



DISASTROUS WEATHER EVENTS 2003

ISSUED BY
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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DISASTROUS WEATHER EVENTS OF 2003

The most striking disastrous weather events of 2003 were the following :

- (i) Severe cold wave spell swept most parts of north India during January and claimed more than 900 human lives.
- (ii) Unprecedented heat wave spell prevailed over Andhra Pradesh during 2nd fortnight of May and 1st fortnight of June and took a toll of more than 1300 human lives.
- (iii) Floods and heavy rains occurred over most parts of the country during southwest monsoon season and claimed more than 1400 human lives apart from loss of live-stock. Extensive damage to public and private property also reported.

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

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S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
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TABLE – I : SNOWFALL

CRITERIA

Moderate : 7.6 to 34.9 cm in 24 hrs

Heavy : ≥ 35.0 cm in 24 hrs

1.	27 Dec.	Chamoli, Garhwal, Rudra Prayag, Tehri Garhwal and Uttarkashi (Uttaranchal)	Heavy	14 PAC Jawans injured when truck carrying them fell in a ditch due to thick fog.	
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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 to 3 rd week)	States of Haryana, Himachal Pradesh, Punjab, Rajasthan, Uttar Pradesh, Bihar & Jharkhand, and UTs of Chandigarh & Delhi	Severe cold wave (Both A and B as appropriate)	i) In all, 944 persons died, with a maximum number of casualties from U.P. ii) Accidents due to dense fog also reported from Haryana and Punjab in which 19 people died.	i) Potato, mustard and peas badly affected. ii) Dense fog reported. iii) 'Nakki' lake in Rajasthan reported frozen.
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S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
				iii) Around 1000 cattleheads perished in Rajasthan and U.P.	
2.	Jan. (2 nd week)	West Bengal (some pockets)	Cold wave (A)	5 persons died.	
3.	Dec. (3 rd week)	Some parts of Punjab and Haryana	Cold wave (B)	12 persons died.	
4.	Dec. (4 th week)	Uttar Pradesh, Bihar and Madhya Pradesh	Severe cold wave (Both A and B as appropriate)	176 persons died.	

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.	8 Apr.	Jagatsinghpur (Orissa)	Heat wave (A)	One person died.	
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S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
2.	Apr. (2 nd week)	Some parts of Maharashtra	Heat wave (A)	In Aurangabad city, 2 persons died.	
3.	22 Apr.	Jagatsinghpur (Orissa)	Heat wave (A)	2 persons died.	
4.	Apr. (4 th week)	Maharashtra (some pockets)	Heat wave (Both A and B as appropriate)	7 persons died.	
5.	May (1 st week)	Chennai (Tamil Nadu)	Heat wave (A)	2 persons died.	
6.	May (1 st week) to Jun. (2 nd week)	Orissa	Severe heat wave (Both A and B as appropriate)	i) 126 persons died. ii) In June, many birds perished.	
7.	May (3 rd & 4 th week)	A few pockets in the states of Punjab, Rajasthan, Uttar Pradesh, Bihar and Madhya Pradesh	Severe heat wave (Both A and B as appropriate)	Nearly 40 persons died and 9 other reported sick.	
8.	May (3 rd week) to Jun. (2 nd week)	Andhra Pradesh	Severe heat wave (Both A and B as appropriate)	Nearly 1300 persons died.	
9.	May (4 th week)	Some parts of West Bengal	Severe heat wave (A)	16 persons died.	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
10.	6 Jun.	Medinipur and North 24 Parganas (West Bengal)	Heat wave (A)	2 persons died.	
11.	Jun. (2 nd week)	Vidarbha region (Maharashtra)	Severe heat wave (A)	6 persons died.	
12.	15 & 16 Jun.	Haryana	Heat wave (A)	3 persons died at Sonipat.	
13.	Jun. (3 rd week)	Some parts of Madhya Pradesh	Severe heat wave (Both A and B as appropriate)	17 persons died.	
14.	21 Jun.	Jagatsinghpur (Orissa)	Severe heat wave (A)	15 persons died.	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
<p style="text-align: center;">TABLE –IV : SQUALL</p> <p style="text-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 style="text-align: center;">CRITERIA Moderate : Surface wind speed (in gusts) upto 80 kmph. Severe : Surface wind speed (in gusts) > 80 kmph.</p>					
1.	7 Apr.	Lakhimpur (Assam)	Moderate	In Itakhia city one person seriously injured under a fallen branch of tree.	Several houses damaged.
2.	9 Apr.	Sonitpur (Assam)	Moderate	In Balijuri, 3 persons injured.	i) Several houses damaged. ii) Many trees uprooted.
3.	14 Apr.	Kamrup (Assam)	Moderate		i) Many houses damaged. ii) Several trees/electric poles uprooted.
4.	18 Apr.	Mamit (Mizoram)	Moderate		A few houses completely destroyed, and 10 other partially damaged.
5.	20 Apr.	Kamrup (Assam)	Moderate		i) Several dwelling houses and two school buildings completely destroyed. ii) Many trees/electric poles uprooted.
6.	21 Apr.	Goalpara (Assam)	Severe	One person died.	i) Several houses destroyed. ii) Many trees uprooted.

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
7.	22 Apr.	Dhubri (Assam)	Severe		In South Salmara, i) Trees/electric and telephone poles uprooted. ii) Several villages affected. iii) Large number of houses destroyed.
8.	7 May	Nalbari (Assam)	Moderate		In several villages, dwelling houses / educational institutions badly affected.
9.	8 May	Kamrup and Nalbari (Assam)	Severe	3 persons including a woman died and one hundred reported injured.	i) Several dwelling houses damaged. ii) Trees uprooted and horticultural crops damaged.
10.	18 May	Uttar Dinajpur (West Bengal)	Severe	One person died at Raiganj.	
11.	24 May	Howrah and Medinipur (West Bengal)	Severe	2 persons died.	
12.	27 May	Nalbari (Assam)	Moderate		Dwelling houses, schools etc. badly damaged.
13.	28 May	Kamrup and Nalbari (Assam)	Moderate		i) Several dwelling houses destroyed. ii) Many trees, electric and telephone poles uprooted disrupting power supply and telephone services.
14.	30 May	Murshidabad (West Bengal)	Severe	2 persons died.	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
15.	5 Jun.	Jalpaiguri (West Bengal)	Moderate		In Malbazar, around 65 houses badly damaged rendering hundreds of people homeless.
16.	12 Jun.	Medinipur (West Bengal)	Severe	At least 24 persons hospitalized.	More than 10 houses and one school building collapsed.
17.	13 Jun.	Dhubri (Assam)	Severe	2 persons died when a tree fell upon their dwelling house in South Salmara.	In South Salmara, i) A few dwelling houses destroyed. ii) Several trees uprooted.
18.	16 Jul.	Wayanad (Kerala)	Moderate		i) A few houses partially / completely damaged. ii) Thousands of plantains damaged. iii) Hundreds of rubber plants and other trees uprooted.
19.	5 Aug.	Jorhat (Assam)	Moderate	2 women injured when a big tree fell on their dwelling house.	i) Several trees uprooted. ii) Electric supply disrupted..
20.	24 Sep.	Sibsagar (Assam)	Moderate		i) Roofs of several dwelling houses blown away. ii) Some trees reported broken disrupting electricity supply and telecommunication service.
21.	31 Oct.	Kamrup (Assam)	Moderate		Roof tops of many houses blown away.

