



INDIA METEOROLOGICAL DEPARTMENT
DISASTROUS WEATHER EVENTS , 1982
A REPORT



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Cover Photo - Devastation caused by cyclonic storm on 8/9 November 1982 at Veraval (Gujarat).

DISASTROUS WEATHER EVENTS OF 1982

Nearly all the weather events caused damage to life and property during the year 1982. The most noteworthy among them were the following :

- (i) An Arabian Sea cyclone, which hit the Saurashtra Coast on 8th November, took a toll of 514 human lives and nearly 1.5 lakh livestock. It caused considerable damage to crops estimated at about Rs.127.23 crores.
- (ii) A rare, yet one of the severest natural hazards, namely, a tornado, picturesquely described as a funnel shaped fury in meteorological parlance, swept across Sambalpur district of Orissa State on 28th August. The whirlwind took off from bottom of a hillock near Hirakud reservoir and rushed towards the Salad village in Rengali block. Water from a pond on its path churned up high into the sky, destroying 65 houses.
- (iii) Severe floods in many rivers in Orissa, during 4th week of August and 1st week of September, affected 10 million people & 3 million hectares of agricultural land and claimed lives of 1000 human/beings. Estimated damage reported to run in hundreds of crores of rupees. It was worst ever to have been witnessed in the living memory.
- (iv) Drought conditions due to insufficient rains during monsoon, prevailed in many parts of the country, affecting Kharif crops to a considerable extent. Tamil Nadu and West Bengal were the worst hit and experienced acute shortage of drinking water.
- (v) Record rainfall of 58 cm in 24 hours at Sambalpur town (Orissa State) on 19th August.

The summary of these natural hazards is based on the observations taken by the India Meteorological Department and the press reports. The areas affected by the weather phenomena are depicted on four maps (seasonwise).

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S.No.	Date/Period	Area affected	Intensity	Casualties	Remarks
(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.	5 Jan.	Banihal, Doda, Poonch and Rajouri (Jammu & Kashmir)	Moderate	-	Snowfall forced cancellation of air-flights.
2.	9 & 10 Jan.	Simla & surrounding areas	Moderate	-	Normal life disrupted.
3.	22-30 Jan. 82	Karnah, Poonch, Bhimbergali pass (J&K) Dharamsala, Solan and Kalpa valley (Himachal Pradesh) H.P.	Heavy	Two persons buried alive under avalanche at Kolhan village near Manali and three others under snow boulders in Karnah area of J&K.	(i) Airflights cancelled. (ii) National highways in J&K closed down for five days. (iii) Normal life completely disrupted in many parts of Himachal Pradesh. (iv) Kalpa valley cut off from rest of the country.
4.	2-8 Feb. 82	Leh & Pir Panjal range (J&K) and Kufri, Manali, Simla, Pangi valley & Rohtang pass (Himachal Pradesh) H.P.	Heavy	(i) 19 persons killed in a landslide on Jammu-Srinagar National highway. (ii) 6 persons killed in Himachal Pradesh.	(i) 6 residential houses & some cattle-sheds destroyed & 1000 persons evacuated in J&K where vehicular land & air traffic also disrupted. (ii) In Himachal Pradesh also vehicular traffic badly hit & normal life paralysed.

(1)	(2)	(3)	(4)	(5)	(6)
5.	14 Feb.	a) Anantnag, Bandipur, Baramula, Handwara, Kargil, Kupwara, Pahalgam, Sepore, Shopian & Sonamarg (J&K)	Heavy	-	(i) Electric supply and telecommunication system disrupted. (ii) Jammu-Srinagar national highway and all other local routes in Kashmir division blocked to traffic. (iii) Three high mountain lakes in Poonch district and one in Bhadarwah region of Jammu, frozen.
		b) Hills of west Uttar Pradesh	Heavy	-	(i) All Himalayan shrines closed to pilgrims. (ii) Normal life disrupted.
6.	17 Feb.	Zaskar in Ladakh region and Gabra village of Karnah Tehsil (J&K)	Heavy	Four persons died	-
7.	19 Feb.	Kalarus (In Kupwara area of Jammu and Kashmir)	Heavy	Four persons died	-
8.	20 & 21 Feb.	Zaskar & Tangdhar (Ladakh) of Jammu and Kashmir.	Heavy	Two persons died.	(i) Air services between Srinagar & Leh cancelled. (ii) Vehicular traffic between Srinagar & Jammu national highway badly affected.
9.	22 Feb.	Higher reaches of Himachal Pradesh	Heavy	-	Vehicular traffic suspended.

(1)	(2)	(3)	(4)	(5)	(6)
10.	27 Feb.	Poonch (J&K)	Heavy	-	Brown snowfall reported, resulting blockade of highways from the town.
11.	1-4 Mar.	(a) Banihal & Quazigund areas and higher reaches in Jammu region.	Heavy	-	Srinagar-Jammu national highway closed to traffic.
		(b) Simla and higher reaches in Himachal Pradesh.	Heavy	26 persons died.	(i) Simla cut off from rest of the State. (ii) Electric and telephone services snapped due to falling of trees. (iii) "AIR Simla" could not broadcast on medium wave, due to lack of power on 2nd & 3rd.
		(c) Chamoli, Joshimath, Badrinath, Rishikesh and Mussoorie (U.P.)	Heavy	One person died.	(i) Four villages between Joshimath and Badrinath cut off as huge glacier blocked the road. (ii) Vehicular traffic in other areas of snowfall also affected badly.
12.	6-12 Mar.	(a) Banihal, Batote, Mehore and Srinagar in Jammu and Kashmir.	Heavy	One person died.	(i) Air and road traffic affected. (ii) Normal life disrupted.
		(b) Bharmour (Chamba Dist.) Chohar valley, Kinnaur, Lahul-Spiti, Manali, Mandi, Rohtang Pass, and Simla (Himachal Pradesh.)	Heavy	-	(i) Road services suspended on many routes due to landslides. (ii) Three bridges in Chamba Dist. collapsed. (iii) Rail traffic from Simla suspended. (iv) Electric supply disrupted. (v) Life in snow-bound areas paralysed.

