



INDIA METEOROLOGICAL DEPARTMENT

# DISASTROUS WEATHER EVENTS - 2011



ISSUED BY :  
NATIONAL CLIMATE CENTRE  
OFFICE OF THE ADDITIONAL DIRECTOR GENERAL OF METEOROLOGY (RESEARCH)  
PUNE - 411005

**Cover Photo : The bridge submerged due to incessant rain, lashed Koynanagar,  
Taluka - Patan, District - Satara**

**Courtsey : The Sakal, 17 June 2011**



भारत सरकार

GOVERNMENT OF INDIA

भारत मौसम विज्ञान विभाग

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## **DISASTROUS WEATHER EVENTS OF 2011**

The most striking disastrous weather events of 2011 were the following:

1. Cold wave conditions prevailed over Northern parts of the country and claimed 722 human lives out of which 288 from Bihar and about 270 from Jharkhand.
2. During summer monsoon of 2011, floods and heavy rains claimed about 610 human lives apart from extensive damage to agriculture and public/private property.
3. The Severe Cyclonic Storm 'THANE' formed over the Bay of Bengal near Lat.  $11.0^{\circ}\text{N}$ / Long.  $87.5^{\circ}\text{E}$  at 1800 UTC during 25-31 December crossed North Tamil Nadu coast between Cuddalore and Puducherry on 30<sup>th</sup> December. It took a toll of 46 persons in Tamil Nadu, Puducherry and Kerala. Extensive damage to crops and public property reported estimated damage worth Rs. 1300 to 1500 crores reported.

The summary of these natural hazards is based on various reports of the India Meteorological Department and press information. The areas affected by the adverse weather conditions are depicted season wise on four maps.

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**TABLE - I : SNOWFALL 2011**

**CRITERIA**

**Moderate : 7.6 to 34.9 cm in 24 hrs.**

**Heavy : 35.0 cm in 24 hrs.**

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
1.	6 Jan.	Sundargarh (Orissa)	Heavy	One person died at Tensa.	Snow flakes fell in some parts of the state which occurred after 40 years.
2.	13-15 Jan.	Parts of Jammu and Kashmir	Moderate		i) Kashmir valley was cut off from rest of the country. ii) Air/road traffic badly affected.
3.	17 Jan.	Parts of Kashmir	Heavy	3 persons died and 38 injured.	Air/road traffic badly affected.
4.	6 Feb.	Kargil (Jammu & Kashmir)	Heavy	5 persons died.	Landslide reported.
5.	9 Feb.	Anantnag and Kupwara (Jammu & Kashmir)	Heavy	4 persons died.	Avalanche reported.
6.	15 Feb.	Srinagar (Jammu & Kashmir)	Heavy		i) Landslide reported at Digdole & Panthal. ii) Srinagar-Jammu NH traffic disrupted.
7.	10 Dec.	Kullu (Himachal Pradesh)	Moderate		Normal life paralysed as snowfall 1 to 5 cms. reported at many places.
8.	28 Dec.	Kupwara (Jammu & Kashmir)	Heavy	One army man died near line of control.	

**TABLE – II : COLD WAVE 2011**

**CRITERIA**

**(A) When; Normal minimum temperature is 10°C or more**

**Cold wave : Night temperature 5°C to 6°C below normal**

**Severe cold wave : Night temperature 7°C or more below normal**

**(B) When; Normal minimum temperature is less than 10°C**

**Cold wave : Night temperature 4°C to 5°C below normal**

**Severe cold wave : Night temperature 6°C or more below normal**

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
1.	2 Jan.	(a) Some parts of Jammu & Kashmir	Severe (Both A & B as appropriate)	3 persons died.	
		(b) Some parts of Uttar Pradesh	Severe (Both A & B as appropriate)	5 persons died.	
2.	3 Jan.	(a) Sarguja (Chhattisgarh)	Severe (B)		Damage to Rabi crops reported.
		(b) Chhatarpur (Madhya Pradesh)	Severe (B)	4 children died.	
		(c) Aligarh, Mathura, Orriya, Rampur and Varanasi (Uttar Pradesh)	Severe (B)	6 persons died.	
3.	4-6 Jan.	Many parts of Rajasthan	Severe (B)	3 persons died.	Mustard and gram crops badly affected.

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
4.	8-13 Jan.	Many parts of Bihar	Severe (Both A & B as appropriate)	About 242 persons ded.	
5.	5 Jan.	Sarguja (Chattisgarh)	Severe (B)	One person died.	
6.	5-14 Jan.	Allahabad, Barabanki, Basti, Gonda, Gorakhpur, Kaushambi, Lalitpur, Siddharthanagar and Sitapur and other parts of Uttar Pradesh (Uttar Pradesh)	Severe (Both A & B as appropriate)	About 78 persons died.	Air/rail traffic badly affected due to fog.
7.	5-13 Jan.	Many parts of Jharkhand	Severe (Both A & B as appropriate)	About 170 persons ded.	
8.	7 Jan.	(a) Resai (Jammu & Kashmir)	Severe (B)	One person died.	
		(b) Sundargarh (Orissa)	Severe (A)	One person died.	
9.	8-10 Jan.	Amravati, Gondia, Wardha and Washim (Maharashtra)	Severe (A)	5 persons ded.	i) Crops and vegetables badly affected. ii) Grape orchards badly affected.
10.	12-15 Dec.	Chatra and Godda (Jharkhand)	Severe (B)	6 persons died.	



S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
11.	14 & 15 Dec.	Begusarai, Darbhanga, East Champaran, Gaya, Madhubani, Muzaffarpur, Patna, Shekhpura and Sitamarhi (Bihar)	Severe (Both A & B as appropriate)	35 persons died.	
12.	15 Dec.	Jaipur (Rajasthan)	Severe (B)	One person died.	
13.	16-18 Dec.	Bokaro, Dhanbad, Gunla, Hazaribagh, Kodarma and Lohardaga (Jharkhand)	Severe (Both A & B as appropriate)	27 persons died.	
14.	18 Dec.	(a) Kaimur, Kishanganj and Sitamarhi (Bihar)	Severe (Both A & B as appropriate)	11 persons died.	
		(b) Azamgarh, Balarampur and Balia (Uttar Pradesh)	Severe (B)	4 persons died.	
15.	19 - 22 Dec.	Many districts of Jharkhand	Severe (Both A & B as appropriate)	74 persons died.	
16.	21 & 22 Dec.	Bardhaman, Maldah and Nadia (West Bengal)	Severe (A)	17 persons died.	
17.	22 Dec.	Banda and Kanpur (Uttar Pradesh)	Severe (Both A & B as appropriate)	2 persons died.	
18.	24 Dec.	Bardhaman (West Bengal)	Severe (A)	6 persons died.	

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
19.	24-26 Dec.	Bokaro, Chatra, Deoghar, Dhanbad, Dumka, Giridih, Kodarma and Latehar (Jharkhand)	Severe (Both A & B as appropriate)	18 persons died.	
20.	27 Dec.	Kanpur (Uttar Pradesh)	Severe (B)	2 persons died.	

**TABLE – III : HEAT WAVE 2011  
CRITERIA**

**(A) When; Normal maximum temperature is 40°C or less.**

**Heat wave : Departure from normal is 5°C to 6°C.**

**Severe heat wave : Departure from normal is 7°C or more.**

**(B) When; Normal maximum temperature is more than 40°C.**

**Heat wave : Departure from normal is 4°C to 5°C.**

**Severe heat wave : Departure from normal is 6°C or more.**

1.	1-3 Mar.	West Rajasthan	Severe (Both A & B as appropriate)		
2.	4 <sup>th</sup> week of Mar.	Parts of Coastal Karnataka, Gujarat, East Madhya Pradesh, Himachal Pradesh, Jharkhand, Saurashtra & Kutch.	Severe (Both A & B as appropriate)		

