

Monsoon Impact in Northeast India

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Monsoon Impact in Northeast India: Causes and Vulnerabilities

Context

The **Southwest Monsoon**, vital for India's agriculture, often turns destructive in the **Northeast region**. In **2025**, it arrived **early on May 24**, and is already **wreaking havoc** in Assam, Meghalaya, and surrounding states. Understanding how the monsoon affects this region is key to disaster preparedness and policy response.

How Monsoon Reaches Northeast India

- The monsoon begins in **early June**, driven by **low pressure** over northern India.
 - **Moisture-laden winds** from the Indian Ocean split into:
 - **Arabian Sea Branch** - moves along India's west coast.
 - **Bay of Bengal Branch** - travels **northeastward**, bringing rain to the Northeast.
 - The Bay of Bengal branch picks up more moisture and reaches **Northeast India** within days of hitting Kerala.
 - **Orographic effect**: The **Eastern Himalayas** and regional hills force moist air upward, causing **heavy rainfall**.
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Why Northeast India Is More Vulnerable

1. High Rainfall Intensity

- The region naturally receives **excessive rainfall**.
- **Mawsynram** (Meghalaya) gets **11,872 mm annually** – highest in the world.

2. Flash Floods

- Rainfall occurs in **short, intense bursts**, causing **sudden river surges** and flooding.

3. Complex Terrain

- **Steep hills, narrow valleys**, and major rivers like the **Brahmaputra** lead to quick runoff and **flash floods**.

4. Landslide Risk

- **Alluvial soils** become unstable when wet, triggering **landslides**.

5. River Siltation

- Rivers carry **high silt loads** due to **deforestation and erosion**, raising riverbeds and flood risk.

6. Seismic Activity

- Located in **Seismic Zone V**, the region is prone to **earthquake-triggered landslides**, especially during monsoon.

7. Urban Pressure

- **Settlements in floodplains** and hills are increasingly exposed to disasters.

What Needs to Be Done

- Monsoon disasters are becoming a **chronic issue** in Northeast India.
- A **coordinated approach** is needed involving Centre and States.

Key Solutions:

- **River dredging** and embankment strengthening
- **Flood forecasting systems**
- Better **land-use planning** and **regional cooperation** on water sharing



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