, Mahila Samiti, Multipurpose cyclone shelters and Panchayat ghar, etc. have been badly damaged due to this cyclone & flood. An amount of **Rs.13560.00 lakh** is required for repair/ restoration of the above buildings.

### **Primary Health Centres**

1031 nos. of PHC, CHC, Sub-Centre & other health institutions have been damaged by cyclone. **Rs. 2062.00 lakh** is required for immediate repair and restoration of the PHC and other health institution buildings.

### **Primary & Secondary School Buildings**

8577 nos. of primary & secondary school buildings have been damaged by current cyclone. **Rs.17154.00 lakh** is required for immediate repair of the above School buildings.

### **Repair and restoration of power supply**

12042 nos. of distribution transformers, 107132 km of conductors, 202690 nos. of poles upto 11 KV have been damaged due to cyclone. **Rs.73715.11 lakh** is required for immediate restoration of power supply in the affected areas.

Besides, 26 nos. of power transformers, 6078 km of 33 KV line, 16715 nos. of 33 KV poles, VCB, insulators, etc. have been damaged. An amount of **Rs.33161.96 lakh** is required for immediate restoration of these energy infrastructures. Since extensive damage has occurred to the energy infrastructure, the Govt. of India has been requested to relax the norms of the SDRF/ NDRF and sanction the above amount for restoration of the damaged 33 KV energy infrastructure.

## ASSISTANCE SOUGHT FOR

### ABSTRACT

(Rs. in lakh)

Sl. No.	Item	Amount required/spent
1	Ex-gratia for loss of life	256.00
2	Clothing & Utensils	5163.29
3	GR kind for dire need of sustenance	60656.55
4	Cost of evacuation, search & Rescue measure	2521.24
5	Temporary accommodation	3009.91
6	Temporary shelter	8570.82
7	Emergence supply of drinking water	4563.03
8	Clearance of debris	7314.88
9	Draining of flood water	33.00
10	Disposal of dead bodies/Carcasses	437.56
11	Repair/restoration of fish ponds	4.13
12	Agriculture input subsidy-SMF	14889.99
13	Agriculture input subsidy-other than SMF	429.74
14	Replacement of Milch/ Draught animals	950.92
15	Provision of fodder and cattle health care	2432.85
16	Assistance to fisherman	631.89
17	Input subsidy-Fish seed farm	3.55
18	Assistance for Artisan-Traditional crafts & Handloom weavers	9310.94
19	HB assistance	148083.53
20	Repair of Roads & Bridges	71474.17
21	Repair of Rural/ Urban Water Supply System	13088.79
22	Repair of Irrigation works	29287.92
23	Repair of Community assets owned by Panchayat	13560.00
24	Repair of PHC/CHC buildings	2062.00
25	Repair of Primary & Secondary School Buildings	17154.00
26	Restoration of Power supply	106877.07
	<b>Grand Total</b>	<b>522767.77</b>

## Chapter-VIII

### State Disaster Response Fund

#### Status of Expenditure from State Disaster Response Fund (SDRF) Account

(as on 05.06.2019)

Year - **2018-19**

State – **Odisha**

(Rs. in crore)

Sl. No.	Item	Amount
	<b>(I) Receipts</b>	
1.	Opening balance in SDRF account as on 1.4.2019 (Provisional)	
	(a) SDRF	318.04
	(b) NDRF	0.00
	(c) Total	318.04
2	SDRF Releases made during instant financial year ( Central and State share)	
	(a) First instalment	378.750
	(b) Second instalment	234.584
	(c) Total	613.334
3	NDRF releases during the instant financial year, if any	788.875
4	Interest received on investments made as per the CRF scheme	0.00
5	<b>Total funds available in the SDRF account(1+2+3+4)</b>	<b>1720.249</b>
	<b>(II) Expenditure</b>	
6	Expenditure incurred as per norms on approved natural calamities as per the scheme of SDRF/NDRF(indicate calamity-wise expenditure)	
	(a) Cyclone(instant calamity)	1357.140
	(b) Flood	
	(c) Fire	10.549
	(d) Hailstorm	7.240
	(e) Landslides	
	(f) State Specific disasters	11.784
	<b>(g) Total</b>	<b>1386.713</b>
7	Expenditure incurred on training to specialized Teams of the State personnel	0.834
8	Expenditure incurred on procurement of search and rescue equipment etc.(as per extant approved items)	2.995
9	Funds reserved on training to specialized teams of State personnel ( out of 5% of the corpus)	44.616
10	Funds reserved on procurement of search and rescue equipments etc.(out of 10% of the corpus)	87.905
11	Funds reserved for State Specific Disasters (out of 10% of the corpus)	79.116
12	<b>Total expenditure incurred/reserved (6+7+8+9+10+11)</b>	<b>1602.179</b>
13	Balance available in the SDRF account of the instant financial year	
	(a) SDRF	112.078
	(b) NDRF	5.992
	<b>(c) Total</b>	<b>118.070</b>

## Chapter-IX

### CONCLUSION

As per the assessment made by different Departments of the State as well as the cyclone "FANI" affected districts, the loss to public properties and fund required for different relief measures on account of Extremely Severe Cyclonic Storm "FANI"-2019 account for **Rs.9336.27 crore.**

The requirement of funds towards different relief measures and immediate repair and restoration of damaged infrastructure in admissible sectors as per the extant norms of SDRF/NDRF comes to **Rs.5227.68 crore.**

As indicated in Chapter VIII, a balance amount of Rs.118.070 crore only is available in the SDRF account of the State as on 5<sup>th</sup> June, 2019.