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
3.	7 Apr.	(a) Alappuzha (Kerala)	Severe (A)	One person died.	
		(b) Jalgaon (Maharashtra)	Severe (B)	One child died due to sunstroke.	
4.	13-15 Apr.	Yavatmal (Maharashtra)	Severe (B)	2 persons died.	
5.	2 <sup>nd</sup> week of Apr.	Parts of Jharkhand and Saurashtra & Kutch.	Severe (Both A & B as appropriate)		
6.	3 <sup>rd</sup> week of Apr.	Parts of Coastal Karnataka, Gujarat and Madhya Pradesh	Severe (Both A & B as appropriate)		
7.	4 <sup>th</sup> week of Apr.	Parts of Gujarat, Jharkhand, Punjab, Rajasthan and Saurashtra & Kutch	Severe (Both A & B as appropriate)		
8.	1 <sup>st</sup> week of May	Parts of Coastal Andhra Pradesh, Gujarat, North Madhya Maharashtra, Punjab and Rajasthan.	Severe (Both A & B as appropriate)		
9.	2 <sup>nd</sup> week of May.	Coastal Andhra Pradesh, Coastal Tamil Nadu, Marathwada, Parts of Uttar Pradesh, Punjab and West Rajasthan.	Severe (Both A & B as appropriate)		

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
10.	11 & 12 May	Parts of Orissa	Severe (Both A & B as appropriate)	8 persons died.	
11.	3 <sup>rd</sup> week of May	Parts of Haryana, Jammu & Kashmir, Madhya Maharashtra, Madhya Pradesh, Uttar Pradesh and West Rajasthan.	Severe (Both A & B as appropriate)		
12.	4 <sup>th</sup> week of May	Parts of Coastal Andhra Pradesh, Haryana, Punjab, Uttar Pradesh and Vidarbha.	Severe (Both A & B as appropriate)		
13.	1 <sup>st</sup> & 2 <sup>nd</sup> week of Jun.	Parts of Coastal Andhra Pradesh, East Madhya Pradesh, Jharkhand, North Konkan, Tamil Nadu, Vidarbha and West Rajasthan.	Severe (Both A & B as appropriate)		

**TABLE – IV : SQUALL 2011**

**A sudden increase of wind speed by at least 29 kmph (16 kts), the speed rising to 40 kmph (22 kts) or more and lasting for at least one minute**

**CRITERIA**

**Moderate : Surface wind speed (in gusts) up to 80 kmph.**

**Severe : Surface wind speed (in gusts) > 80 kmph.**

<b>S. N.</b>	<b>Date/ Period</b>	<b>Area affected</b>	<b>Intensity [River(s)]</b>	<b>Casualties</b>	<b>Extent of damage</b>
1.	27 May	Lucknow (Uttar Pradesh)	Moderate		i) Roofs of many katchcha houses blown away. ii) Power supply disrupted.

**TABLE – V : GALE 2011**

**CRITERIA**

**Strong : Wind speed 75 kmph**

1.	24 Jan.	Thiruvananthapuram (Kerala)	Strong	One person died.	i) Roofs of many katchcha houses blown away. ii) Some trees uprooted.
2.	15 Apr.	Bangalore Rural (Karnataka)	Strong	One person died when branch of tree fell on him.	
3.	21 Apr.	Ramanathapuram (Tamil Nadu)	Strong		About 50 mechanised boats partially damaged.

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
4.	1 May	Bangalore (Karnataka)	Strong	One person died when cement sheet and bricks fell on him.	
5.	17 May	Nagpur (Maharashtra)	Strong		i) Roofs of many katchcha houses blown away. ii) Many trees uprooted.
6.	2 Jun.	Kannur (Kerala)	Strong	Missing of a fisherman reported.	
7.	7 Jun.	Buldhana (Maharashtra)	Strong	About 10 persons injured.	i) Roof tops of many houses blown away. ii) About 20 katchcha houses damaged.
8.	28 Jul.	Kozhikode (Kerala)	Strong	One person electrocuted as electric post fell.	
9.	27 Oct.	Ernakulam and Thiruvananthapuram (Kerala)	Strong		Damage to 2 fishing boats and fishing nets reported.

**TABLE – VI : DUST STORM 2011**

**CRITERIA**

**Moderate : Wind speed between 39 to 74 kmph and horizontal visibility up to 500 metres.**

**Severe : Wind speed 75 kmph and horizontal visibility up to 50 metres.**

1.	4 Apr.	Raipur (Chattisgarh)	Moderate	One woman injured.	Some trees uprooted and hoardings blown away.
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S.N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
2.	9 Apr.	Dhamatari and Raipur (Chattisgarh)	Moderate		i) Wheat and gram crops damaged. ii) A number of trees and electric poles uprooted.
3.	14 Apr.	Sarguja, Bilaspur, Durg and Raipur (Chattisgarh)	Severe	3 women died.	Rail traffic disrupted.
4.	26 Apr.	Durg and Raipur (Chattisgarh)	Moderate		i) Road side hoardings blown away. ii) Normal life affected.
5.	21 May	(a) Mahenderagarh (Haryana)	Severe	2 persons died.	i) Many trees uprooted. ii) Road traffic disrupted.
		(b) Jaipur (Rajasthan)	Moderate		i) Several trees uprooted. ii) Road traffic disrupted.
		(c) Barabanki and Gaziabad (Uttar Pradesh)	Severe	A woman died due to wall collapse.	i) Several trees uprooted. ii) Road traffic disrupted.
6.	23 May	Badaun, Bareilli, Gaziabad, Hamirpur, Lakhimpur Kheri, Moradabad and Shahjahanpur (Uttar Pradesh)	Severe	12 persons including 5 minors died in different incidences.	i) Roof tops of katchcha houses and hoardings blown away. ii) Many trees and electric poles uprooted.
7.	1 Jun.	Aligarh, Jaunpur, Lucknow, Pratapgarh and Sultanpur (Uttar Pradesh)	Severe	2 persons died due to house collapse.	i) Some trees uprooted. ii) Road traffic/electric supply disrupted.

TABLE – VII : LIGHTNING 2011

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
1.	29 Jan.	Sarguja (Chattisgarh)		4 persons died and 5 others injured.	
2.	24 Feb.	(a) Malappuram (Kerala)  (b) Ahmednagar (Maharashtra)		One person electrocuted.  One person died.	
3.	15 Mar.	Parts of Orissa		4 persons died.	
4.	30 Mar.	Thiruvananthapuram (Kerala)		5 persons injured.	
5.	4 Apr.	Dhamatari (Chattisgarh)		One person died.	
6.	4 & 5 Apr.	Parts of West Bengal		10 persons died	
7.	5 Apr.	Chandrapur (Maharashtra)		4 persons injured.	
8.	7 Apr.	Amravati, Buldhana and Chandrapur (Maharashtra)		i) 6 persons died. ii) 2 oxen perished.	
9.	9 Apr.	Dhamatari (Chattisgarh)		One person died.	
10.	10 Apr.	(a) Bagalkot, Dharwad, Gadag, Haveri, Shimoga and Udupi (Karnataka)		7 persons died and 4 others injured.	



S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
		(b) Wayanad (Kerala)		2 persons injured.	
11.	14 Apr.	(a) Raipur (Chattisgarh)		2 persons died.	
		(b) Chatra, Garwah, Hazaribagh and Lihardaga (Jharkhand)		10 persons died.	
12.	14 & 15 Apr.	(a) Banglore Rural, Bellary, Chamarajanagar, Chitradurga, Hassan, Mysore and Ramanagar (Karnataka)		11 persons died.	
		(b) Nagpur (Maharashtra)		One person died.	
13.	17 & 18 Apr.	Thiruvananthapuram (Kerala)		2 persons died and 4 others injured.	i) Damage to electronic house hold articles reported. ii) Walls of some katchcha houses cracked.
14.	21 Apr.	Thoothukudi and Vellore (Tamil Nadu)		3 persons died.	
15.	24 Apr.	Yavatmal (Maharashtra)		2 persons died and 4 women injured.	
16.	25 Apr.	(a) Uttara Kannada (Karnataka)		One person died.	
		(b) Tiruchirappalli (Tamil Nadu)		One person died.	

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
17.	27 Apr.	Bilaspur and Raipur (Chattisgarh)		5 persons died.	
18.	30 Apr.	Dharwad and Mandya (Karnataka)		One woman and a boy died.	
19.	16 May	(a) Haveri and Raichur (Karnataka)		One woman and a child died.	
		(b) Nagpur (Maharashtra)		One woman died.	
20.	19 May	Balasore, Bhadrak, Kendrapara, Keonjhar, Khurda and Puri (Orissa)		6 persons died.	
21.	21 May	Ambedkar Nagar (Uttar Pradesh)		6 persons injured after being struck by lightning.	
22.	22 May	Bhatinda (Punjab)		5 persons died.	
23.	25 May	(a) Rajnandgaon (Chattisgarh)		2 persons died.	
		(b) Raichur (Karnataka)		2 persons died.	
24.	1 Jun	Chikkaballapur and Raichur (Karnataka)		3 persons died and 5 others injured.	
25.	6 Jun.	(a) Baramulla and Kupwara (Jammu & Kashmir)		5 persons died and 2 others injured.	

