NEXT IAS

DAILY EDITORIAL ANALYSIS

TOPIC

NECESSITY OF MAINSTREAMING WETLAND CONSERVATION

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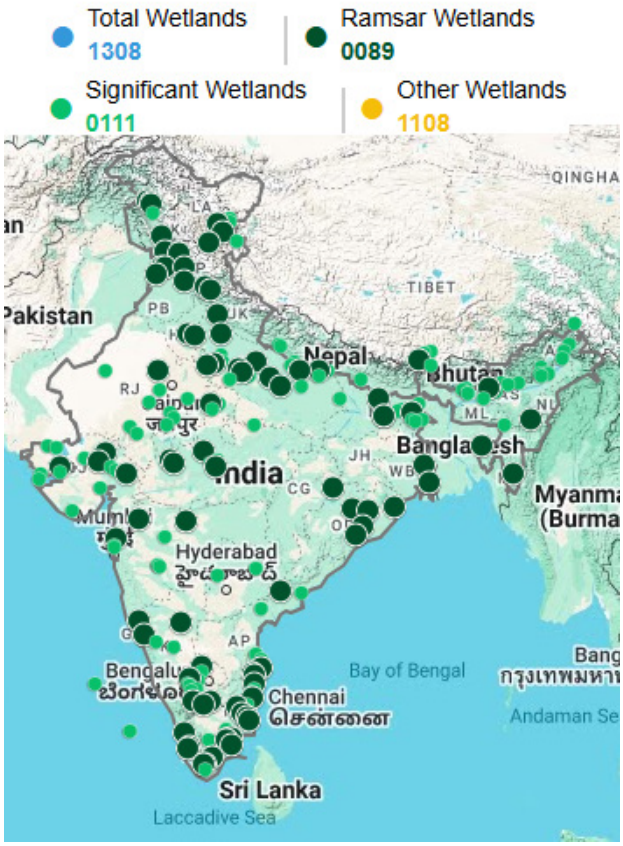
Context

- The degradation and loss of wetlands have reached alarming levels due to urbanization, agricultural expansion, and industrial activities. Mainstreaming wetland conservation into policy and development agendas is an urgent necessity.

About the Wetlands

- Wetlands, often referred to as the 'kidneys of the Earth', play a vital role in maintaining ecological balance including biodiversity conservation, water purification, and climate regulation.



- These ecosystems include marshes, swamps, lakes, floodplains, mangroves, and coastal lagoons, which support a wide variety of flora and fauna.
- These wetlands comprise **approximately 4.8%** of the total geographical area of India, and it is estimated that **at least 6% of India's population** relies directly on wetlands for their livelihood.

Why Wetlands Need Mainstreaming in Conservation Policies?

- **Biodiversity Hotspots:** Wetlands support diverse flora and fauna, including migratory birds, fish, and amphibians. Their loss threatens species dependent on these ecosystems.
  - **Keoladeo National Park in Rajasthan**, for instance, is a **UNESCO World Heritage Site** known for its bird population.
- **Flood Control and Climate Regulation:** Mangrove forests and floodplain wetlands **absorb excess floodwater** and **reduce the impact of natural disasters** like cyclones and tsunamis.
  - Acting as carbon sinks, wetlands help mitigate climate change by **storing carbon** and controlling temperatures.
- **Water Purification and Groundwater Recharge:** Wetlands act as natural water filters, trapping pollutants and sediments. They help replenish groundwater reserves.
- **Livelihoods and Economy:** Millions of people, especially fishing communities, depend on wetlands for their livelihoods.

- **Chilika Lake in Odisha**, for example, supports over 150,000 fisherfolk.

- **Cultural and Aesthetic Value:** Many wetlands are part of cultural heritage and serve as important sites for local communities.

Challenges in Wetland Conservation in India

- **Urbanization and Encroachments:** Unplanned urban expansion leads to encroachment, altering natural hydrology.
  - **Example:** Bhoj Wetland, Madhya Pradesh, faces significant encroachment due to Bhopal's rapid growth (Ramsar Site Report, 2023).
- **Pollution from Industrial effluents:** Discharge of untreated sewage and industrial waste degrades water quality and aquatic biodiversity.
  - **Example:** Yamuna floodplain wetlands, Delhi, suffer from heavy industrial pollution and untreated sewage.
- **Climate Change Impact:** Rising temperatures and erratic rainfall patterns alter wetland hydrology.
  - **Example:** Wular Lake, J&K, faces fluctuating water levels due to glacial melt and occurrence of cloudbursts in Himalayan states.
- **Unregulated Tourism and Overexploitation:** Excessive human activity leads to habitat destruction.
  - **Example:** In recent years, the **firefly habitats in Maharashtra** have experienced significant degradation due to unregulated tourism.
- **Invasive Species Proliferation:** Non-native species, such as water hyacinth, choke wetlands, harming biodiversity and local livelihoods.
  - **Example: Vembanad Lake, Kerala**, is overrun by water hyacinth, disrupting aquatic ecosystems
- **Lack of Awareness and Policy Implementation:** Despite conservation laws, enforcement remains weak.
  - **Example**: **East Kolkata Wetlands, despite Ramsar Site status**, suffer from poor enforcement, leading to degradation.

