

DISASTROUS WEATHER EVENTS 2000



ISSUED BY
THE NATIONAL CLIMATE CENTRE
OFFICE OF THE
ADDITIONAL DIRECTOR GENERAL OF METEOROLOGY (RESEARCH)
PUNE 411 005



भारत सरकार
GOVERNMENT OF INDIA

भारत मौसम विज्ञान विभाग
INDIA METEOROLOGICAL DEPARTMENT

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The most striking disastrous weather events of 2000 were the following :

- i) Severe floods and heavy rains occurred over many parts of the country and claimed around 2526 human lives. Property worth Rs. 1892 crores damaged and crops in 4.57 lakh hectares lost.
- ii) Severe cold wave conditions prevailed over Bihar and Uttar Pradesh during first week of January, which took a toll of 154 lives from Bihar and 152 lives from Uttar Pradesh.

The summary of these natural hazards is based on the various reports of the India Meteorological Department and press information. The figures for estimated losses are as per the press reports. The areas affected by the adverse weather phenomena are depicted on four maps.

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S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
TABLE – I : SNOWFALL					
CRITERIA					
Moderate : 7.6 to 34.9 cm in 24 hrs					
Heavy : ≥ 35.0 cm in 24 hrs					
1.	13 Jan	Lahaul and Spiti	Heavy		Landslides reported, Lahaul – Spiti cut off from rest of the state.
2.	25 Jan.	Upper Himachal Pradesh	Heavy		Road transport affected at Kufri, Narkanda and Khoda Pathar.
3.	1 Feb.	(a) Darjeeling	Heavy		Tourists stranded at Sundakphu Phalat region in Singhalia range.
		(b) Shimla and Upper Himachal Pradesh	Heavy		Traffic on 320 km long Hindustan – Tibet road disrupted due to heavy snowfall at Kufri and Narkanda
4.	10 & 11 Feb.	Himachal Pradesh	Heavy		Vehicular traffic suspended on Hindustan – Tibet, Mandi – Solang, Nallah – Kothi, Shimla – Chopal, Chamba – Bharmour, Shimla – Rohru, Karcham – Sangla etc. roads blocked due to widespread snowfall.
5.	12 & 13 Feb.	Chamoli, Dehradun, Garhwal and Uttarkashi	Heavy		Mussoorie reported to be under 3 to 5 feet of snow while these area cut off from rest of the country.
6.	27 Nov.	Hills of West Uttar Pradesh	Heavy		Badrinath and Kedarnath reported heavy rainfall alongwith snow-fall causing remarkable decrease in temperatures.

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
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TABLE – II : COLD WAVE

CRITERIA

(A) Where; Normal minimum temperature is 10°C or more.
 Moderate cold wave : Night temperature 5° to 6°C below normal.
 Severe cold wave : Night temperature 7°C or more below normal.

(B) Where; Normal minimum temperature is less than 10°C.
 Cold wave : Night temperature 3° to 4°C below normal.
 Severe cold wave : Night temperature 5°C or more below normal.

1.	Jan. (1 st week)	Bihar, Chandigarh, Haryana & Punjab, Agra, Ambedkar Nagar, Barabanki, Chandauli, Dehradun, Faizabad, Gazipur, Gonda, Jhansi, Kheri, Lakhimpur, Kushinagar, Lucknow, Pratapgarh & Varanasi	Severe cold wave (Both A & B as appropriate)	i) 363 persons died, of which 152 from U.P. and 154 from Bihar. ii) 16 deer and same number of crocodiles perished whereas 65 deer reported sick. iii) Due to thick fog, one truck carrying cattle skidded injuring dozens of cattle.	i) Government bodies like municipalities ordered to supply fire-wood to suffering people. ii) Rail / Road traffic affected. iii) Record decrease in milk production reported. iv) Gaya recorded 1.5°C minimum temperature whereas Kanpur recorded 3.0°C.
2.	4 Jan.	Kandhamal	Cold wave (B)	3 persons died at Phulbani	
3.	9 Jan.	Punjab and Haryana	Severe Cold wave (B)	8 persons died.	
4.	10 Jan.	East Champaran and West Champaran	Severe Cold wave (B)	6 persons died at Sikta and Barachokia	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
5.	11 Jan.	(a) Agra, Azamgarh and Kanpur, (b) Patna, Saran and Vaishali (c) Delhi (Union Territory)	Severe Cold wave (B)	10 persons died.	Air and railway services affected considerably.
6.	7 Feb.	Shimla and Upper parts of Himachal Pradesh	Severe Cold wave (A) Severe Cold wave (B) Cold wave (B)	21 persons died.	Delhi airport closed down for 11 hours disrupting flights. i) Water in the taps frozen. ii) Thick ground fog affected vehicular traffic.
7.	10 – 11 Feb.	Kangra and Kullu	Severe Cold wave (B)	8 persons, including 7 children died.	
8.	29 Nov. – 3 Dec.	Rajasthan	Severe cold wave (Both A & B as appropriate)	5 persons died at Jaipur	
9.	30 Dec.	Jaipur	Severe Cold wave (B)	One person died in Jaipur city.	

TABLE – III : HEAT WAVE

CRITERIA

(A) Where; Normal maximum temperature is 40°C or less.
Moderate heat wave : Day temperature 5° to 6°C above normal.
Severe heat wave : Day temperature 7°C or more above normal.

(B) Where; Normal maximum temperature is more than 40°C.
Heat wave : Day temperature 3° to 4°C above normal.
Severe heat wave : Day temperature 5°C or more above normal.

1.	Mar. (4 th week)	Ganjam	Severe heat wave (A)	4 persons died.	
2.	3 Apr.	Mayurbhanja	Moderate heat wave (A)	One person died at Kushadiha.	
3.	5 Apr.	Nagpur	Heat wave (B)	2 persons died	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
4.	9 Apr.	(a) Cuttack	Moderate heat wave (A)	One person died at Dharmadaspur	
		(b) Howrah	Moderate heat wave (A)	2 persons died.	
5.	25 Apr.	Dhenkanal	Moderate heat wave (A)	One person died.	
6.	26 Apr.	Koraput	Moderate heat wave (A)	4 persons died.	
7.	29 Apr.	Jaipur, Kota, Udaipur and Jodhpur	Moderate heat wave (A)	2 persons died in Jaipur city.	
8.	30 Apr.	(a) Kalahandi	Moderate heat wave (A)	One person died at Sargiguda.	
9.	1 & 2 May	(b) Nagpur Bolangir, Jharsuguda and Kandhamal	Severe heat wave (A) Severe heat wave (Both A & B as appropriate)	One person died in Nagpur city. 3 persons died.	i) Titlagarh in Bolangir district recorded 47.6°C for two consecutive days. ii) 10,000 tube wells dried up. Water was brought by trains and tankers and supplied to the affected area.
10.	2 May	Banda, Chitrakoot, Hamirpur, Lalitpur, Mahoba and Mirzapur	Severe heat wave (Both A & B as appropriate)	7 persons died	
11.	3 May	Jaipur and Nagaur	Severe heat wave (Both A & B as appropriate)	2 persons died in Jaipur and Nagaur	
12.	6 May	(a) Buldhana	Severe heat wave (A)	4 persons died at Chikhli.	
		(b) Sundargarh	Severe heat wave (A)	2 persons died.	
13.	7 May	Gulbarga	Severe heat wave (A)	Lakhs of fish died on the banks of Appanna Kare.	2500 persons dependent on the fishing affected, loss estimated Rs. 20 lakh.
14.	20 May	Sundargarh	Severe heat wave (A)	4 persons died.	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
15.	May (4 th week)	Bharatpur, Bikaner, Churu, Dholpur, Ganganagar, Jaipur, Jhunjhunu, Nagaur and Sikar	Severe heat wave (Both A & B as appropriate)	i) Three persons died in Jaipur. ii) 120 peacocks died in Churu	
16.	29 May	(a) Hissar (b) Roop Nagar	Severe heat wave (B) Severe heat wave (A)	One person died. 6 persons including a woman died in different parts of the district.	
17.	3 & 4 Jun.	Rajasthan	Severe heat wave (Both A & B as appropriate)	4 persons died.	