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
		(b) Chennai (Tamil Nadu)		2 persons died.	
		(c) Chandrapur and Yavatmal (Maharashtra)		i) 4 persons died and 2 others injured. ii) 5 cattle perished.	
26.	7 Jun.	Kachchh (Gujarat)		3 persons died.	
27.	11 Jun.	Raisen (Madhya Pradesh)		One person died and other injured.	
28.	13 Jun.	Raipur (Chattisgarh)		One person died.	
29.	15 Jun.	(a) Chitradurga (Karnataka)		One person died.	
		(b) Nagpur (Maharashtra)		One person died and 5 others injured.	
30.	17 Jun.	Korba and Mahasamund (Chattisgarh)		3 persons died and 11 others injured.	
31.	25 Jun.	(a) Dharamapuri (Tamil Nadu)		2 persons died.	
		(b) Uttarkashi (Uttarakhand)		i) 2 shepards died. ii) About 400 sheep perished.	
32.	6 Jul.	Akola and Yavatmal (Maharashtra)		One person died and 4 others injured.	

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
33.	13 Jul.	Bhopal (Madhya Pradesh)		6 persons died.	
34.	16 Jul.	Raipur and Sarguja (Chattisgarh)		3 persons died and other injured.	
35.	20 Jul.	Unnao (Uttar Pradesh)		2 persons died.	
36.	28 Jul.	Bikaner (Rajasthan)		One person died.	
37.	2 Aug.	Raipur (Chattisgarh)		One person died and 12 others injured.	
38.	5 Aug.	Nawada (Bihar)		4 persons including 2 women died.	
39.	18 Aug.	Gadchiroli (Maharashtra)		One person died.	
40.	22 Aug.	Raipur (Chattisgarh)		3 persons died and 3 others injured.	
41.	25 Aug.	(a) Bhopal (Madhya Pradesh)		One person died and other injured.	
		(b) Udaipur (Rajasthan)		5 persons injured.	
42.	27 Aug.	Indore (Madhya Pradesh)		One person died.	
43.	28 Aug.	Kota (Rajasthan)		2 persons died and 2 others injured.	

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
44.	11 Oct.	Wardha and Yavatmal (Maharashtra)		7 persons died and 11 others injured.	Damage to Soya crops reported.
45.	12 Oct.	Bidar and Gulbarga (Karnataka)		6 persons died.	
46.	13 Oct.	Hingoli, Jalana, Latur Nanded, Osmanabad and Pune (Maharashtra)		About 17 persons died.	

**TABLE –VIII : THUNDERSTORM 2011**

**CRITERIA**

**Moderate : Loud peals of thunder with frequent lightning flashes,  
moderate to heavy rains and maximum wind speed 29 to 74 kmph.**

**Severe : Continuous thunder and lightning, heavy rains and  
maximum wind speed 75 kmph.**

1.	16 Jan.	Dhubri, Goalpara, Kokrajhar and Tinsukia (Assam)	Severe	2 boys died and 6 persons injured.	<ul style="list-style-type: none"> <li>i) Heavy damage to standing crops reported.</li> <li>ii) Roofs of some katchcha houses blown away.</li> <li>iii) A number of trees/electric poles uprooted disrupting power supply, road traffic and telecommunication services.</li> </ul>
2.	16 Feb.	Dhubri (Assam)	Moderate		Damage to standing crops reported.

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
3.	20, 21 & 24 Mar.	Dhemaji, Darrang, Golaghat, Kamrup, Darrang, Nalbari and Sonitpur (Assam)	Severe	3 persons died.	i) Extensive damage to standing crops reported. ii) Many families affected. iii) A number of trees/electric poles uprooted disrupting power supply, road traffic and telecommunication services.
4.	28 Mar.	Wayand (Kerala)	Moderate		About 15,000 plantations damaged.
5.	6 Apr.	Kozhikode (Kerala)	Moderate		More than 3,500 banana plantations damaged.
6.	9 Apr.	Nagpur (Maharashtra)	Moderate	One person injured.	
7.	11, 13, 14, 15, 18, 19, 25 & 26 Apr.	Parts of Jharkhand		15 persons died.	
8.	13 Apr.	Darrang (Assam)	Severe	One person died.	i) Extensive damage to standing crops reported. ii) Roofs of katchcha houses blown away. iii) Some trees/electric poles uprooted disrupting power supply, road traffic and telecommunication services.
9.	14 Apr.	(a) Wayanad (Kerala)	Severe		i) About 100 katchcha houses partially damaged. ii) Roofs of houses blown away. iii) Some trees/electric poles uprooted disrupting power supply, road traffic and telecommunication services.

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
		(b) Tiruppur (Tamil Nadu)	Moderate		Banana plantations and coconut trees damaged.
10.	14 & 15 Apr.	Dakshina Kannada Ramanagar (Karnataka)	Severe	4 persons died.	i) Some trees / electric poles / telephone poles uprooted. ii) Roofs of many katchcha houses blown away.
11.	18 Apr.	Wayanad (Kerala)	Severe		i) Topioca and banana plantations damaged. ii) Several katchcha houses damaged.
12.	19 Apr.	Coimbatore and Namakkal (Tamil Nadu)	Severe		Banana plantations of approx. Rs. 50 lakhs damaged.
13.	21 Apr.	(a) Dhubri (Assam)	Moderate		i) Damage to crops and trees reported. ii) Roofs of katchcha houses blown away. iii) Many trees/electric poles uprooted disrupting power supply, road traffic and telecommunication services.
		(b) West Garo Hills (Meghalaya)	Moderate		i) Damage to standing crops reported. ii) Roofs of katchcha houses blown away. iii) A number of trees/electric poles uprooted disrupting power supply, road traffic and telecommunication services.
14.	22 Apr.	East Siang (Arunachal Pradesh)	Moderate		i) Damage to standing crops reported. ii) Rubber trees, electric poles uprooted disrupting road traffic/telecommunications services and power supply. iii) Roofs of katchcha houses blown away.

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
15.	23 & 24 Apr.	Goalpara, Kamrup and Nagaon. (Assam)	Severe	One person died and 2 others injured.	i) Damage to standing crops reported. ii) Trees / electric poles / telephone poles uprooted. iii) Roofs of many katchcha houses blown away.
16.	25 Apr.	Dindigul and Tiruchirappalli (Tamil Nadu)	Severe		About 4,800 banana plantations damaged
17.	27 Apr.	Dhubri (Assam)	Severe	One person died.	i) Trees / electric poles / telephone poles uprooted. ii) Roofs of many katchcha houses blown away.
18.	30 Apr.	Barpeta (Assam)	Severe	One person died.	i) Roofs of several katchcha houses blown away. ii) A number of trees / electric poles uprooted.
19.	3 May	Dibrugarh (Assam)	Severe		i) Extensive damage to standing crops reported. ii) A number of trees/electric poles uprooted disrupting power supply, road traffic and telecommunication services. iii) Roofs of katchcha houses blown away. iv) Many families badly affected.
20.	2 <sup>nd</sup> week of May	Parts of West Bengal	Severe	26 persons died in different incidences.	i) Boro and paddy crops damaged. ii) Many villages badly affected.



