Bihar: Highest Lightning Related Deaths

Why in News?

A new study of **lightning-related deaths in Bihar** has revealed that **Sheohar, Banka, Kaimur and Kishanganj districts** were the **most vulnerable** in the state to this natural hazard, recording the **highest casualty rate** per million population.

- The study examined data from the 2017-2022 period and found that 1,624 people died and 286 were injured due to lightning.

Key Points

- As per the study by India Meteorological Department (IMD) scientists, nearly all the **1,624 deaths were in rural areas** and most of these casualties and injuries, about **76.8%, were caused by lightning strikes** that occurred between 12:30 pm and 6:30 pm.
    - The study identified gender-segregated data for 1,577 deaths. Out of these 1,577 deaths, **1,131 (71%) were men.** Rural men between the **age groups of 11-15 years and 41-45 years** were particularly vulnerable.
    - On average, there were **271 human deaths and 57.2 injuries** due to lightning strikes each year in Bihar during **the six-year study period.**
    - The state's annual casualty rate per million of **2.65 was higher than the national average of 2.55.**
    - The period between May to September was the peak for lightning strikes with June and July accounting for 58.8% of lightning-linked deaths.
- Researchers explained that lightning strikes reach a record high in **June and July** with the monsoonal current setting in, mainly due to the interplay of **easterly and westerly winds.**
- According to the **Earth Sciences Ministry,** Cloud-to-ground lightning strikes claim thousands of lives each year and Bihar ranks among the top three most-affected states in terms of lightning-linked casualties along with **Madhya Pradesh and Uttar Pradesh.**
- The **plains area is prone to thunderstorms and lightning activity** as warm, dry air from north-west India converges with moist air emanating from the Bay of Bengal, creating conditions that are favorable for the formation of deep convective clouds.
- In **North West Bihar, the lightning strikes are lower but casualties are higher**. These parts of Bihar are not urbanised and may be having poor shelter density around farm areas. Socio-economic factors play an important role in mitigating the impact of such natural hazards.
- The threat potential of lightning strikes is not uniform. **Topography, elevation, and local meteorological factors** determine the spatial distribution of lightning strikes.
- A higher lightning frequency is seen in the eastern region owing to higher moisture incursion.
- Assessing vulnerability and hotspots is important for policymakers and to design mitigation measures.

Westerly Winds

- They **originate from sub tropical high pressure belts** and move towards **subpolar low pressure belts** and, prevail between 35° to 60 ° latitudes.
- They are also permanent but **more intense during winters**. They transport warm and moist air toward the pole.

- Westerly causes formation of fronts along sub polar low pressure zones and transport cyclones toward the western margin.