(1)	(2)	(3)	(4)	(5)	(6)
		(c) Alaknanda valley, Badrinath, Chakrata, & Mussoorie (U.P.)	Heavy	-	Vehicular and telecommunication links affected.
13.	15 Mar.	Pir Panjal range and Rajouri (Jammu & Kashmir)	Heavy	(i) 32 persons killed (ii) 700 sheep & goats killed.	
14.	22-25 Mar.	Banihal & Srinagar (J&K)	Heavy	-	Entire state cut off from rest of the country.
15.	18-20 Apr.	(a) Poonch (J&K)	Heavy	-	Poonch town cut off from rest of the state.
		(b) Kalpa and mountain region of Kinnaur (Himachal Pradesh)	Heavy	-	(i) Landslides blocked traffic on many highways. (ii) Electric supply disrupted.
16.	21-25 Apr.	(a) Upper regions of Poonch & Rajouri (J&K)	Heavy	-	(i) Ten villages cut off from rest of the state. (ii) 80% of wheat & Masur crop damaged.
		(b) Different parts of Himachal Pradesh	Heavy	-	(i) Flowering of the apple crop completely damaged. (ii) 40% of the apple plantation either uprooted or broken under the pressure of snow. (iii) Other standing crops also damaged.
17.	26 May.	Panjal pass (J&K)	Heavy	7 tribals and many cattle-heads killed.	

(1)	(2)	(3)	(4)	(5)	(6)
13 18.	7 Jun. 82	Northern parts of Sikkim	Heavy	Masses of snow and rocks hurtled down from above 4615 metres which buried the army camp killing 29 army personnel and injuring 7 others seriously.	4-5 Km stretch of a road washed away.
19.	22 Sep.	High altitude mountain ranges in J & K.	Heavy	-	Airflights from Srinagar-Leh cancelled.
20.	27-29 Oct.	Baramula, Batote, Gulmarg, Handwara, Kupwara, Pahalgam, Shopian, Sonamarg, Srinagar & Pir Panjal ranges (J&K)	Heavy	400 sheep and goats killed.	(i) 3000 migrant shepherds and hundreds of tourists stranded due to blocking of roads by landslides. (ii) Air traffic affected. (iii) 300 Km stretch of Jammu-Srinagar national highway and 435 Km Srinagar-Leh national highway closed.
21.	29 Oct.	(a) Kaza (in Lahul-Spiti valley of Himachal Pradesh)	Heavy	-	Kaza cut off from rest of the state.
		(b) Garhwal & Kumaon (U.P.)	Heavy	-	Tourist and pilgrim traffic disrupted.
22.	9 Dec. 82	Machhal area of Kupwara district (J&K)	Moderate	Two persons killed by avalanche	-
23.	28 Dec.	(a) Banihal, Batote, Kud, Patnitop, Poonch, Rajouri & Sannasar (J&K)	Heavy	-	(i) Airflights affected. (ii) Landslides disrupted road traffic.

(1)	(2)	(3)	(4)	(5)	(6)
<u>TABLE - II : COLD WAVE</u>					
<u>CRITERIA</u>					
Moderate : Night temperature 6 to 7°C below normal					
Severe : Night temperature \geq 8°C below normal					
1.	1 Jan.	(a) New Delhi	Moderate	-	Air traffic affected.
		(b) Bihar	Moderate	-	-
		(c) Punjab	Severe	5 persons died	-
2.	2-8 Feb.	New Delhi	Moderate	-	Rail & vehicular traffic affected.
3.	22 Feb.	Punjab & Parts of Rajasthan	Moderate	-	-
4.	2 & 3 Mar.	Jammu & Kashmir, Himachal Pradesh, Rajasthan, North Gujarat and Madhya Maharashtra.	Moderate	-	-
5.	3 Mar.	Marathwada (Maharashtra) region.	Moderate	-	-
6.	6 Mar.	North India	Severe	-	-
7.	11-13 Mar.	Himachal Pradesh, J&K, and Rajasthan.	Moderate to Severe	-	-
8.	29-30 Nov.	Bihar	Severe	5 women died at Mokameh-Barauni	-
9.	4-10 Dec.	Bihar	Severe	7 persons died	-
10.	7-10 Dec.	Kangra valley (Himachal Pradesh)	Moderate	-	-
11.	10 Dec.	Haryana & Chandigarh	Moderate	-	-

(1)	(2)	(3)	(4)	(5)	(6)
12.	9-11 Dec.	Bundelkhand & east U.P.	Severe	(i) 5 persons died in Ballia Dist. and 3 in Banda Dist. (ii) Large number of birds and stray-cattle also died in Ballia Dist.	-
13.	23-28 Dec.	North India	Severe	(i) 50 persons died in Bihar. (ii) one person killed in Ludhiana.	-
14.	28 Dec.	Northwest India, Jammu and Kashmir, Punjab, Rajasthan, Rohilkhand (U.P.) and Bundelkhand region of M.P.	Severe	-	Taps frozen in Srinagar.
15.	31 Dec.	U.P. and Punjab	Severe	32 persons died in U.P. and 3 in Hoshiarpur District of Punjab.	-

(1)	(2)	(3)	(4)	(5)	(6)
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TABLE - III : HEAT WAVE

CRITERIA

Moderate : Day temperature 6 to 7°C above normal

Severe : Day temperature \geq 8°C above normal

1.	28 Mar.	Bombay	Moderate	-	Hottest day during last 26 years at Bombay which recorded maximum temperature of 40.2 degrees Celsius.
2.	30 Mar.	Saurashtra	Severe	-	-
3.	27-30 May.	Hamirpur and Banda (U.P.)	Moderate to Severe	(i) 11 persons died of heat wave in Hamirpur and 4 in Banda. (ii) 11 persons hospitalized following sunstroke.	-
4.	1-7 Jul.	Gangetic West Bengal, Orissa, Bihar, U.P., Haryana, M.P. & south coastal Andhra Pradesh.	Moderate to Severe	One person died in Karnal due to oppressive heat.	In Orissa, departure of maximum temperature from normal was 9 to 10 degrees Celsius, at number of places.
5.	10 Jul.	Plains of U.P., Haryana and Punjab.	Moderate	-	-

(1)	(2)	(3)	(4)	(5)	(6)
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TABLE - IV : DROUGHT

CRITERIA

Mild : Weekly aridity anomaly $\leq 25\%$
 Moderate : Weekly aridity anomaly 26 to 50%
 Severe : Weekly aridity anomaly exceeding 50%

ANDHRA PRADESH

1.	Jul., Aug. (4th week) & Sep. (1st & 2nd week)	East Godavari	Moderate	-	(i) Half of total rice area of 40,000 hectares, left fallow. (ii) Standing Kharif crop and growth of millet crop stunted. (iii) 3.2 million hectare of agricultural land affected, resulting in a loss of 5.2 million tonnes of food-grains. (iv) 298 villages badly hit.
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BIHAR

2.	Aug., Sep. and Oct. (1, 2 & 3rd week)	Madhubani, Palamau, Patna and Saharsa districts and Magadh sub-division.	Mild	-	Kharif crop very badly hit, as rainfall was 50% of the normal in these areas.
3.	Aug. & Sep. 1st week	East Champaran, Nawadah and Santhal Parganas	Moderate	-	Transplantation of paddy affected.