S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
21.	8 May	Darrang (Assam)	Moderate		<ul style="list-style-type: none"> <li>i) Damage to standing crops reported.</li> <li>ii) A number of trees/electric poles uprooted disrupting power supply, road traffic and telecommunication services.</li> <li>iii) Roofs of houses blown away.</li> </ul>
22.	10 & 12 May	Golaghat and Nalbari (Assam)	Moderate	2 persons injured.	<ul style="list-style-type: none"> <li>i) Roofs of katchcha houses blown away.</li> <li>ii) Some trees / electric poles uprooted.</li> </ul>
23.	17 May	Nagpur (Maharashtra)	Severe	One woman died and 3 persons injured.	<ul style="list-style-type: none"> <li>i) Some trees, hoardings, electric poles and mobile towers uprooted.</li> <li>ii) Few huts collapsed.</li> <li>iii) Roofs of katchcha houses blown away.</li> </ul>
24.	18 May	Darrang and Nagaon (Assam)	Severe	2 persons died and 5 others injured.	Roofs of school buildings, dwelling houses blown away.
25.	19 May	(a) Some parts of Bihar	Severe	12 persons died.	
		(b) Ambedkar Nagar, Jaunpur, Kanpur and Sidharthanagar (Uttar Pradesh)	Severe	22 persons died.	Power supply, rail/road traffic disrupted.
26.	3 <sup>rd</sup> & 4 <sup>th</sup> week of May	Parts of Orissa	Severe	50 persons died.	Extensive damage to standing crops reported.
27.	21 May	Agra, Badaun, Bareilli, Ghaziabad, Lakhimpur Kheri and Shahjahanpur (Uttar Pradesh)	Severe	About 20 persons died and few injured due to wall/roof collapsed and trees felt.	<ul style="list-style-type: none"> <li>i) Extensive damage to mango and wheat crops reported.</li> <li>ii) Power supply, rail/road traffic disrupted.</li> </ul>

S. N.	Date/ Period	Area affected	Intensity * [River(s)]	Casualties	Extent of damage
28.	24 May	Malda (West Bengal)	Severe	5 persons including 4 children died.	Electricity and telephone services disrupted.
29.	25 May	Samba (Jammu & Kashmir)	Severe	4 persons died and 6 others injured.	i) Roofs of houses blown away. ii) Road traffic / telecommunication services / power supply disrupted.
30.	1 Jun	(a) East Singhbhum and Ranchi (Jharkhand)	Severe	2 persons died and 3 others injured.	i) Asbestos roofs of different structures blown away. ii) Many trees and electric poles uprooted disrupting road and power supply.
		(b) Lucknow (Uttar Pradesh)	Severe	One boy died.	Electricity and telephone services disrupted.
		(c) Medinipur (West Bengal)	Moderate		A school building damaged.
31.	4 Jun.	Maldah and Murshidabad (West Bengal)	Severe	4 persons died and 9 others injured.	Many houses damaged.
32.	5 Jun.	Ranchi (Jharkhand)	Severe	2 persons died.	
33.	6 Jun.	Deoghar (Jharkhand)	Severe	4 persons died and 12 others injured.	i) Asbestos roofs of different structures blown away. ii) Many trees and electric poles uprooted disrupting road and power supply.
34.	7 Jun.	Chatra, Gumla, Kodarma and Ranchi (Jharkhand)	Severe	12 persons died.	i) Roofs of several houses blown away. ii) No. of Trees / electric poles uprooted.

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
35.	8 Jun.	(a) Janjgir-Champa and Korba (Chattisgarh)	Severe	i) 3 persons died and 3 others injured. ii) 30 cattle perished.	Few houses damaged.
36.	11 & 12 Jun.	Chamba, Kangra and Mandi (Himachal Pradesh)	Moderate		Damage to crops reported.
37.	12 Jun.	(a) Deoghar (Jharkhand)	Severe	3 persons died and 2 others injured.	i) Asbestos roofs of different structures blown away. ii) Many trees and electric poles uprooted disrupting road and power supply.
		(b) South Twenty Four Paraganas (West Bengal)	Severe	One person died.	
38.	15 Jun.	West Singhbhum (Jharkhand)	Severe	3 persons died and 5 others injured.	Few houses damaged.
39.	20 Jun.	Dhemaji (Assam)	Severe	One person died.	
40.	26 Jun.	Ranchi (Jharkhand)	Severe	2 persons died and other injured.	i) Roofs of several houses blown away. ii) Many trees / electric poles uprooted.
41.	27 Jun.	Darrang (Assam)	Severe	One person died and 2 others injured.	
42.	1 Jul.	Haora (West Bengal)	Severe	2 persons died.	Electricity and telephone services disrupted.

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
43.	7 Jul.	North Twenty Four Paraganas (West Bengal)	Severe	One person died.	
44.	17 Jul.	Medinipure (West Bengal)	Severe	One person died.	
45.	19 Jul.	Ranchi (Jharkhand)	Severe	3 persons died and 3 others injured.	Few houses damaged.
46.	20 Jul.	Bardhaman, Birbhum and Nadia (West Bengal)	Severe	7 persons died and 5 others injured.	i) Roofs of several houses blown away. ii) Many trees / electric poles uprooted.
47.	28 Jul.	Aurangabad, Gaya, Jahanabad, Jamui, Nawada, Nalanda, Kaimur and Rohtas (Bihar)	Severe	24 persons died.	i) Roofs of houses blown away. ii) Road traffic / telecommunication services / power supply disrupted. iii) Few houses damaged.
48.	30 & 31 Jul.	Garhwa, Palamau, Ranchi and Sahebganj (Jharkhand)	Severe	12 persons died and 15 others injured.	i) Roofs of several houses blown away. ii) Many trees / electric poles uprooted.
49.	1 Aug.	Kamrup (Assam)	Severe	2 persons died and 2 others injured.	i) Extensive damage to electrical appliances reported. ii) Damage to some buildings reported.
50.	3 Aug.	Kodarma and Ranchi (Jharkhand)	Severe	5 persons died and other injured.	Electricity and telephone services disrupted.

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
51.	4 Aug.	Aurangabad, Bhojpur, Chapra, Gaya and Nawada (Bihar)	Severe	9 persons died and few others injured.	Many houses damaged.
52.	5 Aug.	Kodarma (Jharkhand)	Severe	5 persons died and 2 others injured.	
53.	6 Aug.	Kamrup (Assam)	Severe	2 persons died while working in paddy fields.	
54.	6-8 Aug.	Aurangabad, Buxar and Gaya (Bihar)	Severe	17 persons died and 2 others injured.	About 80 kachha houses damaged.
55.	8 Aug.	Giridih and Ranchi (Jharkhand)	Severe	3 persons died and 4 others injured.	
56.	10 Aug.	Ranchi (Jharkhand)	Severe	One person died.	
57.	13 Aug.	Kamrup and Tinsukia (Assam)	Severe	6 persons died.	
58.	14 Aug.	Garhwa (Jharkhand)	Severe	2 persons died and 18 others injured.	
59.	23 Aug	(a) Kamrup and Nalbari (Assam)	Severe	One person died.	
		(b) Giridih and Gumla (Jharkhand)	Severe	5 persons died and 3 others injured.	i) Power supply and road communication disrupted. ii) Many trees/electric poles uprooted.
60.	14 Sept.	(a) Barpeta (Assam)	Severe	One person died and 10 others injured.	

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
61.	24 Sept.	Darrang (Assam)	Severe	One person died.	
62.	1-3 Oct.	Dhubri, Dibrugarh, Kokrajhar, Nagaon and Tinsukia (Assam)	Severe	5 persons died and 3 others injured.	i) Damage to more than 100 houses and standing crops reported. ii) Many trees/electric poles uprooted.
63.	9 & 10 Oct.	Ranchi (Jharkhand)	Severe	3 persons died and 7 others injured.	
64.	15 & 16 Oct.	Golaghat, Morigaon and Nagaon (Assam)	Severe		i) Damage to more than 100 houses and standing crops reported. ii) Power supply and road communication disrupted. iii) Many trees/electric poles uprooted.
65.	21 Oct.	Dhubri, Kamrup, Nagaon, Nalbari and Morigaon (Assam)	Severe	3 persons died.	i) Extensive damage to standing crops reported. ii) Many katchcha houses damaged. iii) Road traffic / telecommunication services / power supply disrupted.
66.	26 Oct.	Dibrugarh and Sonitpur (Assam)	Severe	One person died.	i) Extensive damage to standing crops reported. ii) Road traffic / telecommunication services / power supply disrupted.

**TABLE – IX : HAILSTORM 2011**

**CRITERIA**

**Slight : Sparse, usually small size and often mixed with rain.**

**Moderate : Fall abundant enough to whiten ground.**

**Heavy : Includes at least a proportion of large stones.**

<b>S. N.</b>	<b>Date/ Period</b>	<b>Area affected</b>	<b>Intensity [River(s)]</b>	<b>Casualties</b>	<b>Extent of damage</b>
1.	16 Jan.	Darrang, Dhubri and Guwahati (Assam)	Heavy		i) Hails of diameter 2 to 3 cm. reported. ii) Extensive damage to standing crops reported.
2.	12 Mar.	Narayanpur (Chattisgarh)	Moderate		Damage to about hundreds acres of wheat crops reported.
3.	6 Apr.	Dibrugarh (Assam)	Moderate	Few livestock perished.	i) Damage to huge amount of standing crops reported. ii) Extensive damage to houses reported.
4.	17 Apr.	Wayanad (Kerala)	Moderate		i) Hundred acres of nut, banana and tapioca crops damaged. ii) About 5 houses damaged. iii) Electricity supply disrupted.
5.	21 Apr.	Nagpur (Maharashtra)	Heavy		Damage to crops and vegetables reported.
6.	24 Apr.	Yavatmal (Maharashtra)	Moderate		Mango, Orange and vegetable crops damaged.
7.	22 & 23 May	Bhatinda (Punjab)	Moderate		Damage to cotton crops reported.

