



INDIA METEOROLOGICAL DEPARTMENT  
DISASTROUS WEATHER EVENTS, 1990



ISSUED BY  
ADDITIONAL DIRECTOR GENERAL OF METEOROLOGY  
(RESEARCH)

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Cover Photo : May 1990 Andhra Cyclone of coastal Andhra Pradesh.

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### DISASTROUS WEATHER EVENTS OF 1990

The most striking disastrous weather events of 1990 were the following :

- i) A severe cyclonic storm with a core of hurricane winds occurred in the Bay of Bengal during 5th to 10th May and took a toll of 982 human lives and 36,14,725 cattleheads mostly in Andhra Pradesh and also in Tamil Nadu.
- ii) Severe flood conditions prevailed over large areas of Andhra Pradesh, Assam, Gujarat, Haryana, Himachal Pradesh, Maharashtra, Meghalaya, Orissa, Rajasthan, Uttar Pradesh and West Bengal and took a toll of over 1400 human lives.
- iii) Severe cold wave conditions prevailed over Bihar State during January. It took a toll of 63 human lives in Bihar.

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 seasonwise on four maps.

I N D E X

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S.N.	Date/period	Area affected	Intensity	Casualties	Extent of damage
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**TABLE - 1 : SNOWFALL**

**CRITERIA**

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

**Heavy** :  $\geq$  35.0 cm in 24 hrs.

1.	17 Feb.	Chamba, Kinnaur and Lahul-Spiti	Heavy		<ul style="list-style-type: none"> <li>(i) Vehicular traffic on Hindusthan-Tibet road at several places on the Shimla-Kalka highway disrupted.</li> <li>(ii) Night temperature at many places reported <math>-17^{\circ}\text{C}</math> to <math>-23^{\circ}\text{C}</math>.</li> <li>(iii) Water tanks frozen.</li> <li>(iv) Indian Airlines and Vayudoot flights from Delhi to Shimla cancelled.</li> </ul>
2.	22-27 Feb.	Kullu, Lahul-Spiti and Shimla	Heavy		<ul style="list-style-type: none"> <li>(i) Tribal belt of Himachal Pradesh completely cut-off from rest of the country.</li> <li>(ii) Shimla and surrounding areas covered by a thick blanket of snow.</li> <li>(iii) 350 km. long Hindusthan-Tibet National Highway remained close for vehicular traffic.</li> </ul>
3.	23-26 Feb.	Chamba, Kinnaur and Lahul-Spiti	Heavy		<ul style="list-style-type: none"> <li>(i) Several areas cut-off from rest of the country.</li> <li>(ii) Normal life in tribal areas completely paralysed.</li> <li>(iii) Night temperature dropped to <math>-32^{\circ}\text{C}</math>.</li> <li>(iv) Several lakes frozen.</li> <li>(v) Vehicular traffic to upper areas along Hindusthan-Tibet National Highway completely disrupted.</li> </ul>

S.N.	Date/period	Area affected	Intensity	Casualties	Extent of damage
4.	18-24 Mar.	Kinnaur and Lahul-Spiti	Heavy		Vehicular traffic on 850 km. long Hindusthan-Tibet road completely disrupted beyond Kalpa.
5.	22 Mar.	Kargil and Ladakh	Heavy	11 persons died due to avalanche.	
6.	24-28 Mar.	Kinnaur and Lahul-Spiti	Heavy	13 persons died.	(i) National highway washed away due to heavy glacier. (ii) Several areas of Pangi valley cut-off from rest of the country.
7.	24 Dec.	Jammu and Kashmir	Heavy		300 km. long Srinagar-Jammu National Highway closed for vehicular traffic.
8.	25-27 Dec.	Lahul-Spiti	Heavy		(i) Tribal areas of Lahul-Spiti covered with 100 cm of snow. (ii) Normal life completely disrupted.
9.	29-31 Dec.	(a) Himachal Pradesh	Heavy	5 persons died.	(i) Normal life completely disrupted. (ii) Whole of Himachal Pradesh cut-off from rest of the country. (iii) Complete break-down in the supply of water and electricity in Shimla reported. (iv) <b>Hundreds of</b> vehicles stranded on 350 km. long Hindusthan-Tibet road. (v) Night temperature in Shimla dipped to -6°C.
		(b) Jammu and Kashmir	Heavy	26 persons died due to avalanche.	(i) Kashmir valley cut-off from rest of the country. (ii) Jammu-Srinagar National Highway remained closed for vehicular traffic.

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.

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.	1-10 Jan.	Bihar (Entire State)	Severe cold wave (Both A and B as appropriate)	63 persons died.
2.	2 Jan.	Hoshiarpur	Cold wave (B)	2 persons died.
3.	3 Jan.	(a) Karnal	Cold wave (B)	3 persons died at Panipat.
		(b) Bharatpur, Dholpur and Sikar	Severe cold wave (B)	5 persons, 3 from Bharatpur district and 1 each in Dholpur and Sikar district died.
4.	17 Feb.	Ajmer	Severe cold wave (B)	One person died at Ram Dham village near Puskar.
5.	12-13 Dec.	Calcutta and neighbourhood	Severe cold wave (A)	3 persons died.

S.N.	Date/period	Area affected	Intensity	Casualties	Extent of damage
6.	25-27 Dec.	Himachal Pradesh	Severe cold wave (Both A and B as appropriate)		(i) Night temperature dipped to -15°C. (ii) All lakes and sources of natural water frozen.
7.	26 Dec.	Jammu and Kashmir	Severe cold wave (Both A and B as appropriate)		Mercury dipped below freezing level and lay between 0° to -25°C.
8.	29-31 Dec.	Ganganagar, Jaipur and Jodhpur	Severe cold wave (B,B and A respectively)	5 persons, 3 from Jaipur and one each from Ganganagar and Jodhpur died.	

**TABLE - III : HEAT WAVE**

**CRITERIA**

(A) Where, Normal maximum temperature is 40°C or less.

**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.	21 Apr.	Nagpur	Severe heat wave (A)	One person died.	
2.	24 Apr.	Nagpur	Severe heat wave (A)	One person died.	



