

PRESS RELEASE

CSTEP Study: Western States Set for More High-Intensity Rainfall Events

For Immediate Release

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A new study by the Center for Study of Science, Technology and Policy (CSTEP), a Bangalore-based think tank, emphasises the urgent need to build climate resilience in western India. Titled ‘District-Level Changes in Climate: Historical Climate and Climate Change Projections for the Western States of India,’ the study indicates changes in climate patterns that are likely to occur in the western states of India—Goa, Maharashtra, Gujarat, and Rajasthan—over the next three decades compared to the historical period (1990–2019). The study analysed two representative scenarios: moderate emissions and high emissions.

CSTEP’s study indicates an overall increase in the number of high-intensity (51–100 mm/day) and very high-intensity (>100 mm/day) rainfall in the next three decades compared to the historical period.

Highlights from the study:

- Historically (1990–2019), temperature and rainfall have increased, and rainfall variability is high across all the western states. This trend is projected to continue from 2021 to 2050.
- Climate projections by CSTEP revealed an overall warming of both summer and winter minimum temperatures. Summer maximum and winter minimum temperatures are projected to increase by 1°C to 2°C in western Indian districts compared to historical temperatures.
- The number of rainy days is expected to increase in almost all the districts of the western states. The number of rainy days is likely to increase by 1 to 24 days under the moderate emissions scenario, with the maximum increase projected in Rajasthan. Under the high emissions scenario, the increase is by 3 to 22 days with the maximum increase projected in Goa.
- Rainfall deficient years are projected to predominantly decline in a majority of the districts of the western states.
- Both Kharif and Rabi season rainfall are projected to increase in all the districts of western India compared to the last 30 years. The projected increase in the kharif season rainfall is by 1% to 33% under the moderate emissions scenario and 3% to 34% under the high emissions scenario. The rabi season rainfall is projected to increase by 3% to 57% under the moderate emissions scenario and 13% to 81% under the high emissions scenario.
- The study projects an increase in high-intensity (51–100 mm/day) and very high-intensity (>100 mm/day) rainfall events over the next three decades. Annually, the increase in high-intensity rainfall events is by one to five events under the moderate emissions scenario and one to eight events under the high emissions scenario.

“Our study provides an understanding of the historical climate and climate projections for the 2030s. In order to cope with a changing climate and the cascading impacts, it is important that planners and decision-makers start preparing action plans that consider future climate risks. Building climate resilience is a ‘win-win’ strategy that can deliver multiple benefits, while saving future cost of loss and damage, thereby ensuring preparedness,” said Dr Indu K Murthy, Head of the Climate, Energy and Sustainability sector at CSTEP.

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.