## Climate change likely to increase intensity of extreme rainfall in India by 43 percent by 2030

**# FEATURE** 

Mumbai, Chennai, Delhi, Surat, Thane, Hyderabad, Bhubaneswar and Patna are projected to witness two-fold increase in the number of heatwave days. Heatwave conditions may increase even more frequently and erratic rainfall events. Eight out of 10 districts in India are set to experience multiple such extreme rainfall events by 2030, according to a first-of-its-kind independent study released today by IPE-Global and Esri India. These frequent, unpredictable and extreme heatwaves have increased significantly in recent decades. In India, the number of extreme heatwave days has increased 15-fold in the months of March-April-May and June-July-August-September in the last three decades (between 1993-2024). Extreme heatwave days have increased 19-fold in the last decade alone. The study also found that India is witnessing summer-like conditions in the monsoon season except for the non-rainy days. The study was presented at the International Global-South Climate Risk Symposium ti-tled " Paving a Climate Resilient Future " organised by IPE Global and Esri India. The study comes at a time when the world is preparing for the 62nd session of SB-61-United Nations Framework Convention on Climate Change in Bonn,

Climate Change and Sustain-ability at IPE Global Abinash Mohanty, Head of the System and lead author of the study, said, " This study and its stark findings highlight how climate change has led to extreme heat and rainfall in India and is set to become more severe and severe by 2030, with most urban centres being affected the most. In addition, weather events such as El Niño and La Niña are set to intensify, resulting in increased flooding, cyclones, storms and exsuggests that about 72 per cent of tier-1 and tier-2 cities will be exposed to heat stress. And extreme rainfall events are going to increase, along with thunderstorms, lightning and torrential rains. To protect Indian agriculture, industry and large-scale infrastructure projects from the vagaries of climate change, adopting highly detailed risk assessments and establishing climate risk observatories should become a task of national

Gujarat, Rajasthan, Tamil Nadu, Odisha, Uttarakhand, Himachal Pradesh, Maharashtra, Uttar Pradesh, Meghalaya and Manipur are facing the double whammy of heat stress and excessive rainfall, with more than 80 per cent of the districts expected to be affected by 2030.The IPE Global study found that by 2030, coastal areas will experience heat stress-like conditions during the June-July-August-September season. About 69 percent of coastal districts are projected to experience more heat days by 2030 and the percentage of such coastal districts may increase to 79 by 2040 . Aswajit Singh, Founder and Managing Director, IPE Global said, "Recently, UN Secretary-General Antonio Guterres called for action on extreme heat, citing the deadly impacts of rapidly rising temperatures across the world, and India is no exception. Climate and development paths are inextricably intertwined. Almost all countries in the Global South are facing the dual challenge of improving living standards for a large part of their population while simultaneously adapting to the consequences of climate change. At IPÉ Global, we constantly strive to develop and implement strategies that turn environmental risks into competitive advantages. This



study is a testament to how we can bring innovation from the margins to the mainstream and make India and the Global South climateready. Only then can India truly emerge as the climate solutions capital of the world."

Climate change is making extreme events more severe and

more frequent The study found a clear trend places with extreme heatwaves are recording more erratic and discontinuous rainfall events. Coastal districts - both east coast and west more unpredictable rainfall events than ever before. Districts experiencing more heatwaves in June-July-August-September are also experiencing more frequent erratic and discontinuous rainfall events. The study also found that under the current business as usual scenario, the identified districts will see a 63 per cent change in land use and land cover. These changes will be caused by micro-climate changes across the Indian subcon-

tinent and the main drivers are land surface changes, deforestation, encroachment on mangroves and wetlands.

Agendra Kumar, Managing Director, Esri India said, "The increasing intensity of extreme heat and erratic rainfall across India is no longer uncommon and are signs of a changing climate reality that is affecting people's lives, livelihoods and infrastructure. Addressing these challenges requires a holistic, data-driven approach rooted in science and spatial intelligence. With its ability to integrate, visualize and analyze diverse datasets, Geographic Information System (GIS) technology offers a powerful lens to understand climate impacts across all economic, social and environmental dimensions. GIS supports proactive planning, whether it is climate resilient infrastructure, rapid disaster response or connecting people. GIS is already underpinning national missions such as Parivesh,

data into actionable insights. At Esri India, we are committed to empowering our users with cutting-edge geospatial tools and data to not only monitor a changing climate but also to emerge more resilient, resilient and resilient." of Capacity and sustainable We are able to create the future.

The study recommends that risk assessment principles should form the basis of India's strategy to build resilience against heat waves and extreme rainfall. As a first step, it proposes the establishment of a Climate Risk Observatory (CRO) that can help identify, assess and predict the risk of long-term and intense heat at the grassroots level. The CRO uses advanced technologies such as Earth observation data and climate models to provide real-time and forecast information. These data can help policymakers, city planners, businesses and the general public make informed decisions to understand climate change risks and prepare for them. A decision support system such as a CRO offers governments and policymakers a comprehensive set of capabilities to understand the complexity and wide-ranging impacts of climate challenges and minimize risks using advanced data analytics and novel strategies.

The study also recommends risk financing measures to mitigate the impact of heatwaves and extreme rainfall events. In addition, it suggests appointing heatrisk champions within District Disaster Management Commit-tees that will enable these agencies to prioritise and coordinate heat risk mitigation efforts at the district level and, in turn, accelerate heat resilience.