<i>S.N.</i>	<i>Date / Period</i>	<i>Area affected</i>	<i>Intensity</i>	<i>Casualties</i>	<i>Extent of damage</i>
TABLE – V : GALE					
CRITERIA					
<i>Strong : Wind speed \geq 75 kmph</i>					
1.	20 Feb.	Puri (Orissa)	Strong		Highpower transmission tower in Bhubaneswar severely damaged.
2.	10 May	Kozhikode (Kerala)	Strong		i) A few houses collapsed and many partially damaged. ii) Extensive damage to agriculture reported.
3.	12 May	Tirunelveli (Tamil Nadu)	Strong		At Tuticorin, i) A few houses damaged. ii) Several trees uprooted, traffic hampered.
4.	13 May	Thiruvananthapuram (Kerala)	Strong		In Thiruvananthapuram city, i) Many trees uprooted. ii) Road transport and electric supply disrupted.
5.	17 May	Wayanad (Kerala)	Strong		Hundreds of plantains uprooted at Sultan Battery.
6.	21 Jun.	Mandya (Karnataka)	Strong		More than 15 huts damaged at Shettyhalli in Shrirangapatna tehsil.

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
TABLE – VI : DUSTSTORM					
CRITERIA					
Moderate : Wind speed between 39 to 74 kmph and horizontal visibility upto 500 metres					
Severe : Wind speed \geq 75 kmph and horizontal visibility upto 50 metres.					
1.	4 Mar.	Kamrup and Nagaon (Assam)	Moderate		i) Many houses damaged. ii) Several trees / electric poles uprooted. iii) Power supply disrupted.
2.	14 Apr.	Lucknow (Uttar Pradesh)	Severe	2 persons died and one seriously injured when rally stage collapsed.	
3.	14 May	Kheri and Mainpuri (Uttar Pradesh)	Severe	i) 7 persons died and dozens injured. ii) Dozens of cattleheads also lost.	
4.	21 May	Lucknow (Uttar Pradesh)	Severe	4 persons died and 7 other injured due to different incidents of wall / tree / tin sheet collapse.	
5.	24 May	Aligarh, Etah and Farrukhabad (Uttar Pradesh)	Severe	19 persons died.	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
6.	5 Jun.	Patna (Bihar)	Moderate		Trees, electric/telephone poles uprooted and electrical wirings damaged.

TABLE – VII : LIGHTNING

1.	17 Feb.	Jhansi (Uttar Pradesh)		3 persons died.	
2.	18 Feb.	Allahabad, Azamgarh and Bahraich (Uttar Pradesh)		6 persons died.	
3.	19 Feb.	Aligarh, Allahabad, Ballia and Barabanki (Uttar Pradesh)		7 persons died.	
4.	17 Feb.	Yavatmal (Maharashtra)		One person died at Digras.	
5.	20 Feb.	Puri (Orissa)		One girl died.	
6.	14 Mar.	Bidar (Karnataka)		One person died and 2 other seriously injured at Sultan- pur.	
7.	18 Mar.	Kottayam, Pathanamthitta and Thiruvananthapuram (Kerala)		3 persons died and a dozen injured.	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
8.	20 Mar.	Pathanamthitta (Kerala)		One person died in Adoor.	
9.	5 Apr.	Udaipur (Rajasthan)		One woman died.	
10.	10 Apr.	Buldhana, Parbhani and Yavatmal (Maharashtra)		3 persons died and 2 seriously injured.	
11.	14 Apr.	Kapurthala (Punjab)		2 persons died and 5 other injured.	
12.	15 Apr.	Thiruvananthapuram (Kerala)		One person died and 12 other injured at Sreekaryam.	
13.	16 Apr.	Bardhaman (West Bengal)		2 persons died in Andal and Raniganj areas and 2 other injured at Jamuria.	
14.	17 Apr.	Bardhaman (West Bengal)		2 persons died.	
15.	18 Apr.	Sonitpur (Assam)		i) One person died. ii) A few cows, goats and fowl birds also perished.	