S.N.	Date/period	Area affected	Intensity	Casualties	Extent of damage
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**TABLE - IV : DROUGHT**

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**TABLE - V : SQUALL**

**CRITERIA**

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

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

1.	20 Mar.	Bhatinda and Ferozepur	Severe		(i) Hundred villages of Abohar block in Ferozepur and Malout and Lambi block in Bhatinda district affected. (ii) Standing crop badly affected. (iii) Thousands of trees/electric poles uprooted disrupting the power supply.
2.	28 Apr.	Deoghar	Severe	One boy died and 3 other injured.	
3.	19 May	Chandigarh	Severe (105 kmph)		(i) Extensive damage to crop reported. (ii) Large number of trees/electric and tele-communication poles uprooted.

**TABLE - VI : GALE**

**CRITERIA**

**Strong** : Wind speed  $\geq$  75 kmph.

1.	7 Apr.	Ernakulam	Strong		Extensive damage to Agriculture reported.
2.	24 May	Alpuzaha and Kozhikode	Strong		(i) Several huts damaged. (ii) 200 coconut trees uprooted. (iii) One fishing boat capsized.

S.N.	Date/period	Area affected	Intensity	Casualties	Extent of damage
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**TABLE - VII : DUSTSTORM**

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**TABLE - VIII : LIGHTNING**

1.	16 Feb.	Nagaur		5 persons died at Tawasar village.	
2.	19 Feb.	Cuttack		One girl electrocuted at Kothigram village.	
3.	25 Mar.	Ganjam		One person died at Phalla village in Berhampore.	
4.	29 Mar.	Hugli			Sophisticated telecom equipment worth lakhs of rupees destroyed when lightning struck the tower of the newly built Chandannagar electronic exchange.
5.	1 May	Yavatmal		One person died at Baldi village in Umarkhed Tehsil.	
6.	2 May	Nagpur		One woman electrocuted at Sillewada village in Ramtek Tehsil.	
7.	6 May	Nanded		One woman and 2 children died while 2 other men injured.	
8.	13 May	Hugli		2 children died due to electrocution at Veripookur under Mathali Police Station.	

S.N.	Date/period	Area affected	Intensity	Casualties	Extent of damage
9.	16 May	Barddhaman		3 children died and 4 other injured at Domahani under Baraboni Police Station in Asansol.	
10.	30 May	Nagpur		(i) One woman died at Anjahgaon Bari. (ii) One person died and another injured at Arni.	
11.	2 Jun.	(a) Cuttack		3 women of Khetrapal village under Dharmasala Police Station area seriously injured due to electrocution.	
		(b) Haora		One person died and 2 other injured at Adra village.	
		(c) Kalahandi		6 cattleheads perished.	3 rooms of the house burnt due to lightning at Kharilabisa.
12.	3 Jun.	Nagpur		8 persons died and 8 other injured due to electrocution at Kasturchand Park area.	
13.	10 Jun.	Beed		4 persons died at Ambejogai.	
14.	13 Jun.	Nagpur		2 persons electrocuted at Koradi.	
15.	14 Jun.	Amravati		One person died at Karajgaon.	

S.N.	Date/period	Area affected	Intensity	Casualties	Extent of damage
16.	7 Jul.	Shivpuri		400 cattleheads perished at Kudwaya village.	
17.	8 Jul.	Buldhana		4 persons died.	
18.	10 Jul.	Nagpur		2 women died at Tarsi village.	
19.	11 Jul.	South 24 Parganas		One person died and another injured at Behala.	
20.	18 Jul.	Gadchizoli		One couple died at Mandirkunta village.	
21.	19 Jul.	Puri		10 cattleheads perished at Chitra- samil and Mandupada villages.	
22.	27 Jul.	Maldah		3 villagers died at Habibpur and Gajal village.	
23.	7 Aug.	(a) Hugli		3 persons died and one injured at Bamunjuli village.	
		(b) Bardhaman		6 persons died and 3 other injured at Amra and Charmatala villages.	
24.	9 Aug.	Sholapur		4 persons died at Kurduwadi village in Madha Taluka.	

S.N.	Date/period	Area affected	Intensity	Casualties	Extent of damage
25.	16 Aug.	Medinipur		One boy died and 6 other injured at Gadugachhpota under Keshpur Police Station.	
26.	27 Aug.	Dhenkanal		6 persons died and 25 other injured at Machakuta village.	
27.	30 Aug.	Puri		One person died at Pathuria village.	
28.	23 Sep.	Kalahandi		3 persons died and another injured.	
29.	1 Oct.	Puri		5 persons died and 2 other injured at Badahantua of Puri district.	
30.	9 Oct.	Puri		2 persons died and 2 other injured.	
31.	4 Dec.	Ahmadabad and Kheda		8 persons including a woman died.	

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  $\geq$  75 kmph.

1.	17 Feb.	Koraput	Moderate (50-60 kmph)		(i) A large number of kutchha houses damaged. (ii) Roof tops of many thatched houses blown away. (iii) Several trees uprooted.
2.	18 Feb.	Puri	Moderate		(i) Few houses damaged. (ii) A school building at Benajadia village badly damaged.
3.	20 Mar.	Kendujhar	Severe		(i) Building of Balibarei Sanskriti school fully collapsed. (ii) About 500 private houses including a school building damaged. (iii) Roof tops of Panchayat office building, Anandanandpur Barage Office building and Mukteswara temple blown off. (iv) Power supply disrupted. Telephone poles twisted and electrical lines snapped at several places.
4.	24 Mar.	Calcutta and neighbourhood	Moderate (73 kmph)		(i) Large number of trees/electric poles uprooted. (ii) Vehicular traffic disrupted. (iii) Adjoining cabin insulator box on roadside became unserviceable.

S.N.	Date/period	Area affected	Intensity	Casualties	Extent of damage
5.	19 Apr.	East Khasi Hills and Imphal	Severe (120 kmph)	6 persons died and 10 other seriously injured.	(i) Sohiong areas of East Khasi Hills and Khurai, Top Moirangkhampu, Kongpal and Khabeshoi area in Imphal worst affected. (ii) A large number of houses destroyed. (iii) Several trees uprooted, snapping high tension wires and disrupting power supply.
6.	22 Apr.	Meghalaya	Severe	13 years old girl died.	(i) 70 houses destroyed. (ii) One school building damaged. (iii) Large number of fruit trees uprooted. (iv) A property worth Rs. one crore destroyed.
7.	28 Apr.	Medinipur	Severe (80 kmph)	2 children died in a house collapse at Chanparia village.	500 mudhouses damaged in Egra, Ramnagar Tehsil.
8.	4 May	Calcutta and neighbourhood	Moderate (56 kmph)		(i) Top of St. Andrews Church near Writers' Building damaged. (ii) Vehicular traffic disrupted for 3 hours in Bowbazar area.
9.	6 May	Aurangabad, Latur, Nanded and Yavatmal	Severe	5 persons died in Biloli Tehsil.	(i) Low lying areas flooded. (ii) Roof tops of several houses blown off. (iii) Large number of trees uprooted.
10.	12 May	Maldah	Severe	3 persons died at Mohanpur village of Harishchandrapur.	
11.	13 May	Sehore	Severe		(i) Roof tops of few houses blown off. (ii) Large number of electric poles damaged. Estimated loss worth Rs. 25,000/-.

