Kolkata Floods 2025

Why in News?

Kolkata and its suburbs recorded the **third-highest September rainfall since 1978**, receiving **251.4 mm in 24 hours**. The **peak hourly rainfall of 98 mm**, just below the **100 mm cloudburst** threshold, led to **urban flooding**.

What is Urban Flooding?

- **About: Urban flooding** is the waterlogging of densely populated areas caused by **heavy rain, overflowing rivers, or poor drainage**, disrupting transport, damaging infrastructure, and posing **health risks**.
- **Causes of Urban Flooding:**
  - **Natural:**
    - **Heavy Monsoon Rainfall**: Intense rains in regions like the **Western Ghats** and **northeast India** often overwhelm urban drainage (**2015 Chennai floods**).
    - **Topography**: Cities in **floodplains or low-lying areas** (**Mumbai, Kolkata**) or with poor natural drainage (**Bengaluru**) face higher flood risk.
    - **Climate Change**: Increasing **rainfall intensity and frequency** causes flash floods (**2023 Delhi floods**).
  - **Anthropogenic:**
    - **Rapid Urbanization**: Encroachment on wetlands and loss of natural drainage (e.g., **Bengaluru's 80% lakes lost**) increase runoff.
    - **Inadequate Drainage**: Outdated systems (e.g., **Mumbai's British-era drains**) fail during heavy rainfall.
    - **Solid Waste Mismanagement**: Blocked drains worsen flooding (**Himachal Pradesh 2023**).
- **Causes of Kolkata Floods 2025:** The heavy rainfall over **Kolkata** was triggered by a **low-pressure area** moving toward **coastal Gangetic West Bengal**, causing strong **moisture convergence** and clouds reaching **5–7 km**.
  - **Disfigured drainage**, **choked canals**, **high tide**, and the **decline of waterbodies** due to unchecked urban expansion worsened flooding.
  - The **United Nations Intergovernmental Panel on Climate Change's Sixth Assessment Report (AR6) (2021)** had predicted sharply increasing **short rainfall episodes** in the city.

Cloudburst

- **About:** A **cloudburst** is a sudden, intense rainstorm delivering **over 100 mm of rain in under an hour** across a small area (around 10 km²), often accompanied by **hail and thunder**.
  - Common in **mountainous regions**, especially the **Himalayas**, cloudbursts are **difficult to predict** but can trigger **flash floods** and **landslides** due to their localized, extreme rainfall.
- **Causes:** A **cloudburst** occurs when **moist air rises over mountains**, cools, and condenses into heavy rainfall. **Strong upward currents** enlarge raindrops, which fall suddenly when the currents weaken.

- In India, it often happens when **monsoon clouds** move from the **Bay of Bengal or Arabian Sea** to the **Himalayas**, releasing intense rain.