Geography · GS - I

Account for the huge flooding of million cities in India including the smart ones like Hyderabad and Pune. Suggest lasting remedial measures.

EXAM YEAR	PAPER	SUBJECT
2020	GS - I	Geography

MARKS	WORD LIMIT
15	~250 words

Answer Hint

Urban flooding; extreme rainfall; concretisation; encroachment on lakes and wetlands; inadequate drainage; unplanned urbanisation; waste blockage; climate change; urban planning reforms; nature-based solutions

Model Answer

Introduction

Urban flooding occurs when rainfall and runoff exceed the capacity of drainage systems and natural water bodies. Flooding in Hyderabad, Pune and other Indian cities demonstrates that technological initiatives alone cannot compensate for poor urban planning.

Causes of urban flooding

- **Unplanned urbanisation:** Construction on floodplains, lake beds and natural drainage channels obstructs water movement.
- **Loss of natural absorption:** Concretisation and extensive paved surfaces reduce infiltration and increase surface runoff.
- **Inadequate drainage:** Old, undersized or poorly maintained stormwater drains cannot handle intense rainfall.
- **Wetland degradation:** Encroachment and the disappearance of interconnected lakes reduce natural water-storage capacity.

- **Waste accumulation:** Plastic and solid waste block drains, aggravating waterlogging.
- **Extreme rainfall:** Climate change is increasing the likelihood of intense rainfall events in many regions, although local trends vary.
- **Fragmented governance:** Multiple agencies with overlapping responsibilities weaken coordination and accountability.

Lasting remedial measures

1. **Restore natural drainage:** Demarcate floodplains, protect lakes and wetlands, and remove encroachments through lawful and fair processes.
2. **Upgrade infrastructure:** Design stormwater drains using updated rainfall data and maintain them before the monsoon.
3. **Adopt sponge-city principles:** Expand permeable pavements, urban forests, rain gardens and rainwater harvesting.
4. **Improve land-use planning:** Integrate flood-risk maps into master plans and restrict construction in high-risk zones.
5. **Strengthen early warning:** Combine weather forecasts, drainage sensors, real-time monitoring and public alerts.
6. **Improve governance:** Establish clear agency responsibilities, transparent budgets and community participation.
7. **Manage waste:** Strengthen segregation, collection and enforcement against dumping in drains.

Conclusion

Urban floods are as much a planning and governance failure as a meteorological challenge. Resilient cities require functioning infrastructure alongside restored ecosystems, risk-sensitive development and accountable institutions.

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