



## Protecting the Wetlands

This editorial is based on [“Many Virtues of Wetlands”](#) which was published in The Hindu BusinessLine on 15/06/2022. It talks about the manifold benefits that Wetlands offer to us and the threats that are leading to their degradation. It also suggests the measures that can be taken to protect them.

**For Prelims:** Climate Change, Greenhouse Gas Emissions, Wetlands and Ramsar Sites in India, Sustainable Development, World Wetlands Day 2022, Wetlands (Conservation and Management) Rules, 2017

**For Mains:** Wetlands - Significance, Threats, Impact of Degradation, Measures that can be taken to protect Wetlands

[Climate change](#) estimates for India indicate rising temperatures, sea-level, intensified rainfall and more catastrophic events. Conservation and wise use of wide diversity of inland and coastal **wetlands can be a powerful climate change response.**

However, according to the [Global Wetland Outlook by the Ramsar Convention](#), wetlands - one of the world's most economically valuable ecosystems and regulators of the global climate, are **disappearing three times faster than forests**. Yet, while a lot is known about their importance, the utility of wetlands is not fully understood.

### What do we Need to Know About Wetlands?

- **Wetlands** are **areas where water is the primary factor controlling the environment** and the associated plant and animal life. They occur where the water table is at or near the surface of the land, or where the land is covered by water.
  - They are the **lands transitional between terrestrial and aquatic eco-systems** where the water table is usually at or near the surface or the land is covered by shallow water.
- As per recent estimates, wetlands of **at least 2.25 ha in size makeup 4.86% of the country's geographical area** (15.98 million-hectares).

### Why are Wetlands Significant?

- **Assist in Fighting Against Climate Change:** Wetlands **assist in stabilising CO<sub>2</sub>** (Carbon dioxide), **CH<sub>4</sub>** (Methane), **N<sub>2</sub>O** (Nitrous oxide) and **Greenhouse Gas (GHG)** concentrations by **minimising climate and land-use-mediated GHG releases** and by boosting the potential to actively collect CO<sub>2</sub> from the atmosphere and sequester carbon.
  - Wetlands also help reduce the risk of disasters such as floods, by protecting coastlines.
- **Sequester Carbon:** Wetlands' **microbes, plants and wildlife are part of global cycles** for water, nitrogen and sulphur. Wetlands **store carbon** within their plant communities and soil

instead of releasing it to the atmosphere as carbon dioxide.

- Salt marshes and mangrove swamps are known to **accumulate soils vertically**.
- **Significance of Peatlands:** The term 'peatland' refers to the peat soil and the wetland habitats growing on the surface.
  - They account for just 3% of the world's land surface but **store twice as much carbon as forests**, thus playing a crucial role in **delivering global commitments on the climate crisis**, sustainable development, and biodiversity.
  - Peatlands - **one of the world's largest carbon reserves**, are sparse in India and require immediate attention.
- **Paradise for Migratory Birds:** Millions of migratory birds flock to India, and wetlands are critical to this annual phenomenon. **Ecologically dependent on wetlands**, migratory waterbirds connect continents, hemispheres, cultures, and societies through their seasonal movements.
  - A diversity of wetland communities **offers essential stopovers for birds**.
- **Cultural and Tourism Importance:** Wetlands also have a deep connection with Indian culture and traditions.
  - **Loktak Lake in Manipur** is revered as "Ima" (Mother) by locals, whereas **Sikkim's Khecheopalri Lake** is popular as the "wish fulfilling lake".
  - The north Indian festival of **Chhath** is one of the most unique expressions of the association of people, culture, water and wetlands.
  - The **Dal Lake in Kashmir, Khajjiar Lake in Himachal Pradesh, Nainital Lake in Uttarakhand** and **Kodaikanal in Tamil Nadu** are popular tourism destinations.

## What Initiatives have been Taken to Protect Wetlands?

- **At Global Level:**
  - **Ramsar Convention:** The convention envisages the **conservation and wise use of all wetlands** through local and national actions and international cooperation, as a contribution towards **achieving sustainable development** throughout the world. It **came into force in 1975**.
  - **Montreux Record:** It is a register of wetland sites on the **List of Wetlands of International Importance** where changes in ecological character have occurred, are occurring, or are likely to occur as a result of technological developments, pollution or other human interference.
    - It is **maintained as part of the Ramsar List**.
  - **World Wetlands Day:** It is celebrated every year on the **2<sup>nd</sup> of February** across the globe.
    - This day marks the date of the **adoption of the Convention on Wetlands** on 2<sup>nd</sup> February 1971 in the Iranian city of **Ramsar**.
    - On **World Wetlands Day 2022**, two new Ramsar sites **Khijadiya Wildlife Sanctuary** in Gujarat and **Bakhira Wildlife Sanctuary** in UP were announced in India.
- **At National Level:**
  - **Statutory Protection:** In India, the wetlands are regulated under the **Wetlands (Conservation and Management) Rules, 2017**.
    - The 2010 version of the Rules provided for a Central Wetland Regulatory Authority, but new Rules of 2017 replaced it with **state-level bodies** and **created a National Wetland Committee**, which functions in an advisory role.
  - **Action Plan of MoEFCC:** The Ministry of Environment, Forest and Climate Change (MoEFCC) supports the implementation of management **action plans for over 250 wetlands** under schemes such as National Plan for Conservation of Aquatic Ecosystems, Mangroves and Coral Reefs, and Integrated Development of Wildlife Habitats.
    - Towards her commitment under the Ramsar Convention, **India has designated 49 Ramsar sites**, and is likely to expand the list to 75 wetlands.

## What are the Threats to Wetlands?

- **Human Activities:** As per the **IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services)**'s global assessment, **wetlands are the most threatened ecosystem** due to human activities and global warming.

- The **National Wetland Decadal Change Atlas** recently published by the Space Application Centre indicates declining natural coastal wetlands (reducing from 3.69 million hectare to 3.62 million hectare in the last decade).
- **Urbanisation:** Wetlands near urban centres are **under increasing developmental pressure** for residential, industrial and commercial facilities.
  - Areas surrounded by urbanised wetlands are **expected to lead to a coastal squeeze** in the face of sea-level rise ultimately leading to wetland loss.
- **Climate Changes:** Climate change and linked drivers and pressures are highly likely to increase vulnerability of wetlands.
  - **Increased air temperature; shifts in precipitation;** increased frequency of **storms, droughts, and floods; increased atmospheric CO<sub>2</sub> concentration;** and **sea level rise** could also affect wetlands.
- **Maladaptation:** Wetlands are also exposed to the risk of maladaptation — the likelihood of adverse impacts on these ecosystems **in response to adaptation actions in other sectors.**
  - **For example, the construction of hydraulic structures** to increase freshwater storage in upstream stretches, may further accentuate the risks of salinisation in downstream coastal wetlands.

## What are/will be the Impacts of Degrading Wetlands?

- Degradation of wetlands **diminishes landscapes capability** to absorb and moderate floods, droughts, and storm surges.
  - **Floods in the Kashmir Valley** in September 2014 **and in Chennai** in December 2015 illustrate how wetland degradation can threaten lives.
- According to **UNESCO**, the threat to wetlands will have an **adverse impact on 40% of the world's flora and fauna** that live or breed in wetlands.

## What Should be the Way Forward?

- **Integration of Wetlands in Policies:** **India's emission pledges at the Glasgow summit** include **net-zero emissions** by 2070, reducing carbon emissions by one billion tonnes and reducing the carbon intensity of the economy to less than 45%.
  - **Including wetlands blue carbon** can assist towards this goal, which is presently overlooked in **absence of systematic wetland carbon inventories.**
  - **Integrating wetland conservation** and wise use **into disaster risk reduction policies** and programmes provides **“cost-effective” and “no-regrets” options.**
  - It is also essential to ensure that conservation action is not led by the role of wetlands in carbon cycles alone, instead **takes into account the full range of ecosystem services** and biodiversity values of these ecosystems.
- **Tackling GHG Emissions from Wetlands:** It is essential to have an effective management strategy for preventing increases in GHG emissions from wetlands.
  - A first step in this direction would be to **include carbon storage and GHG emissions from wetlands within the national carbon stock** and flux assessments. A **detailed peatland inventory** is also much needed.
  - Secondly, **climate risks need to be factored** in wetlands management. This can be done by **strengthened wetland monitoring systems** geared towards identification of climate risk indicators and trends thereof.
- **Effective Management of Wetlands:** To counter unplanned urbanisation and a growing population, **management of wetlands has to be an integrated approach** in terms of planning, execution and monitoring.
  - **Effective collaborations among academicians and professionals,** including ecologists, watershed management specialists, planners and decision makers for overall management of wetlands.
  - **Spreading awareness by initiating awareness programs** about the importance of wetlands and constant **monitoring of wetlands for their water quality** would provide vital inputs to safeguard the wetlands from further deterioration.

Despite their economical, environmental and cultural significance, the wetlands in India and across the world have been disappearing at a rate faster than that of forests. Discuss the key threats faced by the wetlands and suggest measures that can be taken to protect them.

### UPSC Civil Services Examination, Previous Year Questions (PYQs):

**Q. Consider the following pairs: (2014)**

	<b>Wetlands</b>	<b>Confluence of rivers</b>
1.	Harike Wetlands	Confluence of Beas and Satluj/Sutlej
2.	Keoladeo Ghana	Confluence of Banas National Park and Chambal
3.	Kolleru Lake	Confluence of Musi and Krishna

**Which of the above pairs is/are correctly matched?**

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**Ans: (a)**

**Q. The scientific view is that the increase in global temperature should not exceed 2°C above preindustrial level. If the global temperature increases beyond 3°C above the pre-industrial level, what can be its possible impact/impacts on the world? (2014)**

1. Terrestrial biosphere tends toward a net carbon source.
2. Widespread coral mortality will occur.
3. All the global wetlands will permanently disappear.
4. Cultivation of cereals will not be possible anywhere in the world.

**Select the correct answer using the code given below:**

- (a) 1 only
- (b) 1 and 2 only
- (c) 2, 3 and 4 only
- (d) 1, 2, 3 and 4

**Ans: (b)**