75 percent of districts in India are hotspots of extreme climate events

December 11, 2020
In news

A new study finds that 75 percent of districts in India are hotspots of extreme climate events

Key findings of the study

- A study by the Council on Energy, Environment and Water (CEEW)finds that three in four districts in India, home to more than 63.8 crore people, are hotspots of extreme climate events such as cyclones, floods, droughts, heat and cold waves
- This is the first time that extreme weather event hotspots in the country have been mapped.
- As per the CEEW study, the frequency, intensity, and unpredictability of these extreme events have risen in recent decades
- The study states that while India witnessed 250 extreme climate events in 35 years between 1970 and 2005, it recorded 310 such weather events in only 15 years since then
- It was found that in the last 50 years, the frequency of flood events increased almost eight times.
- Events associated with floods such as landslides, heavy rainfall, hailstorms, thunderstorms, and cloudbursts increased by over 20 times.
- It was found The frequency of floods surged significantly in the last two decades. Between 1970 and 2004, three extreme flood events occurred per year on an average, but after 2005, the yearly average rose to 11.

- As per the study, the annual average for districts affected until 2005 was 19, but after 2005, on average 55 districts were affected by floods each year.
- In 2019, India witnessed 16 extreme flood events, which affected 151 districts. The study found that over 9.7 crore people are currently exposed to extreme floods in India.
- According to CEEW study, Six of India's eight most flood-prone districts in the last decade—Barpeta, Darrang, Dhemaji, Goalpara, Golaghat, Sivasagar are in Assam.
- CEEW study indicates that the current trend of catastrophic climate events results from a mere 0.6 degrees Celsius temperature rise in the last 100 years.
- It reveals that India is already the fifth most vulnerable country globally in terms of extreme climate events, and it is all set to become the world's flood capital
- As per CEEW analysis, while the number of rainy days during monsoon have decreased, single-day extreme rainfall events are increasing, leading to flooding.
- CEEW study indicates that the **yearly average of drought-affected districts increased 13 times after 2005**. Nearly 68 per cent of the districts have faced droughts and drought-like situations
    - Until 2005, the number of districts affected by drought was six, but after 2005 this figure rose to 79
- **Shifting of Microclimatic zones:** Microclimatic zones, or areas where the weather is different from surrounding areas, are shifting across various districts of India, the study has found
    - A shift in microclimate zones may lead to severe disruptions across sectors – every 2 degrees C rise in annual mean temperature will reduce agricultural productivity by 15-20%, it has found.

    - **Some reasons identified behind this shift in microclimatic zones is** change in land-use patterns, disappearing wetlands and natural ecosystems by encroachment, and urban heat islands that traps heat locally.
- **Drought-affected district hotspots of India in last decade:** Ahmednagar, Aurangabad (both Maharashtra), Anantapur, Chittoor (both Andhra Pradesh), Bagalkot, Bijapur, Chikkaballapur, Gulbarga, and Hassan (all Karnataka)
- It also found that states such as Andhra Pradesh, Tamil Nadu and Karnataka have also been increasingly witnessing more droughts, while floods and droughts coincide during the same season in several districts of Bihar, Uttar Pradesh, Odisha and Tamil Nadu.
- **Shifting trend:**
    - Shift in the pattern of extreme climate events , such as flood-prone areas becoming drought-prone and vice-versa, in over 40 per cent of Indian districts.
    - Traditionally flood prone districts such as Cuttack (Odisha), Guntur, Kurnool, Srikakulum (all AP), Mahbubnagar, Nalgonda (both Telangana), and Paschim Champaran (Bihar) have become drought-prone in recent years.
    - Rajkot, Surendranagar (both Gujarat), Ajmer, Jodhpur (Rajasthan), and Aurangabad (Maharashtra) districts, among others, have experienced a shifting trend from floods to drought.