<i>S.N.</i>	<i>Date / Period</i>	<i>Area affected</i>	<i>Intensity</i>	<i>Casualties</i>	<i>Extent of damage</i>
16.	19 Apr.	Nawan Shehar (Punjab)		6 persons belonging to a family electrocuted when lightning struck on their Jhuggi.	
17.	20 Apr.	Idukki and Thiruvananthapuram (Kerala)		One person died and 5 injured.	
18.	21 Apr.	(a) Bellary, Gulbarga and Raichur (Karnataka)		i) 4 persons died and 4 other injured. ii) 2 bullocks, a few goats and a few fowls also reported dead.	Grains and agricultural equipments including pumpsets reduced to ashes in Raichur district.
		(b) Moradabad and Siddharth Nagar (Uttar Pradesh)		4 persons died and 2 other injured.	
19.	26 Apr.	Gulbarga (Karnataka)		A boy died and another seriously injured in Yadgir tehsil.	
20.	27 Apr.	Jalpaiguri (West Bengal)		7 persons died and 12 other injured in Malbazar.	
21.	29 Apr.	(a) Gadchiroli (Maharashtra)		4 labourers died while collecting Tendu leaves in nearby jungles of Aarmori tehsil.	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
22.	30 Apr.	(b) North 24 Parganas (West Bengal) Thiruvananthapuram and Wayanad (Kerala)		2 persons died at Gaighata.	i) one transformer burnt and some electrical equipments and 2600 telephones damaged. ii) A house also partially damaged.
23.	1 May	Purulia (West Bengal)		One person died at Saha- jury.	
24.	8 May	Hooghly (West Bengal)		2 persons died at Polba.	
25.	30 May	Kollam (Kerala)		One person died while fish- ing.	
26.	10 Jun.	Ahmednagar and Nanded (Maharashtra)		i) 4 persons died and 4 other injured. ii) 2 bullocks also died.	
27.	11 Jun.	Ahmednagar, Hingoli and Pune (Maharashtra)		4 persons died .	
28.	12 Jun.	Sagar (Madhya Pradesh)		One person died at Roheli.	
29.	14 Jun.	Pune (Maharashtra)		In all, 5 persons died in dif- ferent incidents.	
30.	15 Jun.	Nashik (Maharashtra)		2 persons died and 3 other received burn injuries in Sinnar tehsil.	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
31.	17 Jun.	Panchmahal (Gujarat)		One child died in Halol tehsil.	
32.	22 Jun.	Aurangabad (Maharashtra)		One person died and 3 other injured in Chikhalthana area.	
33.	27 Jun.	Nadia (West Bengal)		2 persons died.	
34.	2 Jul.	Badwani (Madhya Pradesh)		2 persons died.	
35.	4 Jul.	(a) Kota (Rajasthan)		One person died in Kota city.	
		(b) Kushinagar (Uttar Pradesh)		3 persons died.	
36.	5 Jul.	Bundi (Rajasthan)		5 persons received burn injuries.	
37.	6 Jul.	Etawah (Uttar Pradesh)		i) 6 persons, including 4 children died. ii) 16 goats also perished.	
38.	16 Jul.	(a) Jind (Haryana)		4 persons died.	
		(b) Jodhpur (Rajasthan)		2 persons died.	
39.	18 Jul.	Koppal (Karnataka)		3 women died on the spot in Munirabad tehsil.	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
40.	21 Jul.	Sonbhadra (Uttar Pradesh)		2 persons died.	
41.	26 Jul.	Medinipur (West Bengal)		6 persons died and 18 other injured.	
42.	27 Jul.	Varanasi (Uttar Pradesh)		2 women died.	
43.	29 Jul.	Tehri Garhwal (Uttaranchal)		One person died at New Tehri.	A few shops damaged at Dev Prayag.
44.	1 Aug.	Jorhat (Assam)		One woman died.	
45.	9 Aug.	Yavatmal (Maharashtra)		4 farm labourers died and 7 other injured.	
46.	10 Aug.	Nagpur (Maharashtra)		2 persons died.	
47.	11 Aug.	Jaipur (Rajasthan)		One woman died.	
48.	15 Aug.	Kamrup (Assam)		One person died at Sonapur.	
49.	17 Aug.	Golaghat (Assam)		i) One woman injured. ii) Some birds including crows died.	The branch office of Assamese newspaper "Pratidin" dam- aged.
50.	24 Aug.	(a) Chandrapur (Maharashtra)		2 persons died.	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
51.	26 Aug.	Medinipur (West Bengal)		2 persons died and 19 other injured.	
52.	29 Aug.	Bardhaman (West Bengal)		One person died.	
53.	3 Sep.	Muzaffarpur (Bihar)		3 buffaloes died.	
54.	6 Sep.	Bardhaman (West Bengal)		One person died.	
55.	9 Sep.	Kamrup (Assam)		One child died in Guwahati city.	
56.	21 Sep.	Madurai (Tamil Nadu)		5 persons died.	
57.	22 Sep.	(a) Guna (Madhya Pradesh)		53 goats died in Ishagarh.	
		(b) Kangra (Himachal Pradesh)		i) One shepherd died. ii) 100 cattle perished.	
58.	23 Sep.	Chandrapur (Maharashtra)		One person died.	
59.	25 Sep.	Dhubri (Assam)		One woman died while working in the field.	
60.	30 Sep.	Malappuram (Kerala)		One person died.	
61.	1 Oct.	(a) Goalpara and Kamrup (As- sam)		8 persons died.	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
62.	3 Oct.	Bijapur (Karnataka)		3 persons died.	
63.	21 Oct.	Gulbarga (Karnataka)		A bullock died in Afzalpur tehsil.	
64.	22 Oct.	Gulbarga (Karnataka)		3 persons died in different parts of the district.	
65.	30 Oct.	Pathanamthitta (Kerala)		One boy died and another injured at Adoor.	
66.	31 Oct.	(a) Pune (Maharashtra)		One woman died and 6 other injured in Maval tehsil.	
		(b) Purulia (West Bengal)		2 persons died.	
		(c) Thiruvananthapuram (Kerala)		One fisherman died in the sea while fishing near Vak- kam	
67.	1 Nov.	Jalna (Maharashtra)		3 persons including a woman and her child died in Chikhali tehsil.	
68.	2 Nov.	Buldhana (Mahatrashta)		3 persons died.	
69.	22 Nov.	Kollam (Kerala)		One woman seriously burnt at Kundara.	

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

1.	18 Feb.	Ahmedabad, Banaskantha, Gandhinagar, Mehsana and Valsad (Gujarat)	Severe	6 persons died and around 70 injured.	i) 500 houses destroyed. ii) Several trees uprooted.
2.	19 Feb.	(a) Banka (Bihar)	Severe	2 persons died.	Many kutcha houses reported broken.
		(b) Saran (Bihar)	Moderate	One person died.	
3.	17 & 18 Mar.	Nalgonda, Nellore and Warangal (Andhra Pradesh)	Severe	10 persons died.	Crops in hundreds of hectares damaged.
4.	18 Mar.	Darrang (Assam)	Moderate	One person died in Sipajhar.	
5.	4 Apr.	(a) Azamgarh (Uttar Pradesh)	Moderate	One person died.	
		Ballia, Mau, Pratapgarh and Rai Bareilly (Uttar Pradesh)	Severe	15 persons died.	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
6.	12 Apr.	Coochbehar (West Bengal)	Severe	Around 60 persons injured at Mekhliganj.	A good number of houses damaged in Mekhliganj leaving 400 people homeless.
7.	16 Apr.	Kamrup and Nalbari (Assam)	Severe		i) Many dwelling houses damaged. ii) Several trees uprooted.
8.	17 Apr.	(a) Bankura and Howrah (West Bengal)	Moderate	i) 2 persons died and many injured. ii) Around 50 to 60 cattle lost.	i) A large number of houses damaged. ii) Paddy crops in hundreds of hectares damaged.
		(b) Thiruvananthapuram (Kerala)	Moderate		Extensive damage to Agriculture reported.
9.	18 Apr.	Nagaon (Assam)	Moderate	2 persons died.	i) Several dwelling houses damaged. ii) Many trees uprooted.
10.	20 Apr.	Wayanad (Kerala)	Severe	2 persons died and 5 injured at Pulppally.	i) Many houses damaged. ii) Damage to agriculture also reported.
11.	21 Apr.	Bardhaman, Murshidabad and Nadia (West Bengal)	Moderate	2 persons injured.	More than 100 houses damaged.

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
12.	22 Apr.	Dhubri, Dhemaji, Hailakandi and Sonitpur (Assam)	Severe (Tornado) 120 kmph.	i) In all, 41 people including 14 women died of which Dhubri district accounted for 33 deaths. ii) Over 2000 people reported injured.	i) 8 villages including Kalapani along Assam- Meghalaya border severely hit by the storm. ii) Road and telecommunication network completely paralysed. iii) 3500 people rendered homeless. iv) Many trees uprooted and several electric / telephone poles either uprooted or bent. v) Several dwelling houses destroyed.
13.	27 Apr.	Wayanad (Kerala)	Severe		2000 plantains uprooted in Kolpetta.
14.	28 Apr.	Gadchiroli (Maharashtra)	Severe	4 persons died.	
15.	29 Apr.	Thiruvananthapuram (Kerala)	Moderate		In Vellarada, i) 50 houses collapsed. ii) Extensive damage to agriculture reported.
16.	4 May	Nagaon (Assam)	Moderate		In Lumding and nearby areas, i) Many houses collapsed. ii) Trees/electric and telephone poles uprooted. Telephone Exchange tower damaged disrupting telecommunication service.
17.	6 May	Dibrugarh (Assam)	Moderate		i) Roofs of dwelling houses and schools blown off. ii) Trees / electric and telephone poles uprooted.

