

PRESS RELEASE

CSTEP Study: Madhya Pradesh & Chhattisgarh set for very high-intensity rainfall events across all districts

For Immediate Release

13 January 2022

BENGALURU

Changing climate patterns—from warmer summer maximum and winter minimum temperatures to heavier and more frequent rainfall and resulting extreme events—are to be expected across the states in Central India, according to a new study by the Center for Study of Science, Technology and Policy (CSTEP).

The report ‘District-Level Changes in Climate: Historical Climate and Climate Change Projections for the Central States of India’ indicates changes in climate patterns that are likely to occur in Madhya Pradesh and Chhattisgarh over the next three decades compared to the last 30 years (1991–2019). The study looked at two representative scenarios—moderate emissions and high emissions—in the two states and is part of a larger study projecting climate change across all the states of India.

Highlights

- Between 1991 to 2019, both temperature and rainfall have increased in the two states. The study found that rainfall variability is also high in the two central Indian states.
- CSTEP made climate change projections over the next three decades (2021–2050) in the states and found an overall warming of both summer and winter minimum temperatures. Summer maximum and winter minimum temperatures are projected to increase in both the states by 1°C to 2°C.
- The study projects an increase in the number of rainy days (>2.5 mm of rainfall/day) in all the districts in the two states. Although rainfall variability showed mixed trends, rainfall deficient years are projected to decline.
- Rainfall during the kharif (June to September) season is projected to increase in Chhattisgarh, whereas in Madhya Pradesh, it is projected to decline. The rabi season rainfall is projected to decline across all the districts of Chhattisgarh under both climate scenarios.
- Both Madhya Pradesh and Chhattisgarh are likely to see an increase in high-intensity (51–100 mm/day) and very high-intensity (>100 mm/day) rainfall events in the 2030s, across all the districts, compared to the historical period.
- The climate projections have immense implications for agriculture (strain on agriculture systems through changes in the distribution and magnitude of rainfall, warming of temperature, and the frequency of heavy rainfall events) and wildlife (pests, diseases, and fire), infrastructure (by affecting the performance of power plants and causing material damage to solar and wind plants, thereby affecting energy supply, transmission and management), and citizens’ health (thermal stress due to high summer temperatures and death, injury, or mental stress caused by forced migration due to floods, droughts, and storms).

Although the two states have historically focused on drought planning and management, the time has now come to integrate flood management to meet the demands of a wetter future.

CSTEP calls for integrating the findings of this study into State Action Plans on Climate Change, which are currently under revision.

According to Dr Indu K Murthy, Head of the Climate, Environment & Sustainability sector, “States need to institute climate risk assessments to buffer the loss and damage that will occur from extreme climate events. We need to build capacities that ensure the use of climate information and the flow of critical climate data to planners and decision-makers. Building climate resilience—the ability to anticipate, absorb, accommodate, and recover from the effects of a potentially hazardous event—has several benefits. Delaying actions needed for resilience even by 10 years could almost double the costs,” she said.

The full report is available [here](#).

For more details and interviews, please write to us at cpe@cstep.in

About CSTEP: Headquartered in Bengaluru, the Center for Study of Science, Technology and Policy (CSTEP) is one of India’s leading think tanks with a mission to enrich policymaking with innovative approaches using science and technology for a sustainable, secure, and inclusive society. CSTEP’s areas of focus are Climate, Environment and Sustainability, Energy and Power, AI and Digital Labs, Materials and Strategic Studies, and Computational Tools.