



INDIA METEOROLOGICAL DEPARTMENT

DISASTROUS WEATHER EVENTS , 1987

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DISASTROUS WEATHER EVENTS OF 1987

The most striking disastrous weather events in 1987 were the following :-

- (i) The drought condition prevailed over the large parts of the country. The effect was rather severe in the states of Andhra Pradesh, Gujarat, Maharashtra and Orissa.
- (ii) While some parts experienced drought, concurrently, flood conditions prevailed over large areas of Assam, Bihar and West Bengal. The death toll due to floods in these states was over 1400.
- (iii) A severe cyclone, in the Bay of Bengal during 31st October to 3rd November, took a toll of 78 human lives and 23,222 cattleheads in Andhra Pradesh.
- (iv) Severe cold wave conditions during 22-25 January prevailed over Hazaribagh and Nalanda districts of Bihar and claimed nearly 100 human lives.
- (v) Severe heat wave conditions during June over Uttar Pradesh claimed lives of 78 persons.
- (vi) 40 persons died in a severe thunderstorm in Gopalganj district of Bihar on 18th October.

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.

I N D E X

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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 hours

Heavy : \geq 35.0 cm in 24 hours

1.	4-6 Jan.	Jammu and Kashmir	Moderate		(i) All Indian Airlines (IA) to Jammu and other parts of the state, cancelled. (ii) Large number of people stranded in Ladakh region.
2.	13-17 Jan.	Himachal Pradesh	Moderate		(i) Simla recorded 15 cm of snowfall during 24 hours ending 0830 hours of 17th. The minimum temperature dropped down to -5.6 degrees celsius. (ii) Normal life completely paralysed. (iii) 300 km long India-Tibet road closed for traffic stranding many vehicles/passengers.
3.	15-17 Feb.	(a) Himachal Pradesh	Moderate		(i) Simla district worst affected. (ii) Vehicular traffic completely disrupted. (iii) Power/telecommunication system disrupted.

(1)	(2)	(3)	(4)	(5)	(6)
		(b) Jammu and Kashmir	Moderate		(i) Normal life paralysed. (ii) IA flights to Srinagar cancelled.
4.	24 Feb.	Jammu and Kashmir	Moderate		(i) Jammu-Srinagar national highway closed for traffic. (ii) Vehicular traffic completely disrupted.
5.	26 Feb.	Jammu and Kashmir	Moderate		(i) Normal life paralysed. (ii) IA flights and rail services, disrupted.
6.	13 Mar.	(a) Himachal Pradesh	Moderate		Vayudoot service at Kulu, cancelled.
		(b) Jammu and Kashmir	Moderate		Normal life in Gulmarg, Pahalgam and Pir Panjal ranges paralysed.
7.	20 & 21 Mar.	Himachal Pradesh	Heavy		(i) Chamba, Kinnaur and Lahul-Spiti districts worst affected. Day temperatures fell down to -8°C. in some parts of the state. (ii) Normal life paralysed. (iii) Rohtang pass closed for vehicular traffic.
8.	Mar. (4th week)	Kargil	Heavy	3 persons died in a house collapse.	
9.	1 & 2 May	Dharmasala, Kangra and Simla	Heavy		(i) Normal life completely paralysed. (ii) At some places, the temperature fell down to freezing point. (iii) Vehicular traffic completely paralysed.

(1)	(2)	(3)	(4)	(5)	(6)
10.	9 May	Jammu and Kashmir	Moderate		Vehicular traffic on Srinagar-Jammu national highway suspended due to landslides near Khooni nullah between Ramsu and Ramban areas.
11.	10-19 Oct.	Jammu and Kashmir	Heavy	3000 cattle and a family trapped in snow and feared dead.	(i) Banihal, Udhampur districts and Zojila pass area worst affected. (ii) Jammu-Srinagar national highway closed for traffic due to landslides between Banihal and Ramban. (iii) Hundreds of passengers stranded near Udhampur. (iv) 12 12 ft snow accumulated in Gumri and Sonmarg along Zojila ranges. (v) 334 km long Srinagar-Leh road closed for traffic for 8 days.
12.	17-20 Oct.	Himachal Pradesh	Heavy	4 persons died.	(i) Tribal vallies of Lahul-Spiti, Pangi and Pin areas cut off from rest of the country. (ii) Normal life in Rohtang, Kunzam and Sanch passes completely disrupted. (iii) Large number of trucks along with 800 labourers of Border Road Organisation trapped in Rohtang, Ulzam-Seach and Baralacha passes. (iv) Large number of frost-bites, and snow blindness cases reported.

(1)	(2)	(3)	(4)	(5)	(6)
13.	23 Nov.	Kargil	Heavy	2 persons died.	Extensive damage to standing and harvested crop reported.
14.	10-12 Dec.	Chamba and Lahul-Spiti	Heavy		(i) 40 cm snowfall reported at Kaja. (ii) Rohtang pass closed and Lahul area cut off from rest of the country.
15.	29 Dec.	Kinnaur and Lahul-Spiti	Moderate		Normal life completely disrupted.

TABLE - II : COLD WAVE

CRITERIA

Moderate : Night temperature below normal 6 to 7⁰C

Severe : Night temperature below normal by 8⁰C or more.

1.	5 Jan.	Lucknow	Severe	3 persons died.	
2.	14 Jan.	Amraoti	Severe	One begger died in the premises of Warud Police Station.	
3.	18 Jan.	Basti	Severe	One person died.	
4.	22-25 Jan.	Hazaribagh and Nalanda	Severe	100 persons died.	Green vegetables damaged due to heavy frost.

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

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.	23 May	Dhenkanal	Moderate	One person died at Talcher village.	
2.	30 May	Cuttack	Moderate	4 persons fell unconscious in Cuttack city.	
3.	3 Jun.	Muzaffarpur	Moderate	3 persons died.	
4.	8 Jun.	Chandigarh	Moderate	One person died.	
5.	29 & 30 Jun.	(a) Haryana	Moderate	2 persons died.	
		(b) Punjab	Moderate	2 persons died, one each in Jullundar and Kapurthala districts.	
6.	Jun.	Agra, Banda, Basti, Gorakhpur, Jalaun, Jhansi, Lucknow, Moradabad and Orai	Severe	78 persons died.	(i) Day temperature 6-10°C above the normal reported in many places. (ii) Banda town recorded temperature of 47°C on 27th June.

