PRESS RELEASE

57% of Indian districts, home to three-fourths of the population, now face high to very high heat risk: CEEW

- *Very warm nights rising are faster than very hot days across India, straining human health*
- *Relative humidity is rising across North India, worsening heat stress*
- *Delhi, Andhra Pradesh, Goa, Kerala, Maharashtra among states/UTs at greatest heat risk*

New Delhi, 20 May 2025: Extreme heat now poses a risk to 57 per cent of Indian districts–home to 76 per cent of the population–according to a new independent study launched today by the Council on Energy, Environment and Water (CEEW). With Indian cities and districts increasingly navigating complex and erratic climate patterns, the need for heat-resilient planning and governance becomes urgent. Just this week, the India Meteorological Department issued heatwave alerts in Uttar Pradesh and Rajasthan, even as parts of South and Northeast India saw rain warnings. The study finds that the top ten most heat-risk-prone states and UTs are Delhi, Andhra Pradesh, Goa, Kerala, Maharashtra, Gujarat, Rajasthan, Karnataka, Tamil Nadu, and Uttar Pradesh.

CEEW's study, *How Extreme Heat is Impacting India: Assessing District-level Heat Risk*, presents a first-of-its-kind composite heat risk assessment of 734 districts in India using 35 indicators, offering a granular picture of how climate change has reshaped heat hazard trends from 1982 to 2022. Of these, 417 districts fell in the high and very high risk categories while 201 were classified as moderate risk. The remaining 116 low-risk districts are not immune, only relatively less exposed. The CEEW study highlights three key trends: an alarming rise in very warm nights; increasing relative humidity across North India, particularly in the Indo-Gangetic Plain; and heightened heat exposure in dense, urban, and economically critical districts such as Delhi, Mumbai, Ahmedabad, Hyderabad, Bhopal, and Bhubaneswar. Further, some rural districts in Maharashtra, Kerala, Uttar Pradesh, and Bihar—home to large numbers of agricultural outdoor workers—were also found to fall in the high to very high heat risk category.

Dr Arunabha Ghosh, CEO, CEEW, said, "Heat stress is no longer a future threat—it's a present reality. Increasingly erratic weather due to climate change—record heat in some regions, unexpected rain in others—is disrupting how we understand summer in India. But the science from the study is unequivocal: we are entering an era of intense, prolonged heat, rising humidity, and dangerously warm nights. We must urgently overhaul city-level Heat Action Plans to address local vulnerabilities, balance emergency response measures with long-term resilience, and secure financing for sustainable cooling solutions. Further, it's time to move beyond daytime temperature thresholds and act on what the data tells us: the danger doesn't end when the sun sets."

Very warm nights rising faster than very warm days

According to the CEEW study, ~70 per cent of districts have seen more than five additional very warm nights per summer over the past decade (2012-2022) compared to the climatic baseline (1982-2011). Very warm nights are defined as nights when the temperature stays unusually high—warmer than what used to be normal 95 per cent of the time in the past. By contrast, only ~28 per cent of districts saw a similar increase on very hot days. These warmer nights are rising faster than hot days and make it harder for the human body to cool down and recover from daytime heat. In the last decade, residents in Mumbai experienced 15 more very warm nights each summer compared to the previous three decades, while Jaipur and Chennai saw increases of seven and four nights, respectively. Urban heat islands that trap heat during the day and release it at night are likely driving this trend. This has serious health implications, especially for the elderly, outdoor workers, children, and people with pre-existing conditions such as hypertension and diabetes, in both urban and rural areas.

Relative humidity is increasing across North India

The CEEW study also finds that relative humidity has increased by up to 10 per cent across the Indo-Gangetic Plain over the last decade. While coastal areas typically record 60–70 per cent relative humidity, North India historically experienced levels around 30–40 per cent. Over the past decade, this has increased to 40–50 per cent. Traditionally drier cities such as Delhi, Chandigarh, Kanpur, Jaipur and Varanasi are now seeing higher humidity levels. Humidity significantly raises the 'felt' temperature, sometimes by 3-5°C more compared to the recorded air temperature, making even moderate heat more dangerous. When body temperature exceeds 37°C, sweating is the primary cooling mechanism, but high humidity hinders evaporation.

Dr Vishwas Chitale, Senior Programme Lead, CEEW, said, "India has made important strides in responding to extreme heat, but now must invest in long-term resilience. Solutions like parametric heat insurance, early warning systems, net-zero cooling shelters, and cool roofs must become core to heat action plans. States like Maharashtra, Odisha, Gujarat and Tamil Nadu are already taking pioneering steps by integrating climate and health data into local planning. Now is the time to scale these efforts nationally, using district-level risk assessments to prioritise funding and action."

The CEEW study recommends that HAPs be regularly updated using granular data and expanded to include measures for night-time heat and humidity stress. These findings come at a critical time, as states now have access to the State Disaster Mitigation Fund, which in 2024 included heatwaves as an eligible disaster category. This enables state governments to mobilise dedicated funding for proactive and long-term heat resilience planning based on risk profiles.

CEEW is currently supporting the development and strengthening of over 50 localised city and district-level heat action plans across six states in India. Through ward-level heat risk assessments, the goal is to enable more than 300 such plans by 2027.

