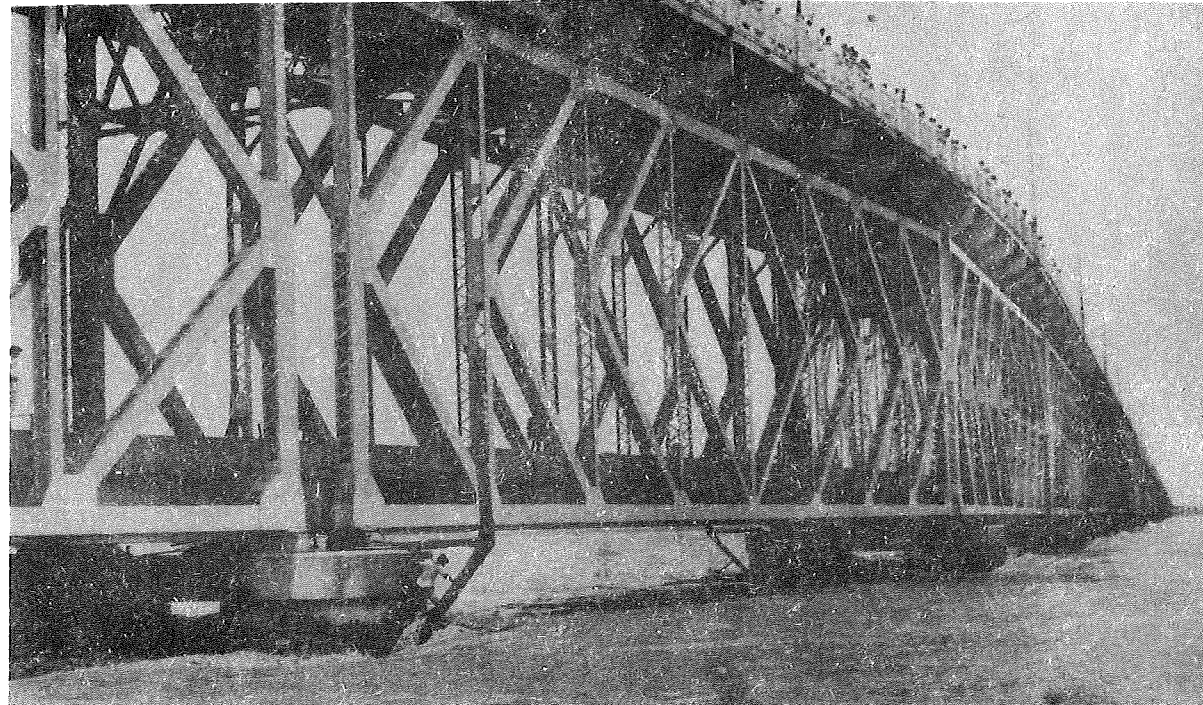




INDIA METEOROLOGICAL DEPARTMENT  
**DISASTROUS WEATHER EVENTS, 1986**  
A REPORT

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26/5/89



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PUNE - 411005

Cover Photo : Godavari level rapidly raising at Road-cum-Rail Bridge at Rajahmundry on 16 August 1986.

Courtesy, Met. Centre, Hyderabad.

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## DISASTROUS WEATHER EVENTS OF 1986

The most striking disastrous weather events in 1986 were the following :-

- (i) Severe floods in many rivers of the country during the southwest monsoon season took a heavy toll of human lives and livestock. It also affected extensive cultivated areas damaging standing kharif crops heavily. The effect was rather severe in the states of Andhra Pradesh, Bihar and Uttar Pradesh.
- (ii) While some parts experienced floods, concurrently, drought conditions prevailed in large areas of Assam, Gujarat, Karnataka, Maharashtra and Rajasthan.  
  
In addition Arunachal Pradesh, Bihar, Manipur, Mizoram, Nagaland and Tripura received monsoon rainfall less than 75% of the normal and could be termed as drought affected though no crop damage/crop failures were reported.
- (iii) 70 persons were killed by an avalanche in Zojila pass on 15th November.
- (iv) Severe cold wave conditions during the 1st week of January over Bihar claimed 87 human lives, while during 2nd and 3rd week of December, 83 persons died in Central Gujarat and Saurashtra region.
- (v) Severe heat wave conditions prevailed over Rajasthan during 16-20 June and claimed 68 human lives.
- (vi) Hailstorms occurred over Vidarbha during 1st and 2nd week of February and claimed 16 human lives and nearly a thousand cattleheads perished. The hailstorm also caused extensive damage to crops and fruit orchards.

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



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S.N.	Date/period	Area affected	Intensity	Casualties	Extent of damage
(1)	(2)	(3)	(4)	(5)	(6)

TABLE - I : SNOWFALL

CRITERIA

Moderate : 7.6 to 34.9 cm in 24 hrs.

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

1.	7 Feb.	Doda	Heavy	8 people buried in an avalanche in Mahu Mangat village in Banihal area.	
2.	10 Feb.	(a) Himachal Pradesh	Heavy		(i) Normal life in Simla city completely paralysed. (ii) Vayudoot flights from Delhi to Kulu, suspended.
		(b) Jammu & Kashmir	Heavy		(i) Normal life in Srinagar city completely paralysed. (ii) Vehicular traffic on Jammu-Srinagar national highway completely disrupted. (iii) IA flights from Delhi to Leh suspended
3.	May (2nd week)	Poonch and Rajouri	Heavy	(i) Number of shephards including women and children killed. (ii) 1000 cattleheads perished.	Hilly areas affected.
4.	29 May	Garhwal	Heavy	12 persons killed.	Badrinath and Kedarnath shrines completely cut-off from rest of the country.
5.	30 Jun.	Anantnag	Heavy	4 persons died and 3 others missing in Marval village, 7 km from Anantnag.	

(1)	(2)	(3)	(4)	(5)	(6)
6.	15 Nov.	Zojila Pass	Heavy	70 persons killed due to avalanche on Srinagar-Leh highway.	(i) 545 km Srinagar-Leh highway blocked trapping 500 vehicles. (ii) 300 people stranded on either side of the Zojila Pass. (iii) 4 IAF helicopters employed for rescue operations.
7.	26 Nov.	Udhampur	Heavy		• Vehicular traffic on Srinagar-Jammu national highway suspended for 6 days due to landslide and avalanche near Banihal.
8.	30 Nov.	Kinnaur, Kulu, Lahul-Spiti	Heavy		(i) 12 villages completely cut-off. (ii) Vehicular traffic and telecommunication link completely disrupted.
9.	11-14 Dec.	Garhwal	Heavy		(i) Normal life completely paralysed. (ii) Badrinath, Kedarnath, Tungnath and Barpuch covered under 50 to 140 cm. of snow.
10.	12-16 Dec.	Jammu & Kashmir	Heavy	3 persons died in Baramulla district.	(i) 700 houses damaged in Baramulla district. (ii) Many people stranded in Leh. (iii) Vehicular traffic on Jammu-Srinagar national highway disrupted due to landslides in Jawahar tunnel. (iv) Delhi-Srinagar flight remained suspended.

(1) (2) (3) (4) (5) (6)

TABLE - II : COLD WAVE

CRITERIA

Moderate : Night temperature below normal by 6 to 7°C

Severe : Night temperature below normal by 8°C or more.

