Environment & Ecology · GS - III

Urban river pollution in India is closely linked to inadequate sewage management, industrial discharge and fragmented institutional responsibilities. Analyse the major challenges in rejuvenating the Yamuna and suggest measures for achieving sustainable river restoration.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 23/11/2026	GS - III	Environment & Ecology

MARKS	WORD LIMIT
15	~250 words

Answer Hint

Sewage generation, untreated wastewater, STP capacity, industrial effluents, environmental flows, inter-state coordination, river ecology, monitoring, community participation

Model Answer

Introduction

The Yamuna is a major river system supporting drinking water supply, agriculture and ecosystems across northern India. However, urbanisation and the discharge of untreated wastewater have severely affected its water quality, particularly in heavily populated stretches around Delhi.

Major Challenges

1. **Untreated sewage:** Rapid urban growth has increased wastewater generation, while inadequate sewer connections and treatment capacity allow sewage to enter the river through drains.

2. **Industrial pollution:** Effluents containing chemicals, heavy metals and other contaminants can undermine river health if industrial treatment and compliance mechanisms are weak.

3. **Infrastructure gaps:** Existing Sewage Treatment Plants may face problems of underutilisation, poor maintenance, inadequate sewer networks and inconsistent performance.

4. **Ecological degradation:** Reduced environmental flows, encroachment, excessive nutrient loading and solid waste threaten aquatic biodiversity and natural self-purification processes.

5. **Institutional fragmentation:** Multiple agencies and jurisdictions make coordination, accountability and continuous monitoring difficult.

Measures for Sustainable Rejuvenation

1. **Strengthen sewage management:** Expand sewer networks, upgrade STPs and ensure that treated wastewater meets prescribed discharge standards.

2. **Control industrial discharge:** Enforce pollution-control norms, strengthen inspections and promote cleaner production technologies.

3. **Restore river ecology:** Protect floodplains, maintain environmental flows, revive wetlands and prevent encroachments.

4. **Improve governance:** Establish measurable targets, transparent monitoring and clear accountability among central, state and local authorities.

5. **Promote public participation:** Encourage waste reduction, citizen monitoring and community-led conservation initiatives.

Conclusion

Yamuna rejuvenation requires more than increasing treatment capacity; it demands sustained pollution prevention, ecological restoration and institutional accountability. Claims of improved water quality must be supported by independent, stretch-wise and scientifically verified monitoring before the river is considered safe for drinking.