# INDIA’S DIMINISHING WETLANDS AND SUSTAINABLE DEVELOPMENT GOALS AND LAW

BY

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**1. India’s Diminishing Wetlands**

This Research paper aims to analyse the relationship between landscape and the dynamic nature of the wetlands. Wetlands are constantly adjusting to the threats that exist within them and in the surrounding countryside. It is important to recognize the degree to which specific disruptions influence wetlands when evaluating perturbance and effects, and when considering options for wetland security. They're among the world's most vulnerable species. Wetlands are rapidly experiencing many anthropogenic stresses in India, just as elsewhere. Thus the rapidly expanding human populations, large-scale land-use shifts, increasing development projects, and exploitation of watersheds have all caused the country's wetland infrastructure to decrease significantly. These have caused hydrological disturbances, pollution, and its effects. Degradation in habitats has also culminated in unsustainable levels of farming and fishing practices. This paper highlights the critical role of wetlands in relation to the SDGs, and the importance of conserving, using wisely and restoring this precious resource.

**India’s Diminishing Wetlands**

**Introduction**

“A wetland is a place where the land is covered by water, either salt, fresh, or somewhere in between.” Marshes and ponds, the edge of a lake or ocean, the delta at the mouth of a river, low-lying areas that frequently flood—all of these are wetlands. Wetlands are known to have special biological features that provide civilization with various products and services. Wetland habitat resources primarily include irrigation water; fisheries; forest items that are not timber; water supply; and recreation. Major services include carbon sequestration, flood control, groundwater recharge, nutrient removal, toxic retention, and biodiversity maintenance. Over time, the Indian countryside has contained fewer and fewer natural wetlands. Wetland destruction is a concern because it is one of the most productive habitats on the planet. Sometimes they support high animal concentrations— including primates, birds, reptiles, and invertebrates — and act as nurseries for many of those animals. Wetlands also endorse rice production, which is a staple of half the world's population's diet and they provide a variety of human-friendly ecosystem services including water filtration, hurricane safety, and flood control. The current loss rates in India can lead to serious consequences, where 74% of the human population is rural and many of these people are resource-dependent.

 Healthy wetlands are important for sustainable food production in India, and for human and livestock supply of potable water. They are also necessary for India's diverse populations of wildlife and plant species to continue to exist; wetland depends on a large number of endemic species. Most of the issues concerning the wetlands in India are linked to the human population. India is home to 16 percent of the world's people, yet it occupies just 2.42 percent of the earth's surface. It is quite impossible to recover such drained wetlands once these areas are used by non-wetland use. Hence, the demand for wetland products (e.g., water, fish, wood, fiber, medicinal plants, etc.) will increase with an increase in population.

**Reasons for Wetlands Depletion**

1. One of the main reasons for this is the agricultural sector. Unlike in the past, when small areas of land were used to grow crops for families and local communities, agriculture is now a big business that large companies can operate and requires mass production of food that can be sold out quickly for a profit. To grow more edible products, extra land is required and more land has to be cleared to meet those needs.

2. To human homes also a vast majority of natural habitats are destroyed We plan to clear land for large buildings and make room for profitable attractions. Habitats are not always lost so that human beings can use the land to live. These are also demolished so that we can use their products to keep us comfortable For instance, the trees are used to produce different paper products, and wood is also used to make furniture and miscellaneous items.

3. Habitats are also lost to make room for more companies and to satisfy giant corporations ' demand. When you think about how many stores, houses, and various business locations are in nature, then you know that these places consume a large amount of land. Many of these are now standing where once only animals and natural habitats existed.

4. Swamps and marshes are examples of wetlands. Wetlands are land areas of soil that are covered with water. Wetlands have their own ecosystem and are extremely diverse. Unlike the forests where we cut down trees and make the land more compact from above, we fill wetlands to cover them up so that we can build things on top of them.

**Solutions for Habitat Loss and Destruction**

1. Combat habitat loss by preserving natural resources and learning how to use them in a way that does not require such frequent destruction of habitats. Regulation is equally important. Plans and rules should be set to legalize how much of a given area can be altered for the benefits of humans.

2. Along with education, awareness should also be raised. Observers should make it a point to assist reporting professionals by safely documenting the process of habitat destruction whenever the opportunity arises. Videos and photos help to visually present the unfortunate circumstances that environmental destruction can create, evoking emotional responses that will inspire others to take action to protect natural habitats.

3. As quickly as humans can destroy natural habitats, we should be just as willing to put forth the effort to rebuild and attempt to replace what is lost. We can assist in funding the creation of areas that cannot be saved. Efforts have been put in place to create these sanctuaries by environmentalists all over the world to protect species from extinction.

4. Flood control - Wetlands playing an important role in flood control help to lessen the impacts of flooding by absorbing water and reducing the speed at which floodwater flows. During periods of flooding, wetlands trap suspended solids and nutrient load. Thus, streams flowing into rivers through wetlands will transport fewer suspended solids and nutrients to the rivers than if they flow directly into the rivers.

5. Flood zone mapping - Satellite data are used for interpretation and delineation of flood-inundated regions, flood-risk zones. Temporal data helps us to obtain correct ground information about the status of ongoing conservation projects.

6. Inventory and monitoring of irrigation and cropping pattern

Remote-sensing data paves way for an economic methodology for inventorying, monitoring, and management of water bodies due to improving spatial, spectral, and temporal resolution. These inventorying data are used as inputs for the formulation of conservation and management plans for development of land and water resources.

7. Water quality analysis and modelling

Remote sensing data is used for the analysis of water quality parameters and modelling. Water quality analysis and study is done by using the relationship between reflectance, suspended solid concentration, and chlorophyll-a concentration.