Therefore, through this Memorandum, the State Government seeks assistance of **Rs.5227.68 crore** from National Disaster Response Fund immediately in order to meet the expenditure on the ongoing relief and restoration works.

\*\*\*\*\*

## Appendix - I

### District-wise rainfall data

Sl. No.	Affected District	DATE (Month of May)		Total (mm)
		3rd	4th	
1	Angul	16.5	32.7	49.2
2	Balasore	39.9	80.6	120.5
3	Bhadrak	28.7	41.0	69.7
4	Cuttack	55.8	115.2	171
5	Dhenkanal	29.4	98.7	128.1
6	Ganjam	92.2	19.1	111.3
7	Jagatsinghpur	39.4	53.9	93.3
8	Jajpur	25.5	118.4	143.9
9	Kendrapara	19.7	34.9	54.6
10	Keonjhar	17.2	72.6	89.8
11	Khordha	50.8	137.0	187.8
12	Mayurbhanj	18.2	113.6	131.8
13	Nayagarh	69.5	72.2	141.7
14	Puri	51.0	77.7	128.7



## Appendix-II

### **Extent of damage due to natural calamities State-Odisha**

Nature and period of natural calamity

S.No.	Item	Details
1	Total number of districts in the state	30
2	Number and names of districts affected	14 (Angul, Balasore, Bhadrak, Cuttack, Dhenkanal Ganjam, Jagatsinghpur, Jajpur, Kendrapada, Keonjhar, Khurda, Mayurbhanj, Nayagarh and Puri)
3	Number of villages affected	20367
4	Population affected (in lakh)	159.94
5	Total land area affected (in lakh ha)	
6	Cropped are affected in ha.	
	(i) Total cropped area affected	187504.40
	(ii) Estimated loss to crops	<b>Rs.289.22 crore</b>
	(iii) Area in ha. where crop damage was more than 33 %	148663.40
7	Percentage of area held by SMF :	
	(i) In the State as a whole	70.47
	(ii) In the affected Districts	79.34
8	Houses damaged :-	
	(a) No. of house damaged :-	
	(i) Fully damaged pucca houses	1,35,876
	(ii) Fully damaged kutcha houses	
	(iii) Severely damaged pucca houses	
	(iv) Severely damaged kutcha house	
	(v) Partly damaged pucca houses	140782
	Partly damaged kutcha houses	272556
	(vi) No. of huts damaged	7547
	(vii) No. of cowshed damaged	119694
(b) Estimated value of damage to houses (Rs.in <b>crore</b> )	<b>1480.84 crore</b>	
9	No. of human lives lost	64
10	No. of persons with grievous injuries	12
11	No. of persons with minor injuries	-
12	Animals lost:-	

	(a) No. of big animals lost	2650
	(b) No. of small animals lost	3631
	(c) No. poultry (birds) lost	53,26,905
13.	Damage to public properties:- (a) In physical terms (sector wise details should be given – e.g. length of State roads damaged, length of district roads damaged, length of village roads damaged, No. of bridges damaged, No. of culverts damaged, No. of school buildings damaged etc.)	<b>Details given under Chapter-V</b>
	(b) Estimated value of the damage to public properties.	<b>Rs.6643.63 crore</b>
14.	Estimated total damage to houses, crops and public properties.	<b>Rs.8413.69 crore</b>