The IPE Global and Esri India study is significant as it provides a micro-scale risk assessment of heat and rainfall extremes across Indian districts and estimates of their probability of occurrence by 2030. It argues that holistic risk assessment at the highly local level is the need of the hour and reliance on global models will not suffice Further, identifying and estimating climate risks is part of the global call for climate resilient lives livelihoods, infrastructure and

This study is the first of its kind district-level heat risk and extreme rainfall assessment that discusses the complexities and non-linear trends in climate intensity patterns. It uses a dynamic ensemble climate modelling approach to project and map scenarios for 2030 and 2040. Through spatial and climatological modelling, the study presents empirical evidence on the vulnerability of Indian districts to extreme heat and erratic and persistent rainfall as well as micro-climatic fluctuations.

## Ujjain Saur Urja Mela Promotes Rooftop Solar Adoption under PM Surya Ghar Yojana

"The Pradhan Mantri Surya Ghar Muft Bijli Yojana (PMSGMBY) subsidy makes rooftop solar affordable and easy to install, and residents of Ujjain should utilise it to reduce their electricity bills while also greening the environment", said Mukesh Tatwal, Mayor of Ujjain. He was speaking as the Chief Guest on the inaugural day of Ujjain Saur Urja Mela, a two-day event that brings together consumers, industry experts, academicians, and government officials, aiming to disseminate information about PMSGMBY and motivate people to adopt solar energy. Kalavati Yadav, Chairper-

son, Ujjain Municipal Corporation, who was a Special Guest at the event, also urged people to make full use of the PMSGMBY subsidy and said that "this mela can help fulfil Ujjain's dream of becoming a solar energy hub.'

Stall by CSTEP

The highlight of the fair was a stall by the Center for Study of Science, Technology and Policy (CSTEP), where consumers got an opportunity to assess the solar potential of their rooftops



through the Rooftop Solar Explorer (RTSE) Through this smart tool, consumers got to know how suitable their rooftop is for solar energy generation. They could also calculate the capacity utilisation factor and the payback period for the upfront investment. This exercise gave consumers an idea of the number of years in which they would receive the financial benefits of adopting solar energy and how efficient would this energy generation capacity be.

DISCOM also put up

To help consumers, electricity distribution companies (DISCOM) also put up stalls, where queries on net metering and electricity bills were addressed and technical issues regarding solar energy were resolved. Along with this, guidance was provided on Pradhan Mantri Surya Ghar Muft Bijli Yojana, including its overall benefits, subsidy amount, application process, and steps for solar panel instal-

Stalls by solar vendors Then there were stalls by solar vendors, where detailed information on rooftop solar panels, battery storage, solar inverters, and the latest solar technologies was available. Stalls were also set up by banks, where consumers were provided information on loans, EMI schemes, and subsidy options for solar panel instal-

Many engaging activities organised

The first day of the fair saw many engaging activities being organised especially for consumers. These included a student project exhibition showcasing innovative solar projects and models; an interactive quiz competition where youngsters answered questions on solar energy; and consumer workshops where information on net metering and inverter technology was provided, along with practical tips for adopting solar ener-

After a successful first day, the Ujjain Saur Urja Mela will continue on Sunday, June 15. On this day, more interesting and useful information will be available for consumers and stakeholders, besides expert consultations, and display of the latest solar products. Residents should take advantage of the fair and get inspired to adopt renewable energy.

## Dr Vinay Mishra's corner...

Question 1- I am 73 years old and retired from service long ago. Although I have a loving family and no major health problem, my desire to live has been going down. How can I keep my enthusiasm about



HR, Hoshangabad. Answer 1- It's not uncommon for or later in life, even when things seem fine on the surface. You've worked hard, raised a family, and lived through a great deal. So it makes

sense to wonder: What now? 1. Rediscover Purpose- Retirement can sometimes feel like the loss of a role or identity. The key is to shift from a role-based purpose to a values-based purpose. Ask: What kind of person do I still want to be? What values have guided me throughout life

like kindness, curiosity, help? 2. Engage in Creativity or Learning - Start small, for the joy of the process—not perfection. You might enjoy writing down stories from your life—your family would treasure that

3. Share and Connect Deeply- Even with a loving family, sometimes we miss deep, meaningful conversations or new connections. Consider joining a discussion group or mentoring young people or engaging with schools or college groups can give an enormous sense of happiness.

## Keep Kids Hydrated & Healthy with the Power of US Cranberries

As temperatures continue to soar, keeping children hydrated and healthy becomes a top priority for parents.

Dehydration during summer is a growing concern, often leading to digestive discomforts such as indigestion, diarrhea, bloating, and abdominal pain in young ones.

Renowned pediatrician Dr. Imran Patel emphasizes that excessive outdoor play, sweating, insufficient water intake, and a diet lacking in fiber and nutrition can

disrupt a child's gut health. "All these factors affect the balance of good bacteria in the gutcommonly known as gut floramaking digestion a challenge dur-



ing the summer months," he ex- long way in boosting children's diplains.

To address this seasonal concern, Dr. Patel recommends adding US Cranberries to a child's daily diet. "US Cranberries are naturally high in antioxidants and dietary fiber, which aid digestion and support the restoration of gut flora.

More importantly, their tangysweet flavor appeals to children, making them an easy and enjoyable addition to meals," he shares.

He suggests parents incorporate a handful of dried Cranberries into everyday foods such as daliya, curd, cereals, or even summer

This simple addition can go a summer heat.

gestive health and overall well-being during the hot months. Cranberries are readily available at dry fruit stores and across major ecommerce platforms, making them an accessible and convenient option for households looking to enhance their summer nutrition.

Dr. Patel concludes, "If the gut is good, the child is good. Keeping their digestion in check is the first step toward keeping them active and happy all summer long.

With this easy and nutritious tweak, parents can ensure their children stay cool, comfortable, and healthy-even in the harshest