GUJARAT

4.	Aug. (1st & 2nd week) & Oct. (1, 2 & 3rd week)	Saurashtra	Moderate	}	(i) In 9000 villages crops were in bad condition. (ii) In 3452 villages, acute shortage of drinking water.
5.	Aug. (4th week), Sep. & Oct. (1-3 week)	Kutch	Moderate		
6.	Sep. (2, 3 & 4th week) and Oct. (1, 2 & 3rd week)	Gujarat region	Moderate		

HARYANA

7.	Sep. & Oct. (1st week)	Bhiwani, Gurgaon, Hissar, Mahendragarh & Rohtak	Severe	-	Paddy crops adversely affected resulting in an estimated loss of 3 to 4 lakh tonnes.
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Drought 82(1)

(1)	(2)	(3)	(4)	(5)	(6)
<u>KARNATAKA</u>					
8.	Aug. & Sep. (1st week)	Bidar, Bijapur, Dharwar & Gulbarga	Severe	-	Standing crops affected.
9.	Aug. (4th week) & Sep. (1 & 2nd week)	Chitradurga, Kolar, Tumkur, Mandya & Mysore.	Severe	-	Sowing badly hit in first three districts and standing crops withered in the remaining ones.
<u>MAHARASHTRA</u>					
10.	Jun. & Jul. (1-3 week)	Ahmednagar	Severe	-	(i) Acute shortage of drinking water in more than 650 villages. (ii) 80,000 hectares of sugarcane crop in Srirampur area worth Rs.100 crore affected.
11.	Jun., Aug. (4th week) & Sep. (1 & 2nd week)	Beed, Jalna, Nanded & Parbhani (Marathwada region)	Moderate	-	(i) Sowing operations affected during June. (ii) Crop growth affected during August & September.
12.	Jun. (4th week), Jul. (1-3 week) Aug. & Sep. (1st week)	Pune	Severe	250 heads of cattle perished in Junnar	(iii) Drinking water facility hit hard. (i) 124 villages cultivating Kharif crop, partially or completely affected. (ii) 50,000 out of 94,000 hectares of land remained unsown.
13.	Jul. (1st week)	Vidarbha region	Severe	-	Paddy nurseries withered to a considerable extent.
<u>ORISSA</u>					
14.	Nov. (3 & 4 week) and Dec. (1-4 week)	Keonjhar, Mayurbhanj, & Sundargarh	Severe		Paddy and few non-paddy crops affected.
<u>RAJASTHAN</u>					
15.	Jul., Aug. (1-3 week), Sep. & Oct. (1 & 2 week)	Barmer, Jaisalmer, Jalore, Jhunjhunu, Jodhpur and Sikar	Severe	-	(i) Acute shortage of drinking water. (ii) Crops started withering for want of rains in September and October.

(1)	(2)	(3)	(4)	(5)	(6)
<u>TAMIL NADU</u>					
16.	Jun. & Jul.	The Nilgiris	Severe	-	Tea plantation on 6,071 hectares affected in Coonoor and Kullakamby areas.
17.	Jun. (2-4 week), Jul. (2&3 week) and Aug.	North Arcot	Severe	-	(i) Transplantation of Samba paddy could take place in only 25,000 hectare against a normal of 80,000 hectare. (ii) Groundnut crop in 0.9 lakh hectare affected.
18.	Sep..	Madras	Severe	-	Drinking water supply affected for want of adequate rains.
19.	Oct.	Dharmapuri, Madras, North Arcot, Ramanathapuram, Thanjavur and Tirunelveli	Severe	-	(i) Delay in onset of NE monsoon affected the agriculture already hit by failure of SW monsoon. (ii) One third of 1.82 lakh hectares of short-term Kuruvai crop, lost.
<u>WEST BENGAL</u>					
20.	May	Bankura, Burdwan, Purulia, and west Dinajpur	Severe	-	Acute shortage of drinking water as tanks and wells dried up.
21.	May & Jun. 1st week	(a) Hooghly, Murshidabad, Nadia, 24-Parganas and west Dinajpur (excluding Islampur division) (b) Birbhum	Severe	-	Damage to Jute & paddy estimated at Rs.10 crore.
22.	Jun. (1&2 week)	Malda	Severe	-	(i) Boro and other crops in 0.93 lakh hectares damaged in 19 blocks of the district. (ii) Drought created drinking water crisis particularly in the western parts of the district.
23.	Jun. (3&4 week) and Jul. (1-3 week)	Burdwan	Severe	-	(i) Sericultural and mango crops affected. (ii) 34,000 families who rear silk cocoons badly hit.
					(i) Aman crop suffered heavily. (ii) Arable land became dry & brown.

(1)	(2)	(3)	(4)	(5)	(6)
24.	Jun. (3&4 week) and Jul. (1-3 week)	Bankura	Severe	-	(i) Worst ever drought in living memory. (ii) Miles of arable land became dry and brown.
25.	Jul. (1-3 week)	Midnapore	Moderate	-	Transplantation over 0.81 lakh hec- tares of land in Jhargram & Keshiary sub-divisions affected.
26.	Jul.	Purulia	Moderate	-	Crop growth adversely affected.
27.	Jul. to Sep.	Birbhum, Howrah & Nadia	Severe	-	Aman crop in many areas suffered heavy losses.
28.	Sep. (3&4 week) and Oct. (1 & 2 week)	Hooghly	Severe	-	Aman crop in 0.69 lakh hectares damaged.
29.	Sep. (4th week) & Oct. (1&2 week)	Bankura & Burdwan	Severe	-	(i) Large number of people migrated to urban areas in search of jobs. (ii) 80% of the aman crop affected.
30.	Sep. (4th week) & Oct. (1-3 week)	Purulia	Severe	-	Many families shifted to urban areas in search of jobs.

TABLE - V : SQUALLS

CRITERIA :

Moderate : Surface windspeed in gusts
upto 80 Kmph.

Severe : Surface windspeed in gusts
 \geq 80 Kmph.

1.	10 Jan.	Nagpur	Moderate	-	(i) Power supply disrupted in many parts of the city. (ii) City life partially paralysed.
2.	15 Mar.	New Delhi	Severe (94 Kmph)	35 persons injured	(i) Many trees uprooted. (ii) Several areas plunged into darkness following power failure. (iii) Goods worth several thousands of rupees destroyed in a fire which broke out.