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

ANDHRA PRADESH

1.	Jan. to Apr.	Entire state	14 persons died to malnutrition.	(i) (ii) (iii) (iv) (v) (vi) (vii) (viii)	One of the worst drought in recent years. Mahbubnagar district and Rayalseema region worst affected. Agriculture crop in 14 districts completely lost. The loss estimated to be Rs.600 crore. The loss of paddy production estimated 7 lakh tonnes. All the major and minor irrigation tanks dried up. Acute shortage of drinking water reported in 16,000 villages. Tankers employed for supply of drinking water. In Hyderabad city water supply rationed on alternate days. Scarcity in fodder reported in many parts of rural area.
2.	Jun. & Jul.	Entire state		(i) (ii) (iii)	70% of the dry cropped area could not be sown. Rayalseema region worst affected. Production in the groundnut crop severely affected.

GUJARAT

1.	Jan. to May.	Entire state		(i) (ii) (iii)	20 million people in 11,515 villages of 16 districts affected. Jamnagar district, Ranjitsagar lake and Und dam dried up. All the village ponds, wells and small irrigation dams dried up.
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(1)	(2)	(3)	(4)	(5)	(6)
2.	✓ Jun. to Aug.	Entire state			(iv) Acute shortage of drinking water reported. (v) 60 towns and cities and 8000 villages provided drinking water through tankers, camel and cattle-carts. In Jamnagar district drinking water supplied only 2 days in a week while in Ahmedabad city, the Municipal Corporation rationed the distribution of water supply. (vi) Acute shortage of the fodder reported special trains arranged for bringing fodder from other states. (i) The worst drought in the century. (ii) Kutch district and Saurashtra region worst affected. (iii) Sowing operations could not be done in 78 out of 182 taluks. (iv) ✓ Paddy, cotton, pulses, bajra and maize crops completely damaged. € (v) ✓ The food production of 27 lakh tonnes out of normal target of 34 lakh tonnes, completely lost. € (vi) ✓ Entire oilseeds production (16.25 lakh tonnes) lost. € (vii) ✓ The loss of the crop estimated Rs. 2750 crore, € (viii) ✓ 12,000 villages faced acute shortage of drinking water and fodder. Ua
3.	Oct. & Nov.	Entire state	5000 cattle perished in Dwarka.		(i) Saurashtra region worst affected. (ii) 36 dams completely and 20 other partially dried up. Against the normal capacity of 43780 m.c.ft. of water in 78 dams, the available stock of water was only 2500 m.c.ft. (iii) All the sugar factories, edible oil mills and solvent extraction plants closed down rendering 5 lakh people jobless.

(1)	(2)	(3)	(4)	(5)	(6)
					(iv) Acute shortage of fodder reported. The cattle owners migrated to other places. (v) No surface water available in Jamnagar district.
		<u>HARYANA</u>			
1.	Mar.	Gurgaon			(i) 200 villages mostly in Nuh area, affected. (ii) Rabi crop badly damaged.
2.	Jun. to Aug.	Entire state			(i) Bhiwani and Mahendragarh districts worst affected. (ii) Paddy plantations could be done only in 40% of the total cultivable area. (iii) Bajra crop completely wilted.
		<u>KARNATAKA</u>			
1.	Feb. to Apr.	Entire state			173 towns, 1668 villages and 1117 hamlets hit by acute water shortage.
		<u>KERALA</u>			
1.	Jan. to May	Entire state			(i) Palghat and Trivandrum districts worst affected. (ii) 25-30% of the rabi paddy crop lost. (iii) Cash crop like coconut, cashewnut, arcanut and banana in Trichur district completely lost. The loss estimated worth crores of rupees. (iv) The loss of the standing crop estimated to be Rs. 1000 crore. (v) Acute shortage of drinking water reported in Trivandrum district.
		<u>MADHYA PRADESH</u>			
1.	Jun. to Aug.	Entire state			Acute shortage of drinking water and fodder reported.

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

1. ✓ Jan. to May 26 districts

- (i) ✓ 20 million people in 26 districts affected.
- (ii) Ahmednagar, Akola, Aurangabad, Bid, Buldhana, Jalgaon and Osmanabad districts worst affected.
- (iii) Rabi crop badly affected. ✓ Crops on 18.89 lakh hectares badly affected. ✓ The loss estimated to be Rs. 530 crore.
- (iv) 10 million cattle faced acute shortage of fodder. 2500 million tonnes of fodder provided for feeding the cattle.
- (v) 12,000 villages and 94 urban centres faced acute shortage of drinking water. Even 3400 villages in Konkan region affected by the scarcity of water.
- (vi) In Ahmednagar district, the water capacity of Bhandara dam fallen to 2600 m.c.ft. as against the normal of 11,000 m.c.ft. affecting the farmers in Akola, Newasa, Rahuri, Sangamner and Srirampur talukas. This was the first time in 60 years period, since the existance of dam, the farmers deprived of irrigation water. Godawari and Pravara rivers flowing through Srirampur taluka, completely dried up. Following the closure of Pravara left bank canal, the price of potable water shoot up to Rs. 12/- per barrel. Sugar cultivation badly affected. Four sugar mills closed for shortage of sugar-cane, rendering 30,000 workers jobless.

ORISSA

1. Jan. to May Bolangir and Kalahandi

- (i) 79 people in Langigarh block and 15 in Kandul-jhar village in Bhawanipatna block in Kalahandi district, died due to malnutrition.
- (ii) 50% of the crop damaged in Bolangir district. In Kalahandi district, 42,221 villages reported acute shortage of water.

(1)	(2)	(3)	(4)	(5)	(6)
2.	Jun. to Aug.	Entire state			(i) 30,000 villages in 259 blocks worst affected. (ii) Paddy crop on 1.6 million hectares, and non-paddy crops on 6.56 lakh hectares, damaged. (iii) 6 lakh farmers rendered jobless. (iv) Acute shortage of drinking water reported in rural areas.
		<u>PUNJAB</u>			
1.	Jun. to Aug.	Entire state			(i) Paddy transplantation could not be done on more than 1/3 of the total cultivable land. (ii) In Jullundur district, water level fell down by two metres.
		<u>RAJASTHAN</u>			
1.	Apr. & May	Entire state			(i) Banswara, Chittorgarh, Dungarpur and Udaipur districts worst affected. 90% of 5.5 million population in these districts affected. (ii) 75% of the agriculture crop dried up in Dungarpur district. (iii) 2.6 million cattle affected in Udaipur district. (iv) Udaipur city faced acute drinking water scarcity. The water supply restricted to one hour per day.
2.	Jun. to Aug.	Entire state			(i) Kharif crop sowing could be done only in 1/3 of the total cultivable land. (ii) Drinking water supplied to 700 villages through tankers.
		<u>TAMILNADU</u>			
1.	Mar. & Apr.	17 districts			(i) 17 out of 20 districts affected. (ii) Madras, Madurai and Trichnapalli faced acute shortage of drinking water.