**Appendix-III**

<b>Assistance for Provision of Temporary Accommodation, food, clothing medical care etc. of the people affected/evacuated (Operation of Relief Camps)</b>									
Sl. No.	Name of the affected district	No. of Relief camps	Average duration of operation of relief camps	Average No. of People accommodated per day in the relief camps	Expenditure incurred on (Rs. In Lakhs)				
					Temporary accommodation	Food	Medical care	Other essential items (to be specified)	Total
1	2	3	4	5	6	7	8	9	10
1	Angul	59	1	5587	0.00	2.74	0.00	0.00	2.74
2	Balasore	1478	2	238520	0.00	109.43	0.52	0.00	109.95
3	Bhadrak	390	2	62475	0.00	122.40	2.00	0.00	124.40
4	Cuttack	1271	3	201354	0.00	291.22	1.43	0.00	292.65
5	Dhenkanal	68	2	6147	0.00	13.74	0.76	0.00	14.50
6	Ganjam	1069	2.5	301460	90.35	245.50	1.35	0.00	337.20
7	Jagatsinghpur	396	3	92326	12.63	144.76	0.27	0.00	157.66
8	Jajpur	606	3	96156	0.00	166.88	0.35	0.00	167.23
9	Kendrapara	593	2	116693	0.00	63.01	0.42	0.00	63.43
10	Keonjhar	120	1	7160	0.00	5.57	0.52	0.00	6.09
11	Khurda	723	4	84987	0.00	152.75	3.74	0.00	156.49
12	Mayurbhanj	629	2	84687	1.93	25.03	2.37	0.00	29.33
13	Nayagarh	559	2	52850	0.00	57.08	2.65	0.00	59.73
14	Puri	357	10	129800	0.00	1430.77	5.47	0.00	1436.24
15	Kandhamal	115	1	15255	0.00	7.63	0.00	0.00	7.63
16	Gajapati	649	1	48975	0.00	25.47	0.00	0.00	25.47
17	Rayagada	73	1	15375	0.00	8.15	0.00	0.00	8.15
18	Koraput	10	1	691	0.00	0.38	0.00	0.00	0.38
19	Boudh	11	1	1090	0.00	0.59	0.00	0.00	0.59
20	Sundargarh	1	1	73	0.00	0.05	0.00	0.00	0.05
<b>Total</b>		<b>9180</b>	<b>49.5</b>	<b>1561666</b>	<b>110.91</b>	<b>2880.15</b>	<b>29.85</b>	<b>9.00</b>	<b>3009.91</b>

### Appendix-IV

#### CALCULATION OF ASSISTANCE FOR CROP DAMAGE DUE TO SEVERE CYCLONIC STORM "FANI"

Sl. No.	Name of affected District	No of blocks affected	Total agricultural area affected (In ha)	Total Agricultural area where crop loss is > 33% (in Hect.)	Crop loss 33% & above			Assistance sought for different categories of crops			Total Assistance sought (Rs. in Lakh)
					Rainfed (in ha.)	Irrigated (in ha.)	Perennial (in ha)	Rainfed @ Rs. 6800/-per hect.	Irrigated @ Rs. 13500/-per hect.	Perennial @Rs. 18000/-per hect.	
1	2		3	4	5A	5B	5C	6A	6B	6C	7 (6A+6B+6C)
1	Balasore	6	17775	7743	0	7743	0	0	52652400	0	526.52
2	Bhadrak	5	5907	4491	439	4012	0	5926500	27281600	0	332.08
3	Cuttack	14	15868	13595	7449	4245	1775	100561500	28866000	31950000	1613.78
4	Dhenkanal	5	2063	2601	0	200	1578	0	1360000	28404000	297.64
5	Ganjam	1	15	15	0	15	0	0	102000	0	1.02
6	Jagatsinghpur	8	31959	23215	20529	2472	19	277141500	16809600	342000	2942.93
7	Jajpur	10	23961	23969.48	3949	19588	424	53311500	133198400	7632000	1941.42
8	Kendrapada	9	11060	6570.5	2931	3619.5	20.02	39568500	24612600	360360	645.41
9	Khurdha	10	12385	10743	1601	6394	2748	21613500	43479200	49464000	1145.57
10	Mayurbhanj	3	62.4	62.4	0	62.4	0	0	424320	0	4.24
11	Nayagarh	7	317	182	0	72	110	0	489600	1980000	24.70
12	Puri	11	60339	53124	0	34228	17151	0	232750400	308718000	5414.68
<b>TOTAL</b>		<b>89</b>	<b>181711.4</b>	<b>146311.38</b>	<b>36898</b>	<b>82650.9</b>	<b>23825.02</b>	<b>498123000</b>	<b>562026120</b>	<b>428850360</b>	<b>14889.99</b>

## Appendix- V

### Calculation of assistance for Agricultural Input Subsidy- Other than SMF

Sl No.	Name of the District	Total agricultural area where crop loss is > 33% (in Ha.)	Out of (3) area belonging to farmers other than SMF(in Ha.)			No. of farmers other than SMF affected by the instant calamity			Assistance sought for different categories of crops (Rs. In lakh)			Total Assistance sought for (in lakh Rs.)
			Rainfed	Irrigated	Perennial	Rainfed	Irrigated	Perennial	Rainfed @ Rs. 6,800/- per ha	Irrigated@ Rs. 13,500/- per ha	Perennial@ Rs. 18000/- per ha	
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Balasore	7743	0	0	0	0	0	0	0	0	0	0.00
2	Bhadrak	4451	0	40	0	0	28	0	0	480000	0	4.80
3	Cuttack	13469	0	79	47	0	79	47	0	948000	752000	17.00
4	Dhenkanal	1778	0	0	823	0	0	725	0	0	13168000	131.68
5	Ganjam	15	0	0	0	0	0	0	0	0	0	0.00
6	Jagatsinghpur	23020	0	195	0	0	82	0	0	2340000	0	23.40
7	Jajpur	23961	0	8.48	0	0	3	0	0	101760	0	1.02
8	Kendrapada	6570.5	0	0	0	0	0	0	0	0	0	0.00
9	Khurdha	10743	0	0	0	0	0	0	0	0	0	0.00
10	Mayurbhanj	62.4	0	0	0	0	0	0	0	0	0	0.00
11	Nayagarh	182	0	0	0	0	0	0	0	0	0	0.00
12	Puri	51379	0	684	1061	0	282	720	0	8208000	16976000	251.84
<b>TOTAL</b>		<b>143373.9</b>	<b>0</b>	<b>1006.48</b>	<b>1931</b>	<b>0</b>	<b>474</b>	<b>1492</b>	<b>0</b>	<b>12077760</b>	<b>30896000</b>	<b>429.74</b>

