



INDIA METEOROLOGICAL DEPARTMENT

## DISASTROUS WEATHER EVENTS, 2010



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NATIONAL CLIMATE CENTRE  
OFFICE OF THE  
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**Cover Photo : Cloudburst ravage Leh (J & K). Claimed more than 150 lives and about 500 people were missing.  
The army started relief work in the area. August 7, 2010.**

**Courtesy : Sakal Newspaper, Pune.**

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## **DISASTROUS WEATHER EVENTS OF 2010**

The most striking disastrous weather events of 2010 were the following:

1. Cold wave conditions prevailed over northern parts of the country and claimed 440 human lives out of which 281 from Bihar alone.
2. Heat wave swept major portion of Northern and Central parts of India and claimed 269 human lives. The most affected sub division was Maharashtra in which heat wave took a toll of 96 human lives.
3. During summer monsoon of 2010, floods and heavy rains claimed 877 human lives apart from loss of large number of live stock and extensive damage to agriculture and public/private property.
4. A cloud burst on 6<sup>th</sup> August in Leh (J&K) claimed more than 150 lives and about 500 people were missing.
5. The Severe Cyclonic Storm 'LAILA' formed over Bay of Bengal near Lat. 10.5°N/ Long. 88.5°E at 0600 UTC during 17-20 May crossed near Bapatla (A.P.) on 20<sup>th</sup> May. It took a toll of 20 persons and damage to thousand acres of crops reported.
6. Another Severe Cyclonic Storm 'JAL' formed over Bay of Bengal near Lat. 8.0°N/ Long. 92.0°E at 0000 UTC of 4<sup>th</sup> November crossed north Tamil Nadu – south Andhra Pradesh coast near to Chennai on 7<sup>th</sup> November at 1600 UTC claimed 16 lives in Andhra Pradesh and Tamil Nadu. Extensive damage to crops and public property 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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S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
<p align="center"><b>TABLE - I : SNOWFALL</b></p> <p align="center"><b>CRITERIA</b></p> <p align="center"><b>Moderate : 7.6 to 34.9 cm in 24 hrs.</b></p> <p align="center"><b>Heavy : <math>\geq 35.0</math> cm in 24 hrs.</b></p>					
1.	2 <sup>nd</sup> week of Feb.	Baramulla, Kupwara, Kishtwar and Ladakh	Heavy	23 persons died including 17 army men.	i) Avalanche reported. ii) Warwan received snowfall of about 7 feet, Marwah 4-5 feet and Dachan received 3-4 feet. iii) About 400 people stranded in the snow bound areas.
2.	19 May	Leh (Jammu & Kashmir)	Heavy	2 persons died	Avalanche reported.
3.	29-31 May	Jammu and Srinagar (Jammu & Kashmir)	Heavy	a) About 100 nomadic missing. b) 30,000 livestock perished.	
4.	22 & 23 Oct.	(a) Chamba, Lahaul & Spiti, Kinnaur and Sirmaur (Himachal Pradesh)  (b) Kulgon and Shopian (Jammu & Kashmir)	Heavy  Moderate		i) Apple crop damaged. ii) 600 tourists stranded. iii) Leh – Manali road blocked. iv) Telephone / electric lines disrupted.  Fruit plantations damaged.

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
<p style="text-align: center;"><b>TABLE – II : COLD WAVE</b></p> <p style="text-align: center;"><b>CRITERIA</b></p> <p style="text-align: center;">(A) When; Normal minimum temperature is 10<sup>0</sup>C or more.  Cold wave : Night temperature 5<sup>0</sup>C to 6<sup>0</sup>C below normal.  Severe cold wave : Night temperature 7<sup>0</sup>C or more below normal.</p> <p style="text-align: center;">(B) When; Normal minimum temperature is less than 10<sup>0</sup>C.  Cold wave : Night temperature 4<sup>0</sup>C to 5<sup>0</sup>C below normal.  Severe cold wave : Night temperature 6<sup>0</sup>C or more below normal.</p>					
1.	1 & 2 Jan.	(a) Jammu (Jammu & Kashmir)	Severe (B)	One person died.	
		(b) Jaipur and Kota (Rajasthan)	Severe (B)	4 persons died.	
		(c ) Gorakhpur and Muzaffarnagar (Uttar Pradesh)	Severe (B)	3 persons died.	
2.	2 & 3 Jan.	(a) Chatra, Deoghar Garwah and Palamau (Jharkhand)	Severe (Both A & B as appropriate)	8 persons died.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
3.	4-6 Jan.	(a) Begusarai, Bhagalpur, East Champaran, Gaya, Gopalganj, Jahanabad, Katihar, Kishanganj, Madhepura, Muzaffarpur, Patna, Saran and Supaul (Bihar)	Severe (Both A & B as appropriate)	42 persons died.	
		(b ) Kodarma, Hazaribag and Ranchi (Jharkhand)	Severe (B)	11 persons died.	
		(c ) Balia, Banda, Chandauli, Fatehpur, Farrukhabad, Hamirpur, Kanpur, Mirzapur, Sonbhadra and Unnao (Uttar Pradesh)	Severe (B)	30 persons died.	
4.	7 & 8 Jan.	(a) Bhiwani (Haryana)	Severe (B)	2 persons died and 3 other injured in road accident due to fog.	Road traffic disrupted due to fog.
		(b) Chandigarh (Union Territory)	Severe (B)	2 persons died and 4 other injured in road accident due to fog.	Chandigarh - Ambala traffic disrupted due to fog.

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
5.	2 <sup>nd</sup> week of Jan.	Araria, Begusarai, Biharsarif, Chapra, East Champaran, Gaya, Lakhisarai, Madhepura, Madhubani, Muzaffarpur, Nawada, Patna, Purnia and Seikhpura (Bihar)	Severe (Both A & B as appropriate)	48 persons died.	
6.	8 -10 Jan.	(a)Giridh (Jharkhand)	Severe (B)	5 persons died.	
		(b)Mohali (Punjab)	Severe (B)	2 persons died and 2 other injured in road accident due to fog.	Road traffic disrupted due to fog.
		(c ) Banda, Chandauli, Hardoi, Konnauj, Jaunpur, Mahoba and Sonbhadra (Uttar Pradesh)	Severe (B)	10 persons died.	
7.	11-15 Jan.	(a) Most parts of Bihar and Jharkhand	Severe (Both A & B as appropriate)	About 90 persons died.	
		(b) Most parts of Uttar Pradesh	Severe (Both A & B as appropriate)	About 50 persons died.	



S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
8.	14 -17 Jan.	(a) Champaran (Jharkhand)	Severe (B)	4 persons died.	
		(b) Bhatinda (Punjab)	Severe (B)	2 persons died.	
		(c) Chandigarh (Union Territory)	Severe (B)	One person died.	
9.	19 & 21 Jan.	Most parts of Bihar	Severe (Both A & B as appropriate)	84 persons died.	
10.	20 Jan.	Patiala (Punjab)	Severe (B)	One person died in road accident due to fog.	Road traffic disrupted due to fog.
11.	21 Jan.	(a) Ambala (Haryana)	Severe (B)	One person died.	
		(b) Chandigarh (Union Territory)	Severe (B)	One person died and 4 other injured in road accident due to fog.	Accident due to poor visibility.
12.	22 Jan.	Patna and Vaishali (Bihar)	Severe (A)	5 persons died.	
13.	23 & 24 Jan.	(a) Jind and Panipat (Haryana)	Severe (B)	11 persons died and 12 other injured in road accident due to fog.	Accident due to poor visibility on N.H. 65

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
		(b) Bardhaman (West Bengal)	Severe (A)	One person died and three injured.	
		( c) Phagwara (Punjab)	Severe (B)	One person died in road accident due to fog.	Poor visibility causes accident at Phagwara – Chandigarh road.
14.	24 & 25 Jan.	Aurangabad, Madhepura, Patna and Seikhpura (Bihar)	Severe (Both A & B as appropriate)	10 persons died.	
15.	27 Jan.	Muktsar (Punjab)	Severe (B)	5 persons died in road accident due to fog.	Poor visibility causes accident.
16	28 Jan.	Ambala (Haryana)	Severe (B)	3 persons died in road accident due to fog.	Poor visibility causes accident at Khuda Kalan Dekheri marg.
17.	12 Dec.	Parts of Saurashtra & Kutch (Gujarath)	Severe (Both A & B as appropriate)	4 persons died.	
18.	26 Dec.	Jammu (Jammu & Kashmir)	Severe (B)	One person died.	
19.	27 Dec.	Muzaffarnagar (Uttar Pradesh)	Severe (B)	4 persons died.	
20.	31 Dec.	Gorakhpur & Muzaffarpur (Uttar Pradesh)	Severe (Both A & B as appropriate)	3 persons died.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
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TABLE – III : HEAT WAVE

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.	1-5, 7-16 and 19-26 Apr.	Some parts of Orissa	Severe (Both A & B as appropriate)	16 persons died.
2	12-17 Apr.	Giridih, Lohardaga and Singhbhum Jharkhand)	Severe (A)	8 persons died.
3	14-17 Apr.	Nagpur and Yavatmal (Maharashtra)	Severe (A)	2 persons died.
4.	19-22 Apr.	(a) Ranchi (Jharkhand)	Severe (A)	3 persons died.
		(b) Amravati, Bhandara, Buldhana, Chandrapur, Wardha and Yavatmal (Maharashtra)	Severe (B)	9 persons died.