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
61.	24 Sept.	Darrang (Assam)	Severe	One person died.	
62.	1-3 Oct.	Dhubri, Dibrugarh, Kokrajhar, Nagaon and Tinsukia (Assam)	Severe	5 persons died and 3 others injured.	i) Damage to more than 100 houses and standing crops reported. ii) Many trees/electric poles uprooted.
63.	9 & 10 Oct.	Ranchi (Jharkhand)	Severe	3 persons died and 7 others injured.	
64.	15 & 16 Oct.	Golaghat, Morigaon and Nagaon (Assam)	Severe		i) Damage to more than 100 houses and standing crops reported. ii) Power supply and road communication disrupted. iii) Many trees/electric poles uprooted.
65.	21 Oct.	Dhubri, Kamrup, Nagaon, Nalbari and Morigaon (Assam)	Severe	3 persons died.	i) Extensive damage to standing crops reported. ii) Many katchcha houses damaged. iii) Road traffic / telecommunication services / power supply disrupted.
66.	26 Oct.	Dibrugarh and Sonitpur (Assam)	Severe	One person died.	i) Extensive damage to standing crops reported. ii) Road traffic / telecommunication services / power supply disrupted.



**TABLE – IX : HAILSTORM 2011**

**CRITERIA**

**Slight : Sparse, usually small size and often mixed with rain.**

**Moderate : Fall abundant enough to whiten ground.**

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<b>S. N.</b>	<b>Date/ Period</b>	<b>Area affected</b>	<b>Intensity [River(s)]</b>	<b>Casualties</b>	<b>Extent of damage</b>
1.	16 Jan.	Darrang, Dhubri and Guwahati (Assam)	Heavy		i) Hails of diameter 2 to 3 cm. reported. ii) Extensive damage to standing crops reported.
2.	12 Mar.	Narayanpur (Chattisgarh)	Moderate		Damage to about hundreds acres of wheat crops reported.
3.	6 Apr.	Dibrugarh (Assam)	Moderate	Few livestock perished.	i) Damage to huge amount of standing crops reported. ii) Extensive damage to houses reported.
4.	17 Apr.	Wayanad (Kerala)	Moderate		i) Hundred acres of nut, banana and tapioca crops damaged. ii) About 5 houses damaged. iii) Electricity supply disrupted.
5.	21 Apr.	Nagpur (Maharashtra)	Heavy		Damage to crops and vegetables reported.
6.	24 Apr.	Yavatmal (Maharashtra)	Moderate		Mango, Orange and vegetable crops damaged.
7.	22 & 23 May	Bhatinda (Punjab)	Moderate		Damage to cotton crops reported.

**TABLE - X : DROUGHT 2011**

**CRITERIA**

**Moderate : When seasonal (SW monsoon) rainfall departure  
is between -26% and -50%**

**Severe : When seasonal (SW monsoon) rainfall departure  
is less than -50%**

<b>S.N.</b>	<b>Area affected (Subdivision)</b>	<b>Seasonal rainfall departure (%)</b>	<b>Intensity</b>
1.	Assam & Meghalaya	-30 %	Moderate
2.	Nagaland, Manipur, Mizoram & Tripura	-27 %	Moderate

TABLE XI – FLOODS AND HEAVY RAINS 2011

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
<b>STATES</b>					
<b>ARUNACHAL PRADESH</b>					
1.	19 Jul.	Papum Pare	Heavy rains	3 persons died due to landslide.	
*	<i>Whole year</i>			i) 20 human lives lost. ii) 3 cattle lost.	0.120 million population affected.
<b>ASSAM</b>					
1.	4 Jun.	Dhemaji and Lakhimpur	Heavy rains		i) Heavy damage to standing crops reported. ii) 30 to 40 villages inundated.
2.	28 & 29 Jun.	Jorhat and Sonitpur	Heavy rains		i) About 3,000 hectares of cropland badly affected causing extensive damage to standing crops. ii) NH-37 submerged causing disruption in traffic.
3.	3-5 Jul.	Dhemaji and Lakhimpur	Heavy rains		i) About 30,000 people of 60 villages badly affected. ii) Damage to huge quantity of crops reported. iii) Vast area inundated. iv) Road traffic disrupted.

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
4.	14-20 Jul.	Barpeta, Dhemaji, Jorhat, Lakhimpur, Golaghat and Sonitpur	Severe flood (Brahmaputra and tributaries)	8 persons died.	<ul style="list-style-type: none"> <li>i) More than 3 lakhs people in 513 villages people affected.</li> <li>ii) Standing crops in 20,500 hectares of crop land affected.</li> <li>iii) Vast area inundated.</li> <li>iv) Dhemaji, Lakhimpur, cut off from main land.</li> <li>v) NH-52 submerged disturbing rail/road tracks.</li> </ul>
5.	5 & 6 Aug.	Dhemaji, Lakhimpur, Jorhat and Sonitpur	Flood (Brahmaputra and tributaries)		<ul style="list-style-type: none"> <li>i) About 500 families of 40 villages affected.</li> <li>ii) 30 villages inundated.</li> <li>iii) Standing crops damaged.</li> <li>iv) Embankment of river Puthi breached at some places.</li> </ul>
6.	16-23 Aug.	Barpeta, Darrang, Dhemaji, Dhubri, Golaghat, Jorhat, Lakhimpur, and Sonitpur	Severe flood ( Brahmaputra and tributaries)	5 persons flown away and 6 persons died.	<ul style="list-style-type: none"> <li>i) More than 3 lakh people of about 350 villages affected.</li> <li>ii) 69,667 hectares of cropland affected.</li> <li>iii) Huge amount of standing crops damaged.</li> <li>iv) 297 houses and 17 bridges damaged.</li> <li>v) NH-52 breached and Dhemaji cut off from main land.</li> <li>vi) Landslide reported.</li> </ul>

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
7.	4 Sep.	Jorhat	Flood (Tiyak, Puthi)		i) Damage to huge quantity of standing crops and agricultural land reported. ii) NH-37 submerged at several places.
8.	15 Sep.	Lakhimpur	Flood (Doprang)		Extensive damage to standing crops reported.
9.	23 Sep.	Goalpara, Kamrup and Karbi Anglong	Heavy rains	4 persons died and 10 others injured due to landslide.	i) Rail/road/air traffic disrupted. ii) Roads and houses flooded.
10.	24 & 25 Sep.	Dhemaji	Flood (Ghai, Jiadhal)		i) Extensive damage to standing crops reported. ii) About 110 villages affected. iii) A portion of NH-52 breached.
<b>BIHAR</b>					
1.	4-6 Jul.	East Champaran, Kishanganj, Madhubani and Sitamarhi	Heavy rains	7 persons died.	About 100 acres of cultivated land flooded.
*	Whole year			i) 143 human lives lost. ii) 39 cattle lost.	i) 0.581 million population affected. ii) 34906 houses damaged. iii) Crops in 0.163 m. ha. affected.

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
<b>CHATTISGRAH</b>					
1.	20 Feb.	Bilaspur, Durg, Kabirdham, Rajnandgaon, Raipur and Surguja	Heavy rains		i) Damage to lakh quintal of grains reported. ii) Damage to crops reported.
2.	6-8 Sept.	Bilaspur, Janjgir- Champa, Korba, Mahasamund, Rajnandgaon, Raigarh and Raipur	Heavy rains	6 persons died.	i) Rail/road/air traffic disrupted. ii) 2 houses completely damaged. iii) Roads and houses flooded.
*	Whole year	Area affected. 0.024 m. ha.		i) 21 human lives lost. ii) 318 cattle lost.	i) 0.171 million population affected. ii) 39126 houses damaged. iii) Crops in 0.014 m. ha. affected.
<b>GOA</b>					
*	Whole year			i) One human lives lost. ii) 13 cattle lost.	185 houses damaged.
<b>GUJARAT</b>					
1.	1-31 Jul.	Most parts parts of Gujarat	Severe flood (Narmada and Sabarmati)	58 persons died.	i) One house damaged partially. ii) Estimated total loss Rs. 368.40 lakhs reported.