1.	2 Jan.	Bhojpur, Chapra, Giridih, Hazaribag, Nalanda, Patna Purnea and Vaishali	Severe	87 persons died of which 37 were from Mokameh-Baroni Industrial belt.	
2.	2,3 Jan.	Ludhiana	Severe	One person died.	
3.	Jan. (1st week)	(a) Jammu & Kashmir (b) Uttar Pradesh	Severe	41 people died.	
4.	10 Jan.	Srinagar	Severe	Many cattleheads frozen to death.	Dal lake frozen.
5.	11 Jan.	(a) Kupwara (b) Midnapore	Severe	3 persons died.	
			Severe	8 persons died.	Temperature dropped down to 0°Celsius.
6.	18,19 Jan.	Bhatinda	Severe	2 persons died.	
7.	11 Feb.	Jullundar	Severe	One person died.	
8.	12 Feb.	Ludhiana	Severe	One person died.	
9.	Dec. (2nd & 3rd week)	Central Gujrat and Saurashtra	Severe	(i) 83 people killed. (ii) Large number of birds perished.	Standing crop badly damaged.
10.	12-14 Dec.	Baramulla, Kargil and Pulwama	Severe	11 persons died.	
11.	20 Dec.	Jammu & Kashmir	Severe	5 people killed.	
12.	Dec. (3rd & 4th week)	Uttar Pradesh	Severe	14 persons died.	

(1)	(2)	(3)	(4)	(5)	(6)
13.	26 Dec.	Aurangabad, Gaya, Rohtas and Vaishali	Severe	4 persons died.	

TABLE - III : HEAT WAVE

CRITERIA

Moderate : Day temperature above normal by 6 to 7°C

Severe : Day temperature above normal by 8°C or more.

1.	16 Apr.	Calcutta	Moderate	One woman killed.	
2.	1-24 Jun.	Punjab and Himachal Pradesh	Severe	49 persons died (of which 10 from Ferozepur district).	Hoshiarpur, Kapurthala, Ferozepur and Ludhiana worst affected districts in Punjab.
3.	7 Jun.	Midnapore	Severe	One person killed and 51 felt ill.	Day temperature rose to 47° Celsius.
4.	12 Jun.	Gaya, Patna, Singhbhum and Vaishali	Severe	37 persons died (18 in Mokameh-Baroni industrial belt).	
5.	16-20 Jun.	Rajasthan	Severe	68 people died (28 from Jaipur district).	

TABLE - IV : DROUGHT

1.	Jun.	<u>ASSAM</u> Brahmaputra valley and hilly districts of Karbi Anglog and North Cachar.			60% of pre-kharif crop destroyed.
1.	Feb-May	<u>GUJARAT</u> Entire State			(i) Jamnagar and Rajkot districts worst affected. (ii) Production of the rabi crop fell by 9.12 lakh tonnes as against a target of 2 million tonnes. Loss of crop estimated around Rs. 976 crore.



(1)	(2)	(3)	(4)	(5)	(6)
					(iii) 12,600 villages, out of 19000 affected. 2 million people affected.
					(iv) 1400 water tankers in Jamnagar district and 700 in Rajkot district employed for water distribution.
					(v) Railway ministry drawn up programmes on movement of water by trains, due to acute shortage of drinking water.
					(vi) Educational institutions closed.
2.	Oct.	Entire State			(i) Banaskantha, Panchmahals and Sabarkantha districts worst affected.
					(ii) 40 to 50% of the kharif crop in the State destroyed.
		<u>HARYANA</u>			
1.	Sep. & Oct.	Entire State			(i) Faridabad district worst affected.
					(ii) Sugarcane, paddy, bajra and pulses crop worth Rs. 100 crore damaged.
		<u>HIMACHAL PRADESH</u>			
1.	Oct.	Hamirpur and Solan			50% maize and paddy crop damaged.
		<u>KARNATAKA</u>			
1.	Jan.	18 districts			(i) Bijapur, Dharwar and Gulbarga districts worst affected.
					(ii) 40% of the rabi crop lost.
					(iii) Acute shortage of fodder reported. Cost of fodder shoot up to Rs. 1500/- per truck from Rs. 500/-.
					(iv) According to unofficial information 5000-6000 animals sold to slaughter house for want of fodder.

(1)	(2)	(3)	(4)	(5)	(6)
		<u>MAHARASHTRA</u>			
1.	Jan-May	19 districts	50% of the total cattleheads in Ahmednagar district perished.	(i) Ahmednagar, Aurangabad, Dhule, Nashik, Satara and Solapur districts worst affected. (ii) In Ahmednagar district, sugarcane and cotton crop completely damaged. 3 lakh tonnes sugarcane crop worth Rs. 9 crore lost. Three sugarmills closed. (iii) In Ahmednagar district, 60% of the bore-wells became unserviceable as the water level fell 250 feet below the ground level. (iv) The loss of rabi crop in Solapur district estimated around Rs. 75 crore. (v) Cattle camps set up in affected parts of the State. (vi) People migrated from rural places to urban centres.	
2.	Oct-Dec.	18 districts		(i) 15 million people affected. Ahmednagar, Solapur and Thane districts worst affected. (ii) In Ahmednagar district, 80% of 1,25,000 irrigation wells dried up. Sugarcane crop badly damaged. (iii) In Pune district, crop in 1304 villages badly damaged. (iv) Acute shortage of drinking water in 1200 villages of Pune district reported. (v) 3/4th part of Thane district affected.	
		<u>PUNJAB</u>			
1.	Oct.	Entire State			Agricultural crop worth crore of rupees, damaged.
		<u>RAJASTHAN</u>			
1.	May	Entire State		(i) 20 million people in 26856 villages of 26 districts affected. Barmer, Dungarpur and Udaipur districts worst affected. (ii) 1.47 million tonnes of crop damaged. (iii) Acute shortage of drinking water reported. 215 tankers employed for distribution of drinking water.	

(1)	(2)	(3)	(4)	(5)	(6)
2.	Sep-Nov.	Entire State			(i) 5000 villages worst affected. (ii) Acute shortage of fodder/ drinking water reported.

TABLE - V : SQUALLS

CRITERIA

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

Severe : Surface wind speed (in gusts)  $\geq$  80 kmph.

1.	12 Mar	Ernakulam	Severe	About 100 students including teachers injured when a Government lower primary school building at Chulli, collapsed.	
2.	21 Apr.	Yavatmal	Moderate		(i) Kosara village in Wani tehsil affected. (ii) Loss to property worth lakhs of rupees reported. (iii) Many houses damaged. (iv) Many electric poles uprooted.
3.	16 May	Bharatpur and Dholpur	Severe (100 kmph)	17 people killed and 50 other injured.	(i) Dholpur-Sarmathure passenger train and a bus overturned. (ii) 1361 houses <del>dam</del> collapsed. (iii) Number of trees and telephone/electric poles uprooted disrupting communication system. (iv) Standing crop worth crore of rupees damaged. (v) Govt. property worth Rs. 35 lakh damaged.
4.	26 May	Jaipur	Severe (110 kmph)	(i) 6 persons died and 12 other seriously injured in different incidents of house collapse. (ii) 100 cowheads perished.	(i) Number of tin roof-tops blown away. (ii) Thousands of trees uprooted disrupting road and railway traffic for 4-6 hours.