TABLE – IV : DROUGHT

Period : June – September 2000

	Subdivison	Seasonal rainfall departure (%)
1.	East Rajasthan	- 31%
2.	West Madhya Pradesh	- 37%
3.	East Madhya Pradesh & Chattisgarh	- 30%
4.	Gujarat region	- 30%
5.	Saurashtra & Kutch	- 45%

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
<p align="center">TABLE – V : SQUALL</p> <p align="center">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</p> <p align="center">CRITERIA</p> <p align="center"><i>Moderate : Surface wind speed (in gusts) upto 80 kmph.</i> <i>Severe : Surface wind speed (in gusts) \geq 80 kmph.</i></p>					
1.	9 Apr.	Goalpara	Severe	i) One boat with passengers on board drowned and many persons injured in South Salmara. ii) 76 goats perished.	Many houses damaged.
2.	11 Apr.	(a) Jorhat, Lakhimpur and Sonitpur	Severe		i) Several houses damaged. ii) Many trees, electricity and telephone poles uprooted, disrupting road traffic and telecommunication.
3.	15 Apr.	(b) North 24 Parganas	Moderate	One person died at Titagarh.	
		(a) Bankura	Moderate	One hundred persons injured at Bishnupur	4 villages affected.
		(b) Calcutta and Suburbs	Severe (117 kmph)	2 persons died and several injured	i) Trees uprooted, power supply disrupted. ii) Train and air services affected.
		(c) Nadia	Moderate	One woman died due to wall collapse at Ramsitapara village	
		(d) Sonitpur	Moderate	3 persons injured at Jamuguri-hat	Several houses damaged, many trees and electric poles uprooted.
4.	18 & 19 Apr.	Calcutta and neighbourhood	Severe	One person died.	10,000 people became homeless.

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
5.	25 Apr.	Howrah	Moderate	8 persons injured at Uluberia.	
6.	30 Apr.	Nagaon	Severe	i) 7 persons died. ii) Several cattle and other livestock perished.	
7.	11 May	Mizoram (some parts)	Severe	20 persons injured	334 houses damaged.
8.	15 May	Kamrup	Moderate		i) Several houses damaged. ii) Many trees/ electric poles uprooted.
9.	19 May	Calcutta and suburbs	Severe	2 persons died.	
10.	27 May	(a) Gurdaspur	Severe	2 persons died under an uprooted tree.	
		(b) Solan	Severe	2 persons died under a tree at Nalagarh	i) Hundreds of trees uprooted, sign-boards, hoardings and roof tops blown off. ii) Power supply, telecom services disrupted.
11.	30 May	Kamrup, Lakhimpur, Nagaon and Nalbari	Severe	7 persons died and many injured.	i) Several trees/ electric poles uprooted. ii) Standing crop damaged.
12.	12 Jun	Bokaro	Severe	6 persons injured at Pathuria	

TABLE – VI : GALE

CRITERIA

Strong : Wind speed ≥ 75 kmph

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S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
TABLE – VII : DUSTSTORM					
CRITERIA					
Moderate : Wind speed between 39 to 74 kmph and horizontal visibility upto 500 metres					
Severe : Wind speed ≥ 75 kmph and horizontal visibility upto 50 metres.					
1.	12 May	Ambala	Severe	8 persons died and 3 injured under a factory shed at Dhanana.	
2.	22 May	Jyotiba Phule Nagar and Moradabad	Severe	8 persons died and dozens injured	Power and telecom systems disrupted.
3.	27 May	(a) Chandigarh	Moderate	One person died under a tree	i) A few trees uprooted. ii) Tin sheets of a few shops blew off.
4.	1 Jun	(b) Roop Nagar Kaithal	Severe Severe	2 persons died	A few houses damaged. Large number of signboards, T.V. antenna, electric poles and hundreds of trees uprooted, affecting power supply and communication.
5.	2 Jun	Firozpur	Severe		Several trees, electric poles uprooted and many roof tops blown off.
6.	3 Jun	(a) Rohtak	Severe	Two persons died due to house collapse	
		(b) Sirsa	Severe		Trees uprooted and fell into Bhakra canal causing damages to one tourist resort.
7.	4 Jun	(a) Bathinda	Severe	One person died.	
		(b) Jalandhar	Severe	Two children died.	
		(c) Muktsar	Severe	Two children died.	
		(d) Chandigarh	Severe		Hundreds of trees uprooted and power supply broke down.

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
TABLE – VIII : LIGHTNING					
1.	13 Jan.	Malappuram		One person died.	
2.	16 Jan.	Patiala			One telecom tower affected.
3.	23 Mar	East Champaran		2 persons died at Barachakia.	
4.	24 Mar.	Alappuzha		One woman died at Chengannur.	
5.	25 Mar	Kozhikode		One person died at Omasserry	
6.	27 Mar	Idukki		One person died in Udampannur, Karimannur	
7.	30 Mar	Pathanamthitta		One person injured at T hiruvalla	i) A few houses partially damaged ii) Telephone lines disrupted.
8.	31 Mar	Kottayam		One person died in Mukkuttuthara, Kanamala	
9.	1 Apr	Alappuzha		One woman died at Kayamkulam	
10.	3 Apr	Idukki		One person died in Thoprankudy – Murikkaserry	
11.	4 Apr.	Thiruvananthapuram		One person died at Aruvikkara Irumba	
12.	5 Apr	a) Kottayam b) Thiruvananthapuram		3 persons died at Pala 4 persons injured at Kilamanoor	
13.	6 Apr	Dharwad		A 15-year old boy injured in Dharwad city	
14.	7 Apr	Kottayam		One woman died and 2 persons injured	

<i>S.N.</i>	<i>Date / Period</i>	<i>Area affected</i>	<i>Intensity</i>	<i>Casualties</i>	<i>Extent of damage</i>
15.	8 Apr	a) Malappuram b) Thiruvananthapuram c) Kozhikode		One person died in Koorachandu, Vattachira One boy injured in Ottur and Moozhiyil 6 persons injured in Thamarasserry, Chunkom	
16.	15 Apr	Aurangabad (Bihar)		One person died at Dudhar	
17.	16 Apr	Kottayam		One woman died in Thidanadu, Gandhinagar	
18.	19 Apr	Malappuram		3 persons died in Malappuram, Valamcherry, Vadarikumpuram	
19.	20 Apr	Thiruvananthapuram		5 persons injured in Nedumangad, Parandottukonam	
20.	22 Apr	a) Pathanamthitta b) Idukki c) Kollam		One person died in Ranny - Idakkulan One woman died in Adimali - Kuthupara One person died in Chathanoor	
21.	21 Apr	Hassan		One shepherd and 13 sheep struck by lightning at Belur	
22.	1 May	Bangalore Rural		One person died and 3 women injured at Talaghattapura	
23.	4 May	Kangra		2 women sustained burn injuries at Jalari	
24.	4 & 5 May	Shimla		5 cattleheads perished at Theog	In Theog, 9 houses gutted

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
25.	6 May	Dakshina Kannada		One person died and another injured at Puttur	
26.	7 May	Gwalior		One person died at Ekhar	
27.	8 May	(a) Bijapur		One woman died at Hire-bagannur in Indi tehsil	
		(b) Osmanabad		2 persons died at Tuljapur	
28.	11 May	Bokaro		2 persons died and 4 injured at Chargi	
29.	15 May	(a) Hamirpur (Himachal Pradesh)		One person died at Tihri in Bhirang tehsil	
		(b) Kangra		One girl died and a youth injured at Thasa near Nurpur	
30.	17 May	(a) Kannur		One person died	
		(b) Kasaragode		3 persons died	
31.	19 May	Nanded		One person died	
32.	20 May	Khurda		3 persons died	
33.	23 May	Nawada		Two persons, including a woman died at Gonawa	
34.	30 May	Mandi		2 persons died and a child injured at Khadrar	
35.	1 Jun	Pune		One person died and another injured at Baramati	
36.	4 Jun	Rohtak		6 persons died	
37.	6 Jun	Jind		In Julana, i) 2 persons died and 5 injured. ii) injured. iii) 3 buffaloes and 15 sheep also died.	In Julana, a few electrical appliances like T.V., fridge and coolers damaged.

