



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 - **Inadequate Drainage:** Outdated systems (e.g., **Mumbai's British-era drains**) fail during heavy rainfall.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.

URBAN FLOODING

MEANING

- Flooding of land/property in a built environment, particularly in cities
- Caused not just by higher precipitation but also **unplanned urbanisation**

CAUSES OF EXACERBATION

- **Encroachments** on drainage channels (lakes, wetlands, riverbeds)
- **Climate change** (increased frequency of short duration heavy rainfall)
- Uninformed **release of water from dams** (e.g. Chennai Floods 2015)
- **Mining** activities (depletes natural riverbed and water retention capacity)
- Urban heat island effect
- **Storm surges** affecting coastal cities/ towns

IMPACTS

- Loss of life and property
- Spread of diseases
- Disruptions in supply of power & water and communication
- Ecological impacts

SUGGESTIONS TO MITIGATE

- Creating a unified **flood control implementing agency**
- **Blue-Green Infra** for urban and climatic challenges
 - Blue - Water bodies such as rivers and tanks
 - Green - Trees, Parks, and Gardens
- Mapping of Flood Vulnerability
- Construction of **flood walls, raised platforms** along basins

Some of the Most Notable Urban Floods in India