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
		(c ) Bardhaman (West Bengal)	Severe (A)	18 persons died.	
5.	1-31 May	Entire State (Gujarat)	Severe (Both A & B as appropriate)	57 persons died.	
6.	2 May	Ranchi (Jharkhand)	Severe (A)	2 persons died.	
7.	8 May	Buldhana and Chandrapur (Maharashtra)	Severe (B)	2 persons died.	
8.	10 May	Bhandara (Maharashtra)	Severe (B)	One person died.	
9.	2 <sup>nd</sup> , 3 <sup>rd</sup> and 4 <sup>th</sup> week of May	Akola, Amravati, Bhandara, Chandrapur, Gadchiroli, Nagpur, Wardha and Yavatmal (Maharashtra)	Severe (B)	About 80 persons died.	
10	24 May	Gwalior (Madhya Pradesh)	Severe (B)	3 persons died.	
11.	25-27 May	Entire State (Rajasthan)	Severe (Both A & B as appropriate)	25 persons died.	
12.	31 May	Sikar (Rajasthan)	Severe (A)	One person died.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
13.	1-10 Jun.	Some parts of Orissa	Severe (Both A & B as appropriate)	15 persons died.	
14.	2 Jun.	Bundi, Jhalwar and Kota (Rajasthan)	Severe (Both A & B as appropriate)	3 persons died.	
15.	3 Jun.	Ranchi (Jharkhand)	Severe (A)	2 persons died.	
16.	6 Jun.	Aurangabad and Buxar (Bihar)	Severe (A)	3 persons died.	
17.	7 Jun.	Singhbhum (Jharkhand)	Severe (A)	One person died.	
18	18 Jun.	Nagpur (Maharashtra)	Severe (A)	2 persons died.	
19.	23 Jun.	Etawah, Jalaun, Jhansi and Muzaffarnagar (Uttar Pradesh)	Severe (Both A & B as appropriate)	16 persons died.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
<p align="center"><b>TABLE – IV : SQUALL</b></p> <p align="center"><b>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</b></p> <p align="center"><b>CRITERIA</b></p> <p align="center"><b>Moderate : Surface wind speed (in gusts) up to 80 kmph</b></p> <p align="center"><b>Severe : Surface wind speed (in gusts) &gt; 80 kmph</b></p>					
1.	28 Mar.	North Tripura and West Tripura (Tripura)	Moderate		i) Roofs of many houses, schools and buildings blown off. ii) Electrical poles damaged.
2.	25 May	South Tripura and West Tripura (Tripura)	Moderate		i) Trees uprooted. ii) Electric supply disrupted.
3.	8 Aug	Dibrugarh (Assam)	Moderate		i) Damage to standing crops reported. ii) Roofs of houses blown away. iii) Electric supply, road and telecommunication disrupted.

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
<p align="center"><b>TABLE – V : GALE</b>  <b>CRITERIA</b>  <b>Strong : Wind speed <math>\geq 75</math> kmph</b></p>					
1.	12 – 14 Mar	Nagpur (Maharashtra)	Strong	One woman died.	Damage to wheat crops reported and food grains swept away.
2.	3 Apr	Coimbatore and Erode (Tamil Nadu)	Strong		About 63,000 plantations damaged.
3.	8 Apr.	Madurai (Tamil Nadu)	Strong	One person died.	i) Banana plantations damaged. ii) About 300 boats damaged.
4.	2 Jun	Wayanad (Kerala)	Moderate	3 children injured.	
5.	29 & 30 Jun	Bhandara and Buldhana (Maharashtra)	Strong	One person died and 25 persons injured.	
6.	25 Aug	Hoshangabad (Madhya Pradesh)	Moderate	4 persons injured.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
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**TABLE – VI : DUSTSTORM**

**CRITERIA**

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

**Severe : Wind speed  $\geq 75$  kmph and horizontal visibility up to 50 metres**

1.	7 May	Balia, Gazipur, Jaunpur and Varansi (Uttar Pradesh)	Severe	13 persons died.	i) Trees, hoardings, electric and telephone poles uprooted. ii) Road traffic disrupted.
2.	20 May	Allahabad and Unnao (Uttar Pradesh)	Severe	15 persons died.	i) Many kuchha houses damaged. ii) Many trees uprooted.
3.	3 Jun	Kanpur (Dehati) and Orraiya (Uttar Pradesh)	Severe	13 persons died	i) Several trees poles uprooted ii) Wall of houses collapsed.

**TABLE – VII : LIGHTNING**

1.	8 Feb.	Barmer, Bundi, Jaisalmer, Jodhpur, Nagaur and Sikar (Rajasthan)		4 persons died and 14 others injured. 3 cattle perished.
2.	12 Mar.	Amravati (Maharashtra)		One person died.



S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
3.	12 & 13 Mar.	Akola, Buldhana, Jalgaon, Nagpur, Pune and Wardha (Maharashtra)		6 persons died and 3 others injured.	
4.	16 Mar.	Pathanamthitta and Wayanad (Kerala)		One woman died and other injured.	
5.	26 Mar.	Chandrapur and Wardha (Maharashtra)		2 persons died.	
6.	29 Mar.	(a) Chandrapur (Maharashtra)		One person died.	
		(b) Ramanathapuram (Tamil Nadu)		One person died.	
7.	3 Apr.	Kottayam (Kerala)		One person died and other injured.	
8.	5 & 6 Apr.	Ernakulam, Kollam and Wyanad (Kerala)		One boy died and 2 others injured.	A house destroyed.
9.	8 Apr.	Dakshina Kannada and Udupi (Karnataka)		6 persons died.	
10.	8 & 9 Apr.	Kollam and Thiruvananthapuram (Kerala)		One woman died.	Electronic and electrical instruments damaged.
11.	15 Apr.	Malda (West Bengal)		One person died and other injured.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
12.	16 Apr.	Ahmednagar, Beed, Hingoli, Nanded, Satara and Osmanabad ( Maharashtra)		7 persons died.	
13.	17 & 18 Apr.	(a) Pathanamthitta and Thiruvananthapuram (Kerala)		One woman died and 29 others injured.	Electronic gadgets damaged.
		(b) Ahmednagar, Akola, Kolhapur, Sindhudurg (Maharashtra)		13 persons died.	Damage to cashew and mango orchards reported.
14.	19 Apr.	(a) Chikmagalur (Karnataka)		2 persons died.	
		(b) Madhurai (Tamil Nadu)		One person died.	
15.	21 & 22 Apr.	Kolar, Bagalkot, Raichur and Uttara Kannada (Karnataka)		3 persons died.	
16.	22 Apr.	Vellore (Tamil Nadu)		One person died.	
17.	23 & 24 Apr.	Kannur, Malapuram and Wyanad (Kerala)		4 persons died and 14 others injured.	Many houses damaged and some plantations uprooted.

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
18.	24 Apr.	Thoothukudi (Tamil nadu)		One person died.	
19.	28 & 29 Apr.	Mallapuram, Kottayam and Kozhikode (Kerala)		5 persons died and one injured.	
20.	29 Apr.	Bidar (Karnataka)		2 persons died.	
21.	1 May	Kaniyakumari (Tamil Nadu)		One person died.	
22.	2 May	Hingoli and Pune (Maharashtra)		3 persons died.	
23.	5 May	Bardhaman (West Bengal)		4 persons died and 4 others injured.	
24.	7 May	Murshidabad and Nadia (West Bengal)		6 persons died and 8 others injured.	
25.	9 May	Bardhaman (West Bengal)		2 persons died.	
26.	14 May	Bankura (West Bengal)			Transformer of thermal power station caught fire.
27.	18 May	Karur (Tamil Nadu)		One person died.	
28.	19 & 20 May	Chitradurga and Udupi (Karnataka)		3 persons died.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
29.	20 May	Cooch Behar, Malda and North Dinajpur (West Bengal)		9 persons died and other injured.	
30.	25 May	Malda (West Bengal)		6 persons died and 8 persons injured.	
31.	29 May	Kozhikode (Kerala)		One person died.	
32.	30 May	Shimoga (Karnataka)		2 persons died.	
33.	2 Jun	Rajasmand (Rajasthan)		One peron died and other injured.	
34.	4 & 5 Jun.	Kozhikode, Malappuram and Wayanad (Kerala)		4 persons died.	
35.	6 Jun.	Thiruvallur (Tamil Nadu)		One person died.	
36.	9 Jun.	Chennai (Tamil Nadu)		One person died.	
37.	10 Jun.	Howrah (West Bengal)		One person died.	
38.	11 & 12 Jun.	Belgaum, Bidar, Bijapur, Gulbarga, Raichur and Uttar Kannada (Karnataka)		7 persons died.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
39.	13 Jun.	Aurangabad and Dhule (Maharashtra)		3 persons died.	
40.	16 Jun.	Belgaum (Karnataka)		One person died.	
41.	17 Jun.	South 24 Parganas (West Bengal)		3 persons died.	
42.	18 & 19 Jun.	Nagpur (Maharashtra)		3 persons died.	
43.	23 Jun.	Howrah (West Bengal)		One person died and 32 children injured.	
44.	24 Jun.	Chandrapur and Washim (Maharashtra)		4 persons died.	
45.	26 Jun.	Akola, Chandrapur, Washim and Yavatmal (Maharashtra)		15 persons died.	
46.	27 Jun.	(a) Bastar (Chattisgarh)		3 persons injured.	
		(b) Akola, Aurangabad, Dhule, Gadchiroli, Nagpur, Nasik, Washim and Yavatmal (Maharashtra)		24 persons died and 25 others injured.	
47.	28 & 29 Jun.	Buldhana, Chandrapur, Gadchiroli, Nagpur and Yavatmal (Maharashtra)		8 persons died.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
48.	30 Jun.	Washim (Maharashtra)		2 persons died.	
49.	1 Jul.	Chandrapur and Yavatmal (Maharashtra)		3 persons died	
50.	3 Jul.	(a) Mandsaur (Madhya Pradesh)		2 women died.	
		(b) Chandrapur (Mahadrapur)		One person died.	
51	4 Jul.	(a) Baramulla (Jammu & Kashmir)		2 girls died and 2 others injured.	
		(b) Chittorgarh, Dholpur, Jhalwar and Pratapgarh (Rajasthan)		9 persons died.	
52.	5 Jul.	Chittorgarh (Rajasthan)		6 persons died.	
53.	10 Jul.	Thiruvallur (Tamil Nadu)		One person died.	
54.	10 & 11 Jul.	Araria, Arwal, Begusarai, Madhepura, Nawada and Purnea (Bihar)		20 persons died and 20 others injured.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
55.	11 Jul.	Bhandara (Maharashtra)		2 persons died	
56.	15 Jul.	Aurangabad (Bihar)		i) 4 persons died, 2 girls injured. ii) A few livestock perished.	
57	17 Jul	Raisen (Madhya Pradesh)		2 persons died.	
58.	19 Jul.	Vellore (Tamil Nadu)		3 persons died.	
59.	20 Jul.	Aurangabad (Bihar)		4 persons injured.	
60.	22-24 Jul.	Chittorgarh, Jaisalmer and Jalore (Rajasthan)		2 persons died and other injured.	
61.	23 Jul.	Chandrapur and Gondia (Maharashtra)		4 persons died.	
62.	26 & 27 Jul.	Gondia and Nagpur (Maharashtra)		One person died and other injured.	
63	29 Jul.	Araria (Bihar)		3 persons died and 3 women injured.	
64.	30 Jul.	Chandrapur and Wardha (Maharashtra)		5 persons died.	
65.	1 Aug.	Gaya (Bihar)		3 persons died.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
66.	6 Aug.	Nagpur (Maharashtra)		One person died.	
67.	11 Aug.	Sapaul (Bihar)		52 persons died and 12 others injured.	
68.	13 Aug.	Yavatmal (Maharashtra)		One person died.	
69.	15 & 16 Aug.	Bhandara (Maharashtra)		2 persons died.	
70.	18 Aug.	Washim (Maharashtra)		2 persons died.	
71.	19 Aug.	Tikamgarh (Madhya Pradesh)		2 women died and other injured.	
72.	21& 22 Aug.	Begusarai and Nalanda (Bihar)		3 persons died and other injured.	
73.	24 Aug.	(a) Nalanda, Nawada and Seikhpura (Bihar)		15 persons died and 6 others injured.	
		(b) Gulbarga (Karnataka)		One woman died.	
74.	26 Aug.	Wardha (Maharashtra)		2 persons died.	
75.	27 Aug.	Udaipur (Rajasthan)		One person died.	
76.	28 Aug.	Akola, Chandrapur and Wardha (Maharashtra)		3 persons died.	