S.N.	Date/period	Area affected	Intensity	Casualties	Extent of damage
12.	14 May	(a) Bhandara	Severe	One woman died.	(i) Normal life completely paralysed. (ii) Heavy loss of public property reported. (iii) Several trees/electric and telephone poles uprooted.
		(b) Vidisha	Severe		(i) Roof tops of several houses blown off in Sironj Tehsil. (ii) Several trees/electric and telephone poles uprooted disrupting communication services.
13.	17 May	(a) Bhandara	Severe	One woman died at Devadi village.	(i) Property worth more than one lakh rupees lost. (ii) Several electric poles/telephone poles uprooted disrupting the communication services.
		(b) Yavatmal	Severe	One woman died at Bangaon village in Net Tehsil.	(i) Large number of mango trees uprooted. (ii) Roof tops of many houses blown off.
14.	20 May	Calcutta and neighbourhood	Moderate (54 kmph)		(i) Low lying areas of the city flooded. (ii) Tram services disrupted till late in the evening.
15.	22 May	Vidisha	Moderate		(i) One electric pole twisted in Gulabganj Tehsil. (ii) Large number of telephone poles damaged.
16.	24 May	Nagpur	Moderate		Several trees and electric/telephone poles uprooted disrupting the power and communication services.



S.N.	Date/period	Area affected	Intensity	Casualties	Extent of damage
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**TABLE - X : HAILSTORM**

**CRITERIA**

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

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

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

1.	17 Feb.	Dibrugarh	Moderate	Several cattleheads perished.	Several trees uprooted.
2.	18 Feb.	North Lakhimpur	Moderate		(i) Rabi crop at Silapathar badly damaged. (ii) Several dwelling houses and cattle granary damaged.
3.	20 Feb.	North 24 Parganas	Heavy	One boy died at Amlani area.	(i) Hailstones weighing 300-400 gms. reported. (ii) Crops and potatoes in thousands of acre of land damaged. (iii) Many huts collapsed. (iv) Several trees/electric poles uprooted disrupting the vehicular traffic and electric supply.
4.	20 Mar.	Gurdaspur, Hoshiarpur, Kapurthala	Moderate		Standing crop badly damaged.
5.	Mar. (4th week)	Birbhum, Haora, Hugli, Maldah, Medinipur, Murshidabad, Nadia and North 24 Parganas	Heavy		(i) In Midinipur district, 5000 Kutchha houses damaged. Paddy crop in 4000 acre of land at Potashpur, Pingal and Shawlnara villages, completely damaged.

S.N.	Date/period	Area affected	Intensity	Casualties	Extent of damage
					(ii) Several Kutchha houses damaged in Birbhum, Haora and Hugli districts. (iii) Mango fruit and Boro paddy completely damaged in Maldah, Murshidabad, Nadia and North 24 Parganas.
6.	26 Mar.	Jorhat	Moderate		(i) Several houses damaged. (ii) Crops badly affected.
7.	29 Mar.	Vaishali	Heavy		(i) 400 villages in Vaishali district affected. (ii) Standing crops/houses and property worth Rs. One crore damaged.
8.	1 Apr.	Calcutta and neighbourhood	Moderate		(i) Two big trees uprooted. (ii) Vehicular traffic disrupted. (iii) Overhead wires snapped at various spots of the city.
9.	1-2 Apr.	Guwahati and neighbourhood	Moderate	One person died and several others injured.	(i) Roof tops of several houses blown off. (ii) 9 lakh kgs of tea leaves damaged. (iii) One school building damaged. (iv) Several trees/electric poles uprooted disrupting power supply.
10.	6 Apr.	Hugli	Heavy		(i) Roof tops of several Kutchha houses blown off at Dhaniakhali village. (ii) Crop worth Rs. 1.5 crore damaged.
11.	8 Apr.	Sambalpur	Heavy		(i) Many houses damaged at Bargarh. (ii) Extensive damage to crop reported.
12.	12 Apr.	Ganjam	Heavy	3 women injured at Madhurapalli village.	(i) Several houses damaged. (ii) Crops and plantations destroyed. (iii) Several trees uprooted.

S.N.	Date/period	Area affected	Intensity	Casualties	Extent of damage
13.	20 Apr.	Sitamarhi	Heavy	One woman and a boy died and 24 others injured.	50 villages of Mejarganj, Riga, Bathnaha, Sursand, Senabaran and Parihar blocks affected.
14.	28 Apr.	Shillong	Heavy	7 persons died and 150 other injured due to house collapse.	
15.	2-7 May	Shimla	Heavy		(i) Normal life completely paralysed. (ii) Apple and Pea crops badly affected. (iii) Vehicular traffic completely disrupted.
16.	23 May	Nagpur	Moderate		(i) Several roof tops at Kamptee blown off. (ii) Several walls collapsed. (iii) Large number of trees uprooted.
17.	25 May	Sangli	Heavy		(i) Haripur and Sangliwadi villages affected. (ii) Several roof-tops blown away. (iii) Large number of trees/electric poles uprooted. Standing crops damaged.
18.	9 Dec.	(a) Amravati and Chandrapur	Heavy		(i) 50 huts and a brick factory damaged at Badnera in Amravati district. (ii) Orange orchards badly damaged in Chandrapur district.
		(b) West Nimar	Heavy		(i) Hailstones of weight 50 gms to 400 gms. reported. (ii) Standing crop worth lakhs of rupees damaged.
19.	29-31 Dec.	(a) Ferozepur	Moderate		Crop damaged at Moga.
		(b) Sonipat	Moderate		Extensive damage of crop reported.