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
2.	1-31 Aug.	Most parts parts of Gujarat	Severe flood (Tapi and Mahanadi)	i) 71 persons died. ii) 288 cattle heads perished.	i) 156 houses completely and 5053 houses partially damaged. ii) Estimated total loss Rs. 4388.80 lakhs reported.
3.	1-30 Sept.	Most parts parts of Gujarat	Severe flood (Narmada)	i) 36 persons died. ii) 188 cattle heads perished.	i) 14 houses completely and 749 houses partially damaged. ii) Estimated total loss Rs. 171,73 lakhs reported.
*	Whole year			i) 110 human lives lost. ii) 212 cattle lost.	i) 0.018 million population affected. ii) 5007 houses damaged.
<b>HIMACHAL PRADESH</b>					
1.	28 & 29 May	Mandi	Heavy rains (Cloud burst)		4 houses washed away.
2.	1 Jun.	Chamba	Heavy rains (Cloud burst)	4 persons washed away among these one person lost his life.	i) About 40 houses destroyed. ii) 6 vehicles washed away.
3.	8 Jun.	Shimla	Heavy rains		Damage to private/government property reported of estimated cost worth Rs. 30 to 35 lakhs reported.
4.	9 Jul.	Chamba and Mandi	Heavy rains		i) Road blocked due to landslide reported in Chamba. ii) A house destroyed in Mandi.

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
5.	20 & 21 Jul.	Kullu	Heavy rains (Cloud burst)	8 workers missing in Rohtang tunnel project.	i) About Rs.60 lakhs loss to Hydro project of Rohtang tunnel reported. ii) Kutchha houses washed away.
6.	6-8 Aug.	Mandi	Heavy rains (Cloud burst)	4 cows washed away.	i) Damage to maize crops reported. ii) NH-154 blocked due to landslide. iii) A small bridge on NH-21 washed away.
7.	12-16 Aug.	Kangra, Kullu, Mandi, Sirmaur and Una	Heavy rains (Cloud burst)	i) 15 persons died due to landslide and bad weather. ii) 4 persons washed away in Beas river.	i) 185 persons rendered homeless. ii) About 200 houses damaged. iii) Damage to maize crops reported. iv) NH-6 & NH-35 link roads damaged.
8.	26 & 27 Aug.	Sirmaur	Heavy rains		120 houses and 60 cow sheds damaged.
9.	12 & 15 Sep.	Mandi, Kangra, Kullu, Sirmaur and Una.	Heavy rains	One person died.	i) Damage to the crops reported. ii) NH-154 blocked due to landslide.
*	Whole year	Area affected 0.030 m. ha.		i) 51 human lives lost. ii) 2372 cattle lost.	i) 0.608 million population affected. ii) 8467 houses damaged. iii) Crops in 0.157 m. ha. affected.



S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
<b>JAMMU &amp; KASHMIR</b>					
1.	14 Feb.	Badgam	Heavy rains	One person died due to house collapse.	
2.	20 Mar.	Poonch and Doda	Heavy rains	2 women washed away.	
3.	6 Apr.	Baramulla	Heavy rains		11 houses and 12 cow sheds partially damaged due to landslide on the Srinagar-Muzaffarabad road.
4.	18 Apr.	Doda	Heavy rains	5 persons buried alive due to landslide and other washed away.	
5.	15 & 16 Sept.	Parts of Jammu	Flash flood (Jhelum)	One person died and 4 others washed away.	About 15 structures collapsed.
<b>JHARKHAND</b>					
1.	17-20 Jun.	East Singgbhum, Gumala, Hazaribagh, Lohardaga and Ranchi	Heavy rains	4 persons died.	i) Damage to crops and houses reported. ii) Jolo bridge collapsed. iii) NH-75 badly affected. iv) Many trees uprooted disrupting power and road communication.
2.	11 Jul.	Ranchi	Heavy rains	One person died and other injured.	Power supply disrupted.

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
3.	23 & 24 Sept.	Garhwa, Hazaribagh, Lohardaga, Palamau and Ranchi	Heavy rains	17 persons died in different incidence.	i) 22 houses collapsed. ii) Bridge on Tahley and Sangdihi rivers washed away.
<b>KARNATAKA</b>					
1.	19 Jan.	Parts of Karnataka	Heavy rains		Chana crop badly damaged.
2.	23 Apr.	Banglore and Ramanagara	Heavy rains	4 persons died.	i) Some houses damaged. ii) Trees uprooted disrupting to road traffic.
3.	17 & 18 Jul.	Dakshina Kannada, Haveri, Kodagu and Shimoga.	Heavy rains	2 persons died, other woman died due to wall collapse and 2 others washed away in Suparnika and Varada river resp.	i) Low lying areas flooded. ii) Trees/electricity poles uprooted. iii) Water and electricity supply disrupted.
4.	5 Aug.	Belgaum	Heavy rains	2 persons washed away in Hiranyakeshi river.	
5.	6 & 7 Sept.	Bagalkot and Bijapur	Flood (Ghataprabha and Krishna)	2 women washed away.	Electricity / television / telephone services disrupted.

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
<b>KERALA</b>					
1.	14 Apr.	Wayanad	Heavy rains		<ul style="list-style-type: none"> <li>i) Damage to Ambalavayal Govt. High school and 4 other buildings reported .</li> <li>ii) 15 houses damaged.</li> <li>iii) Trees uprooted disrupting Electricity / television / telephone services.</li> </ul>
2.	21 Apr.	Wayanad	Heavy rains		KSRTC bus stand slide down causing traffic disruption.
3.	25 Apr.	Alappuzha	Heavy rains		2000 acres of paddy field damaged leading to a loss worth crores.
4.	28 & 30 Apr.	Thiruvananthapuram	Heavy rains	One person died.	One house damaged as tree fell over it.
5.	1-3 Jun.	Alappuzha, Idukki, Kollam, Kottayam, Kozhiokode, Malappuram, Pathanamthitta, Thrissur, Thiruvananthapuram and Wayanad	Heavy rains	3 persons drowned, another died and 2 others missing.	<ul style="list-style-type: none"> <li>i) 25 houses completely and 429 houses partially damaged while 8 houses submerged.</li> <li>ii) About 5,500 banana crops damaged.</li> <li>iii) Coir industry affected.</li> <li>iv) Estimated loss of about Rs. 18 lakhs in 150 hectares of land reported.</li> <li>v) Half a lakh worth damage reported.</li> <li>vi) Landslides reported. Several trees uprooted disrupting road/rail/electric supply.</li> </ul>

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
6.	5-8 Jun.	Alappuzha, Ernakulam, Idukki, Kottayam, Malappuram, Pathanamthitta, Thiruvananthapuram and Thrissur	Heavy rains	4 persons drowned, other missing and 4 others injured.	<ul style="list-style-type: none"> <li>i) 4 houses completely and 153 houses partially damaged.</li> <li>ii) Damage to crops worth Rs. 60 lakhs reported.</li> <li>iii) Damage to property worth Rs.8 lakhs reported.</li> <li>iv) About 10,000 banana plantations damaged.</li> </ul>
7.	17 & 18 Jun.	Wayanad	Heavy rains		<ul style="list-style-type: none"> <li>i) About 166 families affected.</li> <li>ii) 10 houses partially and one house completely damaged.</li> <li>iii) Estimated damage worth about 20 lakhs reported.</li> <li>iv) NH, public library, bridge and 4 shops submerged.</li> <li>v) Road and bridge damaged due to landslide.</li> </ul>
8.	29 Jun.	Kozhikode	Heavy rains		<ul style="list-style-type: none"> <li>i) 3 acres of agricultural land damaged.</li> <li>ii) Landslide reported.</li> </ul>
9.	16-20 Jul.	Malappuram, Kasaragode, Kozhikode and Wayanad	Heavy rains	4 persons died and one drowned.	<ul style="list-style-type: none"> <li>i) 14 houses damaged.</li> <li>ii) Rubber crop affected.</li> <li>iii) NH-212 disrupted due to landslide.</li> <li>iv) Low lying areas submerged.</li> <li>v) Trees/electric poles uprooted.</li> </ul>