## Appendix-VI

<b>Animal Husbandry (Replacement of Animals)</b>																
Sl. No.	Name of the District	No of Livestock / Birds lost					No of animals qualifying for relief grant (i.e., subject to ceiling of 3 large milch animal or 30 small milch animals or 3 large draught animal or 6 small draught animal per household				Expenditure incurred ( Milch animals @ Rs.30000 for large animal , Rs.3000 for small animals & Draught animals @ Rs 25,000 for large animal, Rs. 16000 for small animals)				Poultry @ 50/- per bird subject to a ceiling of assistance of Rs.5000/- per beneficiary household.	Total expenditure
		Milch Animal		Draught Animal		Poultry Birds	Milch Animal		Draught Animal		Milch Animal		Draught Animal		Poultry Bird	(11+12+13+14+15)
		Buffalo/ Cow	Sheep/ Goat	Camel/ Horse/ Bullock	Calf/ Donkey/ Pony		Buffalo/ Cow	Sheep/ Goat	Camel/ Horse/ Bullock	Calf/ Donkey/ Pony	Buffalo/ Cow	Sheep/ Goat	Camel/ Horse/ Bullock	Calf/ Donkey/ Pony		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Angul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Balasore	3	12	1	1	15	3	12	1	1	90000	36000	25000	16000	750	167750
3	Bhadrak	9	12	0	7	1502	9	12	0	7	270000	36000	0	112000	10000	428000
4	Cuttack	253	773	10	64	1186303	250	773	10	64	7500000	2319000	250000	1024000	3690500	14783500
5	Dhenkanal	7	6	1	1	4500	7	6	1	1	210000	18000	25000	16000	15000	284000
6	Ganjam	14	21	3	20	4897	13	20	3	20	390000	60000	75000	320000	37350	882350
7	Jagatsinghpur	18	8	0	8	83142	18	8	0	8	540000	24000	0	128000	521750	1213750
8	Jajpur	9	9	0	8	18435	9	9	0	8	270000	27000	0	128000	74700	499700
9	Kendrapara	44	15	0	11	14248	41	15	0	7	1230000	45000	0	112000	174750	1561750
10	Keonjhar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Khurda	354	669	21	170	1325639	324	669	14	124	9720000	2007000	350000	1984000	2553050	16614050
12	Mayurbhanj	0	1	0	0	0	0	1	0	0	0	3000	0	0	0	3000
13	Nayagarh	3	5	1	4	20000	3	5	1	4	90000	15000	25000	64000	45000	239000
14	Puri	1796	1400	103	406	2668224	1383	1308	66	264	41490000	3924000	1650000	4224000	7127600	58415600
	<b>Total</b>	<b>2510</b>	<b>2931</b>	<b>140</b>	<b>700</b>	<b>5326905</b>	<b>2060</b>	<b>2838</b>	<b>96</b>	<b>508</b>	<b>61800000</b>	<b>8514000</b>	<b>2400000</b>	<b>8128000</b>	<b>14250450</b>	<b>95092450</b>

**Appendix -VII**  
**Assistance sought for repair/restoration of damaged houses**

(Rs. in Lakhs)

Sl. No.	Name of the affected District	Fully/ Severely Pucca or Kutcha Damaged House @Rs 95100		Partly Damaged pucca house Rs.5200/- per house		Partly Damaged Kutcha house@ Rs. 3200/- per house		Hut Damaged @Rs.4100/- per hut		Cow Shed Damaged@ Rs. 2100/-per cow shed		Total Amount
		No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount	
1	Angul	0	0	13	0.676	506	16.192	0	0	0	0	<b>16.87</b>
2	Balasore	5	4.755	7	0.364	1064	34.048	67	2.747	45	0.945	<b>42.86</b>
3	Bhadrak	20	19.02	45	2.34	5455	174.56	149	6.109	626	13.146	<b>215.18</b>
4	Cuttack	13304	12652.104	10761	559.572	68557	2193.824	27	1.107	28075	589.575	<b>15996.18</b>
5	Dhenkanal	5	4.755	11	0.572	4284	137.088	8	0.328	22	0.462	<b>143.21</b>
6	Ganjam	53	50.403	207	10.764	937	29.984	19	0.779	86	1.806	<b>93.74</b>
7	Jagatsinghpur	1348	1281.948	1517	78.884	12240	391.68	2031	83.271	17602	369.642	<b>2205.43</b>
8	Jajpur	187	177.837	3	0.156	14861	475.552	798	32.718	5079	106.659	<b>792.92</b>
9	Kendrapara	4	3.804	442	22.984	16990	543.68	656	26.896	5906	124.026	<b>721.39</b>
10	Keonjhar	5	4.755	3	0.156	597	19.104	0	0	10	0.21	<b>24.23</b>
11	Khurda	7056	6710.256	14461	751.972	90776	2904.832	1339	54.899	16566	347.886	<b>10769.85</b>
12	Mayurbhanj	97	92.247	25	1.3	1115	35.68	213	8.733	72	1.512	<b>139.47</b>
13	Nayagarh	18	17.118	6	0.312	5645	180.64	62	2.542	1227	25.767	<b>226.38</b>
14	Puri	113774	108199.074	113281	5890.612	49529	1584.928	2178	89.298	44378	931.938	<b>116695.85</b>
	<b>Total</b>	<b>135876</b>	<b>129218.076</b>	<b>140782</b>	<b>7320.664</b>	<b>272556</b>	<b>8721.792</b>	<b>7547</b>	<b>309.427</b>	<b>119694</b>	<b>2513.574</b>	<b>148083.53</b>