(1)	(2)	(3)	(4)	(5)	(6)
3.	23 Mar.	Jaipur	Severe (118 Kmph)	-	(i) Many trees in aerodrome colony uprooted. (ii) Glass window-panes of A.T.C. room broken.
4.	7 Apr.	Calcutta	Moderate	-	Train services disrupted.
5.	13 Apr.	Calcutta	Moderate	-	A local train stranded due to entanglement of overhead wires.
6.	14 Apr.	Calcutta	Moderate	-	Train services near Uttarpara disrupted.
7.	18 Apr.	New Delhi	Severe (99 Kmph)	2 persons injured	(i) Many trees and a few electric poles uprooted. (ii) A small fire in a field near Delhi - U.P. border, caused some damage.
8.	25 Apr.	New Delhi	Moderate	-	Tents put up at Ferozshah-Kotla ground, for delegates attending 'National Conference on Mass Organisation' brought down.
9.	24 May	Pune	Moderate	-	Many houses damaged and roof-tops blown away at Rajgurunagar.
10.	25 May	(a) Raigad (Maharashtra) (b) Pratapgarh (U.P.)	Moderate Severe	- 20 persons killed and 30 injured.	Many houses damaged and roof-tops blown away at Roha. Thatched roofs of nearly one thousand huts blown off and about 500 electric poles uprooted.
11.	29 May	New Delhi	Moderate	-	(i) Many trees, telephone poles & electric poles uprooted. (ii) Airflights delayed.
12.	9 Jun.	Madras	Moderate	2 persons killed and three injured.	(i) 750 huts destroyed. (ii) Overhead powerlines in suburbs snapped at many places. (iii) A number of hoardings and T.V. antenna blown away or twisted.

(1)	(2)	(3)	(4)	(5)	(6)
13.	14 Jun.	New Delhi	Severe (120 Kmph)	2 women and a child killed and several in- jured.	(i) Electric poles uprooted. (ii) Power supply in many parts of the capital cut off.
14.	18 Jun.	New Delhi	Severe (84 Kmph)	One person killed and many injured.	(i) Several trees uprooted causing traffic blockade. (ii) One aircraft damaged extensi- vely in hanger while a cargo air- craft and other ground equipments damaged.

TABLE - VI : GALE

CRITERIA

Strong : Windspeed ≥ 75 Kmph.

1.	2 Feb.	Srinagar	Strong	5 fishermen drowned & several fishing boats sunk in Wular lake.	-
2.	11 May	Yeotmal	Strong	3 persons killed and 2 injured at Digras when live electric wire fell on them.	-
3.	12 May	New Delhi	Strong	-	Many trees uprooted, entangling overhead power-lines.
4.	27 Jun.	Dehradun	Strong	-	(i) Lichi & mango crops damaged extensively. (ii) Many trees uprooted. (iii) Road from Mussoorie and Chakrata blocked. (iv) Pipeline in city damaged. (v) Electric supply disrupted.
5.	16 Jul.	Bombay	Strong	One fisherman missing when a trawler cap- sized in rough sea, off Bombay coast.	-
6.	18 Jul.	Nagpur	Strong	-	Roofs of 200-250 houses swept away in Mohali, Ajani, Wadegaon and Khalsana villages of Umrar Tehsil.

(1)	(2)	(3)	(4)	(5)	(6)
7.	8 Aug.	Goa	Strong	-	Many trees uprooted.
8.	24 Oct.	Quilon	Strong	-	(i) Several houses damaged. (ii) Many trees and electric poles uprooted. (iii) Standing crops destroyed.
9.	10 & 11 Nov.	Mandasur	Severe	15,000 heads of cattle died at Nimach.	Estimated loss over Rs. One crore reported.

TABLE - VII : DUST STORM

CRITERIA

Moderate : Windspeed between 39 to 75 Kmph and horizontal visibility upto 500 metres.

Severe : Windspeed \geq 75 Kmph and horizontal visibility upto 50 metres.

1.	18 Apr.	Delhi	Severe (99 Kmph)	Two persons injured.	Many trees and a few electric poles uprooted.
2.	10-15 May	Mukteshwar	Severe (150 Kmph)	Thousands of birds perished.	Several trees uprooted in Kotkapa and Mukteshwar.

TABLE - VIII : LIGHTNING

1.	18 Apr.	Jaunpur, Varanasi	-	In all 6 persons killed and 3 others injured in Varanasi, two persons struck by lightning bolt in Jaunpur.	-
2.	21 Apr.	Pune	-	-	Pune turf club building hit by lightning bolt, loss of Rs.50 lakhs reported.
3.	9 May	Ahmadabad	-	5 persons killed and 36 injured.	-
4.	1 Jun.	Sangli	-	Three children killed in Walva taluk.	--
5.	2 Jun.	Nasik	-	One person killed in hut burnt, in Sinnar.	-

(1)	(2)	(3)	(4)	(5)	(6)
6.	16 Jul.	Durg	-	Five children attending classes, died and 14 others injured, when lightning struck a school building in Pendrav.	-
7.	20 Jul.	Alibag	-	One person killed.	-
8.	23 Jul.	Dharamsala	-	7 persons injured in Bagli.	-
9.	24 Jul.	Delhi	-	16 persons injured, two of them seriously.	-
10.	16 Aug.	Daltonganj	-	Three persons killed and four injured at Bharatpur.	-
11.	14 Sep.	Dhar	-	One farmer injured and two bullocks killed at Badipur.	-
12.	21 Sep.	Nasik	-	One person killed and three injured at Yewala.	-
13.	25 Sep.	Nahan	-	A woman killed & 3 children became unconscious at Bhatar.	-
14.	26 Sep.	Thane	-	One person killed and 11 injured at Ambarnath.	-
15.	1 Oct.	Alibag	-	Three persons killed and 5 injured at Vagnebadi.	-
16.	3 Oct.	Ratnagiri	-	Three persons injured when lightning struck at Pendhanbe.	-
17.	7 Oct.	Ahmednagar	-	One girl killed and 11 injured at Dehsharade.	-

(1)	(2)	(3)	(4)	(5)	(6)
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.	28 Feb.	Amravati	Moderate	-	Vehicular traffic affected.
2.	19 Apr.	Kamrup	Severe	-	(i) Roof furniture of a school in Arkara completely smashed, blowing away its C.I. sheets to a distance of two km. (ii) Two thatched houses badly damaged. (iii) Loss estimated Rs.35,000/-.
3.	25 Apr.	Cachar	Severe (Probably Tornado)	(i) 12 persons died and 50 sustained serious injuries at Borakhai, Sonai & Oarsmingpur villages. (ii) Many animals and cattle-heads, dead or lost.	(i) About 5000 houses razed to ground and about 3000 partly damaged. (ii) Hundreds of trees, electric and telephone poles uprooted.
4.	1 May	Raigad	Moderate	Several persons injured.	Road communication and telegraph services disrupted.
5.	8 May	Surat	Moderate	-	Roofs of Kutchcha houses blown off.
6.	3 Aug.	Goalpara	Severe	12 persons died and several injured.	Widespread loss to crops and property.
7.	18 Aug.	North Lakhimpur	Severe	-	(i) A college building at Azad razed to ground and its servant quarters heavily damaged. A good number of houses also damaged. (ii) Valuable trees & crops destroyed. (iii) Estimated loss Rs.1 lakh.