S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
77.	30 Aug.	Gopalganj (Bihar)		2 persons died and 2 others injured.	
78.	31 Aug.	Jhalawar (Rajasthan)		2 persons died and 3 others injured.	
79.	2 Sept.	Bikaner, Jodhpur, Tonk and (Rajasthan)		4 persons died.	
80.	5 Sept.	Chittorgarh and Udaipur (Rajasthan)		2 persons died.	
81.	6-8 Sept.	Janjgir, Champa and Raipur (Chattisgarh)		4 persons and 4 children died .	
82.	10 – 14 Sept.	Ajmer, Bikaner and Tonk (Rajasthan)		6 persons died.	
83.	11 Sept.	Bankura and Purullia (West Bengal)		5 persons died.	
84.	14 Sept.	(a) Araria, Gopalganj and Purnea (Bihar)		6 persons died and other injured.	
		(b) Wokha (Nagaland)		One person died and other injured.	
85.	23-25 Sept.	Madurai, Thanjavur, Vellore and Virudhanagar (Tamil Nadu)		8 persons died.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
86.	26 Sept.	Pune (Maharashtra)		One person died.	
87.	27 & 28 Sept	Chandrapur and Yavatmal (Maharashtra)		3 persons died.	
88.	28 Sept.	West Tripura (Tripura)		2 children injured.	
89.	30 Sept.	Pune (Maharashtra)		One person died.	
90.	4 Oct.	Thanjavur (Tamil Nadu)		One person died.	
91.	4 & 5 Oct.	Akola, Amraoti, Buldhana, Nagpur, Washim and Yavatmal (Maharashtra)		23 persons died.	
92.	21 Oct.	Umairā (Madhya Pradesh)		One girl died and several injured.	
93.	22 Oct.	(a) Jammu (Jammu and Kashmir)		One girl died.	
		(b) Villupuram (Tamil Nadu)		2 persons died.	
94.	27 Oct.	Cuddalore, Dindigul, Erode, Kanchipuram and Salem (Tamil Nadu)		10 persons died.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
95.	28 Oct.	Yavatmal (Maharashtra)		3 persons died.	
96.	11 Nov.	Betul (Madhya Pradesh)		2 persons died and 4 others injured.	
97.	14 Nov.	Parbhani (Maharashtra)		One person died and one woman injured.	
98.	8 Dec.	Thiruvananthapuram (Kerala)		One person electrocuted.	

**TABLE –VIII : THUNDERSTORM**

**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  $\geq 75$  kmph.**

1.	16 & 17 Feb.	Ranchi (Jharkhand)	Severe	One person died and 3 others injured.	Crops and vegetables badly affected.
2.	17 Feb.	North 24 Parganas and South 24 Parganas (West Bengal)	Moderate	15 persons injured.	i) 75 houses partially and 85 completely damaged. ii) Electric & telephone poles and trees uprooted.

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
3.	15 Mar.	Golaghat (Assam)	Moderate		i) Roofs of many houses blown away. ii) Electricity / telecommunication disrupted. iii) Trees / telephone lines uprooted.
4.	16 Mar.	Palaghat (Kerala)	Severe	One child died.	
5.	17 Mar.	Hazaribag (Jharkhand)	Moderate	One person injured	i) Roofs of many houses blown away. ii) Telephone poles and trees uprooted. iii) Few houses damaged.
6.	26-28 Mar.	Thiruvananthapuram (Kerala)	Moderate		i) Damage to crops and Banana plants reported. ii) Walls of few houses collapsed.
7.	28 & 29 Mar.	(a) Darrang, Nagaon, Nalbari and Sonitpur (Assam)	Severe	5 persons died and 4 persons injured.	
		(b) Ukhrul (Manipur)	Moderate	2 women injured.	
8.	2-5 Apr.	Nalbari and Sibsagar (Assam)	Severe	One person died.	i) Heavy damage to Ahu and Boro crops reported. ii) 500 houses of 39 villages damaged. iii) Roofs of several houses blown away. iv) Trees, electric/telephone poles uprooted.
9.	5 & 6 Apr.	Kollam and Thiruvananthapuram (Kerala)	Moderate		i) Damage to crops and trees reported. ii) 82 houses, a school and shops partly/completely damaged.

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
10.	12-15 Apr.	a) Barpeta, Dhemaji, Dhubri, Kamrup, Nalbari and Lakhimpur (Assam)	Severe	One person died and 50 other injured.	i) Large tracts of standing crops damaged. ii) About 500 houses damaged. iii) Trees, electric poles uprooted disrupting roads, telecommunications and power supply.
11.	13 Apr.	(a) Araria, Kishanganj, Katihar, Purnea and Supaul (Bihar)	Severe	74 persons died and 1000 others injured.	i) Tornado reported. ii) Wheat and maize crops damaged. iii) 50,000 huts destroyed. iv) Trees / electric poles / telephone poles uprooted.
		(b) Jalpaiguri, North Dinajpur and South Dinajpur (West Bengal)	Severe	42 persons died and 398 others injured.	i) Tornado reported. ii) 1,14,040 houses completely and 94,190 partially damaged. iii) More than 2 lakhs people affected. iv) Bodo and standing crops damaged. v) Trees/electric poles/telephone posts/mobile towers uprooted.
12.	14 Apr.	Darjeeling (West Bengal)	Moderate		50 houses completely and 20 houses partially damaged.
13.	17 Apr.	Barpeta (Assam)	Severe	2 persons died and other injured.	
14.	19 & 20 Apr.	Erode, Theni (Tamil Nadu)	Severe	One person died.	Few hundred areas of onion and other plantations destroyed.
15.	19 – 22 Apr.	Marigaon and Nalbari (Assam)	Severe	3 persons died and one injured.	i) Heavy damage to huge amount of crops reported. ii) Roofs of several houses blown away. iii) Trees / electric poles uprooted.