<i>S.N.</i>	<i>Date / Period</i>	<i>Area affected</i>	<i>Intensity</i>	<i>Casualties</i>	<i>Extent of damage</i>
38.	8 Jun	(a) Kheda (b) Sabarkantha		5 persons died on Dakor – Umreth road One person died in Meghraj tehsil	
39.	5 Jun	Dakshina Kannada		One person died at Mudibidre	
40.	29 Jun	Panchkula			Some electronic gadgets, electricity meters and a pole in sector 10 damaged.
41.	1 Jul	(a) Bhilwara (b) Ludhiana		One shepherd died.	Telecom services disrupted and TV sets damaged in Mushkabad near Samrala.
42.	5 Jul	Seoni		One person died at Chandwad	
43.	6 Jul	(a) Ballia (b) Fatehpur (c) Jaunpur		20 persons died 2 persons died 3 persons (including 2 women) died and a child injured.	
44.	7 Jul	(d) Nagpur Chhindwara		3 persons died and 7 injured. One student died and 11 injured at Amarwada	
45.	12 Jul	Nanded		One person died.	
46.	14 Jul	(a) Jaipur (b) Jhalawar		One person died at Shivdaspora One woman and 2 girls partly burnt at Govardhanpura.	
47.	15 Jul	(c) Jodhpur Churu		One child died at Bilasa One woman died at Bidasar	A house damaged.
48.	3 Aug.	Malappuram		One person died and 3 other injured at Kuttiady	

<i>S.N.</i>	<i>Date / Period</i>	<i>Area affected</i>	<i>Intensity</i>	<i>Casualties</i>	<i>Extent of damage</i>
49.	13 Aug.	(a) Chittorgarh (b) Jaipur (c) Kota		One shepherd died One person burnt at Phagi 2 persons burnt and several goats died at Rajgarh One person died at Khamli	
50.	17 Aug.	(d) Udaipur Mahoba		2 persons died One person died and 4 other injured at Baliuparsahi.	
51.	20 Aug.	Puri		5 persons died	
52.	28 Aug.	Panna		One person struck by lightning bolt.	
53.	9 Oct.	Nashik		One person died and 2 other severely injured at Humnabad One buffalo killed at Badami One person died and 5 injured at Nimapara	
54.	10 Oct.	(a) Bidar (b) Bijapur (c) Puri		3 persons died at Palapara One girl died One woman injured at Gandhi- nagar	
55.	12 Oct	Balasore		One person died and 6 other injured at Taliparamba	
56.	23 Oct.	Bijapur		2 persons died at Mavoor	
57.	4 Nov.	Kottayam			
58.	6 Nov	Kannur			
59.	23 Nov.	Kozhikode			

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
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TABLE – IX : 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 ≥ 75 kmph.

1.	23 Jan	Kendrapara	Severe (Tornado)	In Rajnagar block 7 persons injured	
2.	24 Jan	Medinipur and Murshidabad	Moderate		A few houses completely collapsed and several mud houses damaged.
3.	3 Feb.	Murshidabad	Severe	4 youths died at Berhampore	
4.	6 Feb.	Mayurbhanja	Moderate	One person died and 7 injured in Kaptipada block	
5.	8 Mar.	Nadia	Moderate		Many trees uprooted, blocking the road between Ranaghat and Krishnanagar.
6.	3 Apr	Bangalore	Moderate		In Bangalore city, i) Low lying areas waterlogged. ii) Many trees uprooted, traffic disrupted.
7.	5 Apr	Keonjhar	Severe (Tornado)	One person died and 20 other injured in Ghasipura block	
8.	6 Apr	Mukkam, Karasserrg and Kaduranjy	Moderate		Crops and houses damaged.
9.	10 Apr	Pune	Moderate		Houses and crops damaged at Rajgurunagar

<i>S.N.</i>	<i>Date / Period</i>	<i>Area affected</i>	<i>Intensity</i>	<i>Casualties</i>	<i>Extent of damage</i>
10.	18 Apr	a) Bangalore Rural	Moderate	One person electrocuted as electricity pole fell at Channapatna	
		b) Gulbarga	Moderate		At Thodupuzha, i) Crops and houses damaged ii) Traffic disrupted at Gulbarga
11.	21 Apr.	Dakshina Kannada	Moderate		At Vittla, i) Many houses/buildings and gardens damaged. ii) Electricity supply cut off as huge trees fell upon the electric poles.
12.	27 Apr	Sonepat	Severe	3 persons died and 4 injured at Murthal.	i) Wheat crop worth lakhs of rupees damaged. ii) 200 electricity poles and hundreds of trees uprooted. iii) One cement shed on Gannaur railway station broken.
13.	28 Apr.	Mandya	Moderate	One woman electrocuted due to snapped off wire in Malavali taluka.	i) Several coconut trees fell and huts and houses collapsed ii) Disrupted telecommunication
14.	29 Apr	Ratnagiri	Moderate		Loss to mangoes reported.
15.	5 May	(a) Himachal Pradesh, Ludhiana, Moga, many parts of Punjab and Chandigarh (U.T.)	Severe	i) Two women and a boy sustained minor injuries ii) One buffalo perished in Kangra.	Rabi crop and Orchards adversely affected.
		(b) Ananthapur, Guntur and Prakasam	Severe	7 persons died	Mango and banana plantations and other crops extensively damaged.
		(c) Bangalore	Moderate		i) Bangalore city affected. ii) Many trees and electricity poles uprooted causing damage to vehicles and resulting in a traffic jam. iii) Power supply also disrupted.

<i>S.N.</i>	<i>Date / Period</i>	<i>Area affected</i>	<i>Intensity</i>	<i>Casualties</i>	<i>Extent of damage</i>
16.	14 May	a) Jalpaiguri and Bardhaman	Severe	3 persons died.	
17.	16-18 May	b) Medinipur Ahmednagar, Dhule, Kolhapur, Mumbai, Nashik, Pune, Sangli and Satara	Severe	2 persons died. 4 persons electrocuted, one injured and 2 died due to house collapse in Mumbai	i) Central and western railway services and flights affected. ii) Mumbai suburbs waterlogged iii) Onion crop extensively damaged in Western Maharashtra
18.	26 May	Bardhaman	Severe	3 persons died at Durgapur.	
19.	27 May	(a) Gurdaspur	Severe	2 persons died under an up-rooted tree	
		(b) Kangra	Severe		Trees uprooted, kutchha houses damaged and power supply disrupted at Palampur.
20.	30 May	Kangra	Severe	One child crushed under a roof.	i) Several trees uprooted. ii) Power and Telecom services disrupted. iii) Mango crop damaged
21.	2 Jun	Bathinda	Moderate		i) Paddy and cotton crop on 2000 acres of land damaged due to inundation. ii) Several trees uprooted.
22.	4 Jun	Bharatpur	Severe	One girl died due to wall collapse	Many trees and electric/telephone poles uprooted.
23.	6 Jun	Firozepur	Severe	2 persons died and 5 other injured as they buried under a shed at Govindgarh.	
24.	11 Jun	East Champaran	Severe	3 persons died at Chhoti Halmata	
25.	12 Jun	Bokaro	Moderate	6 persons injured at Pathuria	
26.	14 Jun	a) Birbhum	Severe	5 persons including 2 children injured at Dubrajpur.	
		b) Nadia	Severe	One person died and 8 injured.	

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27.	16 Jun	Golaghat	Severe	4 persons died and 2 other injured	
28.	22 Jun	Coochbehar	Moderate		28 houses damaged at Dinhata
29.	25 Jun	Chandigarh	Moderate		Many trees uprooted in Palsora and adjoining Mohali and in Sector 31 of the city.
30.	28 Jun	Jahanabad	Moderate	At Nagla, i) One person died. ii) A cow perished.	
31.	2 Jul	(a) Chatra (b) Shekhpura	Severe Severe	4 youth died at Tutilawa 3 persons died at Mafo	
32.	3 Jul	Siwan	Severe	3 boys died	
33.	17 Jul	Jahanabad	Moderate	One farmer and 2 bulls died.	
34.	24 Jul	Murshidabad, Bardhaman and Hooghly	Severe	3 persons died in Murshidabad and 2 died in Bardhaman	
35.	26 Jul	Patna	Severe (Tornado)	One person died at Parsawan	2 small mango trees and a big heap of dry hay and a hut blown away into sky at Sarman Chowkitola.
36.	4 Aug.	Coochbehar	Moderate	40 persons injured at Baksirhat	150 huts damaged.
37.	5 Aug.	South 24 Parganas	Moderate		28 huts damaged at Canning.
38.	8 Aug	(a) Sonitpur (b) Vaishali	Moderate Moderate	One person died in Gohpur subdivision 3 persons wounded at Bak-sama Chehrakalan.	
39.	18 Aug	Morigaon	Severe	3 persons died and 3 other seriously injured at Dharamtal.	
40.	22 Aug	Dimapur	Severe	One woman and her child died in house collapse.	
41.	10 Sep.	Palamu	Severe	2 women died at Atbanuar	
42.	19 Sep.	Banka	Severe	2 Cowmen died at Ghospur bahiyar	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
43.	22 Sep.	Udaipur	Moderate		i) Many trees uprooted. ii) Electric wires broken.
44.	23 Sep	(a) Idukki	Moderate	One person died and 3 other injured.	
		(b) Keonjhar	Severe	2 persons died.	
45.	24 Sep.	East Champaran	Severe	2 persons died at Mirpur.	
46.	25 Sep.	(a) Bathinda	Severe		Standing paddy crop and grains stored in the market destroyed.
		(b) Hamirpur (Himachal Pradesh)	Severe		i) Widespread damage to houses/T.V. antenna reported. ii) A few trees uprooted. iii) Power and water supply cut off. Telecom services disrupted.
47.	26 Sep.	Deoghar	Severe	One person died.	
48.	9 Oct	Howrah	Severe	3 persons died at Sankrail.	
49.	10 Oct	Murshidabad	Severe	2 persons died at Kandi	