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
18.	7 May	Hailakandi (Assam)	Moderate		Large number of houses in 12 villages flattened, rendering thousands homeless.
19.	8 May	Medinipur (West Bengal)	Moderate	One person died at Chandrakona.	
20.	9 May	Bardhaman, Hooghly, Murshidabad and Nadia (West Bengal)	Severe	6 persons died.	
21.	18 May	Morena (Madhya Pradesh)	Moderate		Roof tops of several houses blown away.
22.	21 May	Bankura, Bardhaman, Nadia and South 24 Parganas (West Bengal)	Severe	10 persons died and hundred other injured.	
23.	22 May	Barabanki and Sultanpur (Uttar Pradesh)	Moderate	4 persons died.	
24.	26 May	Mahendergarh (Haryana)	Severe	10 labourers buried under the debris of kutcha huts.	i) Many kutcha huts collapsed. ii) Roofs of number of houses blown away. iii) Dozens of transformers went out of order. iv) Several electric poles / trees fell down.
25.	1 Jun.	Tumkur (Karnataka)	Severe	One girl died under an up-rooted arecanut tree.	
26.	4 Jun.	East Champaran, Rohtas and Sitamarhi (Bihar)	Severe	6 persons died.	Heavy damage to Lichi and Mango reported.

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
27.	9 Jun.	Pune (Maharashtra)	Moderate		i) As many as 25 trees uprooted. ii) Low lying areas waterlogged.
28.	10 Jun.	Jalna and Pune (Maharashtra)	Moderate	2 persons died due to wall collapse / electrocution.	Many trees uprooted.
29.	14 Jun.	Bangalore (Karnataka)	Moderate	One woman and a child seriously injured in wall collapse.	
30.	15 Jun.	(a) Bankura (West Bengal)	Severe	4 persons died.	
		(b) Bardhaman and South 24 Parganas (West Bengal)	Moderate	3 persons died.	
31.	17 Jun.	(a) Bhopal (Madhya Pradesh)	Moderate		Several trees and electric poles uprooted.
		(b) Junagadh (Gujarat)	Moderate	One child died due to house collapse in Prabhas Patan tehsil.	
32.	25 Jun.	Patna (Bihar)	Severe	5 persons died and more than a dozen injured in Bakhtiarpur.	
33.	29 Jun.	Murshidabad (West Bengal)	Moderate	One person died.	

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
34.	9 Jul.	Munger and Nalanda (Bihar)	Severe	6 persons died.	
35.	12 Jul.	Nadia (West Bengal)	Moderate	One person injured at Krishnagar.	
36.	13 Jul.	Howrah (West Bengal)	Moderate	One person died at Shampur.	
37.	16 Jul.	Jalore (Rajasthan)	Moderate		One dozen kutcha houses damaged.
38.	24 Jul.	Birbhum and Medinipur (West Bengal)	Severe	4 persons died and 24 other injured.	
39.	25 Jul.	Medinipur (West Bengal)	Severe	3 persons died at Kharagpur.	
40.	11 Aug.	Muzaffarpur (Bihar)	Severe		Entire north Bihar received no power due to damage of high tension transmission line.
41.	23 Aug.	Medinipur (West Bengal)	Severe		i) 3 villages severely affected. ii) Severe loss to agricultural products reported.
42.	19 Sep.	North 24 Parganas (West Bengal)	Moderate	2 children died.	
43.	21 Sep.	South 24 Parganas (West Bengal)	Moderate	One person died.	

<i>S.N.</i>	<i>Date / Period</i>	<i>Area affected</i>	<i>Intensity</i>	<i>Casualties</i>	<i>Extent of damage</i>
44.	22 Sep.	Bardhaman (West Bengal)	Moderate	2 persons died.	
45.	26 Sep.	Chennai (Tamil Nadu)	Severe	3 persons died.	
46.	30 Sep.	Wayanad (Kerala)	Moderate		Thousands of plantains damaged at Kalpetta.
47.	3 Oct.	Mumbai (Maharashtra)	Moderate		Around 30 trees uprooted.
48.	8 Oct.	Pune (Maharashtra)	Severe	4 persons died due to landslide.	Landslide reported.
49.	5 Oct.	(b) Nadia (West Bengal)	Severe	4 persons died.	
		(b) Darjeeling (West Bengal)	Moderate	2 persons died at Siliguri.	
50.	10 Oct.	Murshidabad (West Bengal)	Severe (Tor- nado)	11 people reported injured.	i) 50 houses fully and 350 houses partially damaged. ii) Crop and vegetables in a few acres damaged.
51.	11 Oct.	Bangalore (Karnataka)	Severe	3 persons died due to drowning / wall collapse in Bangalore city.	In Bangalore city, i) A car severely damaged under uprooted tree. ii) Several shopping localities inundated.
52.	21 Oct.	South 24 Parganas (West Bengal)	Severe	One youth died.	
53.	27 Oct.	Medinipur (West Bengal)	Severe		i) 3 villages severely affected. ii) Huge losses to agricultural products reported.

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
54.	31 Oct.	Medinipur (West Bengal)	Moderate		i) A few houses partially/completely damaged. ii) 50 families affected.
55.	7 Nov.	Thiruvananthapuram (Kerala)	Moderate	2 persons injured due to house collapse.	

TABLE – IX : 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.	28 Jan.	Chandigarh (U.T.) and Panch- kula (Haryana)	Moderate		Standing crop badly damaged.
2.	11 Feb.	Malda (West Bengal)	Moderate		Many trees uprooted.
3.	12 Feb.	Kamrup (Assam)	Moderate		In southern parts, i) Standing crop damaged. ii) Several trees uprooted.

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
4.	17 Feb.	(a) Amravati (Maharashtra)	Moderate	At Morshi, i) One labour and a child died. ii) A few cows and hun- dreds of birds perished.	
		(b) Betul (Madhya Pradesh)	Heavy	i) 20 persons died. ii) Nearly 50 animals per- ished.	35 houses damaged.
5.	18 Feb.	(a) Punjab (Many parts)	Heavy	i) 14 persons died in dif- ferent parts. ii) Nearly 100 cattleheads lost.	Wheat crop damaged.
		(b) Rajasthan (Many parts)	Heavy	i) 2 persons died in Churu district. ii) 150 persons injured in different parts of the State.	Crops damaged.
6.	19 Feb.	(a) Dausa and Jaipur (Rajasthan)	Heavy	i) 2 persons died. ii) 50 cattleheads lost.	
		(b) Ludhiana (Punjab)	Moderate		Wheat and mustard crop damaged.
		(c) Sirsa (Haryana)	Moderate		100 houses collapsed.