(1)	(2)	(3)	(4)	(5)	(6)
5.	28 May	Jaipur	Severe (130 kmph)	(i) 8 persons died and 32 injured. (ii) Large number of animals and birds perished.	(i) A.T.C. tower of Jaipur airport damaged. (ii) Electric/telephone poles and thousands of trees uprooted disrupting electric and telecommunication systems.
6.	31 May	Saurashtra and Kutch	Moderate (60 kmph)		(i) Many roof-tops blown off. (ii) Power supply completely disrupted. (iii) Offices of AIR, Doordarshan, newspapers, news agencies etc. badly affected. (iv) In Kutch district low lying areas of the town flooded due to heavy rainfall associated with squall.
7.	4 Jun.	Nashik	Severe		Number of trees and telegraph poles uprooted in Ozar airfield area.
8.	15 Jun.	Bhandara	Severe	One woman killed and 3 other injured.	(i) Sakoli town and nearby areas affected. (ii) Roof-tops of pucca houses and small shops blown away. (iii) Many big trees uprooted. (iv) Electric supply as well as telephone system disrupted for two days due to snapping of electric wires.

TABLE - VI: GALE

CRITERIA

Strong : Wind speed  $\geq$  75 kmph.

1.	25 May	Trivandrum	Strong		Many houses, trees and crops damaged in Neyyatinkara village.
2.	4 Jun.	Trivandrum	Strong		8 houses collapsed in Panamthura village.
3.	14 Jun.	Trichur	Strong		In Munambam, Chettuva and Azhikode villages (i) 30 houses collapsed. (ii) electric/telecommunication poles uprooted disrupting electricity and tele- communication system.

(1)	(2)	(3)	(4)	(5)	(6)
4.	15 Jun.	Alleppey	Strong		12 huts damaged and 500 coconut trees uprooted in Arattupuzha village.
5.	18 Jun.	Trichur	Strong		(i) Many Kutcha houses collapsed in Mannampetta. (ii) Large number of trees uprooted.
6.	19 Jun.	(a) Ernakulam	Strong		Many huts collapsed in Soudi village.
		(b) Kozhikode	Strong	25 students and 4 others injured due to collapse of a school building at Pallikandi village.	
		(c) Palghat	Strong	One person died when an electric pole fell on him.	
7.	21 Jun.	(a) Cannanore	Strong		Many houses partially damaged in Tellicherry village.
		(b) Malappuram	Strong		One school building collapsed in Tirur village.
8.	24 Jun.	Trichur	Strong		In Characaud, Kaippamangalan and Vekkadu villages (i) many huts damaged. (ii) large number of coconut trees uprooted.
9.	4 Jul.	Trivandrum	Strong		(i) Coastal regions of Neyyattikara, Pezhiyoor and Vellura tehsils affected. (ii) 49 houses partially damaged.
10.	7 Jul.	Trivandrum	Strong		(i) Coastal regions of Vizhinjam and Kunnathura affected. (ii) 15 houses partially damaged.

(1)	(2)	(3)	(4)	(5)	(6)
					(iii) In coastal region of Thumba, Pallithura and Valaiveli, 102 houses completely and 212 partially damaged.
11.	7 Aug.	Kozhikode	Strong	(i) One person died when a tree fell on him in Manikaru village. (ii) 37 students injured when a school building collapsed in Balxussery village.	
12.	8 Aug.	(a)Kozhikode	Strong	One person killed when a coconut tree fell over him in Thalikkara village.	
		(b)Trivandrum	Strong	One person killed when a coconut tree fell over him in Mancau village.	Vehicular traffic disrupted due to uprooting of large number of trees.
13.	9 Aug.	(a)Alleppey	Strong		Many houses collapsed in Omanaputha and Udaikal villages.
		(b)Palghat	Strong	5 students injured when a school building collapsed in Pattambi village.	
14.	11 Aug.	Trichur	Strong	One child killed when a tree fell over him in Chalakudi village.	
15.	14 Aug.	Malappuram	Strong		Thousands of coconut trees uprooted in Paraplanangadi village.
16.	23 Sep.	Thane	Strong	One girl died due to wall collapse in Dighe village.	

(1)	(2)	(3)	(4)	(5)	(6)
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TABLE - VII : 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.	12,13 Jun.	Yavatmal	Severe	One person seriously injured at Kapasi village.	(i) Roof-tops of hundreds of houses blown away. (ii) Several trees uprooted. (iii) Telephone system disrupted for 4 days due to snapping of wires. (iv) One electric pole bent.
2.	15 Oct.	Delhi	Severe	5 persons killed and 12 injured when Venus Circus tent collapsed in Red Fort area.	

TABLE VIII : LIGHTNING

1.	11 Jan.	Trivandrum		One person electrocuted in Paruthikuzhi.	
2.	10,11 Mar.	Baramulla			One shop completely razed to ground in Tangmarg.
3.	9 Apr.	Quilon		One person killed at Puthuenkulam village.	
4.	12 Apr.	Quilon		One person electrocuted in Kumbzha village.	
5.	15 Apr.	Quilon		One person killed.	
6.	16 Apr.	Ranga Reddy		About 200 sheep in Gaddi, Mallaigudam, Yachar and Mandal villages perished.	

(1)	(2)	(3)	(4)	(5)	(6)
7.	21 Apr.	Raichur		2 persons electrocuted.	
8.	22 Apr.	Bellary		2 women killed and one person injured in Bennikollu village about 25 km from Bellary.	
9.	24 Apr.	(a) Trichur		One person killed in Chittassery.	
		(b) Trivandrum		One person and a buffalo killed in Kattakada village.	
10.	27 Apr.	Alleppey		One person killed in Mala village.	
11.	31 May - 2 Jun.	Marathwada		9 people electrocuted and 4 other injured in different parts of the sub-division.	
12.	3 Jun.	Trivandrum		3 weavers killed and 4 other seriously injured when a lightning struck at weaving centre at Balaramapuram.	
13.	7 Jun.	Aurangabad		3 persons electrocuted.	
14.	19 Jun.	Munger		One person electrocuted.	
15.	23 Jun.	Singhbhum		One person killed and 2 buffaloes perished at Jamshedpur.	
16.	25 Jun.	Giridih		2 persons killed and 3 buffaloes perished.	
17.	15 Sep.	Nagpur		One person killed in city area.	
18.	23 Sep.	Thane	(i)	One person killed and 2 other injured in Ulhasnagar.	
			(ii)	2 cattleheads perished in Ulhasnagar.	
19.	26 Sep.	Puri			Sri Jagannath temple's flag-mast and some parts of its top damaged.



(1)	(2)	(3)	(4)	(5)	(6)
20.	13 Oct.	Trivandrum		3 persons electrocuted in Kadakkavoor village.	
21.	18 Oct.	Trivandrum		One person electrocuted in Aryanad village.	

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.	12-18 Mar.	Nagpur	Severe		Standing jowar, pulses and wheat crop heavily damaged.
2.	20 Mar.	Midnapore	Severe	25 persons injured of which 15-16 seriously.	(i) 500 houses collapsed. (ii) Many trees uprooted.
3.	3 Apr.	(a) Agartala	Severe	5 persons killed and 200 injured.	(i) 2500 houses completely and 3500 houses partially damaged affecting over 5000 families in 39 grampanchayats. (ii) Cantonment area, several CRP camps and Lichibagans badly affected.
		(b) Jorhat and Kamrup	Severe	One woman injured.	Several thatched houses collapsed.
		(c) Mizoram	Severe	2 persons injured.	Several electric poles and trees uprooted.

