Enviro Monitor

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Climate change

- Climate change may reduce farm incomes by 15% in India, finds study
- New climate vulnerability index finds Assam and Andhra most at risk, Kerala least
- India ranked 9th in VC funding for climate tech globally: Report

Air quality

- UP tops list of States emitting fine particulate matter: study
- SAFAR framework one-stop solution for air quality management

Waste management

- East Delhi corporation to get plant to treat animal waste
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Climate change may reduce farm incomes by 15% in India, finds study. Climate impacts would tear through G20 countries without urgent action to reduce emissions, and in India, it could mean declines in rice and wheat production, causing economic losses of up to 81 billion euros and a loss of 15 per cent of farmers' incomes by 2050, a new report revealed. The first study of its kind, the G20 Climate Impacts Atlas by the Euro-Mediterranean Center on Climate Change (CMCC), the leading Italian research centre on climate change and National Focal Point for the IPCC, collates scientific projections of how climate impacts will play out in the world's richest countries over the coming years. It finds that on a high-emissions pathway, climate impacts spiral to cause devastating damage across the G20. The research shows that rising temperatures and intense heatwaves could cause severe droughts; threatening essential water supplies for agriculture, causing huge loss of human life and increasing the chance of deadly fires. In specific countries, this could mean heatwaves could last at least 10 times longer in all G20 countries, with heatwaves in Argentina, Brazil and Indonesia lasting over 60 times longer by 2050. The report finds that without urgent action to reduce carbon emissions, GDP losses due to climate damage in G20 countries increase each year, rising to at least four per cent annually by 2050.

New climate vulnerability index finds Assam and Andhra most at risk, Kerala least. The states of Assam, Andhra Pradesh, Maharashtra, Karnataka and Bihar are the most vulnerable to extreme climate events such as floods, droughts and cyclones in India, according to the Climate Vulnerability Index released by the Council on Energy, Environment and Water (CEEW). Overall, 27 Indian states and Union territories are vulnerable to extreme climate events which often disrupt the local economy and displace weaker communities.

The report 'Mapping India's Climate Vulnerability – A District-level Assessment', which has been supported by the India Climate Collaborative and Edelgive Foundation, has analysed 640 districts in India and found that 463 of these are vulnerable to extreme floods, droughts and cyclones. Dhemaji and Nagaon in Assam, Khammam in Telangana, Gajapati in Odisha, Vizianagaram in Andhra Pradesh, Sangli in Maharashtra and Chennai in Tamil Nadu are among India's most climate vulnerable districts, finds the study. More than 80 per cent of Indians live in districts vulnerable to climate risks, that is, 17 of 20 people in the country are vulnerable to climate risks, out of which every five Indians live in areas that are extremely vulnerable, finds the report. It further says that more than 45 per cent of these districts have undergone "unsustainable landscape and infrastructure changes. The study also highlighted that states in India's northeast are more vulnerable to floods, while the ones in the south and central are most vulnerable to extreme droughts. Further, 59 and 41 per cent of the total districts in the eastern and western states, respectively, are highly vulnerable to extreme cyclones.

India ranked 9th in VC funding for climate tech globally: Report. India ranks at the ninth spot globally for climate tech investment, with the country's climate tech firms receiving USD 1 billion in venture capital funding between 2016 and 2021, according to a report released recently. Venture capital (VC) investment in climate technology companies has gone up globally since 2016, as per the report jointly prepared by international trade promotion agency London & Partners and Amsterdam-based database management company Dealroom.co. Global climate tech venture capital investment soared from USD 6.6 billion in 2016 to USD 32.3 billion in 2021, an increase in funding by almost five times, the research revealed.

2021 investment levels have already exceeded the whole of 2020 for global climate tech investment, demonstrating the importance of the global tech industry in the fight against climate change, said the report, which analyses technology companies working to reduce greenhouse gas emissions or addressing the impacts of climate change.