TABLE – X : HAILSTORM

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

1.	2 Feb	Darbhanga	Heavy	4 persons died at Kusheswar	
2.	4 Feb	a) Rohtak	Heavy		Standing rabi crop damaged.
		b) Delhi	Heavy		Several areas inundated due to heavy down pour Rabi crop in Nangloi, Mehrauli and Bawana damaged

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
3.	12 Mar	Himachal Pradesh	Moderate		Trees uprooted, hoardings, roof-tops of houses blown off
4.	14 Mar	Birbhum	Heavy	A few persons injured	Many kutcha houses damaged at Suri – Dubrajpur
5.	22 Mar	Shimla and neighbourhood	Moderate		In Kufri, Fagu and other areas; crops and fruits damaged.
6.	23 Mar	Gaya	Moderate		Standing rabi crop severely damaged at Fatehpur
7.	22 Apr	Dhubri, Goalpara and Kamrup	Heavy	i) Several persons injured ii) Many cattle injured	i) Standing crop damaged. ii) Many houses damaged iii) Several trees/electric poles uprooted
8.	24 Apr	Firozabad	Heavy	i) 12 persons died ii) More than 20 cattle iii) perished	Heavy damage to standing crops reported
9.	25 Apr	(a) East Champaran (b) Sirmaur	Moderate Moderate		Wheat crop severely damaged. Wheat crop damaged at Sarhan, Rajgarh and Upper parts of Sangrahin
10.	27 Apr	(a) Chandigarh (U.T.), Patiala and Sangrur (Punjab) (b) Mandya	Moderate Heavy	500 hens perished in Maddur tehsil	Wheat piled up in mandis damaged. i) Several trees uprooted ii) Traffic disrupted iii) Power failure reported for several hours iv) A portion of a temple in Maddur collapsed
11.	30 Apr	Kamrup	Heavy	In Guwahati and neighbourhood, one girl died and many persons injured	In Guwahati and neighbourhood , i) Low lying areas water logged ii) Many trees/electric poles uprooted iii) Road communication disrupted
12.	1 May	(a) Kamrup (b) Malda	Moderate Heavy	Many persons injured 3 persons died	In Guwahati and neighbourhood power supply, road communications disrupted due to uprooted trees and poles. i) 7000 hectares of cultivated crop land damaged. ii) Approx. 1000 mud houses damaged

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
13.	9 May	Ahmednagar, Nashik and Pune	Heavy		Onion and tomato worth crores of rupees destroyed in Akole, Kopergaon in Ahmednagar district, entire Nashik district and Khed, Saswad of Pune district
14.	27 May	Shimla	Moderate		Extensive damage to fruit crop reported from upper reaches of Shimla including Kufri, wild-flower valley, Naldera and Narkanda
15.	4 Jun	Alwar, Ganganagar, Hanumangarh, Jhunjhunu and Sikar	Heavy	Hundreds of birds perished in Hanumangarh	i) Hundreds of trees/electric poles uprooted ii) Road/telecommunication services affected iii) Power supply disrupted

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
TABLE – XI : FLOODS AND HEAVY RAINS					
ANDHRA PRADESH					
1.	21-27 Feb.	Khammam, Prakasam and Warangal	Heavy rains		Paddy, red gram, groundnut, chilli and tobacco crops damaged extensively.
2.	11-14 Jul.	Adilabad, Hyderabad, Khammam, Kurnool, Mahaboobnagar, Nalgonda and Warangal	Severe floods	37 persons died	i) 483 Panchayat tanks and 271 minor irrigation tanks breached. ii) 137 houses damaged.
3.	10 & 11 Aug.	Adilabad, Nizamabad and Warangal	Moderate flood (Godavari and its tributaries, Sabari, Sileru and Taliperu)	9 persons died in house collapse and landslide incidents	i) Landslides reported ii) A few houses collapsed
4.	Aug (4 th week)	Cuddapah, Guntur, Hyderabad, Khammam, Krishna, Kurnool, Nalgonda, Nellore, Prakasam, Rangareddy and Warangal	Severe floods (Godavari and Tungabhadra)	i) 131 persons died. ii) 5368 cattle lost.	i) 98000 people became homeless. Army and Air-force rescued affected people. ii) Nearly 8800 houses fully and 27000 partially damaged. iii) About 500 irrigation dams breached. iv) Hussainsagar lake overflowed, Hyderabad flooded, many areas under 3 m of water another lake at Saroornagar breached. v) 902 power transformers, 787 distribution transformers and 28 electric substations damaged. 58 power stations completely flooded causing total darkness in various areas. vi) Communication on 412 roads cut off. vii) Crops on 1.77 lakh hectares destroyed. viii) Total loss of property and agriculture was reported to be hundreds of crores.

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
*	Whole year	0.178 m. ha.		i) 257 persons died. ii) 5368 cattle lost.	i) 0.098 million population affected. ii) Crops in 0.178 m. ha. damaged. iii) 1,04,374 houses fully/partially damaged.
ARUNACHAL PRADESH					
1.	11-16 Jun	East Siang, West Siang and Upper Siang	Severe floods (Siang)	26 persons died and 2000 reported missing	i) 2500 houses damaged ii) 15 bridges swept away iii) Total loss in respect of property and agriculture was estimated in crores
2.	21-24 Jun	Lohit	Moderate flood (Lohit and Noa Dihing)		(i) Tezu – The District headquarters of Lohit remained cut off (ii) Standing crops damaged
3.	6-8 Aug	Dibang Valley	Moderate flood (Dibang)	7 persons died	i) Headquarters at Anini cut off from rest of the State ii) Loss of property and agriculture reported
*	Whole year	0.005 m. ha.		i) 26 human lives lost. ii) 10,000 cattle lost.	i) 0.025 million population affected. ii) Crops in 0.003 m. ha. damaged. iii) 1500 houses damaged.
ASSAM					
1.	3 May	Dhemaji	Flash floods		Wooden bridge at Samaranjan on NH-52 washed away disrupting communication.
2.	3-10 May	Karimganj	Moderate flood (Longai and Simla)	3 persons died	i) 40,000 people of Pathan Kandi block affected. ii) NH-44 and metre gauge railway track flooded, disrupting link with Tripura
3.	9-13 May	Dhubri	Moderate flood (Dorini)		Vast crop-land at Hatsingimara inundated, damaging standing paddy crop.