<i>S.N.</i>	<i>Date / Period</i>	<i>Area affected</i>	<i>Intensity</i>	<i>Casualties</i>	<i>Extent of damage</i>
7.	20 Feb.	Uttar Pradesh (Many parts)	Moderate		Standing wheat, mustard and pulses badly damaged.
8.	25 Feb.	Darrang and Nagaon (Assam)	Moderate		i) Standing crop damaged. ii) Several houses damaged. iii) Many trees uprooted.
9.	27 Feb.	Barpeta (Assam)	Moderate		i) Standing crop damaged. ii) Many trees uprooted.
10.	12 Mar.	(a) Bankura, Hooghly, Medinipur and North 24 Parganas (West Bengal)	Heavy	i) 29 persons died. ii) Nearly 35,000 cattle lost.	i) 37,929 houses completely and 63,408 houses partially damaged. ii) Heavy damage to agro-products also reported.
		(b) Howrah and Kolkata (West Bengal)	Moderate	One person died and 3 other injured.	
11.	14 Mar.	Nadia (West Bengal)	Heavy		At Mazidia, nearly 130 houses fully and 1800 houses partly damaged.
12.	27 Mar.	Hooghly (West Bengal)	Moderate	One girl died at Pandua.	
13.	2 Apr.	Darrang (Assam)	Heavy		In Mangaldoi, i) Many houses damaged. ii) Widespread damage to agricultural products reported. iii) Several trees/electric poles uprooted.
14.	4 Apr.	(a) Ambala (Haryana)	Moderate		Widespread damage to wheat crop reported.

<i>S.N.</i>	<i>Date / Period</i>	<i>Area affected</i>	<i>Intensity</i>	<i>Casualties</i>	<i>Extent of damage</i>
		(b) Doda (Jammu & Kashmir)	Moderate		Damage to agriculture / fruits reported at Banihal.
15.	5 Apr.	Raisen (Madhya Pradesh)	Moderate	i) Many people reported injured. ii) Deaths of a few birds also reported.	i) Widespread damage to standing crops reported. ii) A few trees collapsed disrupting road transport.
16.	17 Apr.	Howrah (West Bengal)	Moderate		Paddy crops in hundreds of hectares damaged.
17.	22 Apr.	(b) Goalpara (Assam)	Heavy	2 persons died at Katlichara in Mankachar.	
		(a) Darrang (Assam)	Moderate		In Sipajhar areas, i) Some areas submerged. ii) Bodocrop destroyed,
18.	29 Apr.	Allahabad (Uttar Pradesh)	Heavy	5 persons died under fallen trees.	
19.	30 Apr.	Kamrup (Assam)	Moderate		Paddy and jute crop badly damaged.
20.	4 May	Medinipur (West Bengal)	Heavy		Nearly 50 houses reduced to dust at Panskura.
21.	7 May	Kamrup (Assam)	Moderate		In Rangia subdivision dwelling houses, trees and agricultural products destroyed.
22.	9 May	Dhubri (Assam)	Heavy	Nearly 300 crows perished.	Rabi and summer crop in about 8500 hectares completely destroyed.

S.N.	Date / Period	Area affected	Intensity	Casualties	Extent of damage
23.	19 May	Morena (Madhya Pradesh)	Moderate		Roof tops of several houses blown away.
24.	3 Jun.	Muzaffarpur (Bihar)	Heavy	4 persons died and three dozen injured.	i) Several trees uprooted. ii) Loss to agricultural products also reported.
25.	11 Jul.	Madurai (Tamil Nadu)	Heavy		i) About 150 houses collapsed and 75 other damaged. ii) Several trees uprooted and about 50 electric poles either bent or damaged.
26.	28 Sep.	Bhatinda (Punjab)	Heavy	Several persons injured.	Paddy and cotton crop 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.	Subdivision	Seasonal rainfall departure (%)	Intensity
1	North Interior Karnataka	-35	Moderate
2	South Interior Karnataka	-26	Moderate
3	Kerala	-32	Moderate

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
TABLE – XI : FLOODS AND HEAVY RAINS					
ARUNACHAL PRADESH					
1.	19-20 Jul.	Many parts	Heavy rains	2 persons died.	i) Landslide reported. ii) 8 houses on the slope of a hillock destroyed. .
*	Whole year			2 human lives lost.	i) 0.14 lakh population affected. ii) 4 houses damaged.
ASSAM					
1.	7 Jun.	Dhemaji	Flash flood (Jiadhol)		Due to heavy rains in Arunachal Pradesh, the water level of Jiadhol river risen inundating NH52 and railway track at Samarjan cutting off all vehicular/rail traffic.
2.	Jun. (3 rd week) to Jul. (4 th week)	Entire state	Severe flood (Brahmaputra and its tributaries)	38 persons died in different incidents of house collapse / drowning.	i) 52,35,092 people in 4962 villages affected. Dhemaji district worst affected. ii) Standing crops in 2,13,184 hectares badly damaged. iii) 3,635 houses fully and 1,015 houses partially damaged. Around 6.5 lakh people became homeless. iv) Some of the tributaries change their course, submerging low lying areas. Kaziranga National Park also inundated. Animals from the park took shelter in nearby Karbi-Anglong hills. v) Several roads including NH52 inundated at many points. Road communication disrupted. vi) 200 metre railtrack between Silchar and Lumding washed away. Rail service cut off.

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
3.	Aug. (3 rd week)	Darrang, Jorhat and Morigaon	Moderate flood (Dhansiri etc.)		i) Nearly 4,98,000 people from 378 villages of Morigaon dist. affected. ii) Vast areas of cropland submerged.
4.	29 Aug.	Kamrup	Heavy rains	One woman fell down into a drain and washed away.	
5.	2 Sep.	Lakhimpur	Flash flood (Salengi)		NH52 submerged in Brahman. Road communication to Gohpur, North Lakhimpur and Dhemaji disrupted.
6.	22 Sep.	Sonitpur	Flash flood (Jiabharali)	One person washed away.	i) About 4000 people rendered homeless. ii) Thousands of people badly affected as the embankment washed away.
7.	4 Oct.	Sonitpur	Flash flood (Gavoru)	Some domestic animals washed away.	12,000 people from 15 villages in west Tezpur affected due to overflowing of Gavoru river.
8.	9 Oct.	Kamrup	Heavy rains	2 persons died at Hastinapur in Guwahati city due to landslide.	Landslide reported.
9.	11 Oct.	Kamrup, Karbi-Anglong, Nagaon and Sonitpur.	Flash flood (Barpani)	One person washed away in Kamrup district.	i) Nearly 60,000 people affected. ii) 98% of the farm field with standing crops submerged. iii) NH 37 and NH 52 and around 13 km. stretch of Kamrup-Baithalangso road submerged. iv) More than 100 houses and a church washed away.

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
10.	15 Oct.	Kamrup and Nagaon	Heavy rains		i) Low lying areas submerged at Doboka in Nagaon district. ii) Nearly 8000 families from Chhaygaon in kamrup district affected.
11.	29 Oct.	Dhubri	Heavy rains	One person died at South Salmara.	Standing crops affected.
*	Whole year	6.79 lakh ha.		30 human lives lost.	i) 52.75 lakh population affected. ii) Crops in 3.82 lakh ha. Damaged. iii) 4660 houses damaged.

BIHAR

1.	17 Jun.	Madhubani and Sitamarhi	Flash flood		i) Around 100 acres of agricultural field inundated. ii) Road communication cut off.
2.	Jun. (4 th week) to Jul. (1 st week)	Many parts	Severe flood (Bagmati, Kosi and Kamala Balan)	25 persons died.	i) 36 tehsils in 9 districts inundated. ii) Nearly 12 lakh population affected and one lakh became homeless. iii) NH 77 and NH 104 merged due to flood waters. iv) Rail service on Madhepura-Purnea, Saharsa-Katihar and Purnea-Katihar sections halted due to inundation of rail tracks.