Initiatives for Wetland Conservation

- **Legal Protection:** Wetlands are protected under various national laws, including the Indian Forest Act (1927), the Forest (Conservation) Act (1980), and the Indian Wildlife (Protection) Act (1972).
- **Wetlands of India Portal by MoEFCC:** It provides comprehensive information on India's wetlands. It includes capacity-building materials, data repositories, and dashboards for each state and union territory.
- **National Plan for Conservation of Aquatic Ecosystems (NPCA):** A central scheme for the protection of wetlands and lakes.
- **National Wetland Decadal Change Atlas By Space Applications Centre (SAC)**: It highlights the changes in wetlands across the country over the past decade.
- **Integration with Namami Gange**: Ministry of Jal Shakti highlighted the integration of wetland conservation with the Namami Gange program.
  - **National Mission for Clean Ganga (NMCG)** has pioneered initiatives that serve as models for wetland conservation nationwide.
- **Amrit Dharohar Scheme (Union Budget 2023-24):** It is aimed at optimizing wetland utilization over the next three years. Its goals include enhancing biodiversity, increasing carbon stock, boosting eco-tourism, and generating income for local communities, in line with the government's sustainable development vision.
- **National Wildlife Action Plan (2017-2031):** It emphasizes the conservation of inland aquatic ecosystems, including wetlands. It advocates for a national wetlands mission to preserve these habitats, recognizing their importance for biodiversity and ecosystem services.
- **Wetlands (Conservation and Management) Rules, 2017:** Framework to regulate activities around wetlands.

Key Strategies for Wetland Conservation in India

- **Integrating Wetland Conservation into Urban Planning:** Smart city projects and infrastructure developments must consider wetland preservation.
  - **Example:** The **Amrit Sarovar Mission** aims to rejuvenate water bodies within urban areas, integrating them into sustainable city planning.

- **Strengthening Legal Protection:** Enhancing enforcement of environmental laws and penalizing encroachment.
  - **Example:** The Supreme Court's intervention in the **Deepor Beel Wetland**, Assam, led to restrictions on dumping solid waste in the Ramsar site.
- **Restoration & Scientific Research:** Using advanced technology for wetland restoration and biodiversity conservation.
  - **Example:** The **Namami Gange Programme** employs scientific approaches to rejuvenate wetlands along the Ganges.
- **Community Participation:** Local involvement in conservation efforts ensures sustainable management.
  - **Example:** The Chilika Development Authority (CDA) involves local fishers in wetland governance, leading to successful conservation outcomes.
- **Strengthening Policy Enforcement:** Strict implementation of environmental laws is needed to prevent wetland degradation.
  - **Example:** The National Green Tribunal (NGT)'s orders on **Mansagar Lake**, Jaipur, prevented construction activities harming the ecosystem.
- **Funding & Incentives for Wetland Conservation:** Providing financial support for conservation projects through CSR initiatives.
  - **Example: Amazon-ARGA MoU (2025)** supports women entrepreneurs in wetland-based sustainable livelihoods.
- **Eco-Tourism and Sustainable Livelihoods:** Promoting wetlands as eco-tourism sites can generate revenue while ensuring protection.
  - **Example:** The Loktak Lake Floating Homestays Project in Manipur integrates conservation with sustainable tourism.
- **Scientific Monitoring and Research:** Advanced technology should be used to assess wetland health and formulate data-driven policies.
  - **Example:** ISRO's National Wetland Inventory and Assessment (2022) provides crucial satellite-based insights into wetland conditions.

Conclusion

- Wetlands are indispensable to India's ecological and economic security. While India has taken commendable steps toward conservation, there is an urgent need to integrate wetland management into mainstream policymaking.
- By combining legal, scientific, and community-driven approaches, India can safeguard these vital ecosystems for future generations.

Types of Wetlands

- **Inland Wetlands:** Rivers, lakes, floodplains, and marshes. Examples: Loktak Lake (Manipur), Wular Lake (Jammu & Kashmir), Sunderbans Wetlands (West Bengal).
- **Coastal Wetlands:** Mangroves, lagoons, estuaries, coral reefs, and salt marshes. Examples: Chilika Lake (Odisha), Pichavaram Mangroves (Tamil Nadu).
- **Man-Made Wetlands:** Reservoirs, tanks, and salt pans. Examples: Hussain Sagar Lake (Telangana), Keoladeo National Park (Rajasthan).

State-wise Distribution of Wetlands (Geographic area of State)

- Lakshadweep (96.12%), Andaman and Nicobar Islands (18.52%), Daman and Diu (18.46%), Gujarat (17.56%), Puducherry (12.88%), West Bengal (12.48%), Assam (9.74%), Tamil Nadu (6.92%), Goa (5.76%), Andhra Pradesh (5.26%), and Uttar Pradesh (5.16%).
- **Least Extent:** Mizoram (0.66%), Haryana (0.86%), Delhi (0.93%), Sikkim (1.05%), Nagaland (1.30%), and Meghalaya (1.34%).

Ramsar Wetlands in India

- The **Ramsar Convention (1971)**, *signed in the Iranian city of Ramsar,* is an international treaty for wetland conservation.
  - As of January 2025, **India has 89 Ramsar sites** covering an area of **over 13 lakh hectares.** Some notable sites include:
    - **Ashtamudi Wetland (Kerala):** A backwater system crucial for fishing and tourism.
    - **Sundarbans Wetland (West Bengal):** The largest mangrove forest in the world, home to the Royal Bengal Tiger.
    - **Loktak Lake (Manipur):** Known for its unique floating phumdis (vegetation mats).

Source: TH

Mains Practice Question

[Q] Discuss the importance of mainstreaming wetland conservation in contemporary environmental policy. Consider the ecological, economic, and social benefits of wetlands, and propose strategies for integrating wetland conservation into national and global frameworks.

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