The top 10 countries for climate tech VC investment between 2016 and 2021	
US	USD 48 billion
China	USD 18.6 billion
Sweden	USD 5.8 billion
UK	USD 4.3 billion
France	USD 3.7 billion
Germany	USD 2.7 billion
Canada	USD 1.4 billion
Netherlands	USD 1.3 billion
India	USD 1 billion
Singapore	USD 700 million

Business Standard, October 28, 2021| Indian Express, October 26| Business Standard, October 26

Uttar Pradesh tops list of States emitting fine particulate matter: study. Uttar Pradesh is the largest emitter of PM2.5, the class of particulate matter considered most harmful to health, according to an analysis by the Council on Energy, Environment and Water (CEEW). The Council, a research body, looked at five of the most reliable data sources — international and national — that have tracked and measured the quantum and sources of air pollution in India. The high emissions from the state were largely due to a significant share of PM2.5 emissions from solid-fuel use in households and, by virtue of being India's most populous state, had a higher proportion of households relying on this form of fuel. Maharashtra, Gujarat, Odisha, West Bengal, Madhya Pradesh, Bihar, Tamil Nadu, and Rajasthan too feature in the list of top polluters but are differently ranked by the five sources. Jammu and Kashmir, Himachal Pradesh, Uttarakhand, and the Northeastern States of Arunachal Pradesh, Nagaland, Manipur, and Mizoram, were among the lowest emitters of PM2.5.

The five data sources used are: Emissions Database for Global Atmospheric Research (EDGAR), maintained by the European Commission's Joint Research Centre; Evaluating the Climate and Air Quality Impacts of Shortlived Pollutants (ECLIPSE), maintained by the International Institute for Applied Systems Analysis (IIASA); Regional Emission Inventory in Asia (REAS), maintained by the National Institute for Environmental Studies, Japan (NIES); Speciated Multipolluter Generator (SMoG),maintained by the Indian Institute of Technology (IIT Bombay); and Spatially resolved pollution emission inventory for India, maintained by The Energy and Resources Institute (TERI).

SAFAR framework one-stop solution for air quality management. The System of Air Quality and Weather Forecasting and Research (SAFAR) Project under the Ministry of Earth Sciences received a global nod for the first official indigenous framework to forecast air quality in Delhi, Mumbai, Pune and Ahmedabad. The framework was first developed and implemented for Delhi in 2010, used in Pune from 2013 and in 2015 it was extended to Mumbai and in Ahmedabad (2017). SAFAR chose to demonstrate its forecasting model in four different and contrasting micro-climates of Indian cities. There are six elaborate components in the framework including data from the air quality and weather monitoring stations network, inventory of emissions to keep track of pollution sources, the Air Quality Index among others. The chaotic nature and complexity of air pollution itself make prediction a challenging task, particularly in a city that is highly influenced by meteorology due to its geographical location, which is considered in this work. We use round-the-clock air quality and weather parameter measurements, scientific analysis to improve forecasting capabilities. SAFAR framework considers almost all pollutants

levels—PM10, 1, 2.5, CO, NOx, SO2, Volatile Organic Compounds etc. through automatic analyzers. With this framework, India will no longer need to depend on any international air quality forecasting frameworks. This is developed as per the country's micro-climatic conditions. SAFAR's forecasting model is comparable to the framework by the United States Environmental Protection Agency (US-EPA). Using this forecasting model, all urban local bodies can issue timely health advisories to alert citizens of bad air days in advance, which will help save vulnerable groups from severe health impacts of air pollution. This framework is a one-stop solution for air quality management leading up to mitigation, and also helps formulate micro-specific air action plans based on robust science. This framework can be easily replicated in 132 cities across the country with a population of over 10 lakh.

The Hindu, October 6, 2021| The Indian Express, September 27, 2021

East Delhi corporation to get plant to treat animal waste. The East Delhi Municipal Corporation (EDMC) has finalised a project for setting up a biomethanation plant adjacent to the slaughterhouse in Ghazipur to treat animal waste. As of now, the civic body dumps the paunch waste collected from the slaughterhouse at the sanitary landfill site in the area. The civic body will supply 25 metric tonnes of waste per day generated from the slaughterhouse to the biomethanation plant and the concessionaire will be free to collect waste from other sources also.

Ban on collection of non-segregated waste from Nov 1: NMC. North Delhi Municipal Corporation (NMC) has decided to impose a complete ban on collection of non-segregated waste from November 1 onwards. Officials have been directed to ensure that all the segregated waste shall be transported separately in different coloured green and blue bins for wet and dry waste respectively up to the processing facility by the concessionaires. He also directed official to prepare area specific strategies including slums and other settlements, commercial institutions and other non-residential premises for segregation of waste at source.

The Times of India, October 24, 2021 | The Pioneer, October 13, 2021