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
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TABLE - XI : FLOODS AND HEAVY RAINS

ANDHRA PRADESH

1.	Aug.	Adilabad, East Godavari, Khammam, Medak, Nizamabad and West Godavari	Severe (Godavari and its tributaries)	36 persons died. (i)  (ii)	9,33,714 people in 1409 villages affected. 2956 houses completely and 4809 partially damaged.
*	Whole year	N.R.		2 human lives lost.	

ARUNACHAL PRADESH

1.	Jun. (1st and 2nd week)	Itanagar	Severe	One PWD labour died due to land slide. (i)  (ii)	Itanagar cut-off from rest of the country as the bridge near Bandartwa washed away. National Highway No. 52 breached.
2.	8 Jul.	Itanagar	Heavy rains		State capital cut-off from rest of the country.
3.	10 Jul.	West Kameng	Heavy rains	8 persons died.	
4.	Aug. (2nd and 3rd week)	East Siang and West Siang	Severe	(i) (ii) (iii) (iv)	Standing crop worth Rs. 8 lakhs damaged. 7 microhydel projects affected. Road communication between plain Zero Sangram Koloriang and Nyapin Subansiri disrupted. Itanagar cut-off from rest of the country.

ASSAM

1.	Jun. (2nd week) to Jul.	Barpeta, Cachar, Dhubri, Dibrugarh, Jorhat, Kamrup, Karimganj, Lakhimpur, Nalbari, Sibsagar and Sonitpur	Severe (Brahmaputra and its tributaries)	118 persons died. (i)  (ii)	5,76,953 people in 1,085 villages affected. In Sibsagar, 1,03,954 people in 167 villages and 40 villages in Nalbari district worst affected.
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S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
					(iii) 2,000 houses including several Govt. offices damaged. (iv) Paddy, Jute and other crops in 72,000 hectares of land damaged. (v) Hundreds of people rendered homeless.
2.	Aug. (2nd and 3rd week)	Barpeta, Cachar, Dhubri, Dibrugarh, Jorhat, Kamrup, Karimganj, Lakhimpur, Nalbari, Sibsagar and Sonitpur	Severe (Brahmaputra and its tributaries)	7 persons died.	(i) 8 lakh people in 1,300 villages affected. (ii) 13,500 houses damaged. (iii) Standing crop in 48,000 hectares of land destroyed.
3.	Sept. (3rd week)	Dibrugarh, Lakhimpur and Sonitpur	Severe (Brahmaputra and its tributaries)		(i) 2 lakh people affected. (ii) Hundreds of houses either totally damaged or washed away. (iii) Paddy and Jute crop in thousands of hectares of land damaged. (iv) Road communication completely disrupted.
4.	1-19 Oct.	Barpeta, Dibrugarh, Dhemaji, Dhubri, Golpara, Jorhat, Lakhimpur, Nalbari and Sonitpur	Severe (Brahmaputra and its tributaries)	15 persons died.	(i) In Dhubri district, 28,850 people in 63 villages affected. (ii) Thousands of acres of paddy field submerged. (iii) Hundreds of dwelling damaged. (iv) Road communication between upper and lower Assam completely suspended. (v) Several roads and bridges damaged. (vi) Thousands of people took shelter in relief camps.
*	Whole year	0.488 million hectare		(i) 28 human lives lost. (ii) 4787 cattleheads lost.	(i) Crop worth Rs. 63.7 crores damaged. (ii) 36,685 houses worth Rs. 4.191 crores damaged. (iii) Public utilities worth Rs. 6.649 crores damaged.
<u>BIHAR</u>					
1.	Jul. (1st week) to Aug. (1st week)	Begusarai, Bhagalpur, Darbhanga, Gopalganj, Katihar, Khagaria, Madhepura, Madhubani, Nalanda, Paschim Champaran, Patna,	Severe (Ganga, Kosi and Sone)	4 persons died.	(i) 3 million people in 2,000 villages affected. (ii) Standing crop in 1.5 lakh hectares of land, worth 6.5 crores damaged.

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
		Saharsa, Samastipur, Sitamarhi and Vaishali			(iii) Road communication completely cut-off.
*	Whole year	0.870 million hectare		(i) 36 persons lost their lives. (ii) 76 cattle lost.	(i) Crop worth Rs. 18.17 crores damaged. (ii) 11,009 houses worth Rs. 1.6 crores damaged. (iii) Public utilities worth Rs. 1.82 crores damaged.
<u>GUJARAT</u>					
1.	Jul. (1st week)	Entire state	severe	38 persons died.	
2.	19 Aug.	Surat	Heavy rains	4 persons died.	
3.	23-28 Aug.	Ahmadabad, Banaskantha, Bharuch, Kachchh, Kheda, Panchmahals, Surat and Vadodara	Severe (Narmada and Tapti)	96 persons died.	(i) 1.5 million people affected. (ii) Public property worth Rs. 395 crores damaged. (iii) Agricultural property worth Rs. 150 crores damaged. (iv) Damage to road buildings and bridges estimated to be worth 90 crores. (v) 22,000 people shifted to safer places.
*	Whole year	0.484 million hectare		(i) 273 human lives lost. (ii) 48,503 cattle lost.	(i) Crop worth Rs. 77.862 crores damaged. (ii) 1,65,799 houses worth Rs. 36.116 crores damaged. (iii) Public utilities worth Rs. 131.636 crores damaged.
<u>HARYANA</u>					
1.	1-5 Jul.	Sirsa	Heavy rains	(i) 12 persons died in house collapse. (ii) Hundreds of cattleheads perished.	(i) 100 villages badly affected. (ii) 5,000 houses damaged. (iii) Cotton crop in thousands of acres of land damaged.

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
*	Whole year	0.086 million hectare		(i) 12 persons lost lives. (ii) 1207 cattleheads lost.	(i) Crop worth Rs. 9.835 crores damaged. (ii) 16,633 houses worth Rs. 2.927 crores damaged. (iii) Public utilities worth Rs. 0.806 crores damaged.
<u>HIMACHAL PRADESH</u>					
1.	1-5 Jul.	Kangra	Heavy rains	One person died in a house collapse in Dharamsala.	
2.	6-10 Jul.	Chamba, Hamirpur, Kangra, Mandi and Shimla	Heavy rains	18 persons died.	(i) Property worth Rs. 2.5 crores lost in Mandi district. (ii) Tribal Bharmaur in Chamba district and parts of Kinnaur district cut-off from rest of the country. (iii) Mandi-Kataul bridge and sholding bridge on Hindusthan-Tibet National Highway washed away. (iv) Road communication disrupted due to landslide at several places.
3.	19 Jul.	Kangra	Heavy rains	3 persons died.	
4.	29 Jul.	Chamba	Heavy rains	4 persons died due to landslide.	
5.	5-7 Aug.	Entire state	Heavy rains	26 persons died.	(i) Extensive damage to standing crop reported. (ii) Shimla and surrounding area submerged under water.
6.	7-10 Sept.	Hamirpur and Una	Heavy rains	2 persons died in a house collapse.	(i) Normal life paralysed. (ii) Road link cut-off.
*	Whole year	N.R.		(i) 90 human lives lost. (ii) 2,050 cattleheads lost.	(i) Crop worth Rs. 15.72 crores damaged. (ii) 6,496 houses worth Rs. 37.16 crores damaged. (iii) Public utilities worth Rs. 31.16 crores damaged.