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
3.	Aug. (1 st and 2 nd week)	28 districts	Severe flood (Ganga, Bag- mati, Kosi, Mahananda, Adhwara, Gan- dak and Burhi Gandak)	75 persons died.	
4.	9-11 Sep.	19 districts	Severe flood	140 persons died.	i) Patna-Chapra road submerged under 2 feet flood water and Arrah-Buxar road also submerged ii) Chapra-Varanasi rail line submerged under flood water. iii) Paddy and maize crop damaged extensively. iv) Nearly 70,000 people affected. v) River embankments breached at several points sub- merging around 60 villages.
5.	Sep. (4 th week)	Many parts	Severe flood (Ganga and its tributaries)	179 persons died.	
*	Whole year			i) 251 human lives lost. ii) 108 cattle lost.	i) 7.602 million population affected. ii) Crops in 0.610 m.ha. damaged. iii) 45,262 houses damaged.

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
CHHATTISGARH					
1.	21-26 Jul.	Many parts	Heavy rains	3 persons swept away.	Hundreds of houses collapsed / damaged.
2.	28 Aug.	Raipur	Heavy rains		A few houses collapsed.
*	Whole year	0.074 m.ha.		i) 30 persons died. ii) 2793 cattle lost.	i) 0.684 million population affected. ii) Crops in 0.074 m.ha. damaged. iii) 78,718 houses damaged.
GUJARAT					
1.	18 Jun.	Some parts	Heavy rains	2 persons died.	
2.	26 Jul.	Many parts	Heavy rains	11 persons died.	
3.	Aug.	Many parts	Heavy rains	76 persons died.	
*	Whole year			i) 106 persons died. ii) 188 cattle lost.	i) 21.0 lakh population affected. ii) Crops in 6.0 lakh ha. damaged.
HARYANA					
1.	12 Jul.	Hissar and Sonipat	Heavy rains	4 persons died.	
2.	16 Jul.	Jind and Sirsa	Heavy rains	2 persons died.	

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
3.	17 Jul.	Hissar ,Jind and Yamuna Nagar	Heavy rains	One person died.	Loss of property and crops reported .
4.	21 Jul.	Rewari	Heavy rains	2 persons died in Pali.	
HIMACHAL PRADESH					
1.	8 Jul.	Shimla	Heavy rains		i) Heavy rains due to cloud burst reported. ii) Extensive damage to public/private property reported at Rampur.
2.	16 Jul.	Kullu	Heavy rains	More than 150 persons feared dead in Garsa valley; about 40 km. from Kullu.	i) Heavy rains due to cloud burst reported. ii) Extensive damage to property reported.
3.	20 Jul.	Mandi	Heavy rains		i) Heavy rains due to cloud burst reported. ii) Several houses and Gaushalas damaged at Goda Gopal. iii) Crops also washed away.
4.	24 Jul.	Manali	Heavy rains	i) 2 persons died in Podu-Ka-Nala. ii) Some cattleheads also perished.	Heavy rains due to cloud burst reported.
5.	26 Jul.	Chamba and Shimla	Heavy rains	3 laborers died and another injured due to landslide triggered by heavy rains at Hudan in Pangti valley.	i) Landslide reported. ii) The landslide blocked the link road in the interiors. iii) Heavy loss to property reported from Rampur Bushar in Shimla district.

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
6.	31 Jul.	Kangra	Heavy rains	5 persons died and 2 injured following a cloud burst near Lalooni village.	Heavy rains triggered by cloud burst reported.
7.	2 Aug.	Chamba and Shimla	Heavy rains	One person washed away in Shimla district.	i) Landslide reported. ii) Chamba cut off due to blockade of Chamba-Pathankot highway following widespread rain and landslide.
8.	3 Aug.	Kangra	Heavy rains	One person died near Dharmshala when debris fell on him after landslide.	Landslide reported
9.	5 Aug.	Kinnaur	Heavy rains	4 persons washed away into Sutlej river.	
10.	7-8 Aug.	Kullu and Shimla	Flash flood	In Kullu district, about 60 persons washed away in a cloud burst that struck makeshift camp at Kangni Nullah; 15 km. from Manali.	i) Flash flood due to cloudburst reported. Landslide also reported. ii) Three buses, two jeeps and two trucks washed away in Pungrish Nullah. iii) Kotkhair bus stand and about 10 shops also damaged. iv) One bridge, two watermills, three houses and a shop washed away while two watermills and another 3 houses damaged. v) Hindusthan-Tibet road between Jhakri and Jury blocked at various places due to landslide.
*	Whole year	0.32 lakh ha.		i) 89 human lives lost. ii) 452 cattle lost.	i) 3.03 lakh population affected. ii) Crops in 0.16 lakh ha. damaged. iii) 2,924 houses damaged.

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
KARNATAKA					
1.	21-24 Jun.	Bellary, Udupi, Uttara Kannada and Dakshina Kannada	Heavy rains	i) In all 13 persons died including one woman due to landslide at Paraje Jogibettu (Dakshina Kannada). ii) A few livestock lost.	i) Landslide reported in Bellary, Uttara Kannada and Dakshina Kannada districts. Landslide at Yellapura on Karwar-Bellary highway (near Arebaylghatta), heavily suffered 50 hectares of forest area. ii) More than 50 houses partially and a few houses completely collapsed. 4 buildings, 49 panchayat area roads and 2 big drainages damaged. 5 cow sheds also collapsed. iii) One bridge collapsed in Surinche village (Dakshina Kannada). iv) Arecanut and coconut trees in 50 acres uprooted.
2.	16 Jul.	Bangalore and Udupi	Heavy rains	One child drowned in Udupi district.	In Bangalore, i) A few trees uprooted. ii) A two-wheeler damaged.
3.	20-22 Aug.	Bidar	Heavy rains	i) 6 persons died. ii) A few livestock also perished.	i) Most of the tanks in the district breached. ii) One bridge collapsed, traffic jam reported. iii) Sugarcane, green gram and soya in about 200 acre washed out.
4.	27 Aug.	Bangalore	Heavy rains		i) One 4-wheeler reported damaged. ii) Low lying areas inundated.

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
5.	3-6 Oct.	Davanagere, Hassan, Koppal, Shimoga and Tumkur	Heavy rains	One person died due to house collapse in Koppal dist.	i) In Davanagere dist. riped banana plantations in about 50 acres and about 30 to 40 arecanut trees razed to the ground. Maize crop in about 60 acres also damaged. Paddy saplings in vast areas of Shimoga dist. Destroyed. ii) A few houses and more than 50 huts collapsed and a temple in Tumkur dist. partially damaged. A bridge in Hassan dist. Also damaged. iii) A few road bunds breached causing inundation in Tiptur town of Tumkur dist..
6.	12 & 13 Oct.	Bangalore	Heavy rains	3 women died when a boulder came down crashing their house in Ramana-garam tehsil.	i) Landslide reported. ii) Hundreds of houses, located in the Vrishabhavathi valley area damaged. iii) Low lying areas inundated.
7.	21 Oct.	Mysore	Heavy rains		In Mysore city, i) Several compound walls collapsed and vehicles damaged. ii) 2 huts razed to the ground under an uprooted tree. iii) Low lying areas inundated.
8.	23 Oct.	Bangalore	Heavy rains	One old man washed away in flooded drainage in Bangalore city.	
*	Whole year				i) 0.013 lakh population affected. ii) Crops in 0.24 lakh ha. damaged. iii) 164 houses damaged.