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
4.	29-31 May	Karimganj	Moderate flood (Katkhal and Longai)		(i) 80,000 people affected. (ii) Standing Boro crop damaged. (iii) Road link between Cheragi and Hatikira T.E. disrupted.
5.	1 Jun	Kamrup	Heavy rains		Roads in Guwahati city inundated, disrupting the communication for many hours.
6.	3 Jun	Kamrup	Heavy rains		Vast crop land inundated, damaging standing crops.
7.	6 & 7 Jun	Hailakandi and Karimganj	Heavy rains		166 villages and 61,717 people affected.
8.	12-30 Jun	Bongaigaon, Darrang, Dhemaji, Dhubri, Dibrugarh, Goalpara, Jorhat, Kamrup, Karimganj, Kokrajhar, Lakhimpur, Sonitpur and Tinsukia	Moderate flood (Brahmaputra and its tributaries)	8 persons died and a few injured	(i) 4,82,228 population affected (ii) 2,24,973 hectares in 1428 villages affected (iii) 49,231 hectares of crop land affected (iv) Road communication of NE India disrupted. District headquarters cut off for many days (v) Landslides reported. (vi) Many houses damaged.
9.	Jul (1 st week)	Bongaigaon, Dhemaji, Dhubri, Dibrugarh, Jorhat, Karimganj, Kokrajhar, Lakhimpur, Sonitpur and Tinsukia	Severe flood (Brahmaputra and its tributaries)	13 persons died	i) 9 lakh population affected ii) 54,931 hectares of crop land damaged iii) Landslides reported in South Salmara and Mankachar (Dist. Dhubri) and Majuli (Dist. Jorhat)
10.	Jul (2 nd week)	Bongaigaon, Dhemaji, Dhubri and Sonitpur	Moderate flood (Brahmaputra and its tributaries)	14 persons died in Dhemaji and Sonitpur districts	i) 15 villages in Tezpur circle (Sonitpur dist.) and 21 villages in Dhemaji dist. flooded ii) Road communication in Dhemaji district cut off
11.	30 & 31 Jul	Dhemaji	Moderate flood (Jiadhal)		(i) 50 villages flooded, crops damaged (ii) Rail/road communication disrupted
12.	Aug. (1 st , 2 nd & 3 rd week)	Barpeta, Darrang, Dhemaji, Dhubri, Dibrugarh, Goalpara, Jorhat, Karimganj, Morigaon, Nalbari and Tinsukia	Severe flood (Brahmaputra and its tributaries)	31 persons died	i) 35.71 lakh population affected. ii) 2.24 lakh hectares of crop-area flooded iii) Road links mainly by NH 31 and several other remained cut off.

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
13.	5 Oct	Hailakandi	Heavy rains	6 persons died and 3 other injured at Baichera	Landslides reported from Assam – Mizoram border near Hailakandi
*	Whole year	0.966 m. ha.		i) 36 persons died. ii) 19988 cattle lost.	i) 3.888 million population affected. ii) Crops in 0.322 m. ha. damaged. iii) 55,014 houses damaged.
BIHAR					
1.	Aug (1 st , 2 nd & 3 rd week)	20 districts of North Bihar including Bhagalpur, Darbhanga, Koshi, Madhubani, Muzaffarpur, Purnea, Samastipur, Sheohar, Sitamarhi and West Champaran	Severe flood (Bagmati, Ghaghra, Kosi, Mahananda, Gandak, Burhi - Gandak & Adhwara group of rivers)	48 persons died	i) Sitamarhi district worst affected ii) 36 lakh people spread over 2000 villages in 20 districts affected. iii) Damage to crops and property worth rupees several crores reported
*	Whole year	0.700 m. ha.		i) 274 persons died. ii) 1861 cattle lost.	i) 7.972 million population affected. ii) Crops in 0.392 m. ha. damaged. iii) 3,12,298 houses damaged.
GOA					
1.	11-13 Jun.	North Goa	Heavy rains		10,000 people affected, 110 became homeless
GUJARAT					
1.	12-15 Jul	Ahmadabad, Bharuch, Junagadh, Kheda, Navsari, Panchmahals, Sabarkantha, Surat, Surendranagar and Valsad	Heavy rains	84 persons died of which 23 alone died in Ahmadabad	Substantial loss of property/agriculture reported

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
*	Whole year			i) 116 persons died. ii) 406 cattle lost.	i) 0.2408 million population affected. ii) 23,844 houses damaged.
HARYANA					
1.	8 Jun	Karnal and Yamuna Nagar	Heavy rains	9 persons died and 5 injured due to two different wall collapse incidents	
2.	17-19 Jul	Ambala, Panchkula and Yamuna Nagar	Heavy rains	Two persons died in Yamuna Nagar	(i) Twin-town Ambala inundated with knee-deep water (ii) A few houses damaged (iii) Standing crop in 4 dozens of villages destroyed (iv) In Panchkula, 60 feet stretch of a road and another near Kaushalya bridge, Pinjore washed away
HIMACHAL PRADESH					
1.	8-12 Jun	Kinnaur and Shimla	Heavy rains (cloud burst)	12 persons died	i) Landslides reported ii) Bridges, many roads including Hindustan – Tibet road, beyond Rampur damaged at many places. Long stretches of roads blocked due to huge landslides iii) 44 houses and several hectares of agricultural land damaged iv) Barua village (Kinnaur dist.) sunk for 2 days due to cloud burst
2.	15 Jun	Mandi	Heavy rains	2 persons buried alive in house collapse due to landslide	A house collapsed due to landslide near Industrial Training Institute at Mandi town.
3.	28 Jun	Chamba	Flash flood		Tissa-Jhagha Kothi road washed away at many points

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
4.	15-19 Jul	Kinnaur, Shimla, Sirmaur and Solan	Heavy rains (cloud burst)	(i) 25 persons died and 23 injured in different incidents (ii) 145 cattleheads washed away	(i) Hundreds of apple trees buried due to landslides in Sungari Punnam areas of Upper Shimla. Landslides also reported from Kainchi and Bhugoli – Jubbal (ii) Standing crops damaged (iii) Many houses severely damaged (iv) Several trees uprooted and transformers damaged (v) One bridge on river Giri swept away at Nahan and a 325 m long bridge damaged by swollen Sirsa river. Another bridge in Sirsa – Nalagarh and 2 others in Chidgaon – Jubbal washed away (vi) Hindustan – Tibet road and other links in Apple belt blocked. Bus service between Shimla, Solan, Chandigarh remained suspended. NH 22 blocked due to massive landslide in Chora – Kinnaur (vii) Air and train services also disrupted due to bad weather and landslides
5.	27 Jul to 3 Aug	Entire state	Severe floods (Sutlej)	(i) 151 persons died (ii) 1482 cattle lost	(i) Kinnaur, Kullu, Mandi and Shimla districts worst affected. (ii) More than 9 lakh people affected (iii) Crops in 37,173 hectares of land damaged (iv) Nearly 5000 houses damaged (v) 20 bridges washed away (vi) Four power projects including Nathpa Jhakri extensively damaged (vii) NH 22 washed away at many places

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
6.	28 Aug	Manali	Flash flood due to cloud burst		(i) Manali – Leh highway blocked as a portion of the road completely damaged with hundreds of civilian and army vehicles stranded. (ii) Wall along 217 Army transit Camp 9 km from Mandi and a few other houses damaged
7.	30 Aug	Hamirpur	Heavy rains	2 persons died in a house collapse	A few houses damaged
8.	2 – 5 Sep	Chamba and Hamirpur	Heavy rains		(i) Standing maize crop destroyed (ii) Many trees uprooted (iii) Telecom, electricity and water supply affected (iv) 2 bridges damaged
*	Whole year	0.016 m. ha.		i) 121 persons died. ii) 593 cattle lost.	i) 0.611 million population affected. ii) Crops in 0.012 m. ha. damaged. iii) 722 houses damaged.
JAMMU AND KASHMIR					
1.	30 & 31 Jul	Anantnag	Heavy rains		Amarnath pilgrims stranded at Pahalgam and Battal
KARNATAKA					
1.	5-7 Jun	Bangalore, Chikmagalur, Dakshina Kannada, Kodagu and Uttara Kannada	Heavy rains	3 persons died and 7 injured in different incidents	i) 50 houses swallowed by rising sea at Kotepur (Mangalore) of Dakshina Kannada district ii) Several trees like Devadaru, Banyan, Coconut, Arecanut, Mangoes and Coffee plantations uprooted. One Nendra Bale garden on 5 acre completely razed to ground iii) Power supply and traffic disrupted
2.	8 Jun	Dakshina Kannada and Uttara Kannada	Heavy rains		(i) Nearly 50 houses damaged and roofs of 22 tiled houses blown off (ii) One cement bridge completely destroyed