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
<u>JAMMU AND KASHMIR</u>					
1.	18 Mar.	Kashmir valley	Heavy rains (i)	2 children died when their mud house collapsed in Nowgam village near Srinagar. (ii) 3 persons including- 2 girls washed away in Satkuji Nullah in Handwara of north Kashmir.	
2.	22 Mar.	Entire State	Heavy rains (i)	28 persons died when two passenger buses washed away in flash flood near Bari Brahmana Kulu Chak area on Pathankot-Jammu Srinagar highway. (ii) 2 persons of state road corporation staff died when their Jeep washed away in a stream near Sambha town about 60 km. from Jammu. (iii) 2 persons died and 5 other seriously injured in a landslide near Ramban.	(i) Jammu-Pathankot National Highway breached. (ii) Railway track near Jammu submerged under flood water. (iii) Rail and road traffic suspended.
3.	7 Aug.	Jammu	Heavy rains	3 persons died.	Vehicular traffic on National Highway disrupted.



S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
4.	7-9 Sept.	(a) Jammu	Heavy rains	9 persons died and 10 other injured.	(i) 20 houses collapsed in various parts of Jammu. (ii) Crop worth lakhs of rupees damaged. (iii) 300 km. Jammu-Srinagar National Highway closed for vehicular traffic.
		(b) Kathua, Rajauri and Udhampur	Heavy rains	12 persons died and 10 other injured in various house collapse incidents.	
<u>KARNATAKA</u>					
1.	19 May	Kolar	Heavy rains	2 persons died.	130 houses collapsed.
2.	25 May	Dharwad city	Heavy rains		Several houses damaged/collapsed. Loss estimated worth Rs. 125 lakhs.
3.	14 Jun.	(a) Bidar	Heavy rains		(i) Normal life paralysed. (ii) Vehicular traffic disrupted.
		(b) Gulbarga	Heavy rains		(i) Amerja and Bhima rivers flooded. (ii) Extensive damage to Agriculture reported. Two bridges collapsed.
4.	17 Aug.	Belgaum, Bidar, Raichur and Uttar Kannad	Heavy rains	(i) 13 persons died due to house collapse in Uttar Kannad. (ii) 2 persons died in Raichur.	(i) 10 villages marooned. (ii) Several houses collapsed in Yadagiri, Shahpur and Afzalpur villages in Gulbarga. (iii) Vehicular traffic disrupted. (iv) Telecommunication system badly affected.

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
5.	21 Aug.	Belgaum, Bidar, Gulbarga and Raichur	Heavy rains	13 persons died.	(i) More than 1,000 houses damaged rendering large number of people homeless. (ii) In Bidar, standing crop in several hundreds of hectare damaged. (iii) Estimated loss worth several crores of rupees. (iv) At least 10 villages marooned in Bidar. (v) In Gulbarga standing crop in 300 acres damaged.
*	Whole year	N.R.		(i) 7 persons lost their lives. (ii) 5 cattleheads lost.	(i) Crop worth Rs. 0.041 crore damaged. (ii) 6 houses worth Rs. 0.019 crore damaged. (iii) Public utilities worth Rs. 5.231 crores damaged.
<u>KERALA</u>					
1.	26 May	Kozhikode	Heavy rains		(i) Several houses damaged. (ii) Large number of trees uprooted.
2.	3 Jul.	Cannanore and Kozhikode	Heavy rains		(i) 43 houses completely and 50 others partially collapsed in Kozhikode. (ii) Communication and vehicular services completely disrupted in Cannanore.
3.	3 Nov.	Thiruvananthapuram	Heavy rains		60 houses completely and 2,600 partially damaged.
<u>MADHYA PRADESH</u>					
1.	20-25 Jul.	Dhar	Heavy rains		(i) 8 Kutchha houses collapsed. (ii) Property worth Rs. 1 lakh damaged. (iii) Vehicular traffic completely disrupted.
2.	21-23 Aug.	Durg, East Nimar, Indore and Rajnandgaon	Heavy rains	7 persons including an old woman died.	(i) Number of houses damaged in Rajnandgaon. (ii) Vehicular traffic completely disrupted.
3.	7-8 Sept.	Rewa	Heavy rains		60 houses collapsed at Nagod tehsil.

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
4.	15-18 Sept.	Bhind, Datia, Gwalior and Morena.	Heavy rains (i)	8 persons, 3 from Bhind district died in various incidents of house collapse. (ii) 35 cattleheads perished.	500 houses damaged in Bhind while 8 houses collapsed in Morena.
*	Whole year	N.R.		(i) 70 persons lost their lives. (ii) 2,520 cattleheads lost.	(i) 1,02,967 houses damaged. (ii) Public utilities worth Rs. 1.67 crores damaged.
<u>MAHARASHTRA</u>					
1.	5 May	Beed	Heavy rains	8 persons died at Biloli Taluka.	
2.	15-16 Jun.	Bombay and Thane	Heavy rains	22 persons died.	(i) Highest rainfall recorded in the last 104 years. (ii) Normal life completely paralysed. (iii) Shops, educational institutions, main market, business and commercial establishment remained close. (iv) Local train services completely disrupted. (v) Power services broke down.
3.	16-17 Jun.	Bombay and Nanded	Heavy rains	7 persons including 2 children died.	
4.	17 Jun.	Bombay and Thane	Heavy rains	8 persons drowned and 6 other electrocuted in Bombay while 7 other died in Thane.	