(1)	(2)	(3)	(4)	(5)	(6)
4.	13 Apr.	Kamalpur sub-division of North Tripura	Severe	50 people injured.	Ganganagar, Noagaon, Kalibaripara, Baligaon and Rupsapur areas worst affected.
5.	14 Apr.	Kolhapur	Moderate		Many trees uprooted disrupting power supply.
6.	17 Apr.	Howrah	Severe	4 persons died.	(i) 400 huts damaged. (ii) Many trees uprooted (including one of 150 years old)
7.	20 Apr.	Hyderabad	Moderate	Number of persons injured due to collapse of pandals.	Number of electric/telephone wires snapped.
8.	23-25 Apr.	Ballia	Severe	One person killed.	Many trees uprooted disrupting vehicular traffic.
9.	27 Apr.	Chapra and Purnea	Severe	13 people died (8 in Chapra district and 5 in Purnea district).	
10.	3 May	(a) Kolhapur	Severe		(i) Kolhapur city affected. (ii) City Fire Brigade received 25 calls of house collapse, trees uprooting and house damages. (iii) Power supply cut off in several parts of the city.
		(b) Pune	Severe		(i) Pune city affected. (ii) Low lying areas flooded disrupting vehicular traffic. (iii) Power supply disrupted in some parts of the city.
11.	4 May	(a) Kolhapur	Severe	3 persons injured.	(i) 26 trees uprooted. (ii) Large no. of roof-tops blown off. (iii) Power supply, telephone service completely disrupted.

(1)	(2)	(3)	(4)	(5)	(6)
		(b) Nalanda	Severe (140 kmph)	A person killed due to thunder bolt.	(i) 200 houses collapsed. (ii) Communication system completely disrupted.
12.	16 May	Satna	Severe	(i) 6 persons died and 8 injured. (ii) 18 cattleheads perished.	(i) 33 houses and 1857 huts damaged. (ii) 1900 trees and 1000 electric poles uprooted.
13.	18 May	Purnea	Severe		Property worth several lakhs of rupees damaged in Araria.
14.	30 May	Dewas	Severe	(i) 8 persons died and 5 injured in 5 villages. (ii) Many cattleheads perished.	(i) 48 houses completely burnt out. (ii) Several trees uprooted in Katkut village.
15.	31 May	(a) Kakinada	Moderate		(i) Low lying areas of the town flooded. (ii) Power supply completely disrupted.
		(b) Visakhapatnam	Severe	One person died due to thunder-bolt in Narsipatnam village.	
16.	3 Jun.	(a) Anantpur	Severe	(i) One person died in Allepalli village and another at Narasapuram village. (ii) 30 Sheep and one buffalo perished.	
		(b) Pune	Severe	2 boys killed due to wall collapse.	(i) Many trees uprooted. (ii) Low lying areas flooded. (iii) Vehicular traffic disrupted. (iv) Half-a-dozen short circuit incidents attended by the Fire-brigade.

(1)	(2)	(3)	(4)	(5)	(6)
17.	3-5 Jun.	Ahmednagar and Solapur	Severe	(i) 2 persons killed in Ahmednagar district and 3 persons in Solapur District. (ii) 7 injured in Solapur district.	
18.	6 Jun.	Pune, Sangli and Solapur	Severe	(i) 10 persons including 2 women and 5 children killed. (ii) 8 others injured due to house collapse and electrocution.	
19.	12 Jun.	Kolhapur	Moderate		(i) Normal life paralysed. (ii) Low lying areas flooded. (iii) Electric supply completely disrupted.
20.	13-15 Jun.	Yavatmal	Severe	40 persons injured of which 4 seriously due to collapse of Orient Syntex Mill at Lohar.	Hundreds of trees uprooted, disrupting vehicular traffic on Yavatmal - Darwha road.
21.	17 Jun.	Nagpur	Severe	Two women seriously injured.	(i) Northern part of Nagpur city affected. (ii) Several houses collapsed. (iii) Asbestos/tin tops of many houses blown away. (iv) 100 families became homeless.
22.	15,16 Nov.	Kangra	Moderate		Many trees uprooted in certain parts of the valley.

(1) (2) (3) (4) (5) (6)

TABLE - X : HAILSTORMS

CRITERIA

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

Moderate : Fall abundant enough to whiten ground.

Heavy : Includes at least a proportion of large stones.

1.	5 Feb.	Puri	Slight		Standing rabi crop affected.
2.	7-11 Feb.	Amravati	Heavy	(i) 4 persons killed and 15 other injured in house collapse incidents. (ii) Several cattleheads perished.	(i) Severest hailstorm in recent years. (ii) Standing crops, orange orchards severely damaged.
3.	7-12 Feb.	Madhya Pradesh (West)	Heavy	(i) 2 persons died (one each in Sanver and Depalpur tehsil of Indore district). (ii) 30 cattleheads perished.	(i) 1500 villages in 19 districts of the state affected. Bhopal, Dewas, Dhar, Indore, Khargone, Morena, Raisen, Sehore, Seoni, Shivpuri and Ujjain districts worst affected. (ii) Rabi crop in one lakh hectare damaged. (iii) In Seoni district, 4060 houses damaged.
4.	8 Feb.	Jalgaon	Heavy	(i) 2 persons killed. (ii) 716 cattleheads perished.	(i) 1142 hectares of agriculture land affected. (ii) Total loss estimated around Rs.14 lakhs.
5.	9 Feb.	Nagpur	Heavy	(i) 16 persons seriously injured. (ii) 125 cattleheads perished.	(i) Kamaleshwar, Kamptee and Koradi areas in Nagpur city badly affected. (ii) Standing crop worth Rs.10 crore damaged. (iii) Koradi Thermal Power Station badly damaged. (iv) One petrol pump damaged.

(1)	(2)	(3)	(4)	(5)	(6)
					(v) Hundreds of orange trees and banana plantations uprooted.
					(vi) Many electric poles uprooted.
6.	9,12,13 Feb.	Lalitpur	Heavy		25-85% of the crop damaged.
7.	10 Feb.	Nagpur	Heavy	Several cattleheads perished.	(i) Wheat, orange and vegetable crops heavily damaged. Loss estimated to be several crores of rupees. (ii) Koradi Thermal Power Station tripped.
8.	11 Feb.	(a) Nagpur	Heavy		(i) Crops in 25 villages damaged. (ii) Several huts collapsed. (iii) Several orange orchards uprooted.
		(b) Yavatmal	Heavy	4 persons killed and 5 injured.	Loss of property worth Rs.2 crore reported.
		(c) Balasore, Cuttack, Ganjam and Sambalpur	Slight		Standing rabi crop damaged.
9.	13 Feb.	(a) Amravati	Heavy	(i) 4 persons died. (ii) 100 cattleheads perished.	(i) Several orange orchards damaged. (ii) Wheat crop badly affected.
		(b) Nagpur	Heavy		Standing crops badly damaged.
10.	27 Feb.	Indore	Heavy	(i) 12 persons injured. (ii) 17 cattleheads perished.	(i) 25 villages of Sanver tehsil affected. (ii) 3000 hectares of rabi crop badly damaged. (iii) Several trees uprooted.
11.	6,8 Mar.	Amravati	Heavy		(i) Standing crops badly damaged. (ii) Many houses partially damaged. (iii) Several trees/electric poles uprooted. (iv) Cotton worth several lakhs of rupees damaged.