**Appendix-VIII**

**Format for working out the requirements under the head of repair of damaged infrastructure of immediate nature.**

*(Rs.in Lakh)*

<b>Sector</b>	<b>Damage in physical terms</b>	<b>Requirement of funds for repair of immediate nature</b>	<b>Out of (3), amount available from annual maintenance budget</b>	<b>Out of (3), amount available from related Schemes/ programmes / other sources</b>	<b>Out of (3), amount proposed to be met from SDRF/ NDRF in accordance with list of works indicated in the Appendix to the revised items and norms</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>Details given under Chapter-V.</b>					



## Annexure



UNITED NATIONS RESIDENT COORDINATOR INDIA

7 May, 2019

Honourable Chief Secretary,

Please allow me to take this opportunity to present our compliments to the Government of Odisha, and our expression of solidarity, on behalf of the United Nations in India, with the people of Odisha in the context of the devastating Cyclone Fani.

We extend our condolences for the loss of 38 lives and express our deep concern for the impact the cyclone has had on 10 million people. We would also like to take this opportunity to commend the efforts of the Government of Odisha in evacuating 1.2 million people and reaching out to affected populations to address their immediate lifesaving needs. Your preparedness and pace of response have been critical in saving lives.

The United Nations in India stands ready to offer assistance and support to the Government of Odisha in post disaster response, needs assessment and recovery planning. The UN team in Odisha is closely coordinating with the State Emergency Operation Centre and Odisha State Disaster Management Authority to extend support across the sectors.

The UN focal point in the state of Odisha is Ms. Monika Nielsen, the Chief of Odisha Field Office, UNICEF. Please find her contact details below:

Chief, Odisha Field Office  
United Nations Children's Fund  
44 Surya Nagar, Bhubaneswar, 751 003, Odisha, India  
Phone: +91 674 2397978/79/80  
Email: [monnielsen@unicef.org](mailto:monnielsen@unicef.org)

Please accept assurances of our highest consideration.

Yours sincerely,

  
Yasmin Ali Haque  
UN Resident Coordinator a.i.

Mr. Aditya Prasad Padhi, IAS  
Chief Secretary,  
General Administration Department  
Odisha Secretariat  
Bhubaneswar - 751001  
Odisha

Cc: Mr. Sanjeev Kumar Jindal, Joint secretary MHA, DM Division, 3<sup>rd</sup> Floor NDCC (II) building, Jaisingh Road, New Delhi

55 Lodi Estate, New Delhi 110003, India  
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Regional Integrated Multi-Hazard Early Warning System  
Program Unit/ Early Warning Facility

2<sup>nd</sup> Fl. Outreach Bldg., Asian Institute of Technology Campus, P.O. Box 4 Klong Luang, Pathumthani 12120, Thailand  
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PU/RIMES/2019/024

9 May 2019

Sri Bishnupada Sethi  
Managing Director  
Odisha State Disaster Management Authority  
Rajiv bhawan, Unit 5, Bhubaneswar  
Odisha, India 751001  
Email: [md@osdma.org](mailto:md@osdma.org)

Subject: Appreciation of OSDMA's excellent performance in managing Cyclone Fani

Dear Sri Bishnupada Sethi,

Kind greetings from RIMES!

Please accept our warmest congratulations to Odisha State Disaster Management Authority (OSDMA), on excellent management of hazard risks from potentially destructive Cyclone Fani.

Cyclone Fani's strength was similar to the intensities of very severe cyclones across the globe. We note, with heartfelt appreciation, the proactive use by OSDMA of IMD forecasts, particularly in the evaluation of potential secondary hazards, analysis of likely impacts, and assessment of risks, the findings from which informed OSDMA's preparedness planning days before cyclone impact, pre-positioning of human and material resources for rescue and relief, vigorous warnings to populations at risk, and the gargantuan task of evacuating about 1.2 million people.