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

2.. Jun. & Jul. Entire state Summer crop in an area of 4.4 lakh hectares completely lost.

UTTAR PRADESH

1. Jun. to Aug. 50 districts

- (i) Agra, Allahabad, Bareilly, Jhansi, Lucknow and Meerut districts worst affected.
- (ii) 129 lakh hectares of the cropped area left unsown.
- (iii) Bajra, maize and paddy crops worst affected.
- (iv) Paddy crop completely lost. Kharif crop failed 25% short of the total target. The loss of crop estimated to be Rs. 2500 crore.
- (v) 30 districts faced acute shortage of drinking water.

PONDICHERRY (U.T.)

1. Feb. to Apr. Entire Territory Karikal district worst affected.

TABLE - V : SQUALLS

CRITERIA

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

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

1.	20 Mar.	Ganjam	Severe (100 kmph)	Several kutcha houses in Behrampur city and neighbourhood damaged.
2.	21 Mar.	Puri	Moderate	A co-operative sugar-mill, under construction, in Nayaghar area damaged.

(1)	(2)	(3)	(4)	(5)	(6)
3.	2 May	Lucknow	Severe (130 kmph)		(i) Large number of huts damaged. (ii) Several trees uprooted.
4.	3 Jun.	Puri	Severe	(i) 2 women seriously injured in Nuagaon block. (ii) 10 cattleheads perished in Oragaon block.	(i) Roof-tops of several hundred houses blown off. (ii) Two school buildings totally damaged.
5.	6 Jun.	Bhandara	Severe		(i) Shed of Maharashtra Asbestos factory blown away. (ii) Roof-tops of 'Bhandara Polytechnic College' buildings blown away causing extensive damage. (iii) Several trees/electric poles/telephone poles uprooted disrupting power and telecommunication services. (iv) Total loss to public property estimated worst several thousands of rupees.
6.	8 Jun.	Nagpur	Severe (114 kmph)	A 12-year old boy of Pandharabodi fell into a canal and washed away.	(i) 700 telephone poles in Nagpur city and Hingna industrial area completely damaged. (ii) 30 advertisement hoardings severely damaged. (iii) Electricity and telephone services completely disrupted. (iv) All India Radio, Nagpur went off the air for 13 minutes. (v) Overall loss to the property worth Rs. 10 lakhs reported.

(1)	(2)	(3)	(4)	(5)	(6)
7.	9 Jun.	Hardoi and Shahjahanpur	Severe	(i) 13 persons, including 11 in Shahjahanpur, died. (ii) 5 cattleheads perished.	(i) Several huts and tin sheds damaged. (ii) Many electric/telephone poles uprooted disrupting power/telecommunication services.
8.	15 Jun.	New Delhi	Severe (90 kmph)		(i) Many trees/electric poles uprooted. (ii) Normal life paralysed.

TABLE VI : GALE

CRITERION

Strong : Windspeed \geq 75 kmph

1.	19 Apr.	Trivandrum	Strong		(i) Roof-tops of several houses blown off. (ii) Large number of trees uprooted damaging the telephone lines. (iii) Widespread damage to property and agriculture reported.
2.	22 Apr.	Alleppey	Strong	5 persons died and 10 other injured when 18 mechanised boats and several country-boats sank off Punnapara coast.	
3.	16 May	Palghat	Strong		(i) 1200 rubber trees uprooted. (ii) Widespread damage to property and agriculture reported.
4.	5 Jun	Malappuram	Strong		(i) 1200 sq.m. area in Ponnami taluka affected by sea-erosion. (ii) Widespread damage to property, installations and crop reported.

(1)	(2)	(3)	(4)	(5)	(6)
5.	8 Jun.	Quilon	Strong	2 persons died at sea near Sakthikulangara when two fishing boats sank.	
6.	9 Jun.	Alleppey	Strong		Widespread damage to sea erosion at Karthigapally taluka.
7.	10 Jun.	Kottayam	Strong		(i) 1500 rubber trees and many other kinds of trees uprooted. (ii) Heavy damage to crop at Muthattukulam and Piravam talukas reported.
8.	11 Jun.	Malappuram	Strong	One fisherman died when a boat sank near Ponnani.	Widespread sea erosion reported at Ponnani and Parappanangadi talukas.
9.	25 Jun.	(a) Pathanamthitta	Strong	One boy lifted up and thrown away causing severe injuries at Vadasserikkara village.	Heavy damage to property and crop reported.
		(b) Quilon	Strong		Heavy damage to property and crop reported in coastal areas.
10.	24 Aug.	Cannanore and Kozhikode	Strong	4 fishermen reported missing.	25 fishing travellers reported missing.
11.	25 Sept.	Cannanore and Kozhikode	Strong	39 persons reported missing.	
12.	10 Oct.	(a) Alleppey	Strong		Heavy damage to property in Pallana, Arathupuzhu and Trikkunnappuzha areas reported.
		(b) Kasargod and Kozhikode	Strong		(i) Large number of trees uprooted. (ii) Widespread damage to property and houses reported.

(1)	(2)	(3)	(4)	(5)	(6)
13.	24 Oct.	Idukki	Strong		Widespread damage to property and agriculture reported in Venappara area.
<u>TABLE - VII : DUSTSTORM</u>					
<u>CRITERIA</u>					
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.	8 Apr.	Rohtak	Severe	(i) 50 persons injured. (i) 100 cattleheads and more than a thousand birds perished due to blowing off, of the roof of a poultry farm at Farmana village.	(i) Unprecedented duststorm reported in Meham area in Gohana sub-division. (ii) One lakh quintal of harvested wheat, gram and mustard damaged. Loss estimated worth several lakhs of rupees. (iii) Hundreds of trees and large number of electric poles uprooted completely disrupting power supply. (iv) 50 houses, one school building, a temple and the boundary wall of a hospital and a poultry farm collapsed. (v) Vehicular traffic and supply of drinking water disrupted for a fortnight.
2.	23 Apr.	Chandigarh	Moderate		(i) Normal life completely paralysed. (ii) Mango grove extensively damaged. (iii) Many trees uprooted. (iv) Power and water supply disrupted.
3.	29 Apr.	Amritsar and Bhatinda	Severe		(i) Standing as well as harvested crop in Ajnala sub-division of Amritsar district badly damaged.