(1)	(2)	(3)	(4)	(5)	(6)
12.	9 Mar.	Amravati	Heavy		(i) Many trees uprooted. (ii) Standing fruits, vegetables and wheat crops badly damaged. (iii) Roofs of many houses damaged.
13.	12-19 Mar.	(a) Allahabad, Mussoorie	Heavy		Standing crops badly damaged.
		(b) Ambala	Heavy		40 villages affected of which standing crops in 8 villages completely wiped out while in remaining villages, 50-75% damaged.
		(c) Chandigarh	Heavy		Standing crops extensively damaged.
		(d) Delhi	Moderate		Flower beds in many gardens badly damaged.
		(e) Faridkot, Ferozepur, Kapur- thala, Patiala and Sangrur.	Heavy		Standing wheat crop in 91 villages badly damaged.
		(f) Kashmir valley	Heavy		Many fruit plantations damaged.
		(g) Solan	Heavy		Fruit crop badly damaged.
14.	6 Apr.	Burdwan	Heavy		(i) Roof-tops of many huts in Purbasthalig, Mantesar and Katwa tehsils blown away. (ii) Extensive damage to standing crop reported.
15.	11 Apr.	Nizamabad	Heavy		20-75% of the standing paddy, bajra and susuam crops damaged. Loss estimated around Rs.15 lakhs
16.	20,21, Apr.	Medak	Moderate		Mango groves in Ramayanpet village damaged.
17.	25 Apr.	Nizamabad	Moderate		Crops including fruit trees damaged.
18.	26 Apr.	Hyderabad	Severe		(i) 8 houses collapsed. (ii) No. of electric and telephone poles uprooted.

(1)	(2)	(3)	(4)	(5)	(6)
19.	27 Apr.	Chandrapur	Heavy	5-6 persons injured.	(i) Many trees/electric poles uprooted. (ii) One house completely damaged and 60-80 houses partially damaged.
20.	27,28 Apr.	Kurnool	Severe	5 people killed.	One house collapsed and plantain orchards damaged in Erranganta, Nandyal and Samiti villages.
21.	18-20 May	Chandigarh and parts of Punjab and Haryana	Moderate		Damage to fruit crop reported.
22.	18-21 May	Simla, Hamirpur and Kangra	Heavy		(i) Extensive damage to apple, wheat, pea, and barley crops reported in Kotgarh areas of Simla district. (ii) 30% damage of mango and grapes reported in Hamirpur district. (iii) In Kangra district, roof-tops of many houses blown off and hundreds of trees uprooted.
23.	19 May	(a) Bahraich (b) Patiala	Moderate Heavy		W.T. areal in a office compound broken. (i) Several areas covered under a thick layer of hail. (ii) Fruit crop heavily damaged.
24.	20 May	Tehri Garhwal	Moderate		Wheat and other fruit crops damaged in Pratapnagar tehsil.
25.	29 May	(a) Chandigarh Haryana and Himachal Pradesh (b) Faridkot and Ferozepur	Heavy Heavy	Large number of birds perished.	(i) Extensive damage to mango crop reported. (ii) Many thatched roofs blown off. Harvested wheat crop lying on the field, damaged badly.
26.	13,14 Sep.	Bhatinda and Faridkot	Heavy		Standing cotton and paddy crops badly damaged.



(1)	(2)	(3)	(4)	(5)	(6)
27.	7,8 Oct.	Kangra	Heavy		Widespread damage to paddy crop reported.
28.	16-19 Oct.	(a) Bilaspur, Hamirpur, Kangra and Simla	Heavy		50-60% paddy crop damaged.
		(b) Nainital	Heavy		50-60% paddy crop damaged in Mukteshwar.
29.	13 Dec.	Kheri and Lucknow	Moderate		Potato, pulses and oilseed crops damaged.
30.	24 Dec.	Bolangir and Sambalpur	Heavy	No. of cattleheads perished.	(i) Hailstone weighing more than 250 gm reported. (ii) Standing paddy crop badly damaged.
31.	26-28 Dec.	Marathwada and adjoining districts of Madhya Maharashtra	Heavy	(i) 16 people killed and 7 other injured. (ii) 148 cattleheads and 5261 goats/sheep perished.	(i) 185 lakh hectares of jowar, 2621 hectares of wheat, 15,000 hectares of sunflower, til and gram and 1400 hectares of perennial crops damaged. (ii) Loss to the standing crops estimated worth Rs. 17.5 crore.

S.No.	Date/Period	Area affected	Intensity (river)	Casualties	Extent of damage
<u>TABLE - XI : FLOODS &amp; HEAVY RAINS</u>					
<u>ANDHRA PRADESH</u>					
1.	13-15 Jan.	(a) Nellore	Heavy rains	9 people died.	<ul style="list-style-type: none"> <li>(i) Thousands of hectares of paddy crop worth Rs.1.03 lakh submerged.</li> <li>(ii) 81,000 hectare agricultural land affected by pest and diseases, caused loss of property worth Rs.11.35 lakhs.</li> <li>(iii) 25 buildings worth Rs.11.75 lakhs damaged.</li> <li>(iv) 2 medium and 60 minar irrigation tanks worth Rs. 22.45 lakhs damaged.</li> <li>(v) Madras-Calcutta national highway damaged at several places. The loss estimated around Rs. 112.4 lakhs.</li> </ul>
		(b) Prakasam	Heavy rains		Thousands of hectares of agriculture crop damaged. Loss estimated around Rs. 436 lakhs.
2.	17 Jan.	Hyderabad	Heavy rains	3 people died.	
3.	10 Feb.	Warangal	Heavy rains		<ul style="list-style-type: none"> <li>(i) Chilli crop in 300 acres of land damaged. A plantain grove razed to ground at Atmakur revenue mandal.</li> <li>(ii) 400 huts damaged. Roof-top of a high school building in Niruhula village damaged. Loss estimated around Rs. 15,000/-.</li> <li>(iii) In Warangal town, telephone/electric wires snapped disrupting telephone and electric supply.</li> </ul>
4.	16 Jun.	Hyderabad	Heavy rains	<ul style="list-style-type: none"> <li>(i) One person died in Hyderabad city.</li> <li>(ii) 30 sheep, 6 goats and one bullock washed away.</li> </ul>	

(1)	(2)	(3)	(4)	(5)	(6)
5.	25 Jul.	Khammam	Heavy rains	One person drowned in Godavari river near Bhadrachalam temple town.	
6.	11 & 12 Aug.	East Godavari, Guntur, Krishna and Kurnool	Flash floods	(i) 15 persons died in several house collapse incidents. (ii) 3 persons washed away in Guntur district.	(i) Large number of houses collapsed. (ii) Low lying areas flooded. (iii) Vehicular/railway traffic completely disrupted.
7.	14-20 Aug.	Adilabad, East Godavari, Karimnagar, Khammam, Krishna, Nizamabad, Warangal and West Godavari	Severe (Godavari)	(i) 262 persons died. (ii) 19,368 cattleheads perished.	(i) East Godavari district worst affected. (ii) 2685 villages affected of which 91 marooned and 614 inaccessible by surface transport. (iii) One lakh houses completely and 1,24,484 partially damaged. (iv) 25 lakhs acres of standing crops damaged. (v) 215 major and 96 minor irrigation projects damaged. 1183 tanks and 509 canals breached. (vi) Drilling site of ONGC at 5 places in Godavari basin flooded and inaccessible. Drilling personnel evacuated to safer places. (vii) 4 railway bridges and 12 km stretch of a railway track damaged. The loss to railway estimated around Rs. 15 crore. Railway services between Waltair-Vijaywada, Nidadavolu-Narasapur-Gudivada section disrupted. (viii) Total loss of property estimated worth Rs. 700 crore.