Our profound appreciation goes to the strong leadership of OSDMA and its dedicated staff and selfless volunteers in the very successful management of Cyclone Fani. Documentation of successes and lessons from this extreme weather event would be a noteworthy undertaking, for dissemination/ sharing to countries in the region and beyond. Indeed, OSDMA has set an exemplary model on hazard impact forecast-informed preparedness.

We look forward to deepen and broaden our collaboration with OSDMA to replicate lessons learned from your experience with all RIMES Countries.

Yours sincerely,

A.R. Subbiah  
Director

# 南京水利水文自动化研究所文件

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Nanjing Automation Institute of Water Conservancy and Hydrology,  
Ministry of Water Resources  
No. 95, Tie Xin Bridge Street, Zhong Hua Men Wai, Nanjing 210012, Jiangsu Province,  
P. R. China  
Telephone/Fax: +86-25-52898300 52891220

Date: 28<sup>th</sup> May 2019

Ref. No.:IND/NAIWCH/AL/2019/08

**Mr. Bishnupada Sethi, IAS**

Managing Director,

Odisha State Disaster Management Authority,

Rajiv Bhawan, Unit - 5,

Bhubaneswar - 751001

Odisha, India

Email: [md@osdma.org](mailto:md@osdma.org)

**Subject: Appreciation on excellent performance by OSDMA saving millions from monster cyclone FANI.**

Dear Mr. Sethi,

We, NAIWCH would like to convey our heartfelt congratulations to you and to Odisha State Disaster Management Authority (OSDMA) team members for managing and saving the life of millions from a potentially destructive Cyclone "FANI" on 3<sup>rd</sup> May 2019.

The biggest storm "FANI", originated from Indian Ocean made landfall at the eastern holy city of Puri on 3<sup>rd</sup> May morning, is one of the strongest cyclones in years with a wind speed up to 200 kilometers per hour.

Using early warning system, OSDMA analyzes the impact and assessing the risks very well and subsequently handled this gigantic task of evacuating more than 1.5 million people from low lying areas of Odisha coast in a short span of time prior to the landfall of FANI. This was really amazing planning and execution in a very short time period which OSDMA team has handled successfully under your supervision.

We believe a good leader has the ability to get things done efficiently and effectively. This has been well witnessed with the action that you and your team has taken to save millions from the deadly FANI. Our sincere appreciation goes to your strong leadership and the OSDMA team. This can be a good example to all the countries while dealing with such types of events.

We look forward to extending our collaboration with OSDMA in all respect.

Yours sincerely,

A handwritten signature in black ink is written over a red circular official stamp. The stamp contains the text '南京水利水文自动化研究所' (Nanjing Automation Institute of Water Conservancy & Hydrology) around the perimeter and a five-pointed star in the center. The signature appears to be '江兆洪'.

Prof. Jiang Zhaohong,

The Director General,

Nanjing Automation institute of Water Conservancy & Hydrology,

Mobile phone: +86-13505199690

Email: [jiangzhaohong@nsy.com.cn](mailto:jiangzhaohong@nsy.com.cn) (For language issue, Mr. Ma Zhan, Executive Director, International cooperation shall use [mazhan@nsy.com.cn](mailto:mazhan@nsy.com.cn) to extend my appreciation letter.)



THE DALAI LAMA

5 May 2019

The Hon'ble Naveen Patnaik  
Chief Minister of Odisha  
State Secretariat  
Sachivalaya Marg  
Bhubaneswar,  
ODISHA - 751001

Dear Hon'ble N. Patnaik,

I am writing to convey my appreciation of the efficient precautions you and your government have taken to evacuate people to safety to avoid the ravages of Cyclone Fani, with the result that casualties have been relatively low.

At the same time, I would like to express my sadness about the lives that were lost, the devastation of property, and the hardship this storm has caused to so many people. I offer my condolences to those families who have lost loved ones and my prayers for the welfare of everyone affected by this huge cyclone.

I appreciate that relief efforts are underway and that everything possible is being done to help those affected. As a mark of solidarity with the people of Odisha, I am donating Rs.1,000,000 (Rupees one million) from the Dalai Lama Trust to the efforts to provide relief and rebuild.

