Strengthening Wetland Protection

For Prelims: Wetlands, Wetlands (Conservation and Management) Rules, 2017, National Disaster Management Authority (NDMA), carbon sequestration, The National Action Plan on Climate Change, National Plan for Conservation of Aquatic Ecosystems (NPCA)

For Mains: National Wetland Inventory & Assessment, Significance of Wetlands, Challenges in Wetland Conservation

Source: HT

Why in News?

Recently, the **Supreme Court of India** in a PIL filed by activists, ordered the protection of approximately 30,000 additional **wetlands**, building upon the earlier protection of 201,503 wetlands as per a 2017 ruling in ***M. K. Balakrishnan Vs Union of India Case***.

- The court mandated that **states and Union Territories** complete the demarcation and ground truthing of these wetlands **within three months**.

What are Wetlands?

- **Wetlands** are defined as **areas of marsh, fen, peatland, or water (natural or artificial)** with water that is static or flowing, including marine areas with a **depth not exceeding six meters**.
    - **Wetlands are ecotone**, having land transitional between terrestrial and aquatic ecosystems.
- **Types of Wetlands:**
    - **Coastal Wetlands**: Found **between land and open sea,** not influenced by rivers.
        - Examples include **shorelines, beaches, mangroves**, and **coral reefs**, such as **mangrove swamps** in sheltered tropical coastal areas.
    - **Shallow Lakes and Ponds**: Areas of permanent or semi-permanent water with **little flow,** including vernal ponds, spring pools, salt lakes, and volcanic crater lakes.
    - **Marshes**: Periodically saturated, flooded, or ponded with water, characterised by **herbaceous (non-woody)** vegetation adapted to wet soil conditions.
        - They can be tidal or non-tidal.
    - **Swamps**: Dominated by **trees and shrubs**, swamps are primarily fed by surface water inputs and occur in freshwater or saltwater floodplains.
    - **Bogs**: Waterlogged peatlands **found in old lake basins** or landscape depressions, with most water coming from rainfall.
    - **Estuaries**: Areas where **rivers meet the sea**, transitioning from fresh to saltwater, rich in biodiversity.
        - Examples include deltas, tidal mudflats, and salt marshes.
- **Significance of Wetlands:**
    - **Natural Water Filters**: Wetlands act as **natural water filters by trapping sediments, breaking down pollutants,** and absorbing excess nutrients.

        - This process improves water quality, ensuring it is cleaner and safer for human consumption and supporting overall ecosystem health.
    - **Flood Prevention**: They absorb and store excess water, reducing flood risks and protecting homes and infrastructure.
        - The **National Disaster Management Authority (NDMA)** emphasizes that wetlands can significantly reduce flood risks in surrounding areas by up to 60%.
    - **Habitat for Wildlife**: Wetlands provide crucial habitats for many species of birds, fish, and other wildlife, including threatened species like the **Sarus Crane**.
        - According to the **National Wetland Inventory & Assessment by the Space Applications Centre (SAC)**, wetlands support **over 40% of the world's species**, despite covering **only about 6% of the Earth's surface**.
    - **Carbon Sequestration**: Wetlands store large amounts of carbon in their soil and vegetation, helping to mitigate climate change.
        - The **Indian Network for Climate Change Assessment (INCCA)** emphasizes that restoring wetlands can significantly contribute to India's climate goals by enhancing **carbon sequestration**, improving water quality, and reducing flood risks.
    - **Livelihoods:** Many communities depend on wetlands for their livelihoods through fishing, agriculture, and tourism.
        - Around one billion households in **Asia, Africa, and the Americas** rely on rice cultivation for their livelihoods. Wetland paddy rice is a staple for 3.5 billion people, providing 20% of global calorie intake.

What is the Status of Wetlands in India?

