GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
RAJYA SABHA
UNSTARRED QUESTION NO. 2921
ANSWERED ON 13/08/2026

ADAPTATION MEASURES FOR EXTREME WEATHER CONDITIONS

2921. DR. SANTRUPT MISRA:

Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether Government has assessed the trend of increasing concentration of rainfall in fewer days, resulting in a decline in the number of wet days and an increase in dry days and the extreme-weather implications thereby;
(b) the details of frequency of extreme-weather-event days during the last five years; and
(c) the adaptation measures being planned in response?

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

(a) Yes. The Government is aware of scientific studies indicating changes in the spatio-temporal characteristics of rainfall over parts of India, including tendencies in some regions for rainfall to occur during fewer days with higher intensity. Analyses carried out by the India Meteorological Department (IMD), under the Ministry of Earth Sciences (MoES), and other scientific institutions of MoES indicate that while the all-India seasonal rainfall does not show a significant long-term trend during past 100 years, the frequency and intensity of heavy to extremely heavy rainfall events have increased over several parts of the country, accompanied by a decline in the number of light to moderate rainfall days. Such a shift towards more intense rainfall over shorter durations can increase the risk of impacts such as urban flooding, flash floods, landslides, soil erosion, crop damage, and stress on water resource management, due to longer dry spells interspersed with intense rainfall events. However, these trends exhibit considerable regional variability and are influenced by multiple factors, including natural climate variability and climate change.

(b) The India Meteorological Department maintains records of extreme weather events occurring over the country through its operational weather monitoring network. These include events such as heatwaves, coldwaves, heavy to extremely heavy rainfall, thunderstorms with lightning, hailstorms, dust storms, cyclones, dense fog, and other significant weather phenomena. The IMD issues impact-based forecasts and risk-based warnings for heavy rainfall and associated hazards to Central and State agencies, supporting disaster preparedness and risk reduction. Additionally, IMD undertakes research and periodically publishes climate assessments and rainfall trend analyses annually to support evidence-based policy and adaptation planning. The annual frequency of extreme weather event days is documented and published in IMD's Annual Climate Summary reports (https://imdpune.gov.in/cmpg/Product/acs.php). The data for the last decade are available with IMD and are compiled based on observations from the national meteorological network.

(c) The Government of India has made several efforts to mitigate the impact of climate change through various adaptation measures, including several programs and actions initiated across key sectors under national missions as part of the National Action Plan on Climate Change (NAPCC). Six of the nine Missions focus on adaptation in water, habitat, agriculture, the Himalayan ecosystem, and human health, as well as on strategic knowledge of climate change. These Missions are institutionalized and implemented by the respective Nodal Ministries and Departments, ensuring a coordinated approach to addressing climate risks. Complementing these national efforts, thirty-four States and Union Territories (UTs) have prepared their respective State Action Plans on Climate Change (SAPCCs), which provide context-specific adaptation strategies suited to their ecological, social, and economic conditions. The Government is also supporting adaptation measures in States/UTs through the National Adaptation Fund for Climate Change (NAFCC), implemented by the Ministry of Environment, Forest and Climate Change (MoEF&CC).

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