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
5.	26-27 Jun.	Bombay	Heavy rains	(i) 10 persons died and 53 other injured in a building collapse at Pydonie. (ii) 3 cattleheads perished.	(i) Normal life completely paralysed. (ii) A section of a Military Barrack and two compound walls at Walkeswara and Jogeswari collapsed. (iii) Vehicular traffic disrupted.
6.	24 Jul.	Amravati	Heavy rains	3 persons died due to house collapse.	
7.	15 Aug.	Bombay	Heavy rains	2 women died due to landslide at east Kurla.	
8.	15-17 Aug.	Latur, Nanded and Pune	Heavy rains	13 persons died.	(i) In Pune, normal life completely paralysed. (ii) One house collapsed in Hadapsar Malwadi. (iii) 25,000 slum-dwellers of Pune shifted to safer place. (iv) Railway services between Bombay-Pune cancelled.
9.	17 Aug.	(a) Bombay	Heavy rains	6 persons died and 9 other injured in a house collapse.	
		(b) Wardha	Heavy rains	One person drowned and another missing when a track washed away at Hinganghat.	

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
10.	17-20 Aug.	Buldhana	Heavy rains	3 persons died.	(i) Several houses collapsed. (ii) 2000 people marooned.
11.	18 Aug.	Wardha and Yavatmal	Heavy rains	6 persons died.	
12.	19 Aug.	Amravati	Heavy rains	2 persons died at Arvi	
13.	20 Aug.	Dhule and Jalgaon	Heavy rains	7 persons died in a house collapse while 4 other drowned in Chokhada Nullah near Bhusaval.	(i) Several houses collapsed. (ii) Vehicular traffic on Jalgaon-Aurangabad road suspended as the bridge over Waghur river submerged.
14.	21 Aug.	Bombay	Heavy rains	10 persons died and 4 other injured when a compound wall collapsed at Sion.	
15.	22-24 Aug.	Akola, Amravati, Bhandara, Buldhana, Chandrapur, Gadchizoli, Nagpur, Wardha and Yavatmal	Severe (Godavari and its tributaries)	46 persons died.	(i) Yavatmal and Wardha worst affected. (ii) In Yavatmal district, 1305 houses completely and 2600 houses partially collapsed. (iii) Amravati town cut off as bridge on Wardha river on Nagpur Amravati road washed away. (iv) A bridge on Chandrabhaga river damaged.
16.	30 Aug.	Wardha	Heavy rains	One lady drowned in Chandrabhaga river.	

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
17.	24 Sept.	Bombay	Heavy rains		(i) Normal life completely paralysed. (ii) Local train services suspended. (iii) City Stock Exchange and oil seed market remained close. (iv) Power supply disrupted at many parts of the city. (v) Indian Airline flights delayed.
18.	10-12 Oct.	Ahmednagar, Aurangabad, Jalna, Latur and Nanded	Severe (Godavari)	6 persons died and several hundred people injured.	(i) In Aurangabad district, Kavano, Telwadi, Navagaon, Chandawadi and Patgaon villages marooned. (ii) 10,000 people rendered homeless in Ahmednagar district. (iii) 14,000 houses in Aurangabad, 50,000 in Latur and 28,000 in Nanded destroyed. (iv) Cotton, Jowar, Bajra, Sunflower and Tur crop extensively damaged. Standing crop in 55,000 hectares of land destroyed. (v) Aurangabad-Ahmednagar-Pune National Highway closed for vehicular traffic.
*	Whole year	N.R.		(i) 100 persons lost their lives. (ii) 199 cattleheads lost.	9,225 houses damaged.
<u>MANIPUR</u>					
1.	10 Jul:	Imphal and Thoubal	Severe (Imphal and Kongba river)	200 cattleheads washed away.	(i) 1,500 people affected. (ii) 50 houses destroyed and 8 houses washed away. (iii) Embankment of Imphal river breached at two places.

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
<u>MEGHALAYA</u>					
1.	11-19 Oct.	East Garo and West Garo hills	Severe	(i) 6 persons burried alive at Garo hills due to landslide. (ii) 3 persons drowned.	(i) 987 families affected. (ii) Large number of houses damaged. (iii) Extensive damage to standing paddy crop reported. (iv) Estimated loss worth Rs. 2 crores.
<u>NAGALAND</u>					
1.	14 Jul.	Kohima	Severe (Brahmaputra and its tributaries)		(i) Vast areas submerged. (ii) 2,000 houses damaged. (iii) Extensive damage to standing crop reported. (iv) Kohima cut-off by road for 3 days.
<u>ORISSA</u>					
1.	2 Jun.	Dhenkana 1	Heavy rains	3 persons died and 3 other injured at Balatikri village due to house collapse.	
2.	13-14 Jun.	Baleshwar	Heavy rains	2 fishermen missing.	(i) 1,600 villages in 9 blocks were affected. (ii) 38 houses completely and 546 partially damaged.
3.	19-25 Aug.	Cuttack and Puri	Severe	3 persons died.	Standing crop worth Rs. 5 crores damaged.

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
4.	20-21 Aug.	Cuttack	Severe		(i) 150 school buildings totally damaged. (ii) 2,000 acres of cultivated land in Bailiguda block submerged under water. (iii) 500 houses damaged near Paradeep due to tidal inundation, affecting 25,000 people. (iv) Road communication disrupted. (v) Telephone and power supply lines snapped at various places.
5.	5 Sept.	Baleshwar	Heavy rains	2 persons washed away in flash flood in Sone rivulet.	
6.	6 Sept.	Cuttack	Heavy rains		(i) 6 villages in Cuttack district marooned by flood water of Mahanadi. (ii) Road communication cut-off at several places.
7.	3-6 Oct.	Kalahandi	Heavy rains		Extensive damage to standing crop and property reported.
8.	8-9 Oct.	Bolangir, Balasore, Kalahandi, Koraput and Mayurbhanj	Severe (Indravati and Subarna- rekha)	5 persons died.	(i) 22,222 people in 331 villages in 7 blocks of Bolangir district affected. (ii) 25,000 acres of cultivated land in Balasore and Bolangir district submerged. (iii) Large number of Kutchha houses damaged. (iv) Telecommunication and power supply disrupted.
9.	12 Oct.	Puri	Heavy rains		(i) Number of houses damaged. (ii) Paddy crop in thousands of acres of land submerged.