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
KERALA					
1.	18-24 Jun.	Kannur, Kasaragode, Kozhikode and Thiruvananthapuram	Heavy rains	6 persons died and 3 children injured in different incidents of drowning / house collapse.	i) Several houses completely / partially collapsed / damaged. ii) Many trees uprooted. iii) The enclosure wall of a well collapsed and the well reported sank in Kozhikode district.
2.	4 Jul.	Kottayam	Heavy rains	One person died due to shop collapse.	
3.	6 Jul.	Kasaragode, Kottayam and Palakkad	Heavy rains	4 persons died and 2 other injured in different incidents of drowning / house collapse in Kottayam and Palakkad districts.	A few houses collapsed in Kasaragode district.
4.	15 Jul.	Kasaragode	Heavy rains	One person drowned.	
5.	2 Oct.	Thrissur	Heavy rains	2 students washed away.	
6.	5-7 Oct.	Idukki, Kollam and Thiruvananthapuram	Heavy rains	One person died and 3 other injured due to house / tree collapse in Kollam district.	i) Landslide reported in Kollam district. ii) Around 65 houses partially / completely damaged in Idukki and Thiruvananthapuram district. iii) Rail services disrupted due to falling of trees over the rail track in Thiruvananthapuram district.

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
7.	23 Oct.	Palakkad	Heavy rains		50 acres of agriculture damaged.
*	Whole year			32 persons died.	i) 0.12 lakh population affected. ii) Crops in 0.28 lakh ha. damaged. iii) 3,777 houses damaged.
MADHYA PRADESH					
1.	26 Jun.	Bhopal	Heavy rains	One child died.	i) Many trees uprooted. ii) Power supply and telecommunication disrupted.
2.	14 & 15 Jul.	Bhopal	Heavy rains		A few trees uprooted, traffic disrupted.
3.	20 Jul.	Bhopal	Heavy rains		Walls of a few houses collapsed.
4.	26 Jul.	Damoh, Guna and Jabalpur	Heavy rains	3 persons died.	
5.	10 Aug.	Dewas	Heavy rains	One girl died and 18 other injured.	Roofs of several huts blown away.
6.	30 Aug.	Jabalpur	Heavy rains	One child died due to wall collapse.	
7.	8 Sep.	Rewa and Satna	Flash flood	i) More than 10 people died. ii) Hundreds of cattle drowned.	i) Thousands of people became homeless. ii) Road links disrupted.

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
8.	10-15 Sep.	Bhopal, Gwalior, Rewa and Satna	Heavy rains	35 people died.	Road links interrupted.
*	<i>Whole year</i>			i) 18 persons died. ii) 735 cattle lost.	i) 14.36 lakh population affected. ii) Crops in 1.27 lakh ha. damaged. iii) 30,511 houses damaged.
MAHARASHTRA					
1.	11 Jun.	Latur	Heavy rains		60,000 sugar bags belonging to Manjra sugar factory drenched.
2.	19-21 Jun.	Mumbai	Heavy rains	One person died and an- other injured at Ghatkopar due to landslide.	i) Landslide reported. ii) Low lying areas submerged disrupting road traffic. iii) Rail tracks also submerged. Many trains delayed /cancelled. iv) More than 50 trees uprooted.
3.	22 Jun.	Nashik	Heavy rains		i) Extensive damage to dwelling houses reported. ii) At Nashik, embankment on Godavari river breached.
4.	23 Jun.	Jalgaon	Heavy rains	4 persons washed away in swollen nullah.	
5.	24 Jun.	Sindhudurg	Heavy rains	37 persons died and 27 other injured.	Landslide reported.

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
6.	28 & 29 Jun.	Mumbai	Heavy rains	4 persons died and many injured under the debris.	i) A 6-storeyed construction collapsed near Grant Road railway station. ii) Rail tracks submerged at many points. Many trains delayed / cancelled. iii) Several roads waterlogged. Road traffic disrupted. iv) Many trees uprooted.
7.	7 Jul.	Mumbai	Heavy rains	One youth drowned in falls in Sanjay Gandhi National park at Borivali and another injured due to wall collapse at Bhandup.	i) Low lying areas waterlogged resulting in traffic jam. ii) Around 50 trees uprooted.
8.	29 Jul.	Nandurbar	Flash flood (Narmada)		Due to continuous heavy rains in Madhya Pradesh, i). Nearly 12 villages engulfed by flood water. ii) 90 houses and 2 school buildings completely submerged under flood water.
9.	1 Oct.	Pune	Heavy rains		i) A few trees uprooted in Pimpri-Chinchwad area. ii) Waterlogging at many places reported.
10.	2 Oct.	Sangli	Heavy rains	One youth died and 8 persons injured.	i) Many trees uprooted and damage to several vehicles reported. ii) Electric supply disrupted due to breaking of overhead wire.

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
11.	8 Oct.	Pune	Heavy rains	One construction labour and his 3 children died due to landslide near Gokhalenagar.	Landslide reported.
12.	31 Oct.	Nashik	Heavy rains		Onion, grapes and pomegranate badly damaged. Tomatoes, cauliflower, cabbage etc. also badly damaged.
13.	1 & 2 Nov.	Pune	Heavy rains		i) Harvested rice crop ready for cutting badly damaged in rural areas of Mulshi and Maval tehsil. Extensive damage to horticulture (i.e. rose, jarbera and aster) also reported. ii) In Maval tehsil, many brick kilns badly damaged. iii) A few wall collapse incidents also reported at Talegaon Dabhade (Maval tehsil).
MEGHALAYA					
1.	30 Jun.	East Khasi Hills	Heavy rains	A mother and her 6-month old baby swept away at Shillong.	
2.	9 Oct.	East Khasi Hills	Flash flood (Umshyrpi)	One girl washed away in Latan area of Shillong city.	
*	Whole year			One person died.	

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
MIZORAM					
1.	19 Aug.	Aizawl	Heavy rains	3 persons died under the debris of a 4- storeyed building when it flattened due to landslide.	Landslide reported.
ORISSA					
1.	Aug. (1 st and 4 th week	14 districts	Severe flood (Mahanadi and its tributaries)	10 persons died.	i) 28 lakh people affected. ii) 48 doors (outlets) of Hirakud dam opened. iii) Roads washed away at many points disrupting road traffic.
2.	Sep.	22 districts	Severe flood	i) 60 persons died. ii) Around 2500 cattle perished.	i) 1,38,329 houses damaged. ii) 4,77,570.08 hectares of crop land affected.
3.	Oct. (1 st and 2 nd week)	11 districts	Severe flood	i) 32 persons died. ii) 482 cattle lost.	4,13,207 hectares of crop land affected.
*	Whole year	0.478 m. ha.		i) 60 human lives lost. ii) 2,270 cattle lost.	i) 3.565 million population affected. ii) Crops in 0.478 m.ha. damaged. iii) 1,44,716 houses damaged.