(1)	(2)	(3)	(4)	(5)	(6)
8.	28 Aug.	Sambalpur	Severe (Tornado)	11 persons injured	Tornado in a 3-minute spell uprooted many trees. The whirlwind took off from bottom of a hillock near Hirakud reservoir, rushed towards the Salad village in the Rengali block, water from a pond on its path, churned up high into the sky. Due to tornado 250 persons rendered homeless destroying 65 houses.
9.	5 Oct.	Goa	Moderate	-	Few trees uprooted at Sauvordem.

TABLE-X: HAILSTORMSCRITERIA

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.	9 Jan.	Phalodi	Slight	-	Normal life affected.
2.	10 Jan.	(a) Jabalpur.	Severe	500 birds perished.	(i) Hail weighing 100-250 gms reported. (ii) 50 villages in Patan tehsil & 19 in that of Panagar tehsil affected. (iii) Standing rabi crops badly hit. (iv) Loss estimated Rs.1.5 crores.
		(b) Wardha	Severe	One person and 14 cattle heads killed at Samudrapur in Hinganghat tehsil.	(i) 32 houses fully damaged, loss Rs.10,000/- & 579 houses partly damaged amounting about Rs.20000/-. (ii) Standing crops in 8415 hectares valued at Rs.92 lakhs, damaged. 74 villages in Akot tehsil and 28 in Mangrulpir tehsil affected.
3.	11 Jan.	Akola	Slight	-	
4.	12 Jan.	Chhindwara	Moderate	-	Standing crops & orange gardens in number of villages of Pandhurna block heavily damaged.

(1)	(2)	(3)	(4)	(5)	(6)
5.	24 Jan.	Lakhimpur-Kheri	Slight	-	Normal life affected.
6.	30 Jan.	Dewas, Ratlam, Sehore	Severe	200 goats died in Dewas dist.	(i) Crops in 11,000 hectares worth Rs. 12 lakh affected. (ii) Hail weighing 200 gms reported.
7.	1 Feb.	(a) Akola	Moderate	Number of birds killed at Akot.	Number of houses collapsed and communication link damaged.
		(b) Amravati	Moderate	-	Standing crops of cotton, wheat, linseed & chana in 7 villages of Daryapur taluk affected.
8.	28 Feb.	(a) Kanpur, Mathura and Unnao	Severe	8 persons died in Kanpur and 2 women and a girl died in Mathura and in all 25 persons injured.	60% of the standing rabi crop damaged.
9.	1-4 Mar.	(b) Bikaner & Phalodi Chandigarh, Delhi, Faridkot, Kurukshetra & Sonapat	Moderate	-	Communication link disrupted. (i) Extensive damage to standing rabi crops. (ii) About 50,000 telephones rendered out of order.
10.	Mar. (2nd week)	Jammu	Moderate	-	(i) Standing crops damaged. (ii) Many rivulets flooded.
11.	21 Mar.	Datia, Guna, Gwalior, Shivpuri.	Moderate	-	Standing crops damaged.
12.	24 & 25 Mar.	Gwalior	Moderate	-	Rabi crops affected.
13.	Mar. (4th week)	Jaipur	Severe	(i) One person killed. (ii) 100 sheep, many peacocks & other birds killed, in Lalset tehsil.	Standing crops severely damaged.
14.	1 Apr.	Bilaspur & Raigarh	Moderate	-	Crops worth Rs. One crore in 37 villages of Raigarh and that worth Rs. two crore in 113 villages of Bilaspur, damaged.
15.	8 Apr.	Darrang	Moderate	-	Damage to trees, standing crops, houses & buildings in Sipajahar and neighbouring areas.

(1)	(2)	(3)	(4)	(5)	(6)
16.	13 Apr.	Gauhati	Severe	Several persons injured.	(i) Large number of houses in 10 villages under Kamalpur circle, blown off. (ii) Many trees uprooted. (iii) A primary school building at Nadpar destroyed, carrying loss of Rs.70,000/-.
17.	24 Apr	Darwha	Moderate	-	Many trees uprooted and telecommunication link paralysed.
18.	28 Apr.	Osmanabad	Moderate	-	Roof-tops and electric poles in Tuljapur taluk damaged.
19.	4 May	Sangli	Moderate	-	Number of houses damaged.
20.	10-16 May	Nahan	Severe	-	60% to 90% of rabi crop in Rennapaonta-Sahib, Nahan, Shillai and Saratian villages affected.
21.	11 May	Bhatinda	Severe	Three persons died and 27 became unconscious due to hail injuries.	(i) Many Kutchcha roof-tops blown off. (ii) Cotton & wheat crops severely damaged.
22.	13 May	(a) Bareilly	Moderate	-	(i) Many trees uprooted. (ii) Fruit crops and harvested grains destroyed. (iii) Power supply disrupted.
		(b) Jaipur	Severe	One person & many birds killed.	(i) Trees and electric poles uprooted. (ii) Standing and harvested crops damaged.
23.	14 May	Basti	Severe (100 Kmph)	-	A cold-storage building collapsed.
24.	May (2nd week)	Agra, Allahabad, Mathura, Unnao	Severe	(i) 4,6,& 8 persons died in Agra, Allahabad & Unnao districts respectively. (ii) Two cattle-heads died in Mathura district.	(i) Rabi crop damaged to considerable extent. (ii) Trees & Telephone wires uprooted.