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
3.	10-12 Jun	Davangere, Uttara Kannada and Sharavathi basin	Heavy rains	One woman and 4 children died.	One well and a pump shed destroyed due to landslide in Kumta. Loss estimated to Rs. 35,000
4.	29-30 Jun	Bellary and Bidar	Heavy rains		(i) Repairs work of right bank of Tungabhadra had to be stopped. (ii) Power supply disrupted, normal life affected.
5.	1 Jul	Gulbarga	Heavy rains	3 persons died due to house collapse at Banakalagi	
6.	6-7 Jul	Uttara Kannada	Heavy rains		A few houses in Hapiwad and palewad villages inundated.
7.	5-8 Jul	Dakshina Kannada	Heavy rains		(i) Due to sea erosion at Ullal Kolepura, gap between river Netravathi and sea reduced so much that nearly 30 fish drying sheds washed off. (ii) 12 ft. wall collapsed due to which transformer fell disrupting the power supply. (iii) Landslides reported from Kettikalla hill. (iv) One huge tree uprooted at another place
8.	7-8 Jul	Bijapur	Heavy rains	2 persons washed away in a drain and another in river Krishna	
9.	11-14 Jul	Chikmagalur and Gulbarga	Heavy rains		(i) Continuous landslides reported on Konkan railway. Charmadi Ghat section closed down completely. Estimated loss Rs. 70 lakh per day and total loss running into crores as 760 km track to be repaired. (ii) 3 tanks breached. (iii) 325 houses collapsed.
10.	14 Jul	Chikmagalur and Dharwad	Heavy rains	3 animals washed away	(i) Major landslide reported from Malayamarutha forest; traffic on the entire stretch closed. (ii) 44 houses damaged.

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
11.	1 Aug.	Bangalore	Heavy rains	One woman died and 5 persons injured in Bangalore city due to house collapse	(i) Low lying areas inundated. Several tones of vegetables got rotten. (ii) Several houses collapsed. (iii) 9000 telephone lines went out of order
12.	3 Aug.	Tumkur	Heavy rains		(i) In Gubbi taluka more than 4000 coconut trees, 6000 arecanut trees and about 200 years old banyan and neem trees damaged. (ii) About 1000 houses damaged (iii) More than 100 telephone/electric poles fell. (iv) Loss in several lakhs of rupees reported.
13.	3-6 Aug	Davangere	Heavy rains	One woman died in a wall collapse and another person washed away	(i) Many houses damaged. (ii) Several trees uprooted
14.	13 Aug.	Bangalore	Heavy rains		In Bangalore city, several trees uprooted and 14 auto rickshaws damaged.
15.	23-24 Aug.	Bidar	Heavy rains	2 cows died as cattle shed collapsed	(i) 72 houses fully and 50 partially damaged. One lake also damaged. (ii) Crops damaged, loss estimated in several lakhs.
16.	25 & 26 Aug.	Dakshina Kannada, Uttara Kannada and Raichur	Heavy rains	One person died in Raichur and 2 students injured	(i) Traffic on NH 17 disrupted due to landslides at several places. (ii) 1000 houses and other properties damaged, 900 tiles of a school blown off.
17.	29 Aug.	Kodagu and Tumkur	Heavy rains		(i) Extensive damage to property and agriculture reported. (ii) Doddakere lake damaged.
18.	14 Sept.	Gulbarga	Heavy rains		(i) Public property like roads, bridges, bunds and water reservoirs damaged. (ii) Loss estimated in several crores of rupees
19.	30 Sept.	Bangalore	Heavy rains	2 persons died and 3 others trapped when a building collapsed	Many areas inundated

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
20.	30 Sept. – 2 Oct.	Bangalore	Heavy rains	One person died and 5 injured in different house collapse incidents	In Bangalore city, (i) Normal life paralysed. (ii) Low lying areas inundated (iii) Many trees uprooted disrupting traffic (iv) A few houses collapsed including a three storeyed BMP quarters
21.	1 Oct.	Chikmagalur, Chitradurga, Kodagu and Mysore	Heavy rains		(i) Low lying areas inundated, traffic disrupted. Normal life paralysed. (ii) Several houses damaged while a few collapsed. (iii) Feeder canal of Belgur lake in Hosadurga taluk (Chitradurga district) damaged.
22.	8 Oct.	(a) Bellary (b) Raichur	Heavy rains Heavy rains	4 persons died and 3 washed away	(i) Normal life paralysed (ii) Traffic disrupted (iii) Standing crops destroyed
23.	8-10 Oct	Bangalore and Bangalore rural	Heavy rains	2 workers injured	(i) In Bangalore city, Cauvery stage III pump house completely submerged by flood water of Bhima river, affecting water supply of the city and surroundings for a week. (ii) In Bangalore rural, 128 lakes damaged, many bridges collapsed, disrupting traffic (iii) Standing crops washed away.
24.	9 Oct.	(a) Chitradurga (b) Mandya	Heavy rains Flash floods	2 children died in flooded lake at Gutikatte in Hosadurga taluk	2 bridges collapsed in Hiriya taluka disrupting traffic. (i) In Malavalli taluka, Halsur lake and Bhima reservoir flooded. (ii) Standing crops like ragi, paddy and coconut and coffee destroyed, loss estimated worth lakhs of rupees. (iii) Traffic on NH 209 disrupted.

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
25.	22 Oct.	a) Bangalore	Heavy rains	In Bangalore city, one school girl washed away in an open drain	In Bangalore city, i) Low lying areas inundated. ii) Many trees uprooted.
		b) Bellary	Heavy rains	One boy died and 3 other injured in a hut collapse	
		c) Mandya	Heavy rains	One child died in a house collapse	(i) A few houses collapsed (ii) One lake reported to have inundated
	Whole year			i) 152 persons died. ii) 690 cattle lost.	54,591 houses damaged.
KERALA					
1.	8 Apr.	Thiruvananthapuram	Heavy rains	2 women died and 5 persons injured	
2.	Jun (2 nd week)	Alappuzha, Idukki and Kannur	Heavy rains	2 persons drowned	(i) Several houses partially damaged. A church building collapsed. (ii) Widespread damage to property and agriculture reported.
3.	17 Jun	Alappuzha	Heavy rains		A rice mill collapsed.
4.	1 Jul	Kasaragode	Heavy rains	One person died	About 650 houses fully and more than 5000 partially collapsed.
5.	7-10 Jul	Idukki, Kollam, Pathanamthitta and Thiruvananthapuram	Heavy rains	63 persons died more than 15 injured.	(i) About 180 houses fully and 2500 houses partially collapsed. (ii) Widespread damage to property and agriculture reported.
6.	8 Aug.	Kottayam	Heavy rains	2 fishermen drowned and 10 students injured under a school building at Kumarakom	One school building collapsed.

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
7.	Aug (4 th week)	Alappuzha, Idukki, Kannur, Kasaragode, Kollam, Kottayam, Kozhikode, Malappuram, Palakkad, Pathanamthitta, Thiruvananthapuram, Thrissur and Waynad	Heavy rains	37 persons died and a few other injured	(i) Widespread damage to crops reported. (ii) Many houses collapsed/damaged.
*	Whole year			75 human lives lost	9474 houses damaged.
MADHYA PRADESH					
1.	3-5 Jul	Betul, Tikamgarh and West Nimar	Moderate flood	5 persons died	
2.	7 Jul	Chhindwara and Seoni	Heavy rains	One person died.	
3.	14-15 Jul	Bastar	Heavy rains	20 persons drowned, another 15 missing when a boat capsized in the river Talperu	Damage to property / agriculture reported.
4.	22 & 23 Jul	Sagar and Vidisha	Moderate flood	(i) 6 persons died (ii) 100 cattleheads drowned	(i) Rail tracks badly damaged (ii) 200 houses collapsed
*	Whole year			i) 13 human lives lost. ii) 147 cattle lost.	i) 400 hectares of cropped area affected. ii) 3297 houses damaged.
MAHARASHTRA					
1.	7 May	Nashik	Heavy rains	One person died	22 pilgrims rescued