With my prayers,

Yours sincerely,

## PREPARATORY MEETING



Khorda



Angul



Balasore



Bhadrak



Gajapati



Dhenkanal



Jajpur



Ganjam



Keonjhar



Puri



Nayagarh



Cuttack



Preparatory meeting for Cyclone FANI at shelter level in Koilipur of Rajnagar



Preparatory meeting with Apada Mitra Volunteers



Fire in Preparedness



Preparatory meeting by Health Secretary

## EARLY WARNING







## EVACUATION



Mass Evacuation through hired vehicles



Old age person being evacuated



Expectant Mother being evacuated in ambulance



## SHELTER

People and children taken shelter in a Cyclone Shelter



## Animal taken shelter in Cyclone Shelter



## FREE KITCHEN



Free Kitchen at Nolia Sahi, Puri



## DEVASTATION



## DAMAGE



## POWER SECTOR



## TELECOM SECTOR



## SCHOOL

## HOUSE DAMAGE





# TREES UPROOTED



# RELIEF





## RESTORATION TO POWER & TELECOM



## TEMPORARY MOBILE ATM VANS



## ROAD CLEARANCE



## VISIT OF CENTRAL TEAM



# ENGLISH MEDIA REPORTS

## 'FANI' FURY TO HIT PURI

Over 4 lakh people evacuated from vulnerable areas

CM, CMDF & DG personnel deployed at various places

Three chapters to coordinate the relief, rescue operations

As cyclone 'Fani' intensifies, the Odisha government has ordered the evacuation of over 4 lakh people from vulnerable areas. Chief Minister Naveen Patnaik has directed the state government to ensure the safety of the people. The state government has deployed personnel to various places to coordinate the relief and rescue operations. Three chapters have been formed to coordinate the relief and rescue operations.

## FANI WREAKS HAVOC

ALMOST ALL THE ROADS AND STREETS IN THE CITY WERE BLOCKED WITH UPROOTED TREES

Puri, May 4: The cyclone storm Fani hit the coastal town of Puri on Saturday, causing widespread damage. Almost all the roads and streets in the city were blocked with uprooted trees. The cyclone caused significant damage to the infrastructure and property in the city.

## 'FANI' TOLL GOES UP TO 43 IN STATE

At least 43 people have died in the state since the cyclone hit. The toll includes 10 people in Puri and 33 in other parts of the state. The Odisha government has announced a relief package for the affected people.

## PANIC IN KENDRAPARA AS 'FANI' CLOSES IN

People are being evacuated from the coastal town of Kendrapara as the cyclone 'Fani' approaches. The government has ordered the evacuation of people from the vulnerable areas. The people are being evacuated to safer places to avoid any casualties.

## Centre releases ₹1,000 crore; official toll 37

The central government has released ₹1,000 crore for relief and rescue operations. The official toll has risen to 37. The government has announced a relief package for the affected people.

## IMD cautions not to be deceived by cyclone Fani's 'calm' eye

The India Meteorological Department (IMD) has cautioned people not to be deceived by the calm eye of the cyclone. The calm eye is a deceptive feature of the cyclone, and people should be aware of the danger.

## NUMBERED TO SILENCE, ODISHA FACES GIGANTIC TASK

Odisha faces a gigantic task of relief and rescue operations. The state government has announced a relief package for the affected people. The task is to provide relief and rescue to the affected people.

## Cyclone 'Fani' intensifies in Bay of Bengal

'extremely severe cyclonic storm'

CS reviews situation, claims men, machinery kept in preparedness to tackle

Technology (ISOT), Chennai has over 20 buoys in the Bay of Bengal and the Arabian Sea that collect data on temperature, temperatures below the sea and above wind speed, Mohapatra said.

## PEOPLE ADVISED TO STAY INDOORS

business establishments closed and stop plying vehicles till the cyclone passes

POST NEWS NETWORK

## Fani 'rarest of rare', says Chief Minister

POST NEWS NETWORK

Bhubaneswar, May 4: Terming Fani as the "rarest of rare" cyclone, Chief Minister Naveen Patnaik Saturday said because of its nature, the track-prediction of the cyclone is challenging. He said the cyclone is expected to hit the coast in the next 24 hours of landfall, but he is not sure about the trajectory because of the involvement of different agencies.

## How IMD tracked cyclonic storm 'Fani'

PHOTO COURTESY OF IMD

New Delhi, May 3: Thirteen days before cyclone 'Fani' hit the Odisha coast, the IMD has an indication that the low pressure in the Bay of Bengal and the Equatorial Indian Ocean could intensify into a massive storm and started preparing for the onslaught, the weatherman said.

## Deprived of food, locals desert shelter homes

HOLY CITY CYCLONE VICTIMS' DESPAIR

Puri, May 3: Several cyclone-hit citizens of Puri who had shifted to shelter homes after negotiations also threw away the sub standard food items.

## 12,000 people shifted in Balugaon

Puri, May 3: Several cyclone-hit citizens of Puri who had shifted to shelter homes after negotiations also threw away the sub standard food items.

## PURI TO SHUT DOWN AS FANI NEARS

Five special buses carrying WB tourists leave for Kolkata

## Cyclone Fani: Odisha health department alerts district medical chief, public health officers

Odisha health department alerts district medical chief, public health officers. The health department has issued instructions to the district medical officers and public health officers regarding preparedness for cyclone 'Fani'.

## Battling Fani: Good Samaritans are leaving no stone unturned

Good Samaritans are leaving no stone unturned. The people are helping the government in relief and rescue operations.

## 92,000 evacuated in Balasore district

92,000 evacuated in Balasore district. The government has ordered the evacuation of 92,000 people from the vulnerable areas.

## PM visit today

Prime Minister Narendra Modi is coming to the State on Monday. He will visit the affected areas and meet the people.