(1)	(2)	(3)	(4)	(5)	(6)
					(ii) Power supply completely cut off in Amritsar district badly damaged. (iii) Several tin roof-tops/TV antennas blown away in Bhatinda district. (iv) Several houses damaged.
		(b) Solan and Hamirpur	Severe	One person injured by flying tin sheets in Solan district.	(i) Harvested as well as standing wheat crop, grapes, almond, peach and citrus fruit gradens extensively damaged in Hamirpur district. (ii) Bundles of harvested wheat crop flown off and many electric poles uprooted. (iii) Power supply completely disrupted for six hours in Hamirpur district.
4.	30 Apr.	Simla	Severe		(i) Extensive damage to crop reported. (ii) Several trees uprooted and a large number of roof-tops blown away. (iii) Power supply completely cut off in Simla city.
5.	1 May	New Delhi	Moderate	7 persons injured due to roof collapse.	Flights at Indira Gandhi International Aerodrome delayed for few hours.
6.	3 May	Cuttack	Severe	6 persons injured.	(i) Several roof tops blown away. (ii) Electric/telecommunication services disrupted.
7.	9 May	Bhatinda	Severe	2 persons died and 5 other injured.	
8.	3 Jun.	New Delhi	Severe	4 persons died.	(i) 275 ft high of All India Radio transmission tower, damaged. (ii) Several electric poles/trees uprooted.

(1)	(2)	(3)	(4)	(5)	(6)
9.	15 Jun.	Chandigarh	Moderate		(iii) Boundary walls of some private buildings collapsed. Several trees/electric poles uprooted.

TABLE - VIII : LIGHTNING

1.	14 Jan.	Kangra	(i) 3 women injured due to electrocution. (ii) One buffalo killed.
2.	9 Apr.	Faizabad	One person died at Tihura village of Awadh tehsil.
3.	30 Apr.	Kangra	One person died and two other injured at Kachiari village.
4.	1 May	New Delhi	A girl died due to electrocution near Turkman Gate area.
5.	May (1st week)	Hoshiarpur	One person died and another injured in Mangowal village.
6.	9 May	Faridkot	One person died and another burnt at Singhanwala and Muktsar respectively.
7.	17 May	Bidar	5 persons died and two other injured at Khanapur village in Bhalki taluka.
8.	23 & 24 May	Mandi	75 cattleheads perished at Rainhabu village.
9.	3 Jun.	Kolhapur	3 women died at Hajgoli village in Chandgad taluka.
10.	5 Jun.	Malappuram	A school girl died at Edappal village.

(1)	(2)	(3)	(4)	(5)	(6)
11.	8 Jun.	Kottayam		One person died at Pallem village.	
12.	24 Jun.	Surat		One person died due to electro- cution.	
13.	27 Jun.	Jalna		5 persons died and 2 other injured at Ghotan village.	
14.	28 Jun.	Bidar		One person died at Matala village in Kalyan taluka,	
15.	11 Jul.	Sitamarhi		2 persons electrocuted.	
16.	11 Oct.	Nagpur		3 persons died in Narkhed wi taluka.	
17.	14 Oct.	Amraoti		A student died and two other injured at Warud.	

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.	23 Feb.	Jaipur	Severe	11 goats perished.	(i) Streets of Jaipur city flooded. (ii) Vehicular traffic disrupted.
2.	10 Mar.	Coochbehar	Severe	An old lady of 50 years age died.	150 kutcha houses collapsed.

(1)	(2)	(3)	(4)	(5)	(6)
3.	8 & 9 Apr.	Amritsar and adjoining areas.	Moderate (70 kmph)		(i) A three-storeyed old building collapsed. (ii) Telecommunication/power supply disrupted.
4.	23 Apr.	Calcutta	Moderate (36 kmph)	A 22-years old boy in south Calcutta died.	
5.	25 Apr.	(a) Balasore, Cuttack, Dhenkanal, Ganjam and Puri	Severe	2 children died in Balipasa village in Dhenkanal district while another child injured.	(i) Several kutcha houses damaged. (ii) Asbestos roof-tops of one high school building in Puri district blown away. (iii) Electricity/telecommunication services disrupted.
		(b) Howrah and 24 Parganas	Severe	2 persons died and 5 other seriously injured.	(i) Damage to standing crop reported. (ii) Several trees uprooted, snatching electric wires.
6.	26 & 27 Apr.	Balasore and Cuttack	Severe	(i) 3 persons died in Cuttack district. (ii) 2 cattleheads perished.	(i) High yielding variety of paddy crop badly damaged. (ii) Damage of private and public property reported.
7.	5 May	Sirsa	Severe	2 children died and another injured in house collapse at Dabwali village.	
8.	6-8 May	Jaipur	Severe		(i) Glass-panes of a large number of windows broken. (ii) A wall of a house collapsed. (iii) Several advertisement hoardings destroyed. (iv) Large number of trees uprooted. (v) Extensive damage to vegetables and fruit plants reported.

(1)	(2)	(3)	(4)	(5)	(6)
					(vi) Telephone wires snapped disrupting telecommunication services.
					(vii) Rail services disrupted for some time.
9.	7 May	24 Parganas	Severe	4 persons died and 11 other injured when a roof of a school building collapsed.	(i) 300 kutcha houses collapsed rendering thousands of people homeless. (ii) Many crops damaged. (iii) Property worth Rs. 40,000 damaged.
10.	17 May	Balasore	Severe	2 persons died and another seriously injured in Pwadi area.	Electricity/telecommunication services completely disrupted for several days.
11.	19 May	Bangalore	Severe	(i) 2 persons electrocuted when the power-lines snapped. (ii) Some passengers injured when a tree fell on a city bus.	Thousands of huts in the low lying areas partially submerged due to heavy rains.
12.	20 May	Cuttack	Severe	One woman died on the spot when a palm tree fell on her in Jaipur areas.	(i) Many houses damaged. (ii) Electric/telecommunication services badly affected.
13.	24 May	Puri	Severe	One person died and another seriously injured in Nayagarh area.	
14.	3 Jun.	New Delhi	Severe	2 persons died and 25 other injured.	
15.	4 Jun.	Cuttack	Moderate	One woman seriously injured in Tigiria area.	
16.	6 Jun.	(a) Cuttack	Severe		(i) Roof-tops of many thatched houses as well as asbestos sheets blown off in Jaipur road, Korei and Dangodi areas. (ii) 5 houses damaged.

(1)	(2)	(3)	(4)	(5)	(6)
					(iii) Power/telecommunication services disrupted.
		(b) Dhenkanal	Severe	(i) 2 women seriously injured in Gaondia block. (ii) 6 goats burnt to death.	
17.	8 Jun.	Nagpur	Severe (104 kmph)	A 10-year old boy died.	(i) Normal life completely paralysed. (ii) Hundreds of roof-tops blown away. (iii) Low lying areas of Nandanvan and Azamshah slums flooded. (iv) Hundreds of trees and electric/telephone poles uprooted disrupting vehicular traffic. (v) Power/telecommunication services paralysed.
18.	9 Jun.	Puri	Severe	In Balugaon area (i) 4 persons died and (ii) 400 cattle perished.	
19.	9 & 10 Jun.	(a) Chandigarh	Moderate		Branches of many trees fell down disrupting power supply in many sectors.
		(b) Sonapat	Severe	One person died at Mena Tarapur village.	Power supply and telecommunication services badly hit.
		(c) Himachal Pradesh	Severe	6 children injured at Simla.	(i) Simla district worst affected. (ii) A dozen each of private houses and Government buildings damaged at Dharamsala. (iii) Few kutcha houses and many huts collapsed. (iv) Several roof-tops blown away. (v) Large number of trees/electric poles uprooted disrupting power/telecommunications services.

(1)	(2)	(3)	(4)	(5)	(6)
					(vi) Vehicular traffic completely disrupted due to landslides and falling of trees.
20.	10 Jun.	Bangalore	Moderate	One person seriously injured and 8 other sustained minor injuries in Bhograī area.	
21.	Jun. (2nd week)	Nagpur	Moderate		(i) Hundreds of trees uprooted snapping overhead electric wires. (ii) Electric supply completely disrupted.
22.	21 Jun.	Mayurbhanj	Moderate	2 persons died and 9 other injured in Thakurmunda area when a sal tree fell over them.	
23.	19 Aug.	Balasore	Severe	2 persons died and 2 other injured in Nimpur village under Jaleswar block.	
24.	8 Sep.	Phulbani	Severe	One child and two persons seriously injured in Birarampur village in Boutha block.	(i) A big building destroyed. (ii) Property worth thousands of rupees damaged.
25.	20 Sep.	Balasore	Severe	One person died at Ganteswar village in Petapada Panchayat.	
26.	2 Oct.	Muzaffarpur and Sitamarhi	Severe	2 persons died at Sheohar.	300 houses damaged.
27.	18 Oct.	Gopalganj	Severe	40 people died and 200 injured.	(i) Bikanthpur block worst affected. (ii) 50 families rendered homeless. (iii) Large number of trees and electric poles uprooted.

(1)	(2)	(3)	(4)	(5)	(6)
28.	19 Oct.	(a) Muzaffarpur and Saran	Severe	10 persons died and more than a 100 injured.	(i) Sahebganj in Muzaffarpur district worst affected. (ii) More than 100 houses damaged. (iii) Several electric/telephone poles/trees uprooted.
		(b) Deoria	Severe (80 kmph)	16 people died and 200 other injured.	(i) Large number of houses damaged. (ii) Several trees/electric poles uprooted.
29.	20 Oct.	East Champaran, West Champaran, Madhubani, Muzaffarpur and Saran.	Severe	17 people, 11 of which from Saran district, died and 100 other injured.	(i) Saran and East Champaran districts worst affected. (ii) Thousands of houses damaged. (iii) Loss estimated Rs. Ten lakhs.

TABLE - X : HAILSTORMS

CRITERIA

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

Moderate : Fall abundant enough to whiten ground.

Heavy : Includes atleast a proportion of large stones.

1.	4 Jan.	Nagpur	Heavy	1375 cattle, of which more than 500 in Bhiwapur taluka of Nagpur district alone, perished.	(i) Mango-size hailstones reported. (ii) Standing jowar, wheat, til and chilly crop heavily damaged. (iii) Orange orchards badly hit.
2.	Jan. (1st week)	Marathwada region	Heavy	8 persons died.	The loss of agriculture products and public property estimated worth Rs. 280 crore.

(1)	(2)	(3)	(4)	(5)	(6)
3.	11 Jan.	Bhandara, Chandrapur, Wardha and Yeotmal	Heavy		(i) Hailstones of mango-size reported. (ii) Chilly, orange, pulses, wheat and sugar-cane crops heavily damaged.
4.	12-17 Jan.	Amraoti, Bhandara and Yeotmal	Heavy		(i) Standing cotton, jowar and pulses crop badly damaged. (ii) Total loss of property and crop in Pandharkawada tehsil of Amraoti district estimated Rs. 4 lakhs.
5.	13 Jan.	Mussoorie	Heavy		Potato, pulses and oilseed crops badly damaged.
6.	19 Jan.	Dewas, Ratlam, Shajapur and Ujjain	Heavy		Loss to the standing crop estimated Rs. 10 crore.
7.	15 Feb.	Chamba	Moderate		(i) Hailstones of about 4 cm in diameter reported. (ii) Damage to wheat, barley and fruit-flowers of almonds reported.
8.	18, 19 and 24 Feb.	Akola and Amraoti	Heavy		(i) 80% of the standing wheat crop damaged. (ii) Thousand hectares of wheat crop in Murtizapur tehsil of Akola district damaged. Loss estimated worth Rs. 25 lakhs.
9.	19 Feb.	Faridabad	Heavy		Crop worth Rs. 20 crore damaged.
10.	20 Feb.	Gurgaon	Heavy		(i) Standing wheat and gram crops badly damaged. (ii) Several roof-tops damaged.
11.	1-4 Mar.	Balasore, Cuttack Keonjhar and Mayurbhanj	Moderate	One cattle perished.	(i) Paddy and vegetable crop badly hit. (ii) Electric/telecommunication systems disrupted.

(1)	(2)	(3)	(4)	(5)	(6)
12.	6 & 7 Mar.	Kangra	Moderate		Power supply/telecommunication services disrupted.
13.	11 Mar.	Amraoti, Buldhana, Nagpur and Wardha	Heavy	(i) 2 persons died and two other injured. (ii) 15 cattleheads and thousands of birds perished.	(i) Lemon-size hailstones reported. (ii) Wheat crop in 300 acres of land completely damaged. (iii) 117 houses destroyed, while 400 houses damaged. (iv) About 300 electric poles uprooted. (v) Loss estimated worth Rs. 50 lakhs reported.
14.	12 & 13 Mar.	Kangra	Moderate		Normal life completely paralysed.
15.	13 Mar.	Nellore	Heavy	(i) 4 persons including two children died in a house collapse. (ii) 40 cattleheads perished.	(i) Hailstones of the size of a cricket-ball reported. (ii) 200 houses damaged. (iii) Standing crop badly hit. (iv) Loss estimated of worth Rs. one crore.
16.	21 & 22 Mar.	Karnal and Kurukshetra	Heavy		Crops in 12,000 acres of land damaged.
17.	23 & 24 Mar.	Faridkot	Heavy	(i) 5 persons died. (ii) Thousands of birds perished.	(i) Hailstones weighing about 250 gms reported at many places. (ii) Standing crops in 5000 acres of land damaged especially wheat and mustard crops. (iii) Glass-panes of many windows broken. (iv) Electric supply completely disrupted.
18.	Mar. (4th week)	Mandi	Moderate		Almonds and khumani crop badly damaged.
19.	4 Apr.	Simla, Sirmur and Solan	Heavy	Several cattleheads perished.	Crops, vegetables and fruits badly hit.

(1)	(2)	(3)	(4)	(5)	(6)
20.	9 Apr.	Kheri	Heavy		<ul style="list-style-type: none"> (i) Hailstone of about 1-2 cm in radius reported. (ii) Arhar, wheat and mango crops severely damaged.
21.	9 & 10 Apr.	(a) Bhatinda and Faridkot	Heavy	Several cattleheads perished in Muktsar sub-division of Faridkot district.	<ul style="list-style-type: none"> (i) In Faridkot district, wheat, gram, barley and fodder crop in 6000 hectares completely damaged. (ii) In Bhatinda district, standing crops in 23,000 acres damaged.
		(b) Mandi and Solan	Heavy		<ul style="list-style-type: none"> (i) Hailstones of size of tennis ball reported in Solan district. (ii) 30-75% loss in the standing rabi crops, vegetables and fruits reported in Mandi district. (iii) 80% of the standing crop damaged in Solan district.
22.	24 Apr.	Hamirpur	Heavy		<ul style="list-style-type: none"> (i) Hailstones weighing 100 gms reported. (ii) Wheat crop in 100 villages of Barsar and Nadaum tehsils badly hit. (iii) Tobacco, peach and grapes worth lakhs of rupees damaged. (iv) Several house-tops damaged. (v) Total loss of crop, houses and fruit plants estimated about Rs. one crore.
23.	Apr. (4th week)	(a) Bhatinda	Heavy		Crops in 44,000 hectares in 138 villages severely damaged.
		(b) Simla	Heavy		30-60% of apple fruits damaged in Narkhanda area.

(1)	(2)	(3)	(4)	(5)	(6)
24.	30 Apr.	Katihar, Nawada, Singhbhum and Sitamarhi	Heavy	(i) 16 people, of which 13 in Sitamarhi district alone, died. (ii) 50 other injured.	(i) Sitamarhi district worst affected. (ii) Large number of trees uprooted. (iii) Extensive damage to property reported. (iv) TV transmission tower of 'Jameshedpur Doordarshan Kendra' damaged resulting in cancellation of all the TV programmes.
25.	2 May	Ambala	Heavy	150 cattleheads perished in village Bhatanwala.	
26.	3 May	Koraput	Heavy	(i) 3 persons seriously injured. (ii) Several cattleheads perished.	(i) Roof-tops of hundreds of houses damaged. (ii) Large number of trees uprooted.
27.	6 & 7 May	Faridabad	Heavy	(i) One person died and many other injured. (ii) Large number of peacocks and other birds perished in Palwal sub-division.	
28.	7 May	Ganjam	Heavy	30 cattleheads perished in some villages under Surada block.	
29.	15 May	Katihar, Nawada and Sitamarhi	Heavy	16 persons, of which 13 from Sitamarhi died.	(i) Large number of roof-tops damaged, (ii) Extensive damage of crop reported. (iii) Electric/telecommunication services disrupted.
30.	22-24 May	Jammu region	Moderate		Heavy damage to crops reported.
31.	26 May	Cannanore	Moderate		Widespread damage to property and agriculture reported.

(1)	(2)	(3)	(4)	(5)	(6)
32.	29 May	Chamba	Heavy		Standing wheat crop, vegetables and orchards badly damaged.
33.	9 Jun.	Hardoi and Shahjahanpur	Heavy	(i) 13 persons, of which 11 from Shahjahanpur, died. (ii) 5 cattleheads perished at Shahjahanpur.	(i) Several hutments and tin-sheds damaged. (ii) Several trees uprooted. (iii) Electric/telephones/water supply disrupted.

S.No.	Date/period	Area affected	Intensity (river)	Casualties	Extent of damage
(1)	(2)	(3)	(4)	(5)	(6)

TABLE - XI : FLOODS & HEAVY RAINS

ANDHRA PRADESH

1.	8 Jul.	Adilabad	Heavy rains/tank burnt	53 persons killed in a train accident near Mancherial town due to damage of the railway track.	
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ARUNACHAL PRADESH

1.	Jul. (4th week) to Aug. (1st week)	Entire state	Severe (Siang)		(i) 60 families rendered homeless. (ii) Standing crop in large areas damaged. (iii) Two bridges on national highway No. 37, damaged. (iv) Road communication completely disrupted due to landslides.
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ASSAM

1.	Jun.	Entire state	Severe (Brahmaputra and its tributaries)	10 passengers died and several others injured when a private bus was swept away at Sorapani, near Hajo town.	(i) 1.2 million people affected. Barpeta and Nalbari districts worst affected. (ii) One lakh people marooned in Dhubri and Kamrup districts, (iii) Paddy crop in 50,000 hectares, jute crop in 5000 hectares and Sali seedlings in 2000 hectares of land submerged under flood water. (iv) In Nalbari district, a railway track at Ghagrappara damaged, suspending railway services.
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(1)	(2)	(3)	(4)	(5)	(6)
2.	Jul.	Barpeta, Darrang, Dibrugarh, Goalpara, Jorhat, Kamrup, Kokrajhar, Lakhimpur, Nagaon, Nalbari, Sibsagar and Sonitpur	Severe (Brahmaputra and its tributaries).	(i) 12 people died. (ii) 5000 cattleheads perished.	(vi) In Barpeta district, national highway at Sorbhog closed for traffic. (vii) Atleast a dozen embankments and several roads breached. (i) 800 km long Brahmaputra valley from Sadiya to Dhubri affected. (ii) Dibrugarh, Lakhimpur, Nagaon, Sibsagar and Sonitpur districts worst affected. (iii) Standing crop in 4.25 lakh hectares destroyed. (iv) 300 m long embankment along Subansiri river washed away at Baithakana in Lakhimpur district. (v) In Sibsagar district, national highway No. 36 closed for traffic due to damage of Deopani bridge. (vi) 70% of 450 sq.km. area of Kaziranga National Park, submerged. The wild animals took shelter in higher reaches. (vii) Large number of roads and river embankment damaged disrupting road link between upper and lower Assam.
3.	Aug.	Darrang, Dhubri, Dibrugarh, Goalpara, Jorhat, Kamrup, Nagaon, Nalbari, Sibsagar and Sonitpur	Severe (Brahmaputra and its tributaries).	(i) 47 persons died. (ii) 39,852 cattleheads perished.	(i) 1.63 lakh hectares of cropped area damaged. (ii) 38,660 houses damaged. (iii) Railway services in Lakhimpur district disrupted for 16 consecutive days.

(1)	(2)	(3)	(4)	(5)	(6)
4.	Sep.	Dhubri, Jorhat, Nalbari, Sibsagar and Sonitpur	Severe (Brahmaputra and its tributaries)		<ul style="list-style-type: none"> (i) 90 villages in Jorhat and Sonitpur districts affected. (ii) Flood water inundated vast areas of cropped land. (iii) Extensive land-erosion reported in Sonitpur district, (iv) One wooden bridge over Kalabari-Subansiri, breached.
5.	Oct. (1st week)	Darrang, Goalpara, Jorhat, Kamrup, Lakhimpur, Nagaon, Sibsagar and Sonitpur.	Severe (Brahmaputra and its tributaries)	One person died in Nagaon district.	<ul style="list-style-type: none"> (i) Jorhat and Lakhimpur district worst affected. (ii) 1.4 lakh people in 233 villages affected.
<u>BIHAR</u>					
1.	Jul. (4th week) to Oct. (2nd week)	Entire state	Severe (i) Gandak, Burhi (ii) Gandak, Bagmati and Mahananda)	Nearly 1024 persons died. 3000 cattleheads perished.	<ul style="list-style-type: none"> (i) Bhagalpur, Bhojpur, Darbhanga, Katihar, Khagaria, Madhubani, Muzaffarpur, Nalanda, Purnea, Sitamarhi, Saharsa, Samastipur, Saran districts worst affected. (ii) 2.6 crore people affected. (iii) 1425 houses damaged. (iv) Paddy crop worth Rs. 35 lakhs in 10,000 acres of land damaged. Standing crop in 21.41 lakh hectares, damaged. (v) The embankment along Bagmati river breached making a 400 ft. wide gap near Belwaghat. (vi) National highway in Purnea district breached. (vii) Raxaul town completely cut off by rail and road.

(1)	(2)	(3)	(4)	(5)	(6)
					(viii) Train services on Mansi-Saharsa-Forbesganj and Forbesganj-Banmankhi sections of NE railway cancelled.
					(ix) Road communication between Motihari and Muzaffarpur affected.
		<u>HIMACHAL PRADESH</u>			
1.	8 & 9 Apr.	Bilaspur, Hamirpur, Kangra and Sirmur	Heavy rains		(i) Normal life in far-flung areas paralysed. (ii) Vehicular traffic completely disrupted.
2.	12 Aug.	Simla	Cloud burst	12 persons died.	Large number of houses and bridges XXXXXX washed away.
		<u>JAMMU AND KASHMIR</u>			
1.	Mar. (4th week)	Entire state	Severe (Jhelum)	15 persons died.	(i) Anantnag and Poonch districts worst affected. (ii) Several villages in Poonch district cut off from rest of the country.
2.	7-11 May	Baramulla and Poonch	Heavy rains	(i) 25 persons died in house collapse. (ii) Large number of cattle washed away in Baramulla district.	
3.	Jun. (1st & 2nd week)	Entire state	Severe (Jhelum)	12 persons died in house collapse.	(i) Anantnag and Srinagar districts worst affected. (ii) 80,000 people affected. (iii) Hundreds of houses damaged. (iv) 60-70% of the cultivable area in Kashmir valley submerged under flood water.

(1)	(2)	(3)	(4)	(5)	(6)
					(v) Dal lake inundated Rainawari Habak, Bishembarnagar and Muniwara localities.
					(vi) Postal and telegraph services completely disrupted.
					(vii) 11 relief camps set up.
4.	3 Oct.	Anantnag	Cloud burst	One child died in Kulgam area.	
5.	10-18 Oct.	Doda and Udampur	Incessant rains		(i) Maize crop totally and fruit orchards partially damaged.
					(ii) Jammu-Srinagar national highway closed for vehicular traffic due to landslides between Banihal and Ramban.
					(iii) Hundreds of passengers stranded near Udampur.
					(iv) 334 km long Srinagar-Leh road closed for traffic for 8 days.
		<u>KARNATAKA</u>			
1.	10 May	Belgaum	Heavy rains	4 persons died and 2 other injured near Desur in Khanapur taluka.	
2.	2 Oct.	Chitradurga	Heavy rains	21 persons drowned and 20 other missing when a private bus swept away at Hale Yellanadu by flooded nullah.	
3.	7 Oct.	Bangalore	Heavy rains		A railway bridge between Ramanagaram and Bidadi in Bangalore-Mysore section, collapsed.

(1)	(2)	(3)	(4)	(5)	(6)
4.	8 Oct.	Bangalore	Heavy rains	Two children died when a wall of a mud house collapsed at Devarjeewanhalli and Mosque Road areas of Bangalore city.	Two houses collapsed.
5.	15 Oct.	Chikmagalur	Flash floods (Hemavathi, Tunga and Bhadra)		(i) Loss of property worth Lakhs of rupees reported. (ii) Large number of houses collapsed. (iii) An old temple at Kalasapura village, collapsed. (iv) Extensive landslides reported in Bababudangiri, Chikmagalur and Kemmangundi areas.
<u>KERALA</u>					
1.	18 Jun.	Ernakulam	Heavy rains	3 persons died in a wall collapse at Kakkanad near Cochin.	4 houses damaged.
2.	13 Oct.	Idukki	Heavy rains		Extensive damage to houses and agriculture in Kanjikuzhi panchayat.
3.	9 Nov.	Kozhikode	Heavy rains	2 persons died.	
4.	1 Dec.	Trichur	Heavy rains		Loss of agriculture products reported.
5.	5 Dec.	Trivandrum	Heavy rains		Extensive damage to property and house reported.
6.	17 Dec.	Kozhikode	Heavy rains		Extensive damage to agriculture reported.

(1)	(2)	(3)	(4)	(5)	(6)
<u>MAHARASHTRA</u>					
1.	7 Jul.	Nasik	Heavy rains	2 women injured in a house collapse at Navnathnagar.	A two-storeyed building collapsed in Nasik city.
2.	15-17 Aug.	Akola	Heavy rains	4 persons drowned.	
3.	19 Aug.	(a) Akola and Wardha	Heavy rains	2 persons died in a house collapse in Wardha district while 4 other washed away in a flooded nullah in Akola district.	
		(b) Nagpur	Heavy rains		(i) Normal life completely paralysed in and around Nagpur city. (ii) Power supply in Nagpur city cut off.
4.	19 Nov.	Dhule and Nasik	Heavy rains	8 persons died.	
<u>ORISSA</u>					
1.	17 Jul.	Balasore	Heavy rains	4 persons injured in north Balasore area.	(i) Normal life dislocated. (ii) Large number of roads breached and several kutcha houses damaged.
2.	26 Jul.	Sambalpur	Heavy rains	One person died in Brajaraj-nagar area.	(i) Thousands of people affected. (ii) 30 kutcha houses damaged.
<u>PUNJAB</u>					
1.	15 & 16 Feb.	Jalandhar	Heavy rains	18 children and 2 teachers died while 36 children injured when a school building collapsed at Nawan Shahar.	

(1)	(2)	(3)	(4)	(5)	(6)
2.	8 May	Gurdaspur	Flash floods (Ravi)	An army jawan swept away by flood waters.	24 villages situated across Dhussi bund along Ravi river submerged.
<u>TAMIL NADU</u>					
1.	6 & 7 Dec.	Pudukottai, Tanjavur and Tiruchirapalli	Heavy rains	11 persons died.	Large number of houses damaged.
<u>UTTAR PRADESH</u>					
1.	4-8 May	Aligarh	Heavy rains	5 persons died.	(i) Hundreds of people rendered homeless. (ii) Several kutcha houses collapsed.
2.	Aug. (1st week) to Oct. (2nd week)	Allahabad, Gorakhpur, Lucknow, Mirzapur and Varanasi	Severe (Ganga, Yamuna and their tribut- aries)	163 persons died.	(i) Large number of houses collapsed. (ii) Vast areas submerged. (iii) Large number of passengers stranded at Varanasi station due to cancellation of trains. (iv) Breaches on Grand Trunk road reported.
<u>WEST BENGAL</u>					
1.	25 Jul.	Calcutta	Heavy rains	One person died and two other injured in a house collapse in Jorabagan area of Calcutta city.	
2.	Jul.	West Dinajpur	Severe	(i) 4 persons died. (ii) Several cattleheads perished.	(i) 5 lakh people affected. (ii) One lakh people rendered homeless. (iii) 15,000 kutcha houses collapsed. (iv) 1000 sq km area submerged under flood water.
3.	10 Aug.	Darjeeling	Heavy rains		(i) 80 families rendered homeless due to landslides. (ii) A PWD godown damaged.

(1)	(2)	(3)	(4)	(5)	(6)
4.	Aug. (1st week) to Sep. (1st week)	West Dinajpur	Severe (Nagar, Atreyi Tangon and Punarbhava)	60 people died.	(i) 1000 villages with a population of 5 lakh, affected. (ii) 1000 sq km cultivable land submerged under flood water. (iii) 30,000 houses washed away and 10,000 houses damaged. (iv) 60,000 people rendered homeless. (v) Large number of rail bridges damaged, disrupting rail services for several days.
5.	Aug. (2nd week) and Sep. (1st week)	Coochbehar and Jalpaiguri	Severe	56 persons, including 10 from Coochbehar district, died.	(i) 4 lakh people affected. (ii) Several railway bridges washed away. (iii) Two embankments breached.
6.	Aug. (3rd week) to Sep. (3rd week)	Malda	Severe	40 persons died.	(i) 2.2 lakh people in 409 villages affected. (ii) 5000 houses collapsed and 11,000 houses damaged. (iii) 500 sq km area submerged under flood water. (iv) Crop in 20,000 hectares submerged. (v) 40,000 people rescued.
7.	Aug. (4th week) to Sep. (1st week)	Burdwan, Hooghly, Howrah, Midnapur, Nadia and 24- Parganas.	Severe	34 persons died.	(i) 10 lakh people affected. (ii) 8000 houses collapsed and 12,000 houses damaged. (iii) Crop worth Rs. 10 crore lost. (iv) Railway and vehicular services disrupted. (v) Telephone services and electricity supply disrupted.
8.	Aug. (4th week) to Sep. (3rd week)	Murshidabad	Severe	34 persons died.	(i) 2 lakh people affected. (ii) 300 sq km area submerged under flood water.

S.No.	Date/period	Area of Formation/Dissipation	Intensity	Casulties	Extent of damage
(1)	(2)	(3)	(4)	(5)	(6)

TABLE - XII : CYCLONIC STORMS

<u>BAY CYCLONES</u>					
1.	14-19 Oct.	<u>Formation</u> : At Lat. 14.6°N Long. 84.3°E In West Central Bay	Max. wind speed 34 knots	(i) 20 persons died. (ii) 3 cattleheads perished.	(i) 157 villages with population 6,17,566. in Guntur and Prakasam districts of Andra Pradesh affected. (ii) 9486 houses fully and 777 houses partially damaged. (iii) Crop worth Rs. 34 crore damaged.
		<u>Landfall</u> : North of Ongole in early morning hours of 16th.			
		<u>Dissipation</u> : At the point of landfall itself.			
2.	31 Oct. to 3 Nov.	<u>Formation</u> : At Lat. 12.6°N Long. 85.5°E in south-east Bay	Severe (Max. wind speed 50 knots)	(i) 78 persons died. (ii) 23,222 cattleheads perished.	(i) East Godavari, West Godavari, Guntur, Krishna, Nellore, Prakasam, Srikakulam, Vishakhapatnam and Vizianagaram districts of Andhra Pradesh affected. (ii) 888 villages affected. (iii) 6.8 lakh people affected. (iv) 18,120 houses fully and 68,701 houses partially damaged. (v) In East Godavari district, paddy crop in 38,450 hectares of land inundated. Damage estimated worth Rs. 2.64 crore. (vi) Train and bus services suspended.
		<u>Landfall</u> : North of Nellore in early morning hours of 3rd.			
		<u>Dissipation</u> : Over Rayalseems			

(1)	(2)	(3)	(4)	(5)	(6)
3.	11-13 Nov.	<u>Formation</u> : At Lat. 14.6°N Long. 85.8°E <u>Landfall</u> : South of Machilipatnam in morning hours of 13th. <u>Dissipation</u> : At the point of landfall itself.	Severe (Max. wind speed 41 knots)	28 persons died.	(i) East Godavari, West Godavari, Guntur, Krishna, Nellore, Prakasam and Srikakulam districts affected. (ii) About 8000 houses either partially or fully damaged. (iii) 7 lakh acres of paddy crop affected in the districts of East Godavari, West Godavari, Guntur, Krishna and Srikakulam.