(1)	(2)	(3)	(4)	(5)	(6)
8.	Oct. (4th week)	Nellore	Severe	2 people died in Peramana village.	(i) 7 villages inundated. (ii) 300 families marooned in Vidavalur village. (iii) A bridge under construction, connecting Kaligiri and Sangam, washed away. (iv) Railway traffic along Vijaywada-Guntur section affected.
<u>ARUNACHAL PRADESH</u>					
1.	Sep. (2nd week)	Entire State	Severe (Lohit, Didang, Kameng and Subansiri)		Road blocked at several places following landslides.
<u>ASSAM</u>					
1.	Jun. (4th week)	Darrang, Dhubri, Dibrugarh and Sonitpur	Severe (Brahmaputra and its tributaries)	One person died.	(i) 100 hectares of standing jute and paddy crop submerged. (ii) 1000 people shifted to safer place. (iii) Tezpur power station colony submerged under flood water.
2.	Jul. (4th week)	Nowgong and Lakhimpur	Severe (Brahmaputra and its tributaries)		(i) In Lakhimpur district, 100 families rendered homeless and 7000 families affected. (ii) 42 villages in Sisiborgaon circle submerged under flood water. (iii) Road communication completely disrupted.
3.	Sep. (3rd & 4th week)	Darrang, Dhubri, Dibrugarh, Jorhat, Lakhimpur, Nowgong, and Sonitpur	Severe (Brahmaputra and its tributaries)		(i) 500 families rendered homeless and 5000 affected. (ii) Jute, Sali crop and seasonal vegetables badly damaged. (iii) 8 public institutional buildings damaged.
4.	Oct. (1st & 2nd week)	Cachar, Goalpara, Jorhat, Kamrup, Karimganj and Nowgong	Severe (Barak, Kushiara and their tributaries)	(i) 20 persons died. (ii) Hundreds of cattle-heads perished.	(i) Gwalghata sub-division in Jorhat district worst affected. 3 lakhs people in 300 villages affected. (ii) Standing crop in 30,000 hectares of land affected.

(1)	(2)	(3)	(4)	(5)	(6)
					(iii) In Kamrup district, 200 villages marooned. Breaches in a river embankment in Nowgong district, inundated extensive areas from Jagi-road to Sonapur town in Kamrup district.
					(iv) Nowgong and Silchar town completely cut off from rest of the state.
					(v) Train service along N-E Rly between Silchar and Badarpur suspended indefinitely.
					(vi) Road link between upper and lower Assam completely cut off.
		<u>BIHAR</u>			
1.	Jun. (4th week) to Jul. (2nd week)	Gaya, Khagaria, Nalanda, Patna and West Champaran	Severe (Gandak, Kamla Balan, and Kosi)	3 persons died.	(i) About 5 million people affected. (ii) 50,000 people in Khagaria district and 4 lakhs people in 350 villages in Nalanda district affected. (iii) One lakh people in Patna district marooned. (iv) 35 km Pipra-Piprasi embankment seriously damaged affecting 1.2 lakh people in West Champaran district. (v) Extensive damage to paddy seedlings reported. (vi) Road and telecommunication links completely disrupted.
2.	Jul. (4th week) and Aug.	23 districts	Severe (Burhi Gandak Ganga, Kosi and Son)	(i) 110 people died. (ii) Hundreds of cattle perished.	(i) About 3.5 million people in 4000 villages affected. (ii) Crop in 2.69 lakhs hectare damaged. Loss estimated to be Rs. 14 crore. (iii) In Gaya district 22,000 houses washed away rendering 3 lakhs people homeless. (iv) In Bhojpur district, 8 blocks completely inundated rendering thousands of families homeless. (v) In Sitamarhi district, the flood water flown one metre above the road connecting Sitamarhi and Muzaffarpur. Railway bridge No. 13 washed away disrupting communication between Choradano and Adapur on Sitamarhi-Raxaul section of NE railway. (vi) In Saharsa district, Kosi river breached its embankment and eroded about 60 metre at two points near Kushaha village.

(1)	(2)	(3)	(4)	(5)	(6)
					(vii) In East and West Champaran districts Piprasi-Pipraghat embankment breached 200 metre wide, affecting 60,000 people in 70 villages.
					(viii) IAF helicopters airdropped food packets and army boats employed for rescue operations.
3.	Sep. (2nd week)	East Champaran, Motihari, Raxaul and West Champaran	Severe (Burhi Gandak)		(i) 1.5 lakh people in 70 villages affected. (ii) Flood water entered Raxaul town. (iii) In Motihari town, low lying areas inundated. (iv) Road and railway link in Motihari and Raxaul districts completely disrupted.
<u>GUJARAT</u>					
1.	Jun. (3rd and 4th week)	Bhaunagar, Broach, Junagad, Kheda, Porbandar and Rajkot	Severe (Saraju and its tributaries)	23 persons died.	(i) Rajkot district worst affected. (ii) Hundreds of houses collapsed. (iii) People living in the downstream areas of Khodiyar, Ambajal and Raval dams evacuated to safer places.
2.	Jul. (4th week)	Baroda and Broach	Severe (Narmada)		(i) In Baroda district, 4000 people evacuated to safer places. (ii) In Broach district, 2700 people and 3200 cattle from 13 villages evacuated to safer places. (iii) Dandia Bazar of Broach town submerged under one metre flood water. (iv) Country boats operated in some localities of Broach town to ferry the people.
3.	2 Aug.	Rajkot		Heavy rains 6 labours died when 100 ft. tower collapsed at Dhar-eshwar sub-station of Gujarat State Electricity Board near Jetpur town, about 70 km. from Rajkot.	

(1)	(2)	(3)	(4)	(5)	(6)
4.	Aug. (2nd week)	Broach-	Severe (Narmada)	25 people died and 50 other injured.	(i) Broach district worst affected. (ii) 2156 people and 1361 cattle residing along the bank of river evacuated to safer places. (iii) 17 villages in 5 tehsils of Broach district marooned. (iv) Flood water entered the low lying areas of Broach town.
<u>HARYANA</u>					
1.	1-3 Jul.	Sirsa	Heavy rains	One person killed.	(i) Many houses collapsed in Desu Jodha tehsil. (ii) Crops in 5000 acres damaged.
2.	24, 25 & 27 Jul.	Entire State	Heavy rains	Several cattleheads perished.	Crop, public property and kutcha houses badly damaged.
<u>HIMACHAL PRADESH</u>					
1.	26 Apr.	Dharamsala	Incessant rains.	3 persons swept away in a swollen nullah.	
2.	24-31 Jul.	Entire State	Heavy rains		(i) Hamirpur and Kangra districts worst affected. (ii) Large no. of mud houses damaged. (iii) Extensive damage to crop and property reported.
3.	Aug. (1st week)	Bilaspur	Heavy rains	A girl died and 3 other injured in a house collapsed in Tali village.	
<u>JAMMU &amp; KASHMIR</u>					
1.	19 Mar.	Anantnag	Heavy rains		(i) Many houses damaged in Tral town. (ii) Jammu-Srinagar national highway blocked due to landslides causing disruption to vehicular traffic.
2.	24, 25 Apr.	Jammu and Srinagar	Flash floods (Jhelum and its tributaries).	9 people died, 6 from Jammu district alone.	(i) 27 villages affected. (ii) Two dozen kutcha houses damaged.