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
16.	22 Apr.	Theni (Tamil Nadu)	Moderate		Few hundred acres onions and other plantations destroyed.
17.	22 & 23 Apr.	Bagalkot, Raichur, Tumkur and Uttara Kannada (Karnataka)	Severe	5 persons died.	i) Heavy damage to huge amount of crops reported. ii) Roofs of several houses blown away. iii) Trees / electric poles uprooted.
18.	23 & 24 Apr.	Coochbehar and Jalpaiguri (West Bengal)	Severe	4 persons injured.	i) Trees / electric poles uprooted. ii) Several houses damaged.
19.	24 & 25 Apr.	Barpeta, Darrang, Dhubri, Goalpara, Kamrup, Morigaon, Nagaon, Nalbari and Sonitpur (Assam)	Severe	11 persons died and many others injured.	Heavy damage to huge amount of crops reported. Roofs of several houses blown away. Trees / electric poles uprooted.
20.	26 Apr.	Murshidabad, Nadia and south 24 paraganas (West Bengal)	Severe	10 persons died.	i) 1000 mts. of rivers embankment damaged. ii) Many trees / electric poles/ mobile towers uprooted.
21.	26 & 27 Apr.	Thrissur and Wayanad (Kerala)	Moderate		i) About 10,000 plantations destroyed and many trees uprooted. ii) Many houses and vehicles damaged.
22.	29 Apr.	Ghatsila, Lohardaga and Ranchi (Jharkhand)	Severe	3 persons died.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
23.	1 May	Bengusarai, East Champaran, Kishanganj, Madhepura, Purnea, Samastipur and West Champaran (Bihar)	Severe	10 persons died and 6 others injured.	i) Maize, Litchi and Mango crops damaged. ii) More than 100 houses destroyed. iii) Roofs of houses blown away. iv) Trees uprooted.
24.	2 May	Ranchi (Jharkhand)	Severe	2 persons died.	
25.	2 & 3 May	Bankura, Buradwan, Kolkata, Murshidabad, Purulia and South 24 Parganas (West Bengal)	Severe	21 persons died and 9 others injured.	i) Rabi crops badly affected. ii) Many trees uprooted. iii) Roofs of several 100 houses blown away. iv) 5 houses completely and 40 partially damaged.
26	3 May	Sibsagar (Assam)	Moderate		i) Damage to huge quantity of Ahu and Boro crops reported. ii) Roofs of several houses blown away. iii) Road / telecommunication / power supply disrupted.
27.	4 May	Ranchi (Jharkhand)	Severe	One person died.	
28.	5 May	(a) Golaghat and Kamrup (Assam)	Moderate		i) Damage to huge quantity of Ahu and Boro crops reported. ii) Roofs of several houses blown away. iii) Road / telecommunication / power supply disrupted.
		(b) Murshidabad (West Bengal)	Severe	3 persons died and 3 others injured.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
29.	7 May	(a) Kamrup and Nalbari (Assam)	Severe	One person died.	
		(b) Gaya, Jahanabad, Kaimur, Rohtas and Shekhpura (Bihar)	Severe	24 persons died and 6 others injured.	Communication / power supply / train transport services disrupted.
30.	9 May	(a) Barpeta (Assam)	Severe	One person died.	
		(b) North 24 Parganas (West Bengal)	Severe	2 persons died.	i) Train services disrupted. ii) Many trees uprooted.
31.	11-13 May	Cachar, Darrang, Dibrugarh, Kamrup, Nalbari and Sibsagar (Assam)	Severe	5 persons died and 5 others injured and 5 persons missing.	i) Trees / electric poles uprooted ii) Many families affected.
32.	15-17 May	Dhubri, Marigaon and Nagaon (Assam)	Severe	6 persons died and 5 others injured.	
33.	17 May	Some parts of Tripura	Severe	3 persons died and 10 others injured.	i) Huge amount of standing crops damaged. ii) Roofs of several houses blown away. iii) Trees / electric poles affected.
34.	19 & 20 May	Giridh, Palamau and Ranchi (Jharkhand)	Severe	6 persons died.	
35.	23 & 24 May	Muzaffarpur, Nalanda, Nawada, Patna, Samastipur, Saran and Sitamarhi (Bihar)	Severe	24 persons died and 12 others injured.	i) Roofs of several houses blown away. ii) Trees / electric poles affected.



S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
36.	25 May	Murshidabad (West Bengal)	Severe	4 persons died and 2 others injured.	i) About 55 houses partially damaged. ii) Many trees uprooted.
37.	26 May	West Tripura (Tripura)	Moderate		i) 150 houses destroyed. ii) Many trees and electric poles uprooted.
38.	27 May	Madhepura (Bihar)	Moderate	3 children injured.	i) Roofs of several houses blown away. ii) Trees / electric poles affected.
39.	30 May	East Champaran, Samastipur and Siwan (Bihar)	Severe	16 persons died and 12 others injured.	i) More than 100 houses damaged. ii) Many trees and electric poles uprooted.
40.	1 Jun	(a) Dhubri and Nalbari (Assam)	Severe	4 persons died and 5 others injured.	i) Roofs of several houses blown away. iii) Road / telecommunication / power supply disrupted iii) Many trees and electric poles uprooted.
41.	2 & 3 Jun.	(b) North Tripura, South Tripura, West Tripura and Dhalai (Tripura)	Severe	4 persons died.	i) MH-44 blocked due to flood. ii) Landslide reported. iii) Electric city and telephone services disrupted.
42.	5 Jun.	Morigaon (Assam)	Severe	3 persons died and 3 others injured.	
43.	9Jun.	(a) Nalbari (Assam)	Severe	12 cows died and 2 injured.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
		(b) South Tripura (Tripura)	Moderate	4 bisons in Trishna forest sanctuary died.	
44.	11 Jun.	(a)Khagaria, Madhepura, and Samastipur (Bihar)	Severe	12 persons died and 8 others injured.	More than 100 rural houses damaged.
		(b) Ranchi (Jharkhand)	Severe	One person died and 2 others injured.	Roof tops of many houses blown away.
45.	15 Jun	Ranchi (Jharkhand)	Severe	2 persons died and 9 others injured.	
46.	20 Jun	Darrang (Assam)	Severe	One person died.	
47.	21 & 22 Jun.	Kishanganj, Saharsa and Samastipur (Bihar)	Severe	4 persons died and 2 others injured.	
48.	24 Jun.	Karbi / Anglong (Assam)	Severe	2 persons died and 3 others	
49.	2 Jul	Ranchi (Jharkhand)	Severe	2 persons died and one injured.	
50.	23 Jul.	Ranchi (Jharkhand)	Severe	One person died.	
51.	25 & 26 Jul.	Kamrup (Assam)	Severe	One person died and 2 others injured.	Standing crops damaged.
52.	30 Jul	Ranchi (Jharkhand)	Severe	One person died	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
53.	1 & 2 Aug.	Lohardaga and Ranchi (Jharkhand)	Severe	4 persons died.	
54.	5 Aug.	Kamrup (Assam)	Severe	i) Two others injured. ii) 22 cows perished.	Damage to standing crops reported.
55.	8 Aug.	Karbi / Anglong (Assam)	Severe	2 persons died	
56.	10 Aug.	Ranchi (Jharkhand)	Severe	6 persons died.	
57.	12-14 Aug.	Godda, Gumla, Hazaribagh and Ranchi (Jharkhand)	Severe	14 persons died and other injured.	
58.	16 Aug.	Chatra, Hazaribagh and Lohardaga (Jharkhand)	Severe	4 persons died.	
59.	19 Aug	Giridh and Hazaribagh (Jharkhand)	Severe	5 persons died.	
60.	29 & 30 Aug	Ranchi (Jharkhand)	Severe	2 persons died.	
61.	7 Sept.	Ranchi (Jharkhand)	Moderate	3 persons injured.	
62.	10 Sept.	Barpeta and Kokrajhar (Assam)	Severe	4 persons died and 3 others injured.	
63.	3 & 4 Oct.	Ranchi (Jharkhand)	Severe	3 persons died.	
64.	21 Oct.	Ranchi (Jharkhand)	Severe	2 persons died.	

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
<p style="text-align: center;"><b>TABLE – IX : HAILSTORM</b></p> <p style="text-align: center;"><b>CRITERIA</b></p> <p style="text-align: center;"><b>Slight : Sparse, usually small size and often mixed with rain.</b></p> <p style="text-align: center;"><b>Moderate : Fall abundant enough to whiten ground.</b></p> <p style="text-align: center;"><b>Heavy : Includes at least a proportion of large stones.</b></p>					
1.	12 & 14 Jan.	Dhule, Jalgaon, Latur, Pune, Sangli, Solapur and Osmanabad (Maharashtra)	Heavy	Loss of livestock.	i) Hails of lemon size damaged wheat, maize crops and banana. ii) Grape orchards in nearly 2,000 hectares damaged. iii) Mango groves in flowering stage suffered considerably.
2.	3 Feb.	Nagpur (Maharashtra)	Moderate	-	Rabi crops at some places damaged. Trees uprooted
3.	14 -17 Feb.	(a) Amravati, Bhandara, Gondia, Nagpur, Wardha, Yawatmal (Maharashtra)	Moderate	One person died	i) Damage to orange, wheat and gram crops reported. ii) Few houses damaged / collapsed iii) Trees uprooted
		(b) Ranchi (Jharkhand)	Moderate		Heavy damage to crops and vegetables reported.

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
4.	24 Feb.	(a) Chandrapur, Gadchiroli, Gondia, Wardha and Yawatmal (Maharashtra)	Moderate		i) Heavy damage to crops reported. ii) Trees uprooted
		(b) East Medinipur, Hooghly and South 24 Parganas (West Bengal)	Moderate	3 persons injured.	i) Fruit and vegetable crops damaged. ii) About 50 houses damaged.
5.	10 & 12 Mar.	Amravati, Bhandara, Chandrapur, Gondia, Nagpur and Yawatmal (Maharashtra)	Moderate		Damage to orange and wheat crops reported.
6.	12 Mar.	Ahmednagar and Aurangabad (Maharashtra)	Moderate		i) Rabi crops damaged. ii) Grape orchards affected.
7.	16 Mar.	Ranchi (Jharkhand)	Moderate		Heavy damage to crops and vegetables reported.
8.	26 Mar.	Dhubri and Kamrup (Assam)	Moderate	One person injured	i) Heavy damage to standing Ahu and Boro crops reported. ii) Trees and electric poles uprooted. iii) Road / telecommunication and power supply disrupted. iv) Roofs of several houses blown away.
9.	28 & 30 Mar.	(a) Shaiha (Mizoram)	Heavy		400 dwelling houses damaged.