- As per satellite based observation by **Space Applications Centre (SAC)**, there are approximately 231,195 wetlands in India. However, **only 92 wetlands have been officially notified for protection under the Wetlands (Conservation and Management) Rules 2017 .**
- **Initiatives Taken for Conservation of Wetlands:**
    - **Ramsar Convention:** India joined the **Ramsar Convention** on **1st February 1982**, and has since **designated 85 wetlands**, covering **1,367,749 hectares**, as Wetlands of International Importance.
        - Recent ones are **Nanjarayan Bird Sanctuary**, **Kazhuveli Bird Sanctuary** (Tamil Nadu), and **Madhya Pradesh's Tawa Reservoir.**
        - **Montreux Record:** **Montreux Record** is a register of wetland sites under Ramsar Convention on the List of Wetlands of International Importance.
    - **Wetlands (Conservation and Management) Rules, 2017.**
    - **Action Plan of MoEFCC**
    - **National Plan for Conservation of Aquatic Ecosystems (NPCA)**
    - **Amrit Dharohar Capacity Building Scheme**

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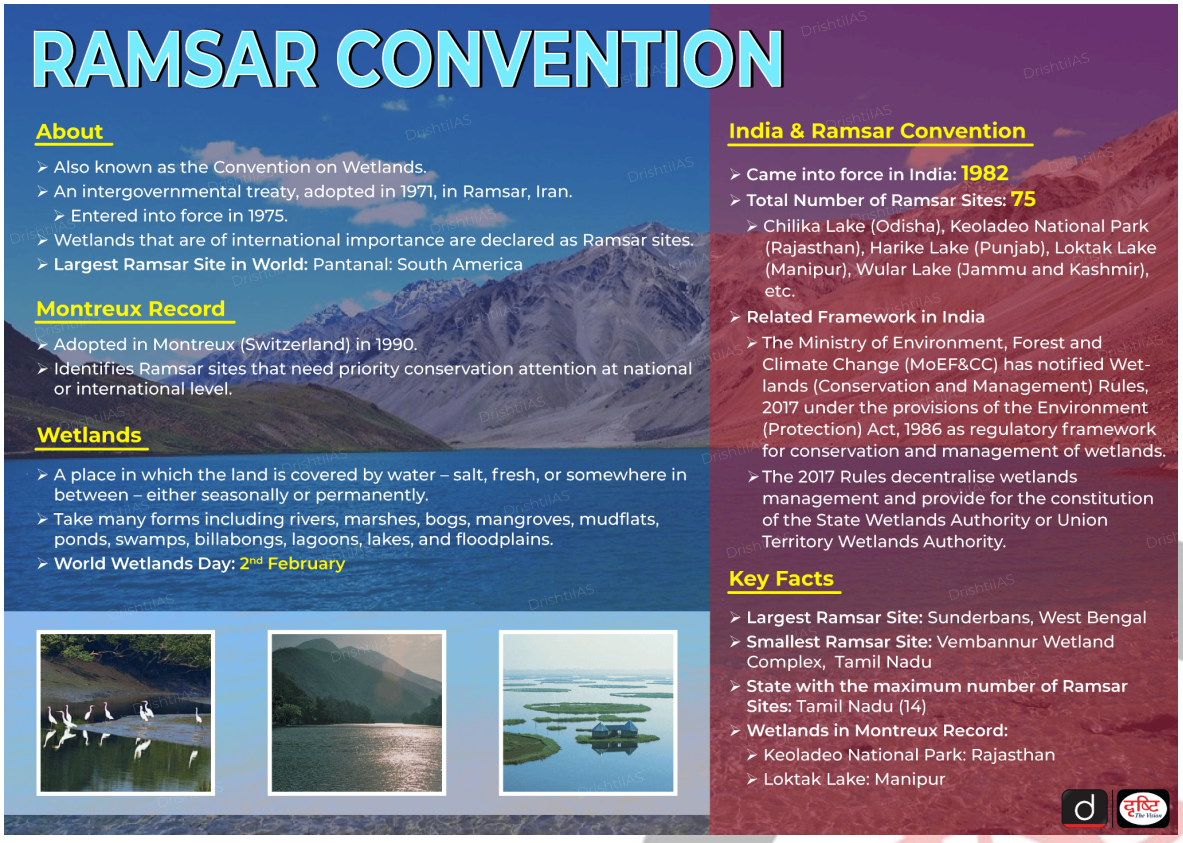

What are the Challenges in Wetland Conservation?