To raise awareness about rising heat and showcase efforts of resilience, CEEW is also launching a five-part video series this month, spotlighting affordable and scalable heat resilience solutions from across India. Hosted by popular national and regional YouTubers—including actor Ashish Vidyarthi, Shwetha Rathore (Wittspace), and Ashraf Excel—the series will feature solutions such as parametric heat insurance, cool roofs, net-zero cooling shelters, and emergency heat stroke rooms. **Watch the trailer here.**

Read the full study, ***'How Extreme Heat is Impacting India: Assessing District-level Heat Risk'*** by Shravan Prabhu, Keerthana Anthikat Suresh, Srishti Mandal, Divyanshu Sharma and Dr Vishwas Chitale **here.**

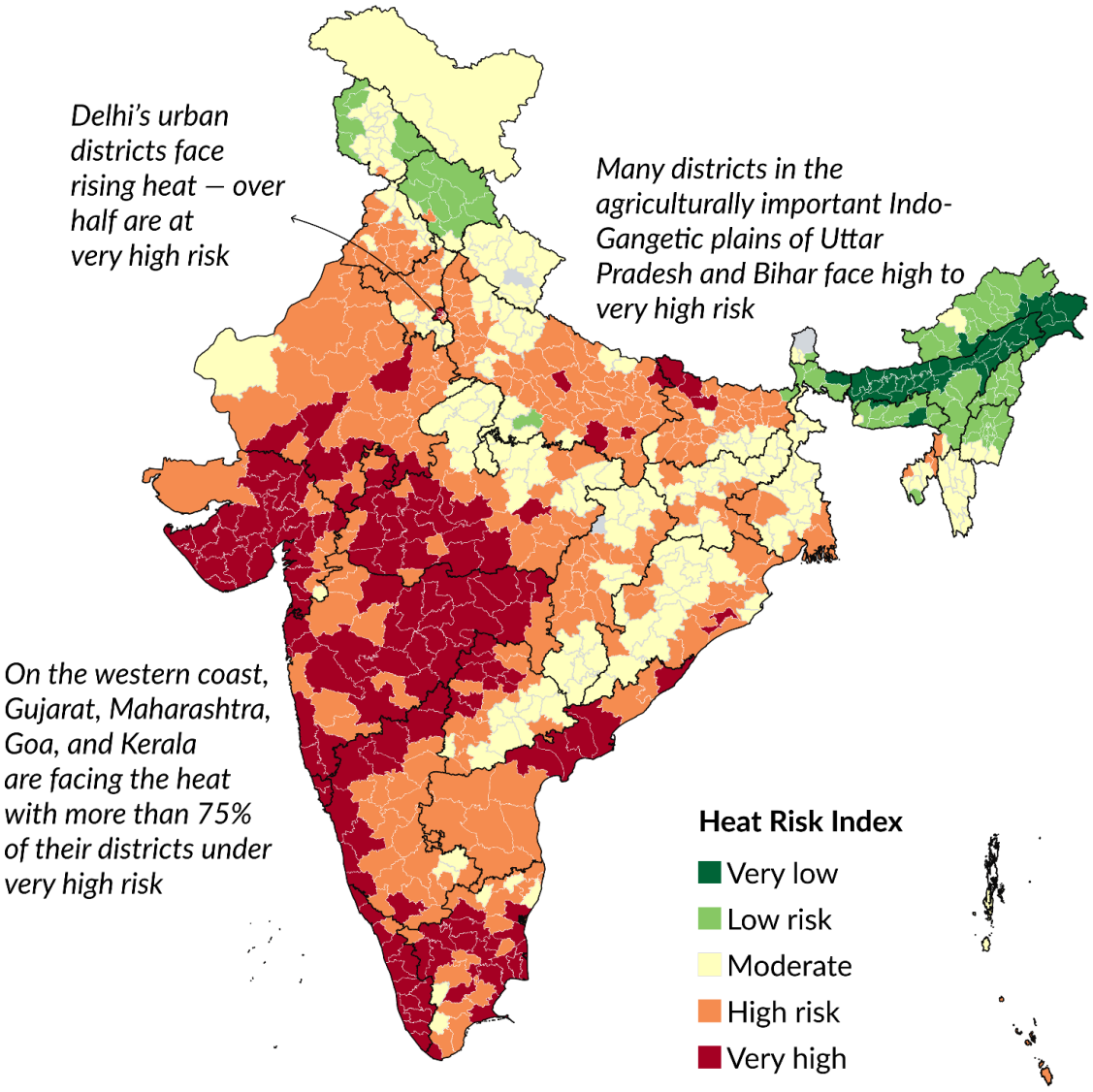
Note: The analysis considered 734 districts as per the latest Survey of India administrative boundary shapefile. The study has been funded by Rohini Nilekani Philanthropies (RNP) and HSBC India.

For media queries and interviews, contact:
Tulshe Agnihotri – tulshe.agnihotri@ceew.in |

About CEEW

The Council on Energy, Environment and Water (CEEW) — a homegrown institution with headquarters in New Delhi — is among the **world's leading climate think tanks**. The Council is also often ranked among the **world's best-managed and independent think tanks**. It uses data, integrated analysis, and strategic outreach to explain — and change — the use, reuse, and misuse of resources. It prides itself on the independence of its high-quality research and strives to **impact sustainable development at scale** in India and the Global South. In over 14 years of operation, CEEW has impacted over 400 million lives and engaged with over 20 state governments. Follow us on X (formerly Twitter) @CEEWIndia or on LinkedIn for the latest updates.

57% of Indian districts, home to three-fourths of the population, now face high to very high heat risk



Source: How extreme heat is impacting India (2025)
Note: Grey indicates no data available