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
		(b) Mokokchung (Nagaland)	Heavy		i) Extensive damage to standing crops reported. ii) About 40 houses damaged. iii) Road / telecommunication / power supply disrupted.
		(c) South Tripura (Tripura)	Heavy	One person died and other injured.	About 300 houses damaged.
10	10 Apr.	Kamrup (Assam)	Heavy	5 persons injured.	i) Hailstones weighing 300 to 450 gms reported. ii) Huge amount of standing crops reported.
11.	15 Apr.	Malda (West Bengal)	Heavy	One person died and others injured.	i) Vegetable and mango crops badly affected. ii) More than 1000 houses damaged. iii) Electric installation / mobile towers / telephone posts damaged.
12.	18 Apr.	North Tripura (Tripura)	Moderate		i) Electric installation / mobile towers / telephone posts uprooted ii) Roofs of many houses blown away.
13.	21 Apr.	Dhalai, North Tripura and West Tripura (Tripura)	Heavy	3 persons died.	i) More than 1000 families affected. ii) Electric installation / telephone posts damaged. iii) Roofs of many houses blown away.
14.	24 Apr.	Bardhaman, Birbhum and Hooghly (West Bengal)	Moderate		Vegetable production severely affected.
15	30 Apr.	East Champaran and West Champaran (Bihar)	Heavy	3 persons died.	i) Watermelon plants and vegetables damaged. ii) 12 houses damaged.

S.N.	Date/ Period	Area Affected	Intensity	Casualties	Extent of damage
16.	1 May	Kottayam (Kerala)	Heavy		i) 286 hectare of crop fully and 244 hectares of crop partially damaged. ii) 18 houses damaged.
17.	13 May	Murshidabad and Nadia (West Bengal)	Heavy	2 persons died	i) Heavy damage to mango and litchi production reported. ii) More than 100 houses damaged.
18.	20 May	Many districts of Bihar	Heavy	34 persons died and many injured.	i) Many rural houses damaged. ii) Trees uprooted.
19.	23 Oct.	Una (Himachal Pradesh)	Moderate		i) Rice crop damaged. ii) A few buildings damaged.

**TABLE - X : DROUGHT**

**CRITERIA**

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

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

S.N.	Area affected (Subdivision)	Seasonal rainfall departure (%)	Intensity
1.	Gangetic West Bengal	-31%	Moderate
2.	Jharkhand	-40%	Moderate

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
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TABLE XI – FLOODS AND HEAVY RAINS

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

**STATES**  
**ANDHRA PRADESH**

1.	4 Oct.	East Godavari and coastal districts of Andhra Pradesh	Heavy rains	14 persons died	i) Extensive damage to paddy and other standing crops in about 2.83 lakh hectares of land reported. ii) Damage to public property reported. iii) Low lying areas submerged.
*	Whole year	Area affected 0.044 m. ha.		171 human lives lost. 13477 cattle lost.	i) 0.275 million population affected. ii) 22921 houses damaged. iii) Crops in 0.003 m. ha. affected.

**ARUNACHAL PRADESH**

1.	2 Apr.	Kurung Kumey	Heavy rains	7 persons buried alive in landslide.	i) Landslide reported. ii) Damage to public property reported.
2.	22 Apr.	Lohit & Anjaw, Dibang & Lower Dibang valley, East Kameng and Upper Siyang	Heavy rains	12 persons died.	i) Landslide reported. ii) Road/electricity / telephone services disrupted.



S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
3.	9 & 10 Sep.	East and West Siang	Heavy rains	8 persons died.	i) Landslide reported. ii) Pasighat-Pangin and Pasighat-Mebo roads washed away. iii) Damage to Siku bridge reported. iv) Thousands of people rendered homeless.
*	Whole year			i) 44 human lives lost. ii) 11103 cattle lost.	i) 0.275 million population affected. ii) 22921 houses damaged. iii) Crops in 0.003 m. ha. affected.
<b>ASSAM</b>					
1.	27 Mar.	Dhemaji and Lakhimpur	Flash flood (Singra, Jiadha)		i) Extensive damage to Boro and Ahu crops in 100 bighas reported. ii) A portion of NH 52 washed away.
2.	20-23 Apr.	Dhemaji, Lakhimpur Jorhat, Nalbari, Sibsagar and Tinsukia	Heavy rains		i) Extensive damage to standing crops reported. ii) Several villages inundated. iii) About one lakh people of 250 villages affected.
3.	10 – 16 May	Dhemaji and Golaghat	Flood (Bramhaputra and its tributaries, Tiyak and Kakajan)	5 persons died.	i) Extensive damage to standing crops reported. ii) NH-37 and NH-39 disrupted. iii) About 30 villages inundated

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
4.	21 May	Barpeta	Flood (Kaldia, Pahumara and Tihy)		i) Widespread damage to standing crops reported. ii) About 20 villages badly affected.
5.	1 Jun.	Lakhimpur	Flood (Singra, Dikrang and Paroi)		i) Standing crops damaged. ii) About 25 villages inundated. iii) Many trees uprooted.
6.	6 – 9 Jun.	Darrang, Dhemaji, Kamrup, Lakhimpur, Morigaon, Nalbari and Sonitpur	Flood (Brahmaputra and its tributaries)	About 40 persons died.	i) Extensive damage to Boro crops reported. ii) About 60 villages inundated. iii) Lakhs of people affected. iv) Few houses completely damaged due to landslide. v) Poultry farms, fisheries affected.
7.	13 Jun.	Lakhimpur	Flood (Bhogdoi, Ranganodi and Singra)		i) Standing crops damaged. ii) About 200 villages submerged. iii) About 30,000 people marooned. iv) NH-52 water logged.
8.	17 Jun.	Jorhat	Heavy rains		i) Standing crops damaged. ii) 1000 hectares of farm land inundated. iii) About 200 villages inundated.

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
9.	21 Jun.	Cachar, Hailakandi and Karmganj	Heavy rains	7 persons died.	i) Lakhs of people affected. ii) Low lying areas flooded. iii) Road / electricity/telephone services disrupted.
10.	26-28 Jun.	Barpeta, Dhemaji, Golaghat, Joraht and Lakhimpur	Heavy rains		i) About 9650 hectares of crop land affected. ii) About 500 villages inundated. iii) Lakhs of people rendered homeless. iv) Some schools buildings damaged.
11.	2 Jul.	Sonitpur	Heavy rains		i) Damage to standing crops reported. ii) About 7 villages inundated.
12.	6-7 Jul.	Morigaon and Sonitpur	Flood (Brahmaputra and its tributaries)		i) Damage to standing crops reported. ii) About 1500 hectares of crop land affected. iii) About 120 villages inundated. iv) 60 % area of Pabitora reserved forest inundated.
13.	10 Jul.	Barpeta, Dhubri and Morigaon	Flood (Brahmaputra and its tributaries)	2 children swept away.	i) About 20 villages inundated. ii) Vast area of crop land affected. iii) Low lying areas submerged.
14.	19 – 21 Jul.	Barpeta, Bongaigaon, Dhemaji, Dhubri, Golaghat, Kokrajhar, Lakhimpur and Sonitpur	Flood (Brahmaputra and its tributaries)		i) Extensive damage to standing crops reported. ii) About 300 villages inundated. iii) Electrical tower and several houses damaged.

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
15.	26 Jul.	Lakhimpur	Heavy rains		i) Standing crops in about 315 hectares damaged. ii) About 25 villages inundated.
16.	31 Jul.	Dhemaji	Heavy rains		i) Standing crops damaged. ii) About 14,000 people affected. iii) About 50 villages inundated.
17.	17 Aug.	Nagaon	Flood (Nishary)		i) Damage to standing crops reported. ii) About 50,000 bighas of crop land inundated.
18.	21 & 22 Aug.	Dhemaji and Lakhimpur	Flood (Gabhagru, Jiadhan, Pabhoi and Singra)		i) Widespread damage to standing crops reported. ii) About 50,000 people of 30 villages affected. iii) Road link of NH 52 disrupted.
19..	27 Aug.	Bongaigaon	Heavy rains		i) Damage to standing crops reported. ii) About 10 villages inundated.
20.	30 Aug.	Morigaon	Flood (Bramhaputra, Kapili and Kolong )		i) 10,000 people of 40 villages inundated. ii) Pobitora wild life sanctuary inundated.
21.	5-9 Sep.	Dhemaji, Dibrugarh, Lakhimpur and Nagaon	Flood (Brahmaputra and its tributaries)	i) One person died. ii) Many cattle heads swept away.	i) About 20,000 bighas paddy crops damaged. ii) About 50 villages inundated. iii) A part of NH 52 damaged.

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
22.	14 Sep.	Barpeta, Dibrugarh and Dhubri	Flood (Brahmaputra and its tributaries)		i) Damage to standing crops reported. ii) About 500 families affected. iii) Damage to public property reported.
23.	21 Sep.	Barpeta	Flood (Buradiya, Kaldiya and Tihu)		i) Damage to rice crops reported. ii) Low lying areas submerged. iii) Many trees uprooted.
24.	27 Sep	Lakhimpur	Flood (Singra)		i) Extensive damage to standing crops reported. ii) About 20 villages inundated. iii) Many trees uprooted.
*	Whole year	Area affected 0.076 m.ha.		i) 17 human lives lost. ii) 3754 cattle lost.	i) 1.243 million population affected. ii) 8629 houses damaged. iii) Crops in 0.076 m. ha. affected.
<b>BIHAR</b>					
1.	25 Aug.	West Champaran	Heavy rains	2 persons died.	i) Low lying areas flooded. ii) Many trees uprooted.
2.	28 & 29 Aug.	Darbhanga, East Champaran and Muzaffarpur	Heavy rains	5 persons died.	i) Damage to public property reported. ii) Electricity/telephone/road transport disrupted.

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
3.	18 & 19 Sep.	Gopalganj, Sarain and Siwan	Flood (Gandok)		i) About 20 villages inundated. ii) Lakhs of people affected. iii) Low lying areas flooded. iv) Many trees uprooted.
*	Whole year	Area affected 3.242 m. ha.		i) 100 human lives lost. ii) 2 cattle lost.	i) 0.722 million population affected. ii) 8532 houses damaged. iii) Crops in 3.242 m. ha. affected.