**International Conventions –**

**The Ramsar Convention on Wetlands**

The Convention on Wetlands of International Importance is the first modern treaty between nations aimed at conserving natural resources. The signing of the Convention on Wetlands took place in 1971 at the small Iranian town of Ramsar. Since then, the Convention on Wetlands has been known as the Ramsar Convention.

The Ramsar Convention's aims are to halt the worldwide loss of wetlands and to conserve, through wise use and management, those that remain. This requires international cooperation, policymaking, capacity building, and technology transfer.

The Ministry of Environment, Forests and Climate Change has gone and done just the opposite, after ignoring repeated directions from the Supreme Court to notify stricter rules to protect the country's wetlands. This released the Wetlands (Conservation & Management) Regulations, 2017, on September 26–repealing the older regulations from 2010. The new rules simply provide a framework for legalizing wetland destruction. The new rules will facilitate the legal exploitation and development of wetlands such as real estate, industrial sites, and garbage dumps if left unchallenged. The new wetland rules will have disastrous consequences, especially since only bad environmental laws are diligently enforced.

The **Montreux Record**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.

a) This list implies 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 kilometres 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

India became a contradicting party to the Ramsar Convention in October 1981 and designated Chilika Lake (Odisha) and Keoladeo National Park (Rajasthan) as its first two Ramsar Sites. Currently, India has 26 Ramsar Sites.

**Sustainable Development Goal –**

Just as wetlands link and regulate water throughout the landscape, from the mountains to the sea, they are also an indispensable link within the SDGs.

*Goal 15 – Life on Land - Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss*

Human life depends on the earth as much as the ocean for our sustenance and livelihood. Plant life provides 80 percent of our human diet, and we rely on agriculture as an important economic resource and means of development. Forests account for 30 percent of the Earth’s surface, providing vital habitats for millions of species and important sources for clean air and water; as well as being crucial for combating climate change.

The objective of the Sustainable Development Goals is to protect and restore the use by 2030 of terrestrial ecosystems such as forests, wetlands, drylands and mountains. This 2030 Sustainable Development Agenda provides an integrated roadmap for a sustainable future. The plan is put into practice into 17 objectives, each with a set of specific targets Promoting viable forest management and stopping deforestation is also crucial to reduce the impact of climate change. Urgent action must be taken to reduce the loss of natural habitats and biodiversity which are part of our common heritage. Conserving forests and other ecosystems are one of 17 Global Goals that make up the 2030 Agenda for Sustainable Development. An integrated approach is crucial for progress across multiple goals.

Today we are seeing unprecedented land degradation, and the loss of arable land at 30 to 35 times the historical rate. Drought and desertification are also on the rise each year, amounting to the loss of 12 million hectares and affects poor communities globally. Of the 8,300 animal breeds known, 8 percent are extinct and 22 percent are at risk of extinction.

The multiple benefits and services provided by wetlands are essential in achieving the Sustainable Development Goals (SDGs). The Ramsar Convention’s fourth Strategic Plan (2016-2024) identifies four overarching goals and 19 specific targets that directly support the achievement of both the SDGs as well as the Aichi Targets set up by the Convention on Biological Diversity.The integrated nature of the Sustainable Development Goals, Aichi Targets, and the Ramsar Strategic Plan calls for an increased integration across existing multilateral agendas.

**Legal framework – India**

There are no separate legal provisions for wetland protection in India, but it is indirectly influenced by the other provisions. These include: Indian Fisheries Act 1857, Indian Forest Act 1927, Wildlife (Protection) Act 1972, Water (Prevention and Control of Pollution) Act 1974, Territorial Water, Continental Shelf, Exclusive Economic Zone and other Marine Zones Act 1976, Water Cess Act 1977, Maritime Zone of India (Regulation and fishing by foreign vessels) Act 1980, Forest (Conservation) Act 1980, Environmental (Protection) Act 1986, Wildlife (Protection) Amendment Act 1991, Biodiversity Act 2002, and Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006. The term wetland was not used specifically in any of these legal instruments.

## Steps taken by the Government

Constructed wetlands are a viable option for treatment of municipal wastewater. A well-designed constructed wetland should be able to maintain the wetland hydraulics, namely the hydraulic loading rates (HLR) and the hydraulic retention time (HRT), as it affects the treatment performance of a wetland. However, one of the major constraints to field-scale constructed wetland systems in India is the requirement of a relatively large land area that is not readily available. Thus, for Indian conditions, batch-fed vertical sub-surface flow wetlands that require just about 1/100th of land area and 1/3rd HRT than the surface flow systems have been suggested.

**Policy support**

The policysupport for wetland conservation in India was virtually non-existent till the early part of 2000s.The action on wetland management was primarily influenced by the international commitments made under Ramsar Convention and indirectly through an array of other policy measures, such as National Conservation Strategy and Policy Statement on Environment and Development, 1992; Coastal Zone Regulation Notification, 1991; National Policy and Macro level Action Strategy on Biodiversity, 1999; and National Water Policy, 2002.

As a signatory to the Ramsar Convention on Wetlands and recognizing the importance of protecting such water bodies, the Government of India identified two sites, i.e. Chilika lake (Orissa) and Ketolide National Park (Rajasthan), as Ramsar Wetlands of International Importance in 1981. Thereafter in 1985–1986, National Wetland Conservation Programme (NWCP) was launched in close collaboration with concerned State Governments.

Initially, only designated Ramsar Sites were identified for conservation and management under the Programme. Several measures were taken to arrest further degradation and shrinkage of the identified water bodies due to encroachment, siltation, weed infestation, catchment erosion, agricultural run-off carrying pesticides and fertilizers, and wastewater discharge. The National Water Policy, 2012 also recognizes the need for conservation of river corridors and water bodies (including wetlands) in a scientifically planