Disaster Management · GS - III

Flooding in urban areas is an emerging climate-induced disaster. Discuss the causes of this disaster. Mention the features of two such major floods in the last two decades in India. Describe the policies and frameworks in India that aim at tackling such floods.

EXAM YEAR	PAPER	SUBJECT
2024	GS - III	Disaster Management

MARKS	WORD LIMIT
15	~250 words

Answer Hint

Urban flooding, climate change, extreme rainfall, impermeable surfaces, drainage congestion, encroachment, Chennai floods, Mumbai floods, NDMA guidelines, AMRUT, storm-water management

Model Answer

Introduction

Urban flooding occurs when rainfall and runoff exceed the drainage capacity of a built-up area. Climate change is increasing the probability of intense short-duration rainfall, while unplanned urbanisation magnifies its consequences.

Body

1. Major Causes

- Increasing frequency and intensity of extreme rainfall.
- Expansion of impermeable surfaces such as roads and concrete structures.
- Encroachment upon wetlands, floodplains, lakes and natural drainage channels.
- Inadequate and poorly maintained storm-water drainage.

- Solid-waste accumulation blocking drains.
- Unplanned urbanisation and poor land-use planning.
- Loss of urban vegetation and natural water-retention areas.
- Tidal influence and sea-level rise in coastal cities.

2. Major Examples

Mumbai, 2005: Extremely intense monsoon rainfall overwhelmed drainage infrastructure, causing extensive inundation, transport disruption, deaths and economic losses.

Chennai, 2015: Exceptionally heavy rainfall, reservoir releases, inadequate drainage and encroachment of wetlands and waterways contributed to severe flooding, disrupting transport, housing and economic activity.

3. Indian Policies and Frameworks

- **National Disaster Management Authority (NDMA) Guidelines on Management of Urban Flooding** emphasise drainage planning, floodplain management, early warning and institutional coordination.
- **National Disaster Management Plan** incorporates disaster-risk reduction and preparedness.
- **AMRUT** and urban infrastructure programmes support improved drainage and urban services.
- **Smart Cities Mission** promoted technology-enabled urban management.
- Local bodies undertake storm-water drainage, desilting and flood-control works.

BECOME IAS
AI POWERED UPSC PREP

Conclusion

Urban flooding is not merely a rainfall problem but a manifestation of climate risk combined with flawed urban planning. Sponge-city principles, wetland protection, resilient drainage, accurate flood mapping and climate-sensitive land-use planning are essential.