S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
10.	3-6 Nov.	(a) Cuttack	Heavy rains		(i) 6,685 villages in 41 blocks affected. (ii) 492 houses completely and 30,762 houses partially damaged. (iii) Roads, school buildings and embankments damaged.
		(b) Ganjam	Flash flood	(i) 58 persons died and 13 other missing. (ii) About 28,000 cattleheads perished.	(i) 6.5 lakh people in 753 villages in 17 blocks affected. (ii) 70,000 houses damaged. (iii) 80,000 hectares of crop damaged. (iv) 700 kms of road, 5 major bridges and 88 culverts completely damaged.
		(c) Puri	Heavy rains	6 persons died.	(i) 9 lakh people in 2,300 villages in 29 blocks affected. (ii) Large number of buildings damaged.
11.	12-13 Nov.	Ganjam	Flash flood	(i) 159 persons died. (ii) Thousands of cattleheads washed away.	(i) About 12 lakh people affected. (ii) Paddy and Sugar crop in the area of 80,000 hectares of land damaged. (iii) About 750 lift irrigation points damaged.
<u>PUNJAB</u>					
1.	1-5 Jul.	Bhatinda	Heavy rains	2 persons died in house collapse.	Standing crop in more than 25 villages damaged.
2.	7-10 Sept.	Amritsar, Bhatinda, Ferozepur, Ludhiana and Patiala	Heavy rains	5 persons died in house collapse and 4 other injured.	(i) Low-lying areas flooded. (ii) Hundreds of houses damaged. (iii) Paddy crop badly damaged. (iv) Train services on Phagwara-Ludhiana section disrupted, as a portion of railway track sank.

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
*	Whole year	0.517 million hectare		N.R.	(i) Crop worth Rs. 0.614 crore damaged. (ii) 15 houses worth Rs. 0.001 crore damaged.
<u>RAJASTHAN</u>					
1.	2-7 Jul.	Entire State	Severe	90 persons died.	(i) Churu, Jalore, Jodhpur and Pali districts worst affected. (ii) 67 houses collapsed in Churu and Pali districts. (iii) Crops in thousands of hectares of land damaged. (iv) A passenger train with over 1,000 passengers stranded at Mokalasar railway station in Jalore due to damage in railway track. (v) Road, railway and airline completely disrupted in Jodhpur division.
2.	4-7 Aug.	Ajmer, Barmer, Bhilwara Jodhpur, Pali and Sirohi	Heavy rains	17 persons died.	200 houses at Badali village of Ajmer damaged.
*	Whole year	1.799 million hectare		(i) 165 persons died. (ii) 36,571 cattle heads lost.	(i) Crop worth Rs. 5.787 crores damaged. (ii) 51,682 houses worth Rs. 15.142 crores damaged. (iii) Public utilities worth Rs. 78.651 crores damaged.
<u>SIKKIM</u>					
1.	13 Aug.	Entire State	Heavy rains		(i) Sikkim cut-off from rest of the country. (ii) Road communication on the National Highway 31-A disrupted at 4 points between Gangtok and Sevoke.

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
2.	17 Sept.	Gangtok and its neighbourhood	Heavy rains (i)	37 persons including children and Army personnels burried alive due to landslide.	Several houses collapsed.
			(ii)	Several cattle-heads drowned in Ramikhele river.	
*	Whole year	N.R.		37 persons lost their lives.	(i) Crop worth Rs. 2.51 crores damaged. (ii) 4,000 houses worth Rs. 0.73 crore damaged. (iii) Public utilities worth Rs. 8.9 crores damaged.
<u>UTTAR PRADESH</u>					
1.	9 Jul.	Garhwal	Heavy rains	70 persons died due to landslide at Tali village.	
2.	Jul. (3rd and 4th week)	Entire State	Severe (Ghaghra and Ramganga)	(i) 210 persons died. (ii) 2,000 cattle-heads perished.	(i) Vast areas inundated by flood water. (ii) Several houses collapsed.
*	Whole year	2,208 million hectare		(i) 492 human lives lost. (ii) 3028 cattleheads lost.	(i) Crop worth Rs. 481.758 crores damaged. (ii) 1,51,301 houses worth Rs. 60.52 crores damaged. (iii) Public utilities worth Rs. 23.987 crores damaged.

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
<u>TAMILNADU</u>					
1.	18-31 Oct.	(a) Madras	Heavy rains	15 persons died.	(i) Normal life completely paralysed. (ii) Thousands of huts damaged. (iii) Large number of houses collapsed rendering thousands of families homeless. (iv) Low-lying areas flooded.
		(b) Nilgiri	Heavy rains	47 persons died due to building collapse in various parts of the district.	(i) Building including primary health center, post office, primary school and co-operative stores at Gedde collapsed. (ii) Large number of trees uprooted. (iii) Train services between Mettupalayam and Coonoor disrupted due to landslide. (iv) Road communication between Kotagiri and Coonoor and Kotagiri and Uthagamandalam disrupted due to landslide.
*	Whole year	N.R.		(i) 124 persons lost their lives. (ii) 714 cattleheads lost.	15,160 houses damaged.
<u>TRIPURA</u>					
1.	8 Jun.	Entire State	Heavy rains		(i) Hundreds of villages submerged. (ii) Barack valley completely cut-off from rest of the country. (iii) Road communication completely paralysed.
<u>WEST BENGAL</u>					
1.	13-14 May	Calcutta, Haora, North 24 Parganas and south 24 Parganas	Heavy rains	One person died at Garden Reach.	(i) About 200 persons at Kundu lane basti of Uttar Danga and 150 people at Banepukur Mansola basti in Calcutta marooned. (ii) Extensive damage to crop, in Haora reported. (iii) Tram services suspended.

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
2.	5 Jun.	Calcutta	Heavy rains		(i) Normal life disrupted. (ii) Several streets in central Calcutta including Chittaranjan avenue water logged. (iii) Vehicular traffic disrupted.
3.	1-2 Jul.	Calcutta	Heavy rains	3 persons injured due to house collapse in central Calcutta.	
4.	4 Jul.	Haora	Heavy rains	(i) 2 persons died and 3 other injured when a mud house collapsed at Chakghera village in Udaynarayanpur. (ii) One woman and a child died in another incidence of house collapse at Chakmadhu village under Uluberia.	
5.	5 Jul.	(a) Calcutta	Heavy rains	4 persons injured due to house collapse at Park lane in central Calcutta.	
		(b) Medinipur	Heavy rains		(i) Vast stretches of low-lying areas submerged in Ghatal and Chandrokona. (ii) Road link between Ghatal and Chandrokona completely cut-off.