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
2.	2 & 3 Jun	Pune	Heavy rains	105 livestock died	(i) Low lying areas inundated. (ii) For almost 18 hours traffic on Pune-Mumbai highway remained standstill. (iii) Tribal population in hilly areas of Ambegaon tehsil – Aahape, Nhaved, Pimparne affected; farming and related jobs had to be stopped. Milk supply halted.
3.	4-5 Jun	Nashik	Flash flood (Godavari)	4 persons washed away and 9 others died in other incidences	(i) A portion of the bridge on Nashik – Aurangabad road near Yeola collapsed. (ii) 11 houses and 25 stalls collapsed
4.	8 Jun	a) Dhule, Jalgaon and Nandurbar b) Latur c) Parbhani d) Ratnagiri	Heavy rains Heavy rains Heavy rains Heavy rains	7 persons died in house collapse/drowning 4 persons died 2 persons died at Hingoli One person died in Guhagar	Several trees uprooted, roofs damaged, power supply cut off in Jalgaon, Bhusawal Low lying areas waterlogged Low lying areas waterlogged Landslides reported from some places, houses collapsed, roads damaged.
5.	4 Jul	Nagpur	Heavy rains	2 persons died and 7 injured	
6.	8 Jul	Mumbai city and Mumbai Suburb	Heavy rains	5 persons died and 15 injured in building collapse, another 14 dead when boat drowned	
7.	10 Jul	Raigad	Heavy rains	5 persons died when boat drowned at Alibag	

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
8.	12 Jul	a) Mumbai city and Mumbai Suburb	Heavy rains	(i) 65 persons died and 50 injured seriously in Ghatkopar. (ii) 2 children drowned in Wakola and one person died in Deonar.	(i) Due to landslides in Ghatkopar, people residing at the foot of the hill were buried alive, hutments crushed. (ii) Long distance as well as local trains completely stopped, flights from Mumbai cancelled. (iii) Commuters stranded everywhere as elevated areas were also flooded, water entered upto first floor in low-lying areas. (iv) Electricity supply to several substations and feeders was switched off as a safety measure. (v) Fire brigade reported 25 major tree falls
		b) Thane	Heavy rains	9 persons died	(i) Landslide near Gaimukh on Ghodbunder and another near Virar on Mumbai-Ahmedabad National Highway affected road traffic. (ii) Water level in Barrage – dam at Badlapur increased considerably. Valves opened up causing flooding in the neighbourhood. (iii) Kalyan, Mumbra, Vasai and Badlapur completely waterlogged.
		c) Konkan region	Heavy rains		i) 35 landslides reported from different places from Khed to Kundal on the Konkan railway tracks damaged completely. ii) The worst landslide between Aravali – Aasurde reported at the opening of the tunnel 12. Water flooded the 5 km long tunnel, destroying tunnel and the tracks completely.
		d) Jalna	Heavy rains	One person washed away in the river Purna and another in Hattinala	
		e) Satara	Heavy rains		Considerable increase in the level of river Koyna reported; 15 villages marooned.

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
9.	17-21 Jul	Vidarbha region	Heavy rains	15 persons died	(i) Many houses collapsed, many trees uprooted. (ii) 16 villages in Chandrapur marooned (iii) Road links with Gadchiroli cut off. (iv) 2212 families evacuated to safer places, food packets air dropped.
10.	24 Jul	Yavatmal	Heavy rains	One person died	
11.	Aug (4 th week)	Ahmednagar and Marathwada region	Severe flood (Godavari)	9 persons died in house collapse	(i) 2 major, 8 medium and 40 minor irrigation dams breached, 5 lakes overflowed (ii) People staying on the banks of Godavari (at Nanded) became homeless and shifted to safer places (iii) Dhar village in Nanded district completely washed off as 3 bunds broken completely. (iv) Electric pumps destroyed (v) Agriculture goods worth thousands of rupees in Rahuri market destroyed as roads flooded. (vi) Kharif crops damaged.
12.	25 Sept.	Pune	Heavy rains	In Pune city, 7 persons injured in wall collapse	(i) Normal life affected. (ii) Many trees fallen (iii) Electricity supply disrupted
13.	27 Sept.	Nashik	Heavy rains	One person died and 4 injured in wall collapse	
MANIPUR					
1.	2-4 Sept	Entire state	Moderate flood (Thoubul)		(i) National Highway No. 37 inundated, road communication cut off. (ii) Thousands of people became homeless
2.	21 Sept.	Thoubal and Bishnupur	Flash flood		7 villages inundated and 100 families affected as the lake Loktak flooded.

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
MEGHALAYA					
1.	9 Aug.	Jaintia Hills	Heavy rains		Landslides caused disruption in road communication with rest of the state for 7 days.
2.	9 Sept.	Jaintia Hills	Heavy rains		Road communication between Jowai – Badarpur on NH 44 cut off due to landslides at Sonapur
3.	2-3 Oct.	South Meghalaya	Heavy rains		Landslides at Sonapur blocked the Assam – Agartala National Highway.
MIZORAM					
1.	25 May	Lawngtlai	Heavy rains	5 persons died, 2 injured	(i) Landslides reported. (ii) Road communication between Lawngtlai town and other parts of the state cut off.
2.	22 Aug	Aizawal	Heavy rains	6 persons injured due to landslides	(i) Massive landslides reported in many parts due to which areas remained cut off from rest of the state. (ii) Number of houses damaged.
NAGALAND					
1.	28 Aug.	Kohima and Wokha	Heavy rains		(i) Landslides reported. (ii) Communication on NH 61 blocked. Direct communication to Manipur disrupted due to landslides.
PUNJAB					
1.	1 Jul	Ludhiana	Heavy rains	One person died due to house collapse	

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
2.	Jul (3 rd week)	Bathinda, Hoshiarpur, Moga, Patiala, Roop Nagar and Sangrur	Heavy rains	(i) One person died, 5 others injured when roof collapsed (ii) One person washed away in Ghaggar (iii) A few cattleheads perished	(i) Many areas including bus stand flooded, roads and many houses damaged. (ii) Overflowing Ghaggar – Tangri river destroyed crops and Lion Safari. Chat Bir Zoo also damaged. (iii) One canal at Siswan breached and villages of Hoshiarpur and Roop Nagar districts flooded, army help sought. (iv) 4 canals breached, submerging hundreds of hectares of paddy and cotton crops. Stored wheat bags heavily damaged. (v) Railway overbridge and some shops on Bhatinda – Bumala road damaged. i) Crops in 0.011 m. ha. damaged. ii) 55 houses damaged.
*	Whole year	0.011 m. ha.		7 persons died.	
RAJASTHAN					
1.	14-16 Jul	Ajmer, Barmer, Bikaner, Bundi, Churu, Jaisalmer, Jhalawar, Jodhpur, Kota, Nagaur, Pali, Sirohi and Udaipur	Moderate flood (Luni, Teendhar etc.)	26 persons died in different incidents of house collapse and drowning	(i) Many people marooned due to waterlogging. RAC personnel helped them to shift to safer places. (ii) Small and medium scale bunds in Kota, Ajmer and Phalodi overflowed. One bund at Kalyanpur along Barmer – Jodhpur road breached. (iii) Crop land also waterlogged. (iv) Several kucha houses damaged in villages of Bikaner (v) Traffic on Jaipur – Bhopal Highway disrupted. Traffic on other roads and rail services also affected.

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
2.	21-23 Jul	Ajmer, Baran, Barmer, Bhilwara, Bikaner, Chittorgarh, Hanuman-garh, Jhalawar, Jodhpur, Kota and Tonk	Moderate flood (Kalisindh, Parvati and Kun)	One child washed away in the stream and 2 persons died in a house col-lapse	(i) Hundreds of houses damaged, residential areas flooded. (ii) Road traffic on Shivpur – Gwalior disrupted.
3.	13 Aug.	Jaipur	Heavy rains		(i) Low lying areas waterlogged, power supply cut off. (ii) Railway track between Durgapura – Sanganer flooded, traffic disrupted
4.	20 Sept.	Alwar	Heavy rains		(i) Khairthal area affected more. (ii) Sown Onion seeds washed away. (iii) Hundreds of trees on Kotkasim – Khairthal road uprooted disrupting the traffic.
SIKKIM					
1.	23 Aug.	West Sikkim	Heavy rains	5 persons died and 8 injured at Gyalshing	Landslides reported
*	Whole year			11 persons died	140 houses damaged.
TAMIL NADU					
1.	24 & 27 Feb.	Chennai and Perambaur	Heavy rains	6 persons died.	
2.	8 Jun	Kannyakumari	Heavy rains	One person electrocuted	30 houses partially damaged.
UTTAR PRADESH					
1.	14-16 May	Chamoli and Dehra Dun	Heavy rains		(i) Landslides reported. 35000 pilgrims stranded due to landslides on Badrinath – Rishikesh high-way and near Gauri Kund. (ii) Telecom equipments damaged.