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
10.	6 & 7 Aug.	Idukki, Kannur, Kottayam, Pathanamthitta and Thiruvananthapuram	Heavy rains	One person died and other missing.	<ul style="list-style-type: none"> <li>i) Around 2,000 people shifted to safer places.</li> <li>ii) Damage to crops reported.</li> <li>iii) Landslides at 18 places reported causing road traffic disruption on Kollam-Teni and Kochi-Madhura NH.</li> <li>iv) 65 houses completely and 117 houses partially damaged.</li> <li>v) Road traffic and power supply on Punalur-Murattupuzha state highway disrupted.</li> <li>vi) 3 bridges across Pampa river submerged.</li> </ul>
11.	28 Aug. – 4 Sept.	Kozhiokode, Malappuram, Palakkad, Thiruvananthapuram, Thrissur and Wayanad	Heavy rains	2 persons electrocuted and one student drowned.	<ul style="list-style-type: none"> <li>i) 21 houses completely and 22 partially damaged.</li> <li>ii) About 12,000 hectares of paddy fields submerged</li> <li>iii) Extensive damage to banana and rubber crops, vegetables reported.</li> <li>iv) Multiple landslides reported.</li> <li>v) Kerala-Tamil Nadu interstate high way traffic disrupted.</li> </ul>
12.	10 Oct.	Wayanad	Heavy rains		Padimudi bridge collapsed and traffic was cut off.

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
13.	14-17 Oct.	Idukki and Wayanad	Heavy rains	2 persons died.	<ul style="list-style-type: none"> <li>i) One house washed away and other partially damaged.</li> <li>ii) Thousands of banana plantations damaged.</li> <li>iii) Crops worth thousand rupees damaged.</li> </ul>
14.	21 Oct.	Malappuram and Thrissur	Heavy rains		<ul style="list-style-type: none"> <li>i) Approx. 25,000 banana plantations and 5,000 banana seedlings damaged.</li> <li>ii) Damage to rubber, coconut and cocoa plantations reported.</li> <li>iii) Electricity supply disrupted.</li> </ul>
15.	31 Oct.-8 Nov.	Kannur, Thiruvananthapuram and Wayanad	Heavy rains	5 persons injured.	<ul style="list-style-type: none"> <li>i) 4 houses completely and 26 partially damaged. Several houses submerged.</li> <li>ii) Hundreds of rubber, banana, coffee, topioca, ginger and vegetable cultivations damaged.</li> <li>iii) Hundreds acres of paddy fields submerged.</li> <li>iv) Estimated loss of more than 25 lakhs reported.</li> <li>v) Damage to private property reported.</li> </ul>

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
16.	26 & 27 Nov.	Thiruvananthapuram	Heavy rains	4 persons injured.	<ul style="list-style-type: none"> <li>i) 5 houses completely and 112 partially damaged.</li> <li>ii) Damage to fishing boats and nets worth rupees more than 40 lakhs reported.</li> <li>iii) Low lying areas submerged.</li> <li>iv) Several trees uprooted.</li> <li>v) Road traffic and electricity supply disrupted.</li> </ul>
17.	31 Dec.	Alappuzha, Kollam and Thiruvananthapuram	Heavy rains		<ul style="list-style-type: none"> <li>i) 26 persons shifted to relief camps.</li> <li>ii) About 550 houses completely and 6 houses partially damaged.</li> <li>iii) 12,000 hectares paddy crops submerged.</li> </ul>
*	<i>Whole year</i>			<ul style="list-style-type: none"> <li>i) 119 human lives lost.</li> <li>ii) 466 cattle lost.</li> </ul>	<ul style="list-style-type: none"> <li>i) 0.367 million population affected.</li> <li>ii) 8436 houses damaged.</li> <li>iii) Crops in 0.010 m. ha. affected.</li> </ul>
<b>MADHYA PRADESH</b>					
1.	29 Jun.	Ashoknagar and Rajgarh	Heavy rains	4 persons swept away.	50 houses damaged.
2.	17 & 18 Jul.	Ashoknagar, Guna, Indore and Ujjain	Heavy rains	3 persons died, 5 persons swept away and one person missing.	<ul style="list-style-type: none"> <li>i) Low lying areas and crop land inundated.</li> <li>ii) Trees/electric poles uprooted.</li> </ul>

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
3.	1 Aug.	Morena and Raisen	Flood (Dhasan)	About 30 persons died and few others missing as bus fell into swollen river.	i) Low lying houses and areas flooded. ii) Electric supply and road traffic disrupted.
4.	8 Aug.	Neemuch and Raisen	Flood (Bina river)	One woman swept away and a girl drowned.	Low lying areas and crop land inundated.
5.	25 & 27 Aug.	Burhanpur, Harda and Shahdol	Heavy rains	i) 5 persons swept away and other injured. ii) About 75 animals perished.	Trees uprooted disrupting Electricity / television / telephone services.
*	<i>Whole year</i>			i) 82 human lives lost. ii) 203 cattle lost.	i) 15431 houses damaged. ii) Crops in 0.008 m. ha. affected.
<b>MAHARASHTRA</b>					
1.	23 Feb.	Ahmednagar and Pune	Heavy rains	A woman died due to roof collapse.	i) Heavy damage to standing crops reported. ii) Grape orchards in 250 acres of land damaged.
2.	1 Mar.	Pune	Heavy rains		Wheat, Jawar, mango flowers affected.
3.	10 & 11 Apr.	Pune	Heavy rains		i) Onion, wheat, mango flowers affected. ii) Damage to houses, brick kilns and foddors reported.



S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
4.	23 & 24 Apr.	Pune and Satara	Heavy rains		<ul style="list-style-type: none"> <li>i) Heavy damage to crops reported.</li> <li>ii) Many vehicles damaged.</li> <li>iii) Trees/electric poles uprooted.</li> </ul>
5.	16-18 Jun.	Ratnagiri, Satara and Sindhudurg	Flood (Jagbudi, Kajali and Vashishthi)	8 persons died due to landslide in Ratnagiri.	<ul style="list-style-type: none"> <li>i) Low lying areas and crop land inundated.</li> <li>ii) Damage to many houses reported.</li> <li>iii) About 50 villages affected in Satara.</li> <li>iv) Road traffic/ electricity/ telecommunication services disrupted.</li> </ul>
6.	23 Jun.	Pune	Heavy rains	One person died due to wall collapse.	
7.	8 Jul.	Mumbai	Heavy rains	About 10 persons died and few injured due to wall collapse.	<ul style="list-style-type: none"> <li>i) Low lying areas flooded.</li> <li>ii) Road traffic / electric supply disrupted.</li> <li>iii) Trees uprooted.</li> </ul>
8.	16 Jul.	Ratnagiri and Sindhudurg	Flood (Arjuna, Karli and Terekhol)	2 persons swept away.	<ul style="list-style-type: none"> <li>i) Mumbai-Goa highway bridge affected due to flood water.</li> <li>ii) Low lying areas submerged.</li> <li>iii) Damage to many houses reported.</li> </ul>

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
9.	18- 20 Jul.	Kolhapur, Raigad and Sindhudurg	Flood (Jagbudi, Kundalika, Savitri and Vashishthi)	One man drowned in a dam and other in culvert and 9 others swept away.	i) Extensive damage to crops reported. ii) Communication between 70 villages cut off. iii) Konkan railway services disrupted due to landslide.
10.	1 Aug.	Ratnagiri	Heavy rains	2 persons swept away.	Road traffic disrupted.
11.	27-29 Aug.	Mumbai, Ratnagiri and Thane	Heavy rains	i) One person died and 3 others injured in Haji Ali due to landslide. ii) One person swept away in Vasai. iii) 3 persons injured in Mulund due to fall of a tree. iv) One woman died due to wall collapse in Ratnagiri. v) 2 persons died and 7 others injured due to landslide in Thane. vi) One boy swept away in Mithi river.	i) Low lying areas submerged. ii) Damage to many houses reported.
12.	29 Aug.	Buldhana, Chandrapur, Nagpur and Pune	Heavy rains	i) 3 persons died due to wall collapse and 3 others swept away. ii) One person swept away in Pawana river.	

