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**DAILY EDITORIAL
ANALYSIS**

TOPIC

**Urban Flooding and Human
Failure: A Man-Made
Disaster**

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URBAN FLOODING AND HUMAN FAILURE: A MAN-MADE DISASTER

Context

- Recent tragic accident at an IAS coaching centre in New Delhi, where flooding led to three IAS aspirants dying, was a largely man-made, hence avoidable, disaster. Such incidents are an increasing feature of localised urban flooding in which human failures play a major role.

Urban Flooding in India: A Growing Concern

- Urban flooding has become distressingly common in many cities, leading to loss of life, property damage, and economic crises. While natural factors like heavy rainfall and changes in topography contribute to flooding, human actions often play a significant role.
- Expanding Cities and Flood-Prone Areas: As cities expand, they often encroach upon flood-prone regions. Settlements in these vulnerable areas have more than doubled since 1985.
 - ◆ Bengaluru, Gurugram, Mumbai, and other urban centres have witnessed scenes of stagnating water during monsoons. People living in informal structures are particularly at risk.
 - ◆ The rapid and continuous expansion of cities exacerbates flood risks. It's essential to account for these risks in urban planning.
- Economic Impact: Urban floods result in both life and livelihood loss. They can also strain government resources and push economies into crises.
 - ◆ For instance, a State Bank of India report estimated that the combined economic loss due to the 2023 North India floods and Cyclone Biparjoy in Gujarat was between Rs 10,000-15,000 crore.
- Global Trends: A recent study led by the World Bank analysed global flood patterns and urban expansion.
 - ◆ East Asia has seen the highest rate of settlement expansion in flood-prone areas, while Sub-Saharan Africa and North America have expanded less into such zones.
 - ◆ Middle-income countries, including India, have more urban settlements in flood-prone zones compared to low- and high-income countries.
- India's Position: India isn't among the 20 countries with the most exposed settlements to flood hazards. However, neighbouring countries like Bangladesh, Bhutan, China, and Myanmar face higher risks.
 - ◆ India ranks third globally in terms of new settlements expanding into flood-prone areas (1985-2015), following China and the U.S.

Delhi's Vulnerability

- Unchecked urban expansion is a significant factor behind chronic flooding in Delhi and the National Capital Region (NCR).
- Recent heavy rains brought parts of Delhi to a standstill, inundating streets and causing traffic snarls.

Key Factors: Tragic Incident in New Delhi

- Basements and Limited Access: Basements in buildings often have restricted access and ventilation. Getting in and out during floods can be challenging, and being trapped becomes a real danger. Special pumping arrangements are necessary to mitigate flooding.
- Mixed-Use Buildings: As India urbanised and land values soar, buildings are repurposed beyond their original design. Basements, once meant for storage or parking, now serve as income generators. However, this dual use blurs the line between habitation and utility.
- Lack of Clear Regulations: Building bylaws vary across cities. In Delhi, for instance, basements are officially considered storage areas, but mixed-use buildings may use them differently. The Delhi Master Plan 2021 mandates clearance from fire authorities for basement use in coaching centres, but compliance remains uncertain.
- Renewal of Permits and Bribe Culture: Questions arise about permit renewals after inspections. Unfortunately, users often avoid notifying authorities due to bureaucratic hurdles and bribe demands.

Addressing the Issue: What Can Be Done?

- **Integrated Urban Planning:** Cities must adopt holistic approaches that consider flood risk reduction. This involves zoning regulations, land-use planning, and infrastructure development that prioritise flood resilience.
- **Green Infrastructure:** Implementing green spaces, permeable pavements, and rooftop gardens can absorb excess rainwater and reduce surface runoff. These nature-based solutions enhance urban resilience.
- **Improved Drainage Systems:** Upgrading stormwater drainage networks is crucial. Regular maintenance, desilting, and modernising drainage infrastructure can prevent waterlogging.
- **Early Warning Systems:** Timely alerts can save lives and minimise damage. Developing robust early warning systems that consider local conditions is essential.
- **Community Engagement:** Involving local communities in flood risk management fosters awareness, preparedness, and resilience. Community-based initiatives can be effective.

Flood-Resilient Buildings

- **Preventing Water Entry:** Buildings should be designed to prevent water from entering up to a certain level (typically one to 1.5 metres above road level). Non-porous compound walls, flood-barrier gates, and non-return valves on plumbing lines can help achieve this.
- **Stormwater Drain Management:** Properly maintained stormwater drain networks are crucial. Urban planners must model historic and extreme rainfall events, considering climate change impacts, and formulate effective mitigation measures.

Policy and Preparedness

- India urgently needs robust flood management policies that aligns with the National Disaster Management Authority (NDMA) guidelines on Urban Flooding 2010.
- Policymakers should prioritise flood risk reduction, invest in resilient infrastructure, and promote sustainable urbanisation and pay concerted attention to urban flooding, implementing guidelines effectively.

Conclusion and Way Forward

- Unchecked urban expansion, inadequate regulations, and poor civic infrastructure contribute to chronic urban flooding. As cities grow, we must prioritise flood-resilient designs, enforce regulations, and foster a culture of safety. Only then can we prevent more tragedies like the one in New Delhi.
- Addressing urban flooding requires a multi-pronged approach involving government agencies, urban planners, and citizens. By integrating flood risk reduction into urban development, we can build more resilient cities and protect lives and livelihoods.

Source: TH



Mains Practice Question

[Q] Why do we sometimes witness human failure in managing urban floods in India? Highlights of the factors and relevant strategies to manage these floods.