(1)	(2)	(3)	(4)	(5)	(6)
25.	15 May	Pratapgarh	Severe	20 persons died and about 30 injured.	One thousand houses damaged and 800 electric poles & thousands of trees uprooted.
26.	16 May	Yeotmal	Severe	-	(i) Many trees uprooted. (ii) Many houses damaged (iii) Lemonsize hail reported.
27.	19 May	Yeotmal	Moderate	-	Many houses and godowns damaged and tin roofs of many houses blown off.
28.	22 May	Sangli	Moderate	-	Number of houses damaged.
29.	26 May	Rajkot	Moderate	Many persons injured.	Many trees uprooted.
30.	24 Jun.	Jammu and Kashmir	Severe	Two persons killed & number of cattleheads perished in Badgam areas of Kashmir division.	Jammu-Srinagar national highway badly damaged and blocked at Nassiri in Jammu division.
31.	18 Jul.	Nagpur	Severe	-	(i) 10 to 12 villages severely affected. (ii) Many trees & electric poles uprooted. (iii) Standing crops, food stock and hay stock worth Rs.50 lakhs destroyed. (iv) Hail of orange size reported.
32.	27 Oct.	Manmad	Slight	-	Few roof-tops blown off.
33.	Oct.(4th week)	Betul	Moderate	-	50% Kharif crop damaged in Sarra village.
34.	31 Oct.	Guna	Moderate	-	Standing Kharif crops in 10 villages, damaged.

(1)	(2)	(3)	(4)	(5)	(6)
TABLE - XI : FLOODS AND HEAVY RAINS					
ASSAM					
1.	Jun. (4th week)	Kamrup & Nowgong	Severe (Brahmaputra and its tributaries)	-	(i) 130 villages submerged. (ii) Standing crops over 40,000 hectares damaged. (iii) Road communication disrupted.
2.	Jul. (4th week)	Sibsagar	Severe (Brahmaputra and its tributaries)	-	26 villages submerged.
3.	Sep. (3rd week)	Cherrapunji, Dhubri, Darrang, North Lakhimpur, Sibhsagar, Tezu.	Moderate (Brahmaputra river)	-	Low lying areas submerged.
BIHAR					
4.	Jul. (4th week)	Champaran	Moderate (Gandak river)	-	Over 80 villages in Piprasi-Pipraghat areas submerged.
5.	Aug. (4th week)	Bhojpur & Saran	Moderate (Ganga river)	-	(i) Low lying areas flooded. (ii) Vehicular traffic between Patna-Chapra, Patna-Arrah and Arrah-Chandi affected.
6.	Sep. (1st week)	Begusarai, Bhagalpur, Bhojpur, Darbhanga, Katihar, Monghyr, Samastipur, Saran, Siwan & Vaishali.	Severe (Ganga, Mahananda and Pun Pun rivers)	-	(i) Over 3 million people in 773 villages affected. (ii) Chapra-Sonpur rail-track submerged.
GUJARAT					
7.	6 May	Ahmedabad	Heavy rains	5 persons killed and 8 injured in Ahmedabad when a roof of a Textile Printing Factory collapsed.	-
8.	10 May	Surendranagar	Heavy rains	-	(i) Power supply disrupted. (ii) Low lying areas in Surendranagar town inundated.
9.	13 Jul.	Saurashtra region	Heavy rains	8 persons died	-
10.	28 Jul.	Rajkot	Heavy rains	-	(i) About 1000 inhabitants of Matel village rendered homeless. (ii) Over 50% of the houses either collapsed or badly damaged. (iii) Damage caused to many Panchayat roads & State and national highways; loss estimated at Rs.10 lakhs

(1)	(2)	(3)	(4)	(5)	(6)
<u>HARYANA</u>					
11.	1-4 Mar.	Kurukshetra & Sonapat	Heavy rains (un-seasonal)	-	Extensive damage to standing rabi crops.
<u>HIMACHAL PRADESH</u>					
12.	Apr. (3 & 4 week)	Bhunter, Bilaspur, Chapra, Kangra, Manali, Mandi & Simla.	Heavy rains (seasonal)	-	Harvested and ready for harvest, wheat crop damaged.
<u>JAMMU & KASHMIR</u>					
13.	Apr. (3 & 4 week)	Banihal, Gulmarg, Srinagar & Udhampur	Heavy rains (un-seasonal)	-	Harvested and ready for harvest, wheat crop damaged.
14.	12 May	Poonch	Cloud burst	-	(i) A school building and a suspension bridge washed away. (ii) 50 houses damaged.
15.	1-4 Aug.	Jammu & Poonch	Heavy rains, (flooding of Tawi river)	7 persons died in Poonch and 5 in Jammu due to heavy rains. 9 persons washed away in Tawi river at Jammu.	-
<u>KARNATAKA</u>					
16.	23 May	Shimoga	Heavy rains	6 persons crushed under a tree at Bharmappanagar.	-
17.	Aug. (1 & 2 week)	(a) Shimoga	Moderate (Tunga river)	2 persons died.	(i) Over 350 houses and large number of huts inundated. (ii) Vehicular traffic disrupted.
		(b) Uttar Kannada	Severe (Netravathi, Sharavathi, Aghanashini & Varada rivers.)	16 persons killed in Honawar and Kumta taluks.	(i) 28 villages in Kumta taluk submerged. (ii) A large area of paddy fields submerged. (iii) One primary school building washed away. (iv) 3000 houses destroyed. (v) Property worth Rs.2 crore in Bhatkal, Honawar & Kumta taluks affected.
		(c) Dakshina Kannada	Moderate	One person died.	-

1982 (2)

(1)	(2)	(3)	(4)	(5)	(6)
18.	Aug (1st week)	Bellary	Moderate (Tungabhadra river)	-	Standing crops in Hadagali, Halavagal & Harpanahalli taluks damaged.
<u>KERALA</u>					
19.	30 Jul - 4 Aug.	Cannanore	Moderate (Streams from Cape Comorin)	4 persons drowned in the streams in Kasargod and Hosdurg taluks.	200 houses damaged and many persons evacuated to safer places in Hosdurg and Kasargod taluks.
20.	1-3 Aug.	Kozhikode	Heavy rains	-	Landslide occurred at Kuttiadi hills causing heavy damage to crops.
<u>MADHYA PRADESH</u>					
21.	17 Aug.	Mandsaur	Heavy rains	One child died in house collapse.	83 houses damaged.
22.	19 Aug.	Jabalpur	Heavy rains	One youth killed in house collapse.	-
23.	23 & 24 Aug.	Bhind & Gwalior	Heavy rains	16 persons died in a wall collapse.	825 huts in 28 villages damaged.
24.	1-15 Sep.	Guna	Heavy rains	(i) 9 persons lost their lives. (ii) More than 700 cattleheads perished.	4740 families affected.
25.	25 & 26 Aug.	Gwalior	Heavy rains	9 persons killed.	(i) 500 houses collapsed. (ii) Telecommunication system disrupted.
26.	Aug. (4th week)	Morena	Moderate (Chambal river)	-	Six villages affected.
27.	Aug. (4th week)	Shivpuri	Heavy rains	Two persons died.	-
28.	Aug. (4th week)	Raigarh & Raipur	Severe (Mahanadi river)	41 persons died.	About 50,000 villages affected.
<u>MAHARASHTRA</u>					
29.	28 & 29 Jan.	Nagpur	Heavy rains (unseasonal)	-	(i) Grain market affected, farmers could not save grains due to lack of storage facilities. (ii) Grains worth Rs.50,000/- damaged.
30.	25 May	Raigad	Heavy rains (unseasonal)	-	Many houses damaged at Roha.
31.	3 Jun.	Ratnagiri	Heavy rains	2 persons injured at	Two temples damaged at Venurle