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
PUNJAB					
1.	2 Aug.	Bhatinda	Heavy rains	One person died and another injured under a collapsed roof.	
RAJASTHAN					
1.	14 Jun.	South Rajasthan	Heavy rains	One person died.	
2.	18 Jun.	Southwest Rajasthan	Heavy rains	9 persons died.	
3.	19 Jun.	Sikar	Heavy rains	One person died.	
4.	22 Jun.	Kota and Udaipur	Heavy rains		12 houses damaged.
5.	6 Jul.	Dausa	Heavy rains	One person washed away in a swollen nullah in Lalsot town.	
6.	10-13 Jul.	<i>Ajmer, Alwar, Banswara, Bharatpur, Churu, Jaisalmer, Jhunjhunu, Jodhpur and Sikar</i>	Heavy rains	21 persons died.	Dozens of houses collapsed / damaged.
7.	Jul. (3 rd week)	<i>Some parts</i>	Heavy rains	i) 30 persons died. ii) A few cattleheads perished.	Several houses collapsed.

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
8.	27 Jul.	Jaipur	Heavy rains	2 youths drowned.	
9.	29 Jul.	Barmer	Heavy rains		3 dozen kutcha houses collapsed.
10.	10 Aug.	Jhunjhunu	Heavy rains		One building and 24 kutcha houses damaged.
11.	26-28 Aug.	Barmer, Kota, Pali and Rajsamand	Heavy rains	i) 8 persons died. ii) Some cattle perished.	
12.	24 Sep.	Bundi	Heavy rains	One person washed away by strong current in Mez river at Hindoli.	
*	Whole year			4 human lives lost.	i) 0.182 million population affected. ii) 497 houses damaged.
SIKKIM					
*	Whole year	0.0004 m.ha.			0.086 million population affected.
TAMIL NADU					
1.	25 Jun.	South Tripura	Flash flood		Due to breach of a dam, i) Nearly 700 people rendered homeless. ii) 75 houses completely damaged.

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
UTTARANCHAL					
1.	4-6 Jul.	Dehradun and Tehri Garhwal	Heavy rains	5 persons died in different incidents of drowning / landslide.	i) Landslide reported. ii) Road communication affected. Gangotri, Rishikesh and Badrinath bound traffic stranded.
2.	21 Sep.	Pithoragarh	Heavy rains	7 ITBP personnel lost their lives while returning from Panchchuli summit.	Landslide reported.
*	<i>Whole year</i>			i) <i>20 persons died.</i> ii) <i>318 cattle lost.</i>	i) <i>0.003 million population affected.</i> ii) <i>499 houses damaged.</i>
UTTAR PRADESH					
1.	11-14 Jul.	Most parts	Heavy rains	64 persons died.	
2.	22 Jul.	Ballia, Ghazipur and Mirzapur	Heavy rains	5 persons died.	
3.	13 & 14 Aug.	Bahraich, Gonda, Lucknow and Shravasti	Heavy rains		Large number of houses washed away.
4.	25 Aug.	Gorakhpur	Heavy rains	i) 2 persons died. ii) Some cattle perished.	
5.	26 Aug.	Gonda	Heavy rains	One child died.	Widespread damage to crops reported.
6.	2 Sep.	Hamirpur	Heavy rains	2 persons died due to house collapse in village Kargaon.	

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
7.	3 Sep.	Muzaffarnagar	Heavy rains	3 persons died and many other injured.	Many houses collapsed.
8.	4 Sep.	Many parts	Heavy rains	65 persons died.	
9.	Sep. (2 nd and 3 rd week)	Many parts	Severe flood (Ganga and its tributaries)	172 persons died.	
10.	24 Sep.	Lucknow	Heavy rains	One person died due to wall collapse.	Damage to crops reported.
*	Whole year	2.355 m.ha.		i) 980 human lives lost. ii) 3304 cattle lost.	i) 13.476 million population affected. ii) Crops in 1.286 m.ha. damaged. iii) 3,61,323 houses damaged.

WEST BENGAL

1.	2 Jul.	Coochbehar	Heavy rains		Nearly 3000 people became homeless.
2.	7-9 Jul.	Darjeeling and Jalpaiguri	Heavy rains	In all 26 persons died, of which, 24 died in a spate of landslides and 8 reported missing in the hills of Darjeeling.	i) Landslide reported. ii) Some of the roads reportedly developed large cracks. NH31A became completely inaccessible, Kalimpong and Sikkim cut off from rest of the country. iii) The hill resorts; Darjeeling and Mirik cut off from rest of the state stranding hundreds of tourists. iv) One under construction bridge collapsed. v) Nearly 50 houses damaged.
3.	26 Jul.	Medinipur	Heavy rains	3 persons died at Kharagpur.	

S.N.	Date/ Period	Area affected	Intensity (River)	Casualties	Extent of damage
4.	29 Aug.	South 24 Parganas	Heavy rains		In Sagar, Kakdweep and Patharpratima i) Nearly 20 villages affected. ii) 30 kutcha houses inundated.
5.	9 & 10 Sep.	Murshidabad	Flash flood		More than 100 houses collapsed.
6.	15-17 Sep.	Murshidabad	Flash flood	7 children washed away.	
7.	12 Oct.	Uttar Dinajpur	Heavy rains	5000 migratory birds perished.	
*	Whole year			23 persons died.	i) 2.69 lakh population affected. ii) Crops in 0.10 lakh ha. damaged. iii) 4,961 houses damaged.
UNION TERRITORIES					
DELHI					
1.	5 Jul.	New Delhi	Heavy rains	4 labourers died and 6 other injured due to wall collapse.	
2.	9-11 Jul.	New Delhi	Heavy rains	4 persons, including 3 children died due to wall / roof collapse.	i) Rail service disrupted. ii) A 70 ft. long wall in Nangloi area collapsed.

* Input from Central Water Commission and Ministry of Home Affairs.

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

Three cyclonic storms were formed over either the Arabian sea or the Bay of Bengal during 2003. Out of these, only one storm which formed over the Bay of Bengal crossed the Indian coast and have caused some effect over India. Details of the same are given below :-

BAY CYCLONE

1.	11-16 Dec.	<p>Formation Near Lat. 9.5°N Long. 87.0°E at 1200 UTC of 13th</p> <p>Landfall Crossed south Andhra coast close to Machilipatnam on 15th midnight.</p> <p>Dissipation Over north coastal Andhra Pradesh on 17th</p>	Severe Cyclonic Storm	81 persons died.	<p>i) 1,637 buildings completely destroyed and 7,453 partially damaged.</p> <p>ii) 61898.5 ha. crop land affected.</p> <p>iii) 2000 villages suffered power failure.</p> <p>iv) Telecommunication system in 41 villages disrupted.</p> <p>v) A ship by name "M.V. NANDKAWAS" damaged near Machilipatnam.</p> <p>vi) Total loss of property to the tune of Rs. 23,903.13 lakhs reported.</p>
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