## CM ANNOUNCES RELIEF PACKAGE

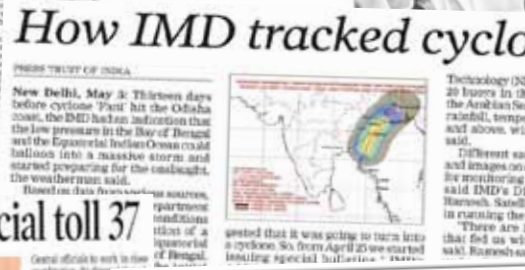
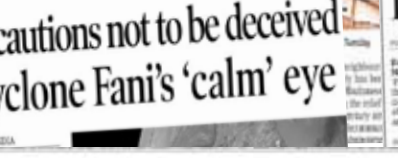
Over 1.07 crore people of 11 districts affected by the worst ever tropical storm that hit Odisha

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### EAST

## Puri grapples with darkness and sand

Power outage and sandstorm hit Puri as cyclone Fani approaches. The city is in a state of panic as the storm intensifies.

Power outage and sandstorm hit Puri as cyclone Fani approaches. The city is in a state of panic as the storm intensifies.

### MANPOWER CRUNCH HITS RELIEF WORKS

## Puri grapples with darkness and sand

Relief workers face a manpower crunch as they struggle to provide aid to the affected population in Puri.

Relief workers face a manpower crunch as they struggle to provide aid to the affected population in Puri.

## Cyclone Fani: Patnaik urges EC to withdraw MCC from coastal districts

Odisha Chief Minister Naveen Patnaik has urged the Election Commission to withdraw the Model Code of Conduct (MCC) from coastal districts affected by Cyclone Fani.

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## Cyclone 'Fani' intensifies into 'extremely severe cyclonic storm'

CS reviews situation, claims men, machinery kept in preparedness to tackle eventualities.

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## Cyclone 'Fani' wreaks havoc in Odisha

3 dead, houses damaged; storm moving to Bengal, Mamata cancels rallies.

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### PM Modi conducts aerial survey of cyclone-ravaged areas in Odisha

Prime Minister Narendra Modi conducted an aerial survey of the cyclone-ravaged areas in Odisha, expressing his condolences to the victims.

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## Cyclone 'Fani': Indian Navy launches rescue and rehabilitation effort in Odisha

The Indian Navy has launched a massive rescue and rehabilitation effort in Odisha, providing relief to the affected population.

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### NEW DELHI: In the aftermath of the devastation caused by severe Cyclone 'Fani', the Eastern Naval Command of the Indian Navy has launched a massive rescue and rehabilitation effort in Odisha.

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### Two Maritime Recce sorties were undertaken by the Dornier aircraft of the Navy revealing widespread destruction localised around the temple town of Puri, according to an official statement.

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### The Flag Officer Commanding-in-Chief of the Eastern Naval Command personally visited Odisha to review the relief efforts, it said.

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### The extremely severe cyclonic storm, which made copious rain and windstorm that gusted up to 21 hours.

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### A mammoth evacuation exercise reduced death toll: Naveen Patnaik

Odisha Chief Minister Naveen Patnaik credited the low death toll to a mammoth evacuation exercise conducted in the state.

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### Modi rebuilds ties with Naveen over Fani

Prime Minister Narendra Modi and Odisha Chief Minister Naveen Patnaik have rekindled their relationship after the cyclone.

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### Crippling blow for farmers in Odisha

The cyclone has dealt a crippling blow to farmers in Odisha, with many losing their crops and livestock.

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### Special trains today to evacuate tourists from Puri

Special trains will be run from Puri to evacuate tourists from the coastal town.

Special trains will be run from Puri to evacuate tourists from the coastal town.

### Violence flares up

Violence has erupted in Gaza, with reports of civilian deaths and injuries.

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### State seeks Centre help as men and machines fall short

Odisha has sought help from the Centre as it struggles to provide relief to the affected population.

Odisha has sought help from the Centre as it struggles to provide relief to the affected population.

### Cyclone destruction affects relief operation

The destruction caused by Cyclone Fani has hampered relief operations in the affected areas.

The destruction caused by Cyclone Fani has hampered relief operations in the affected areas.

### People ride past damaged trees in Puri after Cyclone Fani ravaged the Odisha coast.

People are seen riding past damaged trees in Puri, showing the extent of the damage caused by the cyclone.

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### As the state government has already advised tourists to leave Puri before the cyclonic storm Fani hits Odisha coast, tourists have started leaving the beach town by rail and road routes.

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## Fani Declared 'Extremely Severe' Natural Calamity

The government has declared Cyclone Fani as an extremely severe natural calamity.

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### Snapped power and water supply yet to be restored in several areas

Power and water supply remain disrupted in several areas affected by the cyclone.

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### New Delhi: Centre has declared cyclone Fani an 'extremely severe' natural calamity

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### Fani pummels Odisha

Cyclone Fani has pummelled Odisha, causing widespread destruction.

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### Fani moves into Bengal, B'desh

Cyclone Fani has moved into Bengal and Bangladesh, causing damage.

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