#### CHHATTISGARH

1.	23 – 26 Jul.	Gonda and Raipur	Flood (Mahanadi and its tributaries)	8 persons died and 4 fishermen were reported missing.	i) About 1.5 lakh people affected. ii) Low lying areas flooded.
2.	2-8 Aug.	Bastar	Heavy rains	One person died.	i) About 7800 hectares of crop land affected. ii) About 800 houses completely and 400 partially damaged. iii) Damage to public property reported. iv) Road transport on highways disrupted.
3.	7 & 8 Sep.	Dhamatari, Narayanpur, Rajnandgaon	Heavy rains	14 persons died and others 2 injured.	i) Low lying areas flooded. ii) Trees/electricity poles uprooted

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
4.	8 & 9 Dec.	Raipur	Heavy rains		i) Extensive damage to crops reported. ii) Damage to public property reported. iii) Many trees uprooted.
<b>GOA</b>					
*	Whole year			i) One human lives lost. ii) One cattle lost.	101 houses damaged.
<b>GUJARAT</b>					
1.	1-31 July	Most of the districts	Heavy rains	i) About 90 persons died. ii) 240 cattle perished.	i) About 20 houses partially damaged. ii) Estimated value of damage to public property about Rs. 630 lakhs reported.
2.	1-31 Aug.	Most of the districts	Heavy rains	i) About 85 persons died. ii) 130 cattle heads perished.	i) About 250 houses fully and 3500 houses partially damaged ii) Estimated value of damage to public property about Rs. 4900 lakhs reported.
3.	1 – 30 Sep.	Most of the districts	Heavy rains	i) About 70 persons died. ii) 200 cattle heads perished.	i) About 60 houses fully and 1920 houses partially damaged ii) Estimated value of damage to public property about Rs. 1050 lakhs reported.

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
*	Whole year			i) 232 human lives lost. ii) 541 cattle lost.	i) 0.736 million population affected. ii) 4735 houses damaged.
<b>HARYANA</b>					
1.	7 & 8 Jul.	Ambala, Jhajjar, Kaithal and Kurukshetra	Flood (Yamuna)	8 persons died.	i) About 5,000 thousand people affected. ii) Many places inundated. iii) Water and electricity supply disrupted.
2.	19 & 20 Aug	Panchukla	Flood (Krishnavati)	One person died.	i) Damage to crops reported ii) NH-22 water logged. iii) Low lying areas flooded. iv) Trees/electricity poles uprooted.
*	Whole year	Area affected. 0.221 m. ha.		i) 41 human lives lost. ii) 67 cattle lost.	i) 1.734 million population affected. ii) 5632 houses damaged. iii) Crops in 0.221 m. ha. affected.
<b>HIMACHAL PRADESH</b>					
1.	20 – 22 Aug.	Shimla	Heavy rains		i) Apple orchards damaged. ii) Landslide reported. iii) Electricity and water supply affected. iv) Few vehicles damaged.



S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
2.	5 Sep.	Hamirpur and Shimla	Heavy rains		i) Landslide reported. ii) Damage to public property reported.
3.	8-10 Sep.	Sirmaur	Heavy rains	One person died.	i) Electric supply/ road traffic disrupted. ii) Few vehicles damaged.
4.	12 & 13 Sep.	Hamirpur, Kangra, Kullu and Shimla	Heavy rains		i) Cloud burst reported. ii) Many houses and bridges damaged.
5.	16 Sep.	Kullu	Heavy rains	5 persons died.	i) Road traffic disrupted. ii) Many trees uprooted.
6.	22 – 24 Sep.	Kinnaur and Shimla	Heavy rains	2 persons died and 2 others injured.	i) Fruit and vegetable crops affected. ii) About 990 houses damaged. iii) Landslide reported. iv) Many trees uprooted. v) Electric supply/ road traffic disrupted.
*	Whole year	Area affected 0.001 m. ha.		i) 62 human lives lost. ii) 5839 cattle lost.	i) 0.102 million population affected. ii) 656 houses damaged. iii) Crops in 0,001 m. ha. affected.
<b>JAMMU &amp; KASHMIR</b>					
1.	9 Feb.	Reasi	Heavy rains	One girl died in house collapse incidence.	i) Electric supply/ road traffic disrupted. ii) Damage to public property reported.

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
2..	21 & 22 Jul.	Bandipora, Jammu and Kathua	Heavy rains		<ul style="list-style-type: none"> <li>i) Standing crops and orchards damaged.</li> <li>ii) Several houses damaged.</li> <li>iii) Transport services on national highway disrupted.</li> </ul>
3.	30 Jul.	Kupwara and Reasi	Heavy rains	5 persons died.	<ul style="list-style-type: none"> <li>i) Several houses damaged.</li> <li>ii) Transport services disrupted.</li> </ul>
4.	6 Aug.	Leh	Heavy rains	About 150 persons died. About 30 army men swept away and more than 500 were missing and injured due to cloud burst.	<ul style="list-style-type: none"> <li>i) Damage to agriculture reported.</li> <li>ii) Landslide reported.</li> <li>iii) Massive destruction to public property reported.</li> <li>iv) Thousands of tourists stranded at Leh and Manali.</li> <li>v) Electricity/Radio/television/telephone services disrupted.</li> </ul>
5.	8 Aug.	Kupwara	Heavy rains		<ul style="list-style-type: none"> <li>i) Cloud burst reported.</li> <li>ii) Few bridges and shops damaged.</li> </ul>
6.	10 Aug.	Srinagar	Heavy rains		<ul style="list-style-type: none"> <li>i) Cloud burst reported.</li> <li>ii) Many families affected.</li> <li>iii) Damage to saffron, paddy, orchards reported.</li> <li>iv) Damage to public property reported.</li> </ul>
7.	13 Aug.	Katra	Heavy rains	One person died.	

S. N.	Date/ Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
8.	26 Aug.	Kathua & Rajouri	Flood (Ujh)	2 persons died.	
9.	22 Oct.	Katra	Heavy rains	4 persons died.	Landslide reported.
<b>KARNATAKA</b>					
1.	16 May	Bengaluru	Heavy rains	One person died and other washed away.	i) Low lying areas inundated. ii) Many trees uprooted.
2.	20 May	Bellary, Chitradurga and Udupi	Heavy rains	4 persons died.	i) Damage to public property reported. ii) Electricity/ television/ telephone services disrupted.
3.	30 May	Bengaluru and Kodagu	Heavy rains	3 persons died.	i) Low lying areas flooded. ii) Roof tops of many houses blown away.
4.	17 Jun.	Bijapur	Heavy rains	One girl died.	Electricity/television/ telephone services disrupted.
5.	21 Jul.	Udupi	Heavy rains	One person died.	
6.	27 – 31 Jul.	Belgaum, Dakshina and Uttara Kannada, Davanagere, Gadag and Shimoga	Heavy rains	5 persons died due to wall collapsed.	i) Many people affected. ii) Damage to public and private property reported.

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
7.	21 Aug.	Bellary and Bengaluru	Heavy rains	2 persons died.	i) Low lying areas flooded. ii) Many trees uprooted.
8.	26 Aug.	Belgaum, Bidar, Gadag, and Raichur	Heavy rains	4 persons died.	i) Normal life paralysed. ii) Electricity/television/ services disrupted. telephone
9.	30 Aug.	Gulbarga	Heavy rains	One person died.	
*	Whole year			i) 138 human lives lost. ii) 452 cattle lost.	i) 13450 houses damaged. ii) Crops in 0,002 m. ha. affected.
<b>KERALA</b>					
1.	3 May	Wayanad	Heavy rains		i) Damage to crops reported. ii) Few houses damaged.
2.	29 May	Kozhikode	Heavy rains	One child died.	
3.	8 Jun.	Idukki	Heavy rains		i) More than 25 acres of crop land damaged. ii) Water tank, check dams and pipelines destroyed. iii) Landslide reported.

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
4.	11-15 Jun.	Alappuzha, Ernakulam, Idukki, Kasaragode, Kochi, Kottayam, Kozhiokode, Malappuram, Palakkad, Pathanamthitta, Thrissur, Thiruvananthapuram and Wayanad	Heavy rains	30 persons died, 8 persons missing and 19 others injured.	<ul style="list-style-type: none"> <li>i) Widespread damage to crops reported.</li> <li>ii) About 230 houses completely and 170 partially damaged.</li> <li>iii) Landslide reported.</li> <li>iv) Low lying areas flooded.</li> <li>v) State highway submerged.</li> <li>vi) Power lines / rail / road / air traffic disrupted.</li> </ul>
5.	19 Jul.	Thiruvananthapuram.	Heavy rains	One person injured.	Road traffic and electric supply disrupted.
6.	17 - 19 Sep.	Alappuzha, Ernakulam and Kozhiokode	Heavy rains	2 persons died.	<ul style="list-style-type: none"> <li>i) About 30,000 persons shifted to safer places.</li> <li>ii) Trees uprooted.</li> <li>iii) Road traffic disrupted.</li> </ul>
7.	24 Sep.	Kottayam	Heavy rains	4 persons injured.	<ul style="list-style-type: none"> <li>i) Landslide reported.</li> <li>ii) Many houses damaged.</li> </ul>