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
2.	Jun (2 nd week)	Bijnor, Chamoli, Moradabad, Nainital, Udhamshingh Nagar and Garhwal and Kumaon division	Severe flood (Gola)	(i) Around 90 persons died in different incidents (ii) Many animals perished	(i) 176 people trapped in swirling waters of river Gola rescued by PAC jawans and fire brigades (ii) Road to Kailash Man Sarovar damaged at several places. (iii) Several houses collapsed in landslides. (iv) Pipra – Piprasi bund damaged. (v) Road communication cut off. (vi) Bridge on the river Kalu near Dharchula damaged severely. (vii) Over 12000 pilgrims stranded due to landslides near Gopeshwar.
3.	10 Jul	Lucknow	Heavy rains		Wall of the district jail collapsed completely
4.	14 Jul	East Uttar Pradesh	Flash flood (Rapti)		(i) 452 villages flooded. (ii) District court at Deoria waterlogged and so closed down for a week.
5.	25-27 Jul	Allahabad, Faizabad, Lucknow and Varanasi	Moderate flood (Ganga and Sarayu)	One woman died in house collapse	(i) Many areas became waterlogged including the Char baug railway station. (ii) People residing on the banks had to take shelter in safer places. (iii) Many houses damaged, trees uprooted. (iv) Telecom services disrupted.
6.	31 Jul	a) Dehra Dun b) Basti	Heavy rains Flash floods (Ghaghra)	8 persons died and 9 other injured	Landslides reported near Lakshman Zoola Banks breached, people residing in the dozens of villages marooned. People shifted to safer places.
7.	7 Aug.	Bahraich, Gonda and Lakhimpur Kheri	Flash flood (Ghaghra)		Several villages in these districts flooded, people affected.
8.	10 Aug.	Pithoragarh and Nainital	Heavy rains	62 persons died due to landslides/ house collapse incidents	(i) Landslides reported (ii) 50 persons missing from Pithoragarh. (iii) Several houses collapsed in the villages of Udete, Siyalgarh, Kota and Churuti.
9.	17 Aug.	Etah	Heavy rains	5 persons including 2 children died in house collapse.	

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
10.	30 & 31 Aug.	Entire state	Flash or Moderate flood	33 persons died in various drowning/house collapse incidents.	(i) Lucknow, Uttarkashi, Haridwar, Chamoli, Allahabad, Ghazipur and Nainital waterlogged. (ii) Normal life paralysed. (iii) Many houses collapsed. (iv) Front portion of a tempo crushed as a tree fell on it. (v) Many trees uprooted, walls in the zoo collapsed. (vi) Power supply disrupted, telecom services affected badly.
11.	Sep (2 nd week)	East Uttar Pradesh	Moderate flood	24 people died.	(i) 70 villages marooned. (ii) Thousands of houses collapsed. (iii) Army helped people shift to safer places.
*	Whole year	0.910 m. ha.		i) 422 persons died. ii) 927 cattle lost.	i) 4.218 million population affected. ii) Crops in 0.498 m. ha. damaged. iii) 33,653 houses damaged.
WEST BENGAL					
1.	5 Aug.	Bardhaman, Birbhum, Coochbehar and Jalpaiguri	Flash flood	9 persons died	(i) 1.33 lakh people in Jalpaiguri affected. (ii) Loss of property and agriculture reported.
2.	9 Aug.	Coochbehar	Flash flood		250 houses/huts destroyed at Tufanganj.
3.	Sept.(1 st week)	North Bengal	Moderate flood (Ajay and Mayurakshi)		(i) 11 villages in Kalia chalk and Manik chalk block flooded. (ii) Suri and Rampurhat subdivisions of Birbhum district cut off from the neighbourhood. 3 blocks of Murshidabad district flooded affecting 17,000 people. (iii) Mayurbhanj – Panagarh highway damaged. (iv) Loss to property and agriculture reported.

S.No.	Date/Period	Area affected	Intensity (River)	Casualties	Extent of damage
4.	Sept. (3 rd week) to Oct. (2 nd week)	Bankura, Bardhaman, Birbhum, Calcutta, Hooghly, Howrah, Medinipur, Murshidabad, Nadia, North 24 Parganas and Uttar Dinajpur	Severe flood	1258 people died	(i) 217.7 lakh people affected. More than 20 lakh houses damaged, food packets air dropped, several villages in Birbhum, Murshidabad and Bardhaman marooned. (ii) South Bengal districts inundated due to high tide in Hooghly. Bund in NE Calcutta collapsed many areas like Tauli Ganj, Kalighat Road, Alipur flooded. Parts of North 24 Parganas like Bairhat flooded. Army employed for relief operations. (iii) Nearly 20lakh hectares crop land flooded for over a fortnight, 30% of kharif crop destroyed completely. Total loss estimated Rs. 5,660 crore out of which Rs. 3,868 crore due to destruction of crops alone.
5.	Oct. (4 th week)	Medinipur	Heavy rains	96 fishermen reported missing in high seas.	
*	Whole year	2.380 m. ha.		i) 1474 persons died. ii) 83,630 cattle lost.	i) 22.100 million population affected. ii) Crops in 1.511 m. ha. damaged. iii) 21,94,858 houses damaged.

UNION TERRITORIES

CHANDIGARH

1.	18 Jul	Entire Territory	Moderate (Ghaggar)	flood	One person electrocuted and 2 other washed away	(i) Roads damaged, markets and Mauli Jogran re-habilitation Centre waterlogged. (ii) Water of the river Ghaggar entered Banur town damaging the property and houses. (iii) Chandigarh – Patiala Highway submerged, forcing the closure of the vehicular traffic.
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* Input from Central Water Commission and Ministry of Agriculture

S. No.	Date/Period	Area affected	Intensity	Casualties	Extent of damage
TABLE – XII : CYCLONIC STORM					
BAY CYCLONE					
1.	25-28 Oct.	<p>Formation : Near Lat. 20.5°N; Long. 88.5°E at 1800 UTC of 27th.</p> <p>Landfall : Crossed Bangladesh coast east of Sagar Island between 0100 and 0300 UTC of 28th.</p> <p>Dissipation : Over Bangladesh and adjoining Assam and Meghalaya in the morning of 29th.</p>	Cyclonic storm	In Meghalaya a large number of livestock lost	<p>(A) Meghalaya</p> <ul style="list-style-type: none"> i) 6 of the 7 districts severely affected. ii) Extensive damage to infrastructure, standing crops and plantation reported. iii) Hundreds of houses damaged rendering thousands of people homeless. iv) According to preliminary estimates, reported damage was of the order of Rs. 60 crores. <p>(B) Gangetic West Bengal</p> <ul style="list-style-type: none"> i) Two irrigation dams in Pathor, Pratima and Gobardhan in South 24 Parganas damaged. ii) One embankment in Sandeshkali in North 24 Parganas damaged. iii) Many mud huts collapsed in the North as well as the South 24 Parganas.

S. No.	Date/Period	Area affected	Intensity	Casualties	Extent of damage
2.	26-30 Nov.	Formation : Near Lat. 11.0°N; Long. 86.5°E at 0900 UTC of 27 th . Landfall : North Tamil Nadu coast near Cuddalore at 1130 UTC of 29 th . Dissipation : Over Tamilnadu on 30 th Nov. evening.	Very severe cyclonic storm	In Tamilnadu, 12 persons died.	i) Large number of big trees uprooted. ii) 1000 kuchcha houses damaged. iii) Sugarcane crop in 100 acres and 30,000 plaitain trees and 50,000 plaitain saplings damaged. iv) Total loss estimated to be around 50 crores.
3.	23-28 Dec.	Formation : Near Lat. 8.5°N; Long. 83.0°E at 0300 UTC of 25 th . Landfall : At Lat. 8.5°N; Long. 78.0°E over Tuticorin in the morning of 28 th . Dissipation : At Lat. 9.0°N; Long. 76.5°E near Alappuzha at 1200 UTC of 28 th .	Very severe cyclonic storm	5 cattleheads perished	i) 830 houses damaged in 3 districts, Ramanathpur, Tuticorin and Thiruvananthapuram of Tamilnadu. ii) 95 fishing boats lost. iii) Paddy crops in 281 hectares damaged. iv) Betel crops in 80 hectares damaged. v) Plantain crop in 650 hectares damaged.