(1)	(2)	(3)	(4)	(5)	(6)
					(iii) Jhelum river breached its bank in Srinagar. (iv) Army called to protect river embankment against further breaches.
3.	Jul. (3rd and 4th week)	Entire State	Severe (Chenab)	9 persons died in Nowgaon village near Banihal.	(i) Heavy damage to 'Salal Hydro-electric Project' situated 116 km from Jammu reported. Flood water entered the power house submerging machinery and other material. (ii) Traffic on Jammu-Srinagar national highway blocked due to heavy landslides near Bali nullah, about 75 km from Jammu.
4.	1 Aug.	Entire State	Heavy rains	5 persons died.	(i) 25 houses collapsed. (ii) Normal life in the state virtually paralysed.
5.	3 Aug.	Jammu	Heavy rains	11 persons died in house collapse incidents.	
6.	4 Aug.	(a) Jammu and Ladakh	Heavy rains	10 persons died in Jammu district while 6 other in Ladakh area.	
		(b) Srinagar	Heavy rains		Several houses damaged.
7.	5 Aug.	Jammu	Heavy rains	2 persons washed away.	500 houses destroyed.
8.	25 Aug.	Anantnag	Heavy rains	Several cattle perished at Sonemarg.	
<u>KARNATAKA</u>					
1.	31 May	Bellary	Flash floods	19 persons residing in 4 huts on the bank of a hilly stream in Narihalla Sandur tehsil washed away.	
2.	3 Jun.	Bijapur	Heavy rains	2 persons died in a house collapse in Aacharra katti area of the Bijapur city.	



(1)	(2)	(3)	(4)	(5)	(6)
3.	Aug. (1st and 2nd week)	Chikmagalur, Dakshin Kannada, Mandya and Uttar. Kannada	Severe (Godavari and its tributaries)	8 persons electrocuted and one washed away near Srirangapatnam.	(i) In Chikmagalur district, 12 houses collapsed. A private bus capsized in flood waters. A school building collapsed at Lingadahalli village, 60 km from Chikmagalur town. (ii) Flood water of Tunga river inundated Shimoga-Thirthahalli road at Mandagadde village by 3 feet. Vehicular traffic completely disrupted. (iii) Vehicular traffic on the national highway between Bangalore and Mangalore suspended due to landslide.
4.	17 Sep.	Bangalore	Heavy rains	4 persons died due to house collapse in Rahmatnagar area of Bangalore city.	
5.	22 Sep.	Bangalore	Heavy rains	One woman killed in Bangalore city.	600 huts in the low lying areas of the Bangalore city collapsed.
<u>KERALA</u>					
1.	4 May.	Kozhikode and Trivandrum	Heavy rains		(i) Low lying areas of Pallikhandi village in Kozhikode district flooded. (ii) Standing crop in Aryanad village of Trivandrum district damaged.
2.	12 Mar.	Trivandrum	Heavy rains	3 fishermen swept away when their trawlers capsized near Leyyatinkara village.	
3.	18 Jun.	Trivandrum	Heavy rains	One fisherman reported missing and 40 other injured when a country boat capsized.	
4.	24 Jun.	Quilon	Heavy rains	3 fishermen reported missing when a country boat capsized near Neendakare village.	

(1)	(2)	(3)	(4)	(5)	(6)
	(b) Nagpur		Heavy rains		(i) A portion of a house located behind Kamal talkies in Nagpur city crashed down. (ii) Vehicular traffic in the city completely disrupted.
9.	24 Jun.	Bhandara	Heavy rains	A woman electrocuted and a person injured in a house collapse.	22 huts in railway colony collapsed.
10.	28 Jun.	Bombay and Thane	Heavy rains	4 people died.	
11.	29 Jun.	Ratnagiri	Severe (Vashisthi and Shiva)	One woman washed away.	(i) Shiva and Vashisthi rivers breached their embankments. (ii) Chiplun town cut off from rest of the state. (iii) Vehicular traffic on Khed-Kolhapur-Pune route suspended.
12.	15 & 16 Jul.	Wardha	Heavy rains		(i) Several houses damaged. Loss estimated around Rs. 25,000 to 30,000/-. (ii) Low lying areas flooded. (iii) 25-30 huts completely collapsed.
13.	17 Jul.	Bhandara	Heavy rains	3 truck passengers reported missing when the truck carrying them sank in flooded Waghadi nullah near Hinganghat village.	Road traffic on Nagpur-Hyderabad and Nagpur-Chandrapur roads held up.
14.	Aug. (1st & 2nd week)	Vidarbha	Severe (Purna, Peti and Sapna)	(i) 32 persons died. (ii) 575 cattleheads perished.	(i) Chandrapur and Gadchiroli districts worst affected. (ii) 2,35,000 people of over 1835 villages affected. (iii) 10,000 houses swept away and 6000 houses damaged. In Chandrapur district 1000 houses collapsed. (iv) Crop in 2000 hectares in Hinganghat and Samandarpur tehsils in Wardha district swept away.

(1)	(2)	(3)	(4)	(5)	(6)
					(v) Estimated loss of property worth Rs. 10 crore reported in Chandrapur district while Rs. 61 lakhs and Rs. 5 lakhs reported in Yavatmal and Wardha districts respectively. The total loss estimated worth Rs. 16 crore.
					(vi) A bridge near Ashti village connecting Aheri to Chandrapur washed away.
					(vii) In Nagpur city, a two storeyed building in Sitabuldi area razed to ground.
					(viii) Road traffic in Chandrapur and Gadchiroli district completely disrupted.
					(ix) In Amravati district, 14 villages in Chandur and Dhamangaon tehsils badly affected. 46 houses collapsed and 402 houses partially damaged.
					(x) Telecommunication network completely broke down even Police wireless system became ineffective.
					(xi) IAF helicopters airdropped food packets.
15.	7 Aug.	(a) Bombay	Heavy rains	2 persons died.	(i) Railway service along central railway (main and harbour lines) totally disrupted.
					(ii) Railway track between Kurla-Vidyavihar, Bhandup-Kanjurmarg and Chunabhatti-Kurla stations submerged under knee-deep water.
					(iii) Fire brigade attended 5 minor landslide incidents.
					(iv) All south-bound long distance trains cancelled due to landslides in Khandala ghat section.
					(v) Bus services from Bombay ran 2-3 hours late.
					(vi) IA flights from Bombay delayed.
		(b) Ratnagiri and Sindhudurg	Severe	6 persons died	All the rivers flowing through these districts in spate, disrupting road traffic.
		(c) Thane	Heavy rains	6 persons died.	In Thane city, more than 250 huts washed away rendering many people homeless.

(1)	(2)	(3)	(4)	(5)	(6)
					(i) Firemen rescued 250 persons from Shrirang Society Housing Complex. (ii) low lying areas flooded with chest-deep water. (iii) property worth Rs. 18.72 lakhs damaged.
16.	7-10 Aug.	Kolhapur	Severe (Hiranyakeshi)	(i) One person swept away at Salgao village in Gadhinglaj tehsil. (ii) One buffalo swept away in a flooded nullah.	(i) Several houses collapsed. (ii) Many trees uprooted. (iii) Low lying area of the Kolhapur city flooded disrupting vehicular traffic. (iv) State transport bus service suspended from Kolhapur to Goa, Sawantwadi and Kanavali. (v) Radhanagari and Tulsi dams overflowed.
<u>MANIPUR</u>					
1.	26 Jul.	Imphal	Flash floods (Nambal)		(i) 3000 houses in western part of the town with a population of 10,000 people, inundated. (ii) Most parts of the town remained under flood water.
<u>ORISSA</u>					
1.	Jun.	Bolangir, Cuttack, Dhenkanal, Kalahandi, Phulbani, Puri and Sambalpur	Severe (Mahanadi and its tributaries)	(i) One person died in Sambalpur and 2 others in Bolangir district. (ii) 14 cattleheads in Bolangir and 140 in Phulbani district perished.	(i) 16 lakhs people affected. (ii) The loss of houses and public property estimated to be worth Rs. 20 crore.
2.	Jul.	Cuttack, Dhenkanal, Phulbani and Puri.	Severe	(i) 8 people died in Puri district. (ii) 29 cattleheads perished.	(i) 9.9 lakhs people affected. (ii) The loss of crop, houses and public utility estimated to be worth several lakhs of rupees.
3.	Aug. (2nd week)	Koraput	Severe (Indravati)	2 persons reported died.	(i) 63 villages of Jeypore and Nowrangpur sub-division marooned. (ii) 5000 people affected. (iii) Several thousand houses either collapsed or damaged.