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
8.	3 – 8 Oct.	Alappuzha, Kollam Kozhiokode, Malappuram, Thrissur, Thiruvananthapuram and Wayanad.	Flood (Karamana, Neyyak and Vamanapuram)	About 20 persons died, one person missing and 3 persons injured.	<ul style="list-style-type: none"> <li>i) About 500 acres of ginger and other crops damaged.</li> <li>ii) About 400 houses completely and 1380 houses partially damaged.</li> <li>iii) About 3,000 persons shifted to safer places.</li> <li>iv) Loss to paddy crops worth about Rs. 2.5 crores reported.</li> <li>v) Low lying areas flooded.</li> <li>vi) Telecommunication and power supply disrupted.</li> <li>vii) Trees and electric poles uprooted.</li> <li>viii) Road/rail /air traffic disrupted.</li> </ul>
9.	18 Oct.	Alappuzha, Kottayam, Pathanamthitta, Thiruvananthapuram and Thrissur	Heavy rains		<ul style="list-style-type: none"> <li>i) Property worth about Rs. 1.55 crores damaged.</li> <li>ii) About 1350 persons shifted to safer places.</li> <li>iii) About 1130 houses damaged.</li> <li>iv) Low lying areas submerged.</li> </ul>
10.	22 Oct.	Kannur, Kasaragode, Kozhiokode, Malappuram and Wayanad.	Heavy rains		<ul style="list-style-type: none"> <li>i) Extensive damage to banana and paddy fields reported.</li> <li>ii) Few houses collapsed.</li> <li>iii) Low lying areas flooded.</li> <li>iv) Trees uprooted.</li> <li>v) Road traffic disrupted.</li> </ul>

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
11.	27-29 Oct.	Idukki and Thiruvananthapuram	Heavy rains	3 persons died.	i) Damage to banana, tapioca and beetle leaf and vegetables reported. ii) About 20 houses damaged. iii) Landslide reported.
12.	8 Nov.	Thiruvananthapuram	Heavy rains		i) Heavy loss to agriculture reported. ii) About 550 houses damaged iii) Low lying areas flooded.
13.	16 Nov.	Thiruvananthapuram	Heavy rains	One person died.	i) Landslide reported ii) Few houses damaged. iii) Low lying areas water logged. iv) Road traffic disrupted.
14.	20 – 24 Nov.	Kozhiokode, Palakkad, Pathanamthitta, Thiruvananthapuram and Wayanad.	Heavy rains	i) 2 children injured. ii) 7000 hens drowned.	i) Damage to crops worth lakhs of rupees reported. ii) About 12,000 hectares of paddy fields submerged iii) Damage to banana and tapioca crops reported. iv) A poultry farm submerged. v) Landslide reported. vi) Low lying areas flooded. vii) Few houses damaged.
15.	27 & 28 Nov.	Pathanamthitta and Thiruvananthapuram	Heavy rains	A woman injured.	i) About 30 houses damaged. ii) About 5000 vehicles stranded.

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
16.	8 Dec.	Thiruvananthapuram	Heavy rains	One person died and other missing.	i) About Rs. 125 lakhs of crops damaged. ii) Landslide reported. iii) About 100 families shifted to relief camps. iv) About 600 houses damaged. v) Road/rail/air traffic disrupted. vi) Electric supply disrupted. vii) Low lying areas flooded.
*	Whole year	Area affected 0.003 m. ha.		i) 86 human lives lost. ii) 55 cattle lost.	i) 0.129 million population affected. ii) 6322 houses damaged. iii) Crops in 0.004 m. ha. affected.
<b>MADHYA PRADESH</b>					
1.	13 Jun.	Dhar	Heavy rains	One woman died.	
2.	3 Jul.	Khandwa	Heavy rains	One person died.	
*	Whole year			i) 38 human lives lost. ii) 5 cattle lost.	9 houses damaged.



S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
<b>MAHARASHTRA</b>					
1.	12-14 Mar.	Ahmednagar, Akola, Buldhana, Parbhani, Pune and Satara	Heavy rains	2 women died and 7 persons injured.	i) Grapes in nearly 12,000 hectares damaged of about 2,000 farmers. ii) Widespread damage to standing crops jawar, wheat, gram, onion and fruit orchards reported.
2.	16 Apr.	Sindhudurg	Heavy rains		Extensive damage to mango crops reported.
3.	11-14 Jun.	Aurangabad, Nandurbar, Pune and Thane	Heavy rains	About 12 persons died and 7 others injured.	i) About 100 trees uprooted. ii) Roofs of houses blown away. iii) Banana and Papaya plantations damaged. iv) Walls of few houses collapsed. v) Some vehicles swept away.
4.	16 Jun.	Beed and Mumbai.	Heavy rains	9 persons died and 7 others injured.	i) About 100 trees uprooted. ii) Rail/road traffic disrupted.
5.	18 & 20 Jun.	Beed, Bhandara, Mumbai and Yeotmal	Heavy rains	About 8 persons died.	
6.	24 – 26 Jun.	Mumbai, Nandurbar, Ratnagiri and Yeotmal	Heavy rains	8 persons died and 7 others injured.	i) Landslide reported. ii) A wall collapsed.
7.	29 Jun - 1 Jul.	Amraoti and Washim	Heavy rains	9 persons died.	

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
8.	3 Jul.	Mumbai, Nanded and Parabhani	Heavy rains	4 persons died.	Air/rail/road traffic disrupted.
9.	7 & 8 Jul	Chandrapur and Gadchiroli	Heavy rains	One person died.	Communication to about 25 villages disrupted.
10.	23 – 25 Jul.	Mumbai and Ratnagiri	Heavy rains	12 persons died.	i) About 85 houses collapsed. ii) Air/rail traffic disrupted.
11.	26 Jul.	Raigarh and Satara	Heavy rains	10 persons died and other missing.	i) Several people affected ii) Few houses collapsed. iii) Low lying areas flooded.
12.	5 & 6 Aug.	Gadchiroli and Mumbai	Heavy rains	One person died and 3 others drowned.	i) Many villages affected. ii) Road communication disrupted.
13.	9 Aug.	Akola, Amravati, Buldhana and Washim	Heavy rains	38 persons died.	i) Several people affected ii) Low lying areas flooded. iii) Many trees uprooted. iv) Rail/road traffic disrupted.
14.	17 – 20 Aug.	Buldhana, Mumbai and Yeotmal	Heavy rains	11 persons died and 4 others injured.	i) Landslide reported. ii) Few houses collapsed. iii) Rail service disrupted.
15.	25 Aug.	Latur and Nanded	Heavy rains	i) 3 persons died. ii) Some cattle heads perished.	i) Damage to crop land reported. ii) Road traffic disrupted.
16.	30 Aug.	Thane	Heavy rains	4 persons died in the wall collapse incidence.	

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
17.	5 Sep.	Gadchiroli	Heavy rains	2 persons died	
18.	9 & 10 Sep.	Amravati, Chandrapur and Gondia	Heavy rains	13 persons died.	i) Damage to crops reported. ii) A lake wall breached.
19.	16 Sep.	Nagpur	Heavy rains	One person died.	
20.	19 Sep.	Mumbai	Heavy rains	One boy swept away.	Damage to houses and shops reported.
21	23-30 Sep.	Baramati, Jalgaon, Pune and Satara	Heavy rains	5 persons died and 7 others injured.	i) Damage to bajara crops, vegetables and sugarcane in 150 acres of land reported. ii) Electric supply disrupted.
22.	4 Oct.	Pune	Heavy rains	2 persons died and other injured in the wall collapse incidence.	i) Many houses flooded. ii) Damage to public/private property reported.
23.	2 <sup>nd</sup> & 3 <sup>rd</sup> week of Nov.	Aurangabad, Beed, Jalana Kolhapur, Nasik, Pune and Sangli	Heavy rains		Damage to grapes, pomegranate, strawberries, onion, cotton, maize and toor crops in about 6,000 hectares of land reported.
*	Whole year			i) 8 human lives lost. ii) 5 cattle lost.	

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
<b>MIZORAM</b>					
1.	14 Sep.	Aizwal	Heavy rains	One woman died.	Landslide reported.
<b>ORISSA</b>					
1.	24 & 25 Jul.	Parts of Orissa	Heavy rains	7 persons died.	Many people affected.
2.	5 & 6 Aug.	Bolangir, Kalahandi, Koraput, Malkangiri and Nawarangpur	Heavy rains	3 persons died.	i) Damage to crops in about 6500 hectares reported. ii) About 4600 houses damaged. iii) Damage to thousand hectares of paddy crops reported.
*	Whole year			i) 10 human lives lost. ii) 258 cattle lost.	i) 5421 houses damaged. ii) 0.089 million population affected. iii) Crops in 0.029 m. ha. affected.

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
<b>PUNJAB</b>					
1.	7 & 8 Jul.	Ludhiana and Patiala	Heavy rains	About 9 persons died.	Heavy damage to crops reported.
2.	17 Aug.	Moga	Heavy rains		Damage to crops in about 2 lakh acres reported.
3.	26 Aug.	Some districts of Punjab	Flood (Satluj and Yamuna)		Vast area of agricultural land submerged.
*	Whole year	Area affected 0.016 m. ha.		i) 38 human lives lost. ii) 108 cattle lost.	0.400 million population affected. 2040 houses damaged. Crops in 0.018 m. ha. affected.
<b>RAJASTHAN</b>					
1.	7 – 9 Jun.	Bikaner, Churu, Jaisalmer, Jodhpur & Nagaur	Heavy rains	48 black deer perished and 47 injured.	Many houses collapsed and few damaged.
2.	4 Jul.	Sirohi and Udaipur	Heavy rains	2 persons died and 4 girls swept away.	
3.	22 – 25 Jul.	Ajmer, Barmer, Bikaner, Churu, Dholpur, Jaisalmer, Jalore, Jodhpur and Tonk.	Heavy rains	8 persons died.	