(1)	(2)	(3)	(4)	(5)	(6)
32.	22 Jun.	Ratnagiri	Heavy rains	Five persons injured.	Many houses collapsed.
33.	23 Jun.	Jalgaon	Moderate	Five persons and 40 cattleheads washed away by swirling currents of flooded rivers in Yawal Tehsil.	-
34.	5 Jul.	Raigad	Heavy rains.	-	9.5 metre stretch of a road washed away in Roha.
35.	12 Jul.	Nanded	Heavy rains	2 persons buried alive and five others injured in house collapse.	-
36.	28 Jul.	Ratnagiri	Severe (unprecedented flooding of Shastri & Tonvi rivers)	One woman killed in Sangameshwar taluk.	(i) Heavy loss of property in Sangameshwar town. (ii) Number of houses collapsed in Kasba-Santawane village. (iii) Property worth Rs.40 lakhs destroyed in Sangameshwar, Kasba-Santawane, Kurdande, Ambed and Nayri villages.
37.	20 Aug.	Akola	Moderate (Bondi river)	Several cattleheads washed away	Many houses damaged.
<u>ORISSA</u>					
38.	18 & 19 Aug.	Sambalpur	Moderate (Mahanadi river)	-	(i) Sambalpur city & surrounding area remained under 1 to 1.5 metre of water. (ii) Hirakud irrigation system suffered heavy damage. (iii) Power house at Burla inundated, damaging all equipments and resulting in total shut-down.
39.	Aug. (4th week) and Sep. (1st week)	Balasore, Bolangir, Cuttack, Dhenkanal, Ganjam, Kalahandi, Keojar, Koraput Phulbani, Puri and Sambalpur districts.	Severe (Mahanadi, Brahmani, Baitarni & Devi rivers)	Over 1000 people reported killed.	(i) Worst ever flood in Mahanadi witnessed during last 100 years. (ii) Over 90,000 Sq.km. area and more than 10 million people affected. (iii) More than a million people rendered homeless and about 2000 villages affected.

(1)	(2)	(3)	(4)	(5)	(6)
					(iv) Puri-Calcutta and Paradip-Cuttack train services suspended. (v) National highway between Bhubaneswar-Cuttack sealed off and Cuttack-Kendrapara, Kendrapara-Paradip highways remained under water. (vi) Rain water entered Paradip Port area. (vii) Damage runs into hundreds of crores of rupees. (viii) Three million hectares of agricultural land affected. (ix) Property worth Rs.27 crores destroyed in Sambalpur district alone.
<u>PUNJAB</u>					
40.	1-4 Mar.	(a) Ropar	Moderate (Rivulets in spate)	-	Vehicular traffic along Nurpur-Bedi and Ropar-Bela suspended.
		(b) Faridkot	Heavy rains (unseasonal)	-	Standing rabi crops extensively damaged.
41.	Apr. (3rd week)	Jagraon	Heavy rains (unseasonal)	-	Harvested as well as ready for harvest wheat crop damaged.
42.	Apr. (4th week)	Amritsar, Bhatinda, Faridkot, Jullundar.	Heavy rains (unseasonal)	-	Harvested and ready for harvest wheat crop damaged.
<u>RAJASTHAN</u>					
43.	17-24 Aug.	(a) Kota	Severe (Chambal, Parbati & other rivulets)	7 persons died	(i) Over one lakh population marooned. (ii) More than 40 villages in Chhabra tehsil affected. (iii) Chhabra town lost contacts with dist. HQ, when it experienced 30 cm rainfall in 24 hours on 24th August.

(1)	(2)	(3)	(4)	(5)	(6)
		(b) Sawai Madhopur	Heavy rains	12 pilgrims washed away in Bantambore on 23rd.	-
44.	20-27 Aug.	Dholpur	Moderate (Chambal & Parbati rivers)	-	Three dams overflowed.
<u>TAMIL NADU</u>					
45.	13 Aug.	South Arcot	Flash flood, (Tambra- parni river)	Two persons drowned at Kallakurichi.	-
<u>UTTAR PRADESH</u>					
46.	Apr. (3&4th week)	Mussoorie, Ranikhet	Heavy rains (un- seasonal)	-	Harvested and ready for harvest wheat crop damaged.
47.	5 Jun.	Akharpur, Deoria & Gorakhpur	Heavy rains	5 persons died in house collapse	-
48.	Aug. (2nd week)	Chamoli	Flash floods in a nullah	5 persons drowned.	Four houses washed away in Admala village (Karanprayag tehsil)
49.	Aug. (4th week) and Sep. (1st week)	East U.P. (except Pratapgarh dist.), west U.P. (excluding Rampur, Moradabad, Saharapur, Aligarh, Bulandshahr, Meerut, Badaun, Bijnaur districts) and Almora, Pithoragarh and Shahjahanpur districts of hills of West U.P.	Severe (Ganga, Yamuna and their tributaries, Ghagra, Rapti, Gomti, Burhi-Gandak & Betwa)	(i) No. of persons died : 382 (ii) Many cattleheads perished.	(i) More than one crore people in 6000 villages affected. (ii) Several houses collapsed completely and over 1.3 lakh houses damaged partially. (iii) Standing Kharif crop in 13.86 lakh hectares destroyed. (iv) Flood water entered Hamirpur, Lucknow & Varanasi. (v) Educational institutions closed down in Hamirpur town. (vi) Lucknow's road link with Kanpur, Rae Bareli & Sultanpur cut-off. (vii) Sasaram bound Grand Trunk road remained under deep water, stranding hundreds of vehicles. (viii) Vehicular traffic from Almora to Pithoragarh and Dharchula-Sahar Pathak closed due to heavy landslides. (ix) Mughalsarai & Varanasi rail-junctions cut off by flooded waters of Ganga; & Banda-Lucknow rail traffic suspended.
50.	Sep. (2nd week)	Allahabad, Bahraich, Bara Banki, Basti, Deoria, Gonda, Gorakhpur, Jaunpur, Lucknow, Sitapur, Sultanpur, Unnao.	-do-		