(1)	(2)	(3)	(4)	(5)	(6)
					(iv) 16,000 hectares of crop land covered by sand. (v) 3000 villages in Koraput district affected. (vi) Kisagummuda block along the bank of Indravati river worst affected.
4.	Oct.	Ganjam	Severe	(i) 3 persons died. (ii) 10 cattleheads perished.	Loss to crop, houses and public utilities estimated worth rupees several lakhs.
5.	Nov.	Balasore, Cuttack, Ganjam and Puri	Severe	(i) 5 persons killed. (ii) 480 cattleheads perished.	(i) Loss to crop, houses and public utilities estimated worth rupees several lakhs. (ii) 40% of the standing paddy crop in Ganjam district damaged. (iii) National highway No. 5 cut off at two places. (iv) 500 kutcha houses near Chilka lake damaged.
<u>PUNJAB</u>					
1.	29-30 Jun.	Bhatinda	Heavy rains	(i) A couple injured. (ii) A cow perished.	Many jhuggis collapsed and walls of several houses cracked.
2.	29,30 Jul.	Amritsar and Gurdaspur	Flash floods (Ravi)		(i) 60 metre wide breach in a spur across Ravi threatened Amritsar and Gurdaspur districts. (ii) 100 families in 7 border villages of Gurdaspur district marooned.
3.	12,13 Aug.	Ropar	Heavy rains		Approach road and bridge of SAS Nagar township damaged.
<u>RAJASTHAN</u>					
1.	24,25 & 27 Jul.	East Rajasthan	Severe	(i) 35 people died in Kota district. (ii) Several cattleheads perished.	(i) Bundi, Jhalawar and Kota districts worst affected. (ii) Crop, public property and kutcha houses badly damaged. (iii) Loss to property and crop estimated to be Rs.100 crore. (iv) Kota city cut off from rest of the state through rail and road. (v) Thousands of people marooned in Kota district.

(1)	(2)	(3)	(4)	(5)	(6)
					(vi) One km. stretch of railway track near the industrial area of Kota town, washed away disrupting Delhi-Bombay railway traffic.
1.		<u>TAMILNADU</u>			
1.	3 Nov.	Tiruchirapalli	Flash floods		(i) Low lying areas badly affected. (ii) Vehicular traffic completely disrupted in Hanganurodai near Venganur.
2.	5,6 Nov.	Chingleput, Madras, South Arcot and Tiruchirapalli	Heavy rains	20 persons killed.	No. of huts in low lying areas of Madras city submerged under rain water.
		<u>UTTAR PRADESH</u>			
1.	10 Jul.	Etah	Heavy rains	(i) One child killed. (ii) 4 cattleheads perished.	One house collapsed.
2.	17,18 Jul.	Chamoli, Gonda, Tehri Garhwal	Severe	(i) 14 persons died in two villages of Devprayag tehsil of Tehri Garhwal district. (ii) Hundreds of cattle washed away.	(i) 300 houses damaged. (ii) 32,000 hectares of cropped area damaged. (iii) A bridge over Dudhi river on Bombay-Agra highway washed away.
3.	Jul. (4th week to Sep. 2nd week)	Allahabad, Almora, Azamgarh, Bahraich, Ballia, Bara Banki, Bareilly Basti, Chamoli, Deoria, Etah, Etawah,	Severe (Ganga, Yamuna and their tributaries)	187 people died.	(i) 4 million people in 6000 villages affected. 200 villages marooned and 700 villages flooded. (ii) 2.5 lakh hectares of land submerged under flood water. (iii) Crop in 5 lakh hectares of land damaged. (iv) Hundreds of buildings collapsed as a result of severe water-logging. (v) Parts of Dudwa and south Sunaripur ranges of Dudwa national part submerged under flood water.

(1)	(2)	(3)	(4)	(5)	(6)
		Faizabad, Farrukhabad, Fatehpur, Garhwal, Gonda, Gorakhpur, Hamirpur, Hardoi, Jalaun, Jaunpur, Kanpur, Kheri, Lucknow, Mainpuri, Moradabad, Muzaffar- nagar, Pratapgarh, Rae Bareili, Sultanpur, Varanasi.			(vi) 26 metre long Piprasi bund along Burhi Gandak river breached affecting 1.76 lakhs people in 114 villages of Padrauna tehsil in Deoria district. (vii) 1621 km long road flooded. No. of culverts damaged. Loss estimated around Rs. 12 crore. (viii) Nasirabad town of Rae Bareili district cut off. (ix) Railway tracks badly damaged disrupting train services.
		<u>WEST BENGAL</u>			
1.	5-9 Aug.	Malda	Severe (Ganga)	2 children drowned.	55000 people rendered homeless in 300 villages in Manickchak and Kaliachak area.
2.	Sep. & Oct.	Birbhum, Calcutta, Hooghly, Howrah, Malda, Midnapore, Murshidabad, Nadia, and 24 Parganas.	Severe	(i) 29 persons died. (ii) 2852 cattleheads perished.	(i) 17,131.99 sq km area with population 121.40 lakhs in 15,191 villages affected. (ii) 5,16,000 hectares of agriculture land affected. Loss to crop estimated around Rs. 13,910 lakhs. (iii) 2,05,718 houses fully and 3,86,157 partially damaged. Loss estimated to be worth Rs. 1800.92 lakhs.
		<u>CHANDIGARH (U.T.)</u>			
1.	24,25 Apr.	Entire area	Heavy rains	One person died.	
2.	29,30 Jun.	Entire area	Heavy rains		(i) Many houses damaged. (ii) Low lying areas flooded. (iii) No. of vehicles broke down. (iv) Rain water entered jhuggies of the Labour Colony.

(1)	(2)	(3)	(4)	(5)	(6)
<u>DELHI (U.T.)</u>					
1.	13 Aug.	Entire area	Heavy rains	3 persons killed and 2 other injured when a portion of a wall of a MES building behind Red Fort, collapsed.	(i) Normal city life completely paralysed. (ii) 92 DTC buses broke down. (iii) Low lying areas of the city remained under knee-dip water. (iv) Vehicular and telephone services badly affected.
2.	22 Sep.	Entire area	Heavy rains	4 persons injured in a wall collapse.	(i) A wall of a biscuit factory in Burani village collapsed. (ii) No. of short-circuits and cable faults reported. Several electric poles caught fire.
<u>PONDICHERRY</u> (U.T.)					
1.	Aug. (2nd week)	Entire area	Severe (Godavari)		Yanam, an enclave of the Union Territory completely cut off from rest of the country.



S.No.	Date/Period	Area of Formation/Dissipation	Intensity	Casualties	Extent of damage
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TABLE - XII : CYCLONIC STORMS

No cyclonic storm affected India during 1986.