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
4.	8 Aug.	Jalore and Jhalawar	Heavy rains	4 persons swept away.	
5.	14 – 18 Aug.	Banswara, Jaipur, Jaisalmer, Kota, Pali, Sikar and Sirohi	Heavy rains	11 persons died.	250 kutchha houses collapsed.
6.	2 Sep.	Bharatpur	Heavy rains	One child died.	
*	Whole year			i) 52 human lives lost. ii) 84 cattle lost.	549 houses damaged.
<b>SIKKIM</b>					
1.	7 & 8 Jun.	Parts of Sikkim	Heavy rains		i) Landslide reported. ii) A bridge collapsed.
2.	28 Jul.	East Sikkim	Heavy rains		Landslide reported. Damage to few vehicles reported.
3.	23 Aug.	Parts of Sikkim	Heavy rains		Major landslide reported at NH 31 A.
*	Whole year				36 houses damaged.
<b>TAMIL NADU</b>					
1.	1 – 5 May	Kanniyakumar, Salem, Tiruchirapalli and Thoothucorin.	Heavy rains	2 persons died.	

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
2.	18 May	Karur and Tiruchirapalli	Heavy rains		300 acres of banana plantation damaged.
3.	9 Jul.	Kanchipuram	Heavy rains	One person died.	
4.	8 Aug.	Cuddalore and Kanchipuram	Heavy rains		250 acres of banana plantations damaged.
5.	23 Aug.	Cuddalore and Erode	Heavy rains		Dry fish worth Rs. 20 lakhs damaged. About 30,000 acres banana plantations damaged.
6.	23 & 27 Sep.	Coimbatore	Heavy rains		About 10,000 acres bannana plantations worth Rs. 10 lakhs destroyed.
7.	7 Nov.	Chennai, Cuddalore, Tiruchirapalli, Tiruvallur, Vellore and Villupuram.	Heavy rains	5 persons died.	About 150 houses damaged. About 200 boats damaged and 32 others missing.
8.	22 & 23 Nov.	Many districts of Tamil Nadu.	Heavy rains	About 100 persons died.	i) About 360 houses damaged. ii) About 190 farm land submerged. iii) Landslide reported at 15 places.
9.	25 – 28 Nov.	Ariyalur, Madurai, Nagapattinam, Ramnanthpuram, Thanjavur, Thoothucorin and Villupuram.	Heavy rains	About 70 goats perished.	i) Thousand acres of sugarcane and maize crops damaged. ii) Paddy fields about worth Rs. 1000 crores submerged. iii) About 35 houses damaged.
10.	30 Nov.	Many districts of Tamil Nadu.	Heavy rains		About 1 lakh hectares paddy field affected.

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
11.	1-3 Dec.	Ariyalur, Ramnanthpuram, Thanjavur and Thoothicorin	Heavy rains	12 persons died.	i) About 30,000 hectares of crop affected. ii) About 11,000 hectares of paddy fields submerged. iii) Thousands of houses damaged. iv) Landslide reported. v) Low lying areas flooded.
12.	9 Dec.	Kanyakumari and Tirunelveli	Heavy rains		Thousand acres of paddy fields submerged. Communication of about hundreds of villages disrupted. Rail traffic disrupted.
13	16 – 20 Dec.	Tirupur	Heavy rains		700 acres of groundnut crop damaged.
*	Whole year	Area affected 1.466 m ha.		i) 181 human lives lost. ii) 2167 cattle lost.	29155 houses damaged.
<b>TRIPURA</b>					
1.	29 May	West Tripura	Heavy rains	One person died.	Landslide reported.
2.	28 Jul.	Dhalai	Heavy rains		Large amount of food grains damaged.
*	Whole year			i) 14 human lives lost. ii) 9 cattle lost.	



S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
<b>UTTAR PRADESH / UTTARAKHAND</b>					
1.	5 Jul.	Mathura	Heavy rains	6 persons died and 2 others injured.	
2.	18 Aug.	Bageshwar (Uttarakhand)	Heavy rains	18 children died and 8 others injured due to school roof collapsed.	i) Landslide reported. ii) Damage to public property reported.
3.	24 Aug.	Badaun, Baharaich, Ballia, Deoria and Lakhimpur.	Flood (Ganga and its tributaries)		Lakhs of people from several districts affected.
4.	6 Sep.	Agra, Lakhimpur Kheri and Sitapur	Heavy rains	6 persons died.	
5.	12 – 14 Sep.	Many districts of Uttar Pradesh	Flood (Ganga, Yamuna and Sarayu)	7 persons died.	i) Extensive damage to standing crops reported. ii) Lakhs of people affected.
6.	18 & 19 sep.	Almora, Dehradun and Nainital (Uttarakhand)	Heavy rains	About 20 persons buried alive in the landslide incidence.	i) Cloud burst reported. ii) Many people rendered homeless.
7.	20 & 21 Sep.	Bareilly, Hardoi, Moradabad, Pillibhit and Rampur	Flood (Ramganga and Kosi)		i) Many people marooned. ii) Landslide reported. iii) NH 24, NH 73 inundated.

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
<b>UTTAR PRADESH</b>					
*	Whole year			12 human lives lost.	
<b>UTTARAKHAND</b>					
*	Whole year			i) 196 human lives lost. ii) 533 cattle lost.	1063 houses damaged.
<b>WEST BENGAL</b>					
1.	15 & 16 Jun.	Jalpaiguri, Kalinpong and Mangalbari	Heavy rains	6 persons died and other injured.	i) Landslide reported. ii) Road traffic disrupted.
2.	12 Jul.	Jalpaiguri	Flood (Kaljani, Pana )		i) Thousands of people affected. ii) Many houses washed away.
3.	20 Jul.	Coochbehar and Jalpaiguri	Flood (Torsha)		i) Thousands of people affected. ii) Low lying areas flooded.
4.	12 & 13 Aug.	South 24 Paraganas and North 24 Paraganas	Heavy rains		i) Several thousand acres farm land flooded. ii) Several hundreds thatched houses damaged.
5.	27 & 28 Aug.	Malda	Flood ( Ganga and Phulhar)	One person died.	Low lying areas flooded.

S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
6.	8 & 9 Sep.	Medinipore, North 24 Parganas and South 24 Parganas	Heavy rains		i) About 400 shops and many houses inundated. ii) About 50 thatched houses completely damaged. iii) About 250 families affected.
7.	9 & 10 Oct.	Medinipore	Heavy rains		i) Paddy fields in about 2000 hectares of land submerged. ii) About 100 thatched houses damaged. iii) Along Digha – Sankarpur coast 65 boats completely damaged. iv) Thousands of people affected.
*	Whole year	Area affected 0.001 m. ha.		i) 112 human lives lost. ii) 7 cattle lost.	i) 0.238 million population affected. ii) 26509 houses damaged. iii) Crops in 0.001 m. ha. affected.

#### UNION TERRITORY

##### NEW DELHI

1.	23 Sep.	New Delhi	Heavy rains		i) Hundreds of people shifted to safer places. ii) Road/rail traffic disrupted.
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S. N.	Date/Period	Area affected	Intensity [River(s)]	Casualties	Extent of damage
<b>GOA</b>					
*	Whole year	Area affected 0.001 m. ha.		i) One human lives lost. ii) One cattle lost.	101 houses damaged.
<b>PUDUCHERRY</b>					
*	Whole year				2 houses damaged.

S.N.	Date/Period	Area affected	Intensity	Casualties	Extent of damage
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TABLE – XII : CYCLONIC STORM

During 2010, severe cyclonic storms (Laila and Jal) and a very severe cyclonic storm (Giri) formed over Bay of Bengal while a very severe cyclonic storm (Phat) and a cyclonic storm (Bandu) were formed over the Arabian Sea. Out of these only two crossed Indian Coast and caused some damage, details of the same are out lined below:-

**BAY CYCLONE**

1.	17 - 21 May.	<p><b>Formation</b> Near Lat. 10.5°N/Long. 88.5°E at 0600 UTC of 17<sup>th</sup>.</p> <p><b>Landfall</b> It crossed south Andhra Pradesh coast near Bapatla between 1100 and 12 00 UTC of 20<sup>th</sup></p> <p><b>Dissipation</b> Weakened into low pressure area over north coastal Andhra Pradesh and adjoining Telangana in the evening of 21<sup>st</sup>.</p>	Severe Cyclonic Storm <b>(LAILA)</b>	6 persons died in Andhra Pradesh.	<p><b>In Andhra Pradesh :-</b></p> <p>i) Damage to thousand acres of crops reported.</p> <p>ii) Many people rendered homeless.</p> <p>iii) Hundreds of houses damaged.</p>
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S.N.	Date/Period	Area affected	Intensity	Casualties	Extent of damage
<b>BAY CYCLONE</b>					
2.	4 – 8 Nov	<p><b>Formation</b> Near Lat. 8.0°N/ Long. 92.0°E at 0000 UTC of 4<sup>th</sup>.</p> <p><b>Landfall</b> It crossed north Tamil Nadu – South Andhra Pradesh coasts close to north of Chennai as deep depression around 1600 UTC of 7<sup>th</sup>.</p> <p><b>Dissipation</b> Weakened over Interior Karnataka and adjoining south Madhya Maharashtra in the evening of 8<sup>th</sup>.</p>	Severe Cyclonic Storm (JAL)	11 persons died in Andhra Pradesh and 5 persons died in Tamil Nadu.	<p><b>In Andhra Pradesh :-</b></p> <ul style="list-style-type: none"> <li>i) Damage to crops over 15,000 acres reported.</li> <li>ii) Estimated loss of Rs. 83 crores reported.</li> <li>iii) Hundreds of houses damaged.</li> </ul> <p><b>In Tamil Nadu :</b></p> <ul style="list-style-type: none"> <li>i) Many boats damaged and some boats reported missing.</li> <li>ii) About 100 houses damaged.</li> <li>iii) Low lying areas inundated.</li> </ul>