(1)	(2)	(3)	(4)	(5)	(6)
<u>WEST BENGAL</u>					
51.	Aug. (4th week)	Murshidabad	Moderate (Padma river)	-	Nearly 20,000 people in 11 villages affected.
52.	Sep. (1st week)	Malda & Murshidabad	Moderate (Bhagirathi and Bhairab rivers)	-	Number of villages affected.
<u>DELHI (U.T.)</u>					
53.	25 Jul.	Entire area	Heavy rains	3 Labourers killed.	(i) Traffic disrupted. (ii) Telephone and electric supply services paralysed.
<u>GOA, DAMAN & DIU (U.T.)</u>					
54.	22 Jun.	Goa	Heavy rains	-	(i) Many trees uprooted. (ii) Newly constructed compound wall of a school building damaged.
55.	19 Jul.	Goa	Heavy rains	-	(i) Many houses either partially damaged or completely destroyed. (ii) Many shops/washed away. (iii) Power supply and telecommunication system disrupted.
56.	24 Jul.	Goa	Heavy rains	3 persons injured in house collapse at Panji	-
57.	28 Jul.	Goa	Heavy rains	-	(i) Heavy rains caused landslide carrying away 100 metre rail track along Vasco-Londha section. (ii) Loss estimated at Rs. one crore.
<u>ARUNACHAL PRADESH</u>					
58.	Sep. (3rd week)	Entire area	Severe (Brahmaputra river)	-	(i) Low lying areas submerged. (ii) Road communication disrupted.

S.No.	Date/Period	Areas of Formation/ Dissipation	Intensity	Casualties	Remarks
(1)	(2)	(3)	(4)	(5)	(6)

TABLE - XII : CYCLONIC STORMS

1. BAY CYCLONE

1-4 May

Formation: Formed at 200 Km southeast of Masulipatam.
Landfall: No landfall, system skirted Indian coast.
Dissipation: Dissipated over Thailand after crossing Arakan coast.

Coastal Andhra Pradesh experienced isolated to scattered rains on some days.

2. BAY CYCLONE

1-4 Jun.

Formation: Formed at 15°30'N, 91°00'E.
Landfall: Between Paradip & Chandbali on 3rd night.
Dissipation: Over east U.P.

Maximum wind speed recorded by a ship at Paradip port was 235 Kmph.

About 150 persons died

(i) Balasore, Cuttack & Puri districts of Orissa affected. Cuttack being the worst affected district. Many areas in Cuttack and Balasore district inundated by saline water.
(ii) 6.7 million people affected including two lakhs, who rendered homeless.
(iii) Severe damage to Paradip port, where 2 ships & 100 mechanised fishing trawlers damaged. A large number of private country boats also reported missing or lost in rough seas. All official buildings including residential houses in Paradip Port area severely damaged/collapsed. The no. of houses damaged was about 10,000. Wireless station at Paradip blown away.
(iv) A large number of electric & telephone poles bent/twisted or grounded disrupting telecommunica-

(1)	(2)	(3)	(4)	(5)	(6)
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3. BAY-CYCLONE

15-16 Oct.

Formation: Close to Andhra coast (near Kakinada) on 16th morning.
Landfall: System weakened into a depression and crossed north Andhra coast near Kakinada on 16th night itself.
Dissipation: Over coastal Andhra Pradesh and adjoining Telangana.

In Vishakhapatnam dist. five persons died and 400 heads of cattle perished due to heavy rains.

tion and power. A good number of trees also uprooted.
(v) Train services on the east coast line of south eastern railway badly disrupted.
(vi) According to newspaper reports, the cyclone was the worst ever in last hundred years.

(i) Srikakulam and Vishakhapatnam districts affected. Vishakhapatnam (Waltair) recorded 37 cm rainfall on 17th.
(ii) In Vishakhapatnam dist., standing crops worth Rs.80 lakhs damaged, and in Srikakulam dist. crops in 3,440 hectares lost and 2,104 hectares of crop-land submerged.
(iii) Loss to public works, buildings etc. estimated at Rs.248.5 lakhs.
(iv) In Vishakhapatnam dist. 3000 huts partially or completely damaged. Number of tanks breached : 202.

4. BAY CYCLONE

17-18 Oct.

Formation: Close to Madras.
Landfall: Near Sriharikota on 18th night.
Dissipation: over east Madhya Pradesh

(i) 60 persons reported died & 29 others injured.
(ii) 300 heads of cattle 500 poultry & 100 sheep perished in Nellore dist. In all 6700 heads of cattle perished in the affected areas.

(i) Nellore, Chittore, Prakasam, Guntur, Cudappah, Kurnool and Nalgonda dists. affected, of which Nellore being the worst hit. On 19th, Rapur, Tenali & Srikalahasti recorded 31 cm, 26 cm & 20 cm of rainfall respectively.
(ii) Banana, betelnut, Citrous, cotton, mango, paddy and sugarcane crops in 25,782 hectares lost.

(1)	(2)	(3)	(4)	(5)	(6)
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(iii) About 12,880 houses and 50,000 huts completely and about 84,130 houses partly damaged. Damage also caused to 18 Govt. buildings. Total loss to public works estimated at Rs.5.75 crores.
 (iv) 26 electric sub-stations damaged, total loss estimated at Rs.3 crores.
 (v) Many telephone and telegraph poles twisted out of shape by gale winds, resulting in disruption of telecommunication services.
 (vi) In all 97 irrigation tanks breached.

5. ARABIAN SEA CYCLONE

5-9 Nov.

Formation: At 14°N, 65°30'E.
Landfall : 45 Km south-east of Veraval on 8th evening.
Dissipation: Over west Madhya Pradesh

(i) The cyclone claimed 507 lives in Gujarat State and 7 in Konkan. 51 people, most of them fishermen, reported missing in rough seas, off Konkan coast.
 (ii) At least 25 people including some women & children injured when their huts were damaged by heavy rains and high winds, in Vasai taluk of Thane dist.
 (iii) Total livestock lost : 1,50,332.

(i) In Amreli, Bhavnagar and Junagadh districts of Gujarat,
 (a) about 12,624 pucca and 54,549 Kutchcha buildings completely destroyed.
 (b) crop damage estimated to be of 127.23 crores of rupees.
 (ii) In Vasai taluk of Thane dist., fruits, vegetables and flowers worth about Rs.3.5 crore destroyed, nearly 1.2 million banana trees uprooted and heavy damage caused to betel plants.
 (iii) In Panju, a small island, off Vasai coast, hundreds of people rendered homeless; their boats which was their only source of livelihood, also destroyed.
 (iv) One vessel sunk and the other damaged due to collision with the rocks, off Bombay coast.
 (v) In Bombay, scores of trees uprooted & hoardings made up of tin, sliced into two, due to the gale winds.