- **Inadequate Legal Framework:**
  - **Regulatory Challenges:** While there are laws in place, such as the **Wetlands (Conservation and Management) Rules, 2017,** enforcement is often weak. Many wetlands remain unprotected or improperly managed.
    - The **2022-23 water body census** shows India has 24,24,540 water bodies, with **55% privately owned**, **complicating conservation efforts**.
  - **Decentralization Issues:** The delegation of powers to state governments for wetland management has led to **inconsistencies in implementation and protection** across different regions.
- **Urbanisation and Land Use Changes:**
  - **Encroachment:** Rapid urbanization has encroached on wetlands, diminishing their size and ecological function. Cities like **Chennai and Mumbai** have seen significant declines.
    - Over the **past 30 years, India has lost 30% of its wetlands** due to urbanization, pollution, and agriculture.
- **Pollution and Water Quality Degradation:**
  - **Industrial Discharge:** Many wetlands like **East Kolkata Wetlands are subjected to pollution from industrial effluents**, agricultural runoff, and untreated sewage, which severely impacts their health and biodiversity.
  - **Invasive Species:** The introduction of invasive plant species can alter the natural ecosystem balance, further threatening native flora and fauna.
    - For example, **water hyacinth *(Eichhornia crassipes)*** is an invasive plant species that has spread across many water bodies in India
- **Climate Change Impacts:**
  - **Altered Hydrology:** Climate change affects rainfall patterns, leading to changes in water levels that can disrupt wetland ecosystems as seen in **Sundarbans**.
    - Wetlands are increasingly vulnerable to extreme weather events such as floods and droughts, which can degrade their ecological integrity.
- **Lack of Awareness:**
  - **Educational Gaps:** Many communities do not understand the benefits that wetlands provide, such as flood control, water purification, and habitat for biodiversity.

- There is a general lack of awareness among the public and policymakers about the ecological importance of wetlands, leading to inadequate conservation efforts.

Way Forward

- **Integration of Wetlands in Policies**:
  - **Emission Goals**: Incorporating **wetlands' blue carbon** can support the **conservation goals (India's net-zero emissions by 2070)** but is currently overlooked due to the lack of systematic inventories.
    - Incorporate carbon storage and GHG emissions from wetlands into national carbon stock and flux assessments.
    - Additionally, create a detailed inventory of peatlands to better understand and manage their carbon dynamics.
- **Effective Management of Wetlands**:
  - **Integrated Approach**: Address **unplanned urbanization in nearby wetlands** with integrated planning, execution, and monitoring.
    - Foster collaborations among ecologists, watershed management specialists, planners, and decision-makers.
- **Developing Synergy with Mega Urban Schemes**:
  - **Highlight Ecosystem Services**: Emphasize the role of wetlands in development policies, urban planning, and climate change mitigation.
    - Integrate sustainable wetland management into initiatives like the **Smart Cities Mission** and **Atal Mission for Rejuvenation and Urban Transformation**.
- **Enabling People's Participation**:
  - **Public Involvement**: The **Delhi Development Authority's Master Plan Delhi 2041** invites public comments to protect and develop an integrated network of 'green and blue assets'.
    - The **Swamini self-help group's** mangrove safari in **Mandavi creek**, **Maharashtra,** is a model for community-led conservation through ecotourism.

Drishti Mains Question

Q. Discuss the significance of the recent Supreme Court directive to protect additional wetlands in India.

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q. If a wetland of international importance is brought under the 'Montreux Record', what does it imply? (2014)

(a) Changes in ecological character have occurred, are occurring or are likely to occur in the wetland as a result of human interference.

(b) The country in which the wetland is located should enact a law to prohibit any human activity within five kilometers from the edge of the wetland.

(c) The survival of the wetland depends on the cultural practices and traditions of certain communities living in its vicinity and therefore the cultural diversity therein should not be destroyed.

(d) It is given the status of 'World Heritage Site.'

Ans: (a)

Mains

Q. What is wetland? Explain the Ramsar concept of ‘wise use’ in the context of wetland conservation. Cite two examples of Ramsar sites from India. **(2018)**