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
13.	3 Sep.	Dhule, Jalgaon, Mumbai and Nandurbar.	Heavy rains	5 children died due to wall collapse in Mumbai and 3 others in north maharashtra.	
14.	21 Sept.	Nagpur	Heavy rains	3 persons died and 2 others injured.	
*	<i>Whole year</i>			<i>106 human lives lost.</i>	
<b>ORISSA</b>					
1.	2 <sup>nd</sup> & 3 <sup>rd</sup> week of Sep.	19 districts of Orissa	Severe flood (Mahanadi & its tributaries)	14 persons died and 12 persons swept away.	i) About 3 lakh people of 800 villages affected. ii) Many kachcha houses damaged.
*	<i>Whole year</i>			i) <i>87 human lives lost.</i> ii) <i>1487 cattle lost.</i>	i) <i>178481 houses damaged.</i> ii) <i>5.976 million population affected.</i> iii) <i>Crops in 0.517 m. ha. affected.</i>
<b>PUNJAB</b>					
1.	21 May	Bhatinda	Heavy rains		About 735 acres of land inundated due to breaches in 7 distributories.
2.	12 Aug.	Ludhiana	Heavy rains	About 17 persons died.	i) Damage to 19,000 acres standing crops reported. ii) 575 houses damaged. iii) 115 villages inundated.

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
*	Whole year			i) 38 human lives lost. ii) 28901 cattle lost.	i) 0.400 million population affected. ii) 2538 houses damaged. iii) Crops in 0.197 m. ha. affected.
<b>RAJASTHAN</b>					
1.	14 Feb.	Jodhpur	Heavy rains	One person electrocuted.	
2.	19 Jul.	Ajmer and Bikaner	Heavy rains	15 boys drowned in different incidences.	
3.	27 Jul.	Bikaner	Heavy rains	2 persons died as their huts washed away.	
4.	24 Aug.	Bikaner and Jodhpur	Flood	5 persons died in different incidences and 3 boys drowned.	i) Low lying areas submerged. ii) Damage to many houses reported.
5.	5 Sep.	Jaipur	Heavy rains	2 persons died due to wall collapse.	Air traffic disrupted.
<b>SIKKIM</b>					
1.	23 Aug.	East District	Heavy rains		Major landslides on NH-31A reported.
2.	29 Aug.	North District	Heavy rains		Landslide on Singtan-Mangan state highway reported.

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
<b>TAMIL NADU</b>					
1.	21 Apr.	Nilgiris	Heavy rains	2 persons died due to wall collapse.	
2.	16 Sept.	Kanchipuram	Heavy rains	2 persons died.	
3.	16 Oct.	Coimbatore	Heavy rains		Banana plantations worth rupees 2 to 3 lakhs damaged.
4.	20 Oct.	Cuddalore	Heavy rains		3 houses completely damaged due to fall of trees.
5.	30 Oct.	Cuddalore	Heavy rains		About 50 television sets damaged.
6.	1-9 Nov.	Districts of Cauvery delta zone, Chennai and Kodaikanal.	Heavy rains	i) 70 persons died due to wall collapse and other incidences. ii) 162 cattle perished.	i) Damage to turmeric, chilly, tomatoes, ladies fingers in more than 500 acres of cropland reported. ii) Landslides reported. iii) Many houses and bridges damaged.
7.	24-30 Nov.	Districts of Cauvery delta zone	Heavy rains		Damage to paddy crops in more than 10,000 hectares land reported.
<b>TRIPURA</b>					
*	<i>Whole year</i>	Area affected 0.002 m. ha.		i) 14 human lives lost. ii) 29 cattle lost.	i) 0.084 million population affected. ii) 653 houses damaged.

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
<b>UTTAR PRADESH</b>					
1.	29 Jun.	Lucknow and Shahjahanpur	Heavy rains	7 persons died due to house collapse.	
2.	15 Aug.	Balia, Bhadoi, Hardoi, Kaushambi, and Pratapgarh	Flood (Ghagra and Sharada)	About 14 persons died in different incidences.	i) Damage to some houses reported. ii) Low lying areas flooded. iii) Road/rail traffic disrupted.
3.	23 Aug.	Shahjahapur	Flood (Ramganga and Yamuna)	3 boys drowned.	
4.	25 Sep.	Jaunpur, Mirzapur and Varanasi	Heavy rains	31 persons died.	Road/rail services disrupted.
5.	26 Oct.	Eastern parts of Uttar Pradesh.	Heavy rains	30 persons died due to house collapse and some other incidences.	i) Low lying areas submerged. ii) Damage to many houses reported.
*	Whole year	Area affected 0.525 m. ha.		i) 729 human lives lost. ii) 239 cattle lost.	i) 2.306 million population affected. ii) 313436 houses damaged. iii) Crops in 0.396 m. ha. affected.
<b>UTTARAKHAND</b>					
1.	21 Jul.	Almora	Heavy rains	2 persons died in different incidences.	

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
2.	23 Aug.	Parts of Uttarakhand	Heavy rains	5 labourers died due to wall collapse.	
<b>WEST BENGAL</b>					
1.	16-19 Jun.	Darjeeling, Kolkata and Medinipure	Heavy rains	5 persons died due to landslide.	i) Many houses damaged. ii) Low lying areas flooded. iii) Road communication disrupted.
2.	27 Jun.	Medinipure	Heavy rains		Damage to crops reported.
	1 Jul.	Murshidabad	Heavy rains		Damage to crops reported.
3.	7 & 8 Aug.	Birbhum, Haora, Kolkata and Medinipure	Heavy rains	One person died.	i) Extensive damage to crops reported. ii) Many houses damaged. iii) Roofs of some structures collapsed in Kolkata.
4.	14 Aug.	Haora, Hugli, North Twenty Four Parganas and South Twnty Four Parganas	Heavy rains		i) Extensive damage to crops reported. ii) Many areas inundated.
5.	3 Sep.	East Medinipure	Heavy rains		i) Damage to crops reported.. ii) Muddy houses damaged.
6.	19 Sep.	Contai, East Medinipure and Nadia	Heavy rains	5 persons died.	More than 100 muddy houses damaged.

S.N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
*	<i>Whole year</i>	Area affected 1.231 m. ha.		i) 186 human lives lost. ii) 293 cattle lost.	i) 5.676 million population affected. ii) 542519 houses damaged. iii) Crops in 1.231 m. ha. affected.
<b>UNION TERRITORY</b>					
<b>NEW DELHI</b>					
1.	9 Sep.	Delhi	Heavy rains	One girl died due to wall collapse.	i) Road traffic disrupted. ii) Many trees uprooted.
<b>PUDUCHERRY</b>					
*	<i>Whole year</i>				8 houses damaged.

\* As per data available from Central Water Commission, total damage for the whole season for entire state has been incorporated.



**TABLE – XII : CYCLONIC STORM 2011**

During 2011, one cyclonic storm (Keila) formed over the Arabian Sea and a very severe cyclonic storm (Thane) formed over the Bay of Bengal. Out of these only Thane caused some damage, details of the same are out lined below:-

S.N.	Date/Period	Area affected	Intensity	Casualties	Extent of damage
<b><u>BAY CYCLONE</u></b>					
	25 -31 Dec.	<p><u>Formation</u> Near Lat. 11.0°N/Long. 87.5°E at 1800 UTC of 26<sup>th</sup> Dec. over the southeast Bay of Bengal.</p> <p><u>Landfall</u> It crossed north Tamil Nadu and Puducherry coast south of Cuddalore during 0100 and 0200 UTC of 30<sup>th</sup> Dec.</p> <p><u>Dissipation</u> Weakened into a well marked low pressure area over north Kerala and neighbourhood at 0000 UTC of 31<sup>st</sup> Dec.</p>	Very Severe Cyclonic Storm (THANE)	<p>i) 46 persons died in Tamil Nadu and Puducherry.</p> <p>ii) About thousands of animals and birds perished.</p>	<p>i) Damage to standing crops of sugarcane, Tapioca, betel nuts, banana, coconut over thousand of hectares reported.</p> <p>ii) About 6000 people rendered homeless.</p> <p>iii) About 73292 thatched houses fully and 94633 houses partially damaged in Tamil Nadu.</p> <p>iv) 240 country boats, 67 motorized boats, 58 catamarans and 4 mechanized boats were fully damaged.</p> <p>v) Several trees/electric poles uprooted disrupting standing crops, power supply and traffic services.</p> <p>vi) Estimated damage worth Rs. 1300 to 1500 crores reported.</p>