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
6.	Jul. (2nd week)	Hugli	Heavy rains	3 persons died due to house collapse.	57 huts washed away at Khanakul area.
7.	10 Jul.	Darjiling	Heavy rains	One person died due to landslide.	
8.	11 Jul.	(a) Medinipur	Heavy rains	11 persons died.	
		(b) South 24 Parganas	Heavy rains	One person died and another injured at Behala.	
9.	13-15 Jul.	Bankura, Birbhum, Medinipur and Murshidabad	Severe	4 persons including a small girl died.	(i) In Medinipur 1000 villages submerged. (ii) 3 lakh people affected. (iii) In Murshidabad 150 houses at Akheriganj village collapsed. (iv) 250 metre long pacca road washed away. (v) 30 percent of standing crop damaged.
10.	19 Jul.	Calcutta and Haora	Heavy rains		(i) Normal life disrupted. (ii) Vehicular traffic completely suspended.
11.	19-20 Jul.	South 24 Parganas	Heavy rains	(i) One boy drowned at Gangeshnagar village under Kakdeep Police Station. (ii) 3 persons including a child injured in different incidents of house collapse.	

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
12.	20-22 Jul.	Haora, Hugli and Maldah	Severe		(i) 1,100 houses collapsed. (ii) Khanakul, Gohat and Pursura villages in Hugli and Chaiktapukur village in Haora and Manikchak and Kalichack blocks in Maldah worst affected.
13.	29 Jul.	Darjiling	Heavy rains	One woman died at Dhobikhola due to landslide.	
14.	1 Aug.	Jalpaiguri, Kochbihar and Murshidabad	Severe		(i) 8,000 people rendered homeless in Murshidabad. (ii) A large portion of Segregating embankment between Teesta and Corola in Jalpaiguri district washed away.
15.	4 Aug.	Hugli	Severe		(i) More than one lakh people marooned. (ii) 2,200 mud huts damaged. (iii) Crop worth Rs. 57 lakhs damaged.
16.	13 Aug.	Jalpaiguri	Severe		(i) Champadanga, Domahani, Kumlai and Maulali villages washed away. (ii) 2,250 people rendered homeless.
17.	2 Sept.	Calcutta	Heavy rains	12 persons including 2 children injured when the portion of boundary wall of the Nonapukur tram depot collapsed.	Tram and bus services in the city completely disrupted.
18.	4 Sept.	Medinipur	Severe		(i) Most part of the Medinipur district inundated by flood water. (ii) People of Kajli village of Balda Police Station rendered homeless.

S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
19.	10 Sept.	(a) Calcutta	Heavy rains	One person injured at Acharya Prafulchand road.	
		(b) Haora	Heavy rains	15 persons injured at Golabari Police station.	
20.	4 Oct.	Medinipur	Heavy rains	2 persons died and 2 other injured at Ramnagar and Contai Police stations.	
21.	6-10 Oct.	Birbhum, Burdwan, Hugli, Haora, Maldah, Medinipur, Murshidabad, Nadia and South 24 Parganas	Severe	8 persons died 2 other injured.	<p>(i) In Medinipur district 384 villages having population of 2,91,000 people affected. 12,000 people marooned. 6,000 houses collapsed.</p> <p>(ii) In Burdwan district 1,60,000 people in 189 villages affected. 3,900 houses collapsed.</p> <p>(iii) In Nadia district 6,50,000 people in 938 villages affected. 13,247 persons marooned.</p> <p>(iv) In Hugli district 1,25,000 people affected. 2,400 houses collapsed.</p> <p>(v) In Haora district, 1,00,000 people in 40 villages affected.</p> <p>(vi) In Birbhum 746 houses collapsed.</p> <p>(vii) In Murshidabad district massive soil erosion occurred along Ganga at Akhirganj.</p>
22.	8 Oct.	Calcutta and neighbourhood	Heavy rains		<p>(i) Normal life paralysed.</p> <p>(ii) Vast areas of city submerged and flooded.</p>



S.N.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
*	Whole year	2.268 million hectare		(i) 41 human lives lost. (ii) 3870 cattleheads lost.	(i) Crop worth Rs. 14.267 crores damaged. (ii) 2,57,728 houses worth Rs. 54.075 crores damaged. (iii) Public utilities worth Rs. 15.452 crores damaged.
<u>UNION TERRITORY</u>					
<u>CHANDIGARH</u>					
1.	29 Jul.	Chandigarh	Heavy rains		(i) Normal life paralysed. (ii) Low-lying areas flooded. (iii) Power and telecommunication system disrupted. (iv) Road and air traffic badly affected.
<u>DELHI</u>					
1.	22 Aug.	New Delhi	Heavy rains	3 persons died and 5 other injured when a boundary wall of slum area in west Delhi collapsed.	(i) Normal life paralysed. (ii) Low-lying areas submerged under water. (iii) Vehicular traffic completely disrupted.

\* Compiled tentative reports by Central Water Commission (Based on the reports received from the State Governments upto 28.2.1991) concerned with the damages caused by floods only.

N.R. = Not reported.

S.N.	Date/period	Area of Formation/ Dissipation	Intensity	Casualties	Extent of damage
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TABLE - XII : CYCLONIC STORM

BAY CYCLONES

1. 5-10 May

Formation : At Lat. 10.0°N  
Long. 84.5°E on  
5th at 1200 UTC.

Landfall : South Andhra  
Coast about 40 km  
Southwest of  
Machilipatnam  
around 1330 UTC  
of 9th.

Dissipation : Over North Andhra  
Pradesh by evening  
of 11th.

Severe (with a  
core of  
hurricane  
winds)

(i) 967 persons  
died.

(ii) 36,14,725 cattle-  
heads perished.

In Andhra Pradesh

- (i) East Godavari, Guntur, Khammam, Krishna, Prakasam, Nalgonda, Nellore, Viskhapatnam, Warangal and West Godavari districts affected.
- (ii) Guntur, Krishna, Prakasam and West Godavari worst affected.
- (iii) 6,59,520 houses fully and 7,80,139 houses partially damaged.
- (iv) Crop in 3.71 lakh hectares of land damaged.
- (v) The estimated cost of damage in Andhra Pradesh worth Rs. 2,248 crores.

In Tamil Nadu

- 15 persons died.
- (i) 4306 houses fully and 7985 houses partially damaged.
  - (ii) At Ennore sea waves damaged Kasiviswanatha temple.
  - (iii) The estimated cost of damage worth Rs. 12,12,88,000/-.