

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION NO. 2532
TO BE ANSWERED ON WEDNESDAY, 11TH DECEMBER, 2024**

DEATHS DUE TO EXTREME WEATHER EVENTS IN THE COUNTRY

2532. DR. M P ABDUSSAMAD SAMADANI:
SHRI MURARI LAL MEENA:

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether the Government is aware that deaths due to extreme weather events in the country increased by 18% during the last three years, and if so, the details thereof;
- (b) year-wise and State-wise data on the details of fatalities and injuries caused by extreme weather events, such as heatwaves, floods, cyclones, landslides, and droughts during the last five years, year-wise and State-wise;
- (c) the steps being taken by the Government to mitigate the impact of extreme weather events;
- (d) whether the Government has assessed the long-term impact of climate change on the frequency and intensity of extreme weather events in the country and if so, the details thereof; and
- (e) the details of financial resources allocated by the Government towards adaptation and resilience initiatives for communities vulnerable to extreme weather events, particularly in high-risk regions?

ANSWER
THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR
MINISTRY OF SCIENCE AND TECHNOLOGY
AND EARTH SCIENCES
(DR. JITENDRA SINGH)

- (a)-(b) The latest details are given in Annexure-1.
- (c) In coordination with various research centers across the country, India Meteorological Department (IMD) has continuously taken multiple steps to improve monitoring and early warning systems, which have helped minimize loss of life and property during extreme weather events. The weather information is provided to all the stakeholders, including ministries of the Union Government, State Governments, and local Government bodies. IMD issues various outlooks/forecasts/warnings for the Public and disaster management authorities to prepare for extreme weather events. While issuing the alert, a suitable color code is used to highlight the impact of the severe weather expected and alert disaster management about the course of action to be taken regarding an impending disaster weather event. IMD issues the necessary warnings and advisories well in advance for preparedness. A series of National and State-level preparedness meetings are conducted much before the start of the season, with regular review meetings from time to time during the season.

IMD has brought out a web-based online “Climate Hazard & Vulnerability Atlas of India” prepared for the thirteen most hazardous meteorological events, which cause extensive damages and economic, human, and animal losses. The same can be accessed at <https://imdpune.gov.in/hazardatlas/aboutahazard.html>. This atlas will help State government authorities and disaster management agencies plan and take appropriate action to tackle extreme weather events. This product is helpful in building Climate Change resilient infrastructure.

IMD has launched seven of its services (Current Weather, Nowcast, City Forecast, Rainfall Information, Tourism Forecast, Warnings, and Cyclone) with the ‘UMANG’ Mobile App for use by the Public. Moreover, IMD developed a mobile App, ‘MAUSAM’ for weather forecasting, ‘Meghdoot’ for Agromet advisory dissemination, and ‘Damini’ for lightning alerts. The Common Alert Protocol (CAP) developed by NDMA is also being implemented to disseminate warnings by IMD.

- (d) Yes. Due to climate change, annual temperature is increasing globally, and the impact of the same is reflected in the extreme weather events in various parts of the globe, including India. Furthermore, the Ministry has recently published the Climate Change Assessment Report over the Indian region, which is available at <https://link.springer.com/book/10.1007/978-981-15-4327-2>.
- (e) The Ministry of Earth Sciences (MoES) uniformly implements the central sector schemes throughout the country, and IMD provides weather and climate-related forecasts and warnings, including warnings about heatwaves.

Annexure-1

State-wise Deaths Due to Disastrous Weather Events During 2023:

| STATE/UT | SNOWFALL | COLD WAVE | HEAT WAVE | GALE | LIGHTNING | THUNDER STORM | HAIL STORM | FLOODS and HEAVY RAINS | CYCLONIC STORM / CYCLONE RELATED EVENTS | Grand Total |
|------------------------|-----------|-----------|------------|-----------|-------------|---------------|------------|------------------------|---|-------------|
| AndhraPradesh | * | * | 3 | * | 55 | * | * | * | 9 | 67 |
| ArunachalPradesh | * | * | * | * | * | * | * | 17 | * | 17 |
| Assam | * | * | * | * | 20 | 8 | 1 | 20 | * | 49 |
| Bihar | * | * | 12 | * | 250 | * | * | 1 | * | 263 |
| Chandigarh | * | * | * | * | * | * | * | 1 | * | 1 |
| Chhattisgarh | * | 1 | 2 | * | 67 | 8 | 2 | 1 | * | 81 |
| Dadar and Nagar Haveli | * | * | * | * | * | * | * | 2 | * | 2 |
| Delhi | * | * | * | * | * | * | * | 2 | * | 2 |
| Goa | * | * | * | * | * | * | * | 1 | * | 1 |
| Gujarat | * | * | * | * | 30 | * | * | 5 | * | 35 |
| Haryana | * | * | * | * | 1 | * | * | 7 | * | 8 |
| HimachalPradesh | 2 | * | * | * | 2 | * | * | 123 | * | 127 |
| Jammuand Kashmir | 9 | * | * | * | 5 | * | * | 40 | * | 54 |
| Jharkhand | * | * | 25 | 4 | 120 | * | * | 11 | * | 160 |
| Karnataka | * | * | * | * | 8 | 4 | * | 10 | * | 22 |
| Kerala | * | * | * | * | 5 | * | * | 25 | * | 30 |
| Ladakh | 2 | * | * | * | * | * | * | 5 | * | 7 |
| MadhyaPradesh | * | * | * | * | 167 | 5 | * | 136 | * | 308 |
| Maharashtra | * | * | 8 | 7 | 108 | 14 | * | 71 | * | 208 |
| Meghalaya | * | * | * | * | * | 5 | * | 13 | * | 18 |
| Mizoram | * | * | * | * | * | * | * | 9 | * | 9 |
| Odisha | * | * | 45 | 3 | 205 | * | * | 10 | * | 263 |
| Punjab | * | * | * | * | * | * | * | 8 | * | 8 |
| Rajasthan | * | * | * | * | 39 | 15 | * | 56 | 7 | 117 |
| Sikkim | 7 | * | * | * | * | * | * | 106 | * | 113 |
| TamilNadu | * | * | * | * | 6 | * | * | 10 | 17 | 33 |
| Telangana | * | * | * | * | 36 | 1 | * | 41 | 3 | 81 |
| Tripura | * | * | * | * | 5 | 2 | * | * | * | 7 |
| UttarPradesh | * | 4 | 86 | * | 94 | 8 | * | 81 | * | 273 |
| Uttarakhand | 1 | * | * | * | 3 | 4 | * | 75 | * | 83 |
| WestBengal | * | * | * | * | 33 | * | * | 3 | * | 36 |
| GrandTotal | 21 | 5 | 181 | 14 | 1259 | 74 | 3 | 890 | 36 | 2483 |

State-wise Deaths Due to Disastrous Weather Events During 2021:

| State/UT | SNOW FALL | COLD WAVE | GALE | DUST STORM | LIGHTNING (with Thunderstorm) | THUNDERSTORM | HAIL STORM | FLOODS AND HEAVY RAINS | CYCLONIC STORM / CYCLONE_RELATED EVENTS / | Grand Total |
|--------------------|-----------|-----------|----------|------------|-------------------------------|--------------|------------|------------------------|---|-------------|
| Andamanand Nicobar | * | * | 1 | * | * | * | * | * | * | 1 |
| Andhra*Pradesh | * | * | * | * | * | * | * | 46 | 6 | 52 |
| Assam | * | * | * | * | * | * | * | 14 | * | 14 |
| Bihar | * | * | * | * | 73 | 99 | * | 12 | 1 | 185 |
| Chhattisgarh | * | * | * | * | 10 | 32 | 3 | * | * | 45 |
| Delhi | * | 3 | * | * | * | * | * | 4 | * | 7 |
| Goa | * | * | * | * | 1 | * | * | 1 | 3 | 5 |
| Gujarat | * | * | * | * | 6 | * | * | 7 | 79 | 92 |
| Haryana | * | * | * | * | 1 | * | * | * | * | 1 |
| HimachalPradesh | 12 | * | * | * | * | * | * | 61 | * | 73 |
| Jammu and Kashmir | 4 | 2 | * | * | 4 | * | 1 | 21 | * | 32 |
| Jharkhand | * | * | * | * | 22 | 35 | * | * | 3 | 60 |
| Karnataka | * | * | * | * | 3 | 1 | * | 33 | 8 | 45 |
| Kerala | * | * | * | * | 5 | * | * | 53 | 9 | 67 |
| Madhya Pradesh | * | 1 | 1 | * | 158 | 2 | * | 34 | * | 196 |
| Maharashtra | * | 3 | * | * | 84 | 2 | * | 217 | 56 | 362 |
| Odisha | * | * | 3 | * | 213 | * | * | 3 | 4 | 223 |
| Puducherry | * | * | * | * | * | * | * | 1 | * | 1 |
| Rajasthan | * | * | * | * | 49 | * | * | 14 | * | 63 |
| Sikkim | * | * | * | * | * | * | * | 2 | * | 2 |
| Tamil Nadu | * | * | * | * | 15 | * | * | 28 | * | 43 |
| Telangana | * | * | * | * | 7 | * | * | 15 | 3 | 25 |
| Uttar Pradesh | * | 2 | * | 5 | 43 | 6 | * | 42 | * | 98 |
| Uttrakhand | 15 | * | * | * | * | * | * | 138 | * | 153 |
| West Bengal | * | * | * | * | 61 | 3 | * | 33 | 2 | 99 |
| Grand Total | 31 | 11 | 5 | 5 | 755 | 180 | 4 | 779 | 174 | 1944 |

State-wise Deaths Due to Disastrous Weather Events During 2020:

| State/UT | Cold Wave | Cyclonic Storm / Cyclone_Related Events | Dust Storm | Floods and Heavy Rains | Gale | Heat Wave | Lightning | Saquall | Snowfall | Thunderstorm | Grand Total |
|--------------------|------------|--|------------|------------------------|-----------|-----------|------------|----------|-----------|--------------|-------------|
| Andhra Pradesh | * | 9 | * | 20 | * | * | 20 | * | * | * | 49 |
| Arunachal Pradesh | * | * | * | 12 | * | * | * | * | * | * | 12 |
| Assam | * | * | * | 129 | * | * | * | * | * | * | 129 |
| Bihar | 54 | * | * | 54 | * | 2 | 98 | * | * | 186 | 394 |
| Chhattisgarh | * | * | * | * | * | * | 12 | * | * | 17 | 29 |
| Gujarat | * | * | * | 106 | * | * | 9 | * | * | * | 115 |
| Harayana | * | * | * | 1 | * | * | * | * | * | * | 1 |
| Himachal Pradesh | * | * | * | 38 | * | * | * | * | 4 | * | 42 |
| Jammu and Kashmir | * | * | * | 13 | 3 | * | 5 | * | 17 | * | 38 |
| Jharkhand | 16 | * | * | 4 | * | * | * | 6 | * | 126 | 152 |
| Karnataka | * | * | * | 148 | 1 | * | 15 | * | * | * | 164 |
| Kerala | * | * | * | 78 | 6 | 1 | 2 | * | * | 1 | 88 |
| Madhya Pradesh | * | * | * | 10 | * | * | 72 | * | * | 7 | 89 |
| Maharashtra | * | 6 | * | 59 | * | 6 | 42 | * | * | 1 | 114 |
| Meghalaya | * | * | * | 12 | * | * | * | * | * | * | 12 |
| Nagaland | * | * | * | 7 | * | * | * | * | * | * | 7 |
| New Delhi | * | * | * | 1 | * | * | * | * | * | * | 1 |
| Odisha | * | 4 | * | 38 | 3 | 16 | 278 | * | * | * | 339 |
| Punjab | * | * | * | 2 | * | * | * | * | * | * | 2 |
| Rajasthan | 3 | * | 14 | 18 | * | * | 4 | * | * | * | 39 |
| Sikkim | * | * | * | 5 | * | * | * | * | 1 | 1 | 7 |
| Tamil Nadu | * | 14 | * | * | * | * | 9 | * | * | * | 23 |
| Telangana | * | * | * | 63 | * | * | 6 | * | * | * | 69 |
| Uttar Pradesh | 88 | * | * | 24 | * | * | 77 | * | * | 167 | 356 |
| Uttarakhand | 1 | * | * | 8 | * | * | * | * | * | * | 9 |
| West Bengal | * | 86 | * | 145 | * | * | 3 | * | * | * | 234 |
| Grand Total | 162 | 119 | 14 | 995 | 13 | 25 | 652 | 6 | 22 | 506 | 2514 |

State-wise Deaths Due to Disastrous Weather Events During 2019:

| State/UT | Cold Wave | Cyclonic Storm / Cyclone_Related Events | Dust Storm | Floods and Heavy Rains | Gale | Hailstorm | Heat Wave | Lightning | Snowfall | Squall | Thunder storm | Grand Total |
|--------------------|------------|---|------------|------------------------|----------|-----------|------------|------------|-----------|----------|---------------|-------------|
| Andhra Pradesh | * | * | * | * | * | * | 45 | * | * | * | * | 45 |
| Assam | * | * | * | 94 | * | * | * | 15 | * | * | 11 | 120 |
| Bihar | 19 | * | * | 306 | * | * | 293 | * | * | * | 72 | 690 |
| Chhattisgarh | * | * | * | 4 | * | * | * | 2 | * | * | 16 | 22 |
| Goa | * | * | * | 1 | * | * | * | * | * | * | * | 1 |
| Gujarat | * | * | * | 150 | * | * | * | * | * | * | 10 | 160 |
| Himachal Pradesh | * | * | * | 26 | * | * | * | * | 8 | * | * | 34 |
| Jammu and Kashmir | * | * | * | * | * | * | * | * | 7 | * | 3 | 10 |
| Jharkhand | 13 | * | * | 5 | * | * | 13 | * | * | 2 | 126 | 159 |
| Karnataka | * | * | * | 30 | * | * | * | 21 | * | * | 8 | 59 |
| Kerala | * | * | * | 75 | 2 | * | 14 | 4 | * | * | * | 95 |
| Madhya Pradesh | 12 | * | * | 21 | * | 2 | * | 26 | * | * | * | 61 |
| Maharashtra | 7 | * | * | 145 | * | * | 53 | 65 | * | * | 2 | 272 |
| Manipur | * | * | * | * | * | * | * | * | * | * | 3 | 3 |
| Mizoram | * | * | * | 5 | * | * | * | * | * | * | * | 5 |
| Odisha | * | 53 | * | 10 | 1 | * | 9 | 239 | * | 1 | * | 313 |
| Punjab | * | * | * | 14 | * | * | * | * | * | * | * | 14 |
| Rajasthan | * | * | 25 | 82 | * | * | 3 | 5 | * | * | 15 | 130 |
| Sikkim | * | * | * | 1 | * | * | * | * | * | * | * | 1 |
| Tamil Nadu | * | * | * | 20 | 1 | * | * | * | * | * | * | 21 |
| Telangana | * | * | * | 10 | 2 | * | 66 | 7 | * | * | * | 85 |
| Tripura | * | * | * | 2 | * | * | * | * | * | * | 1 | 3 |
| Jammu and Kashmir | * | * | * | 21 | * | * | * | * | 32 | * | * | 53 |
| Ladakh | * | * | * | 1 | * | * | * | * | 18 | * | * | 19 |
| Uttar Pradesh | 240 | * | * | 18 | * | * | 9 | 26 | * | * | 64 | 357 |
| Uttarakhand | * | * | * | 33 | * | * | * | * | * | * | * | 33 |
| West Bengal | * | 7 | * | 223 | * | * | * | 5 | * | * | 17 | 252 |
| Grand Total | 291 | 60 | 25 | 1297 | 6 | 2 | 505 | 415 | 65 | 3 | 348 | 3017 |

The Symbol * indicates NIL / NOT REPORTED

The above information is sourced by IMD from media reports and reports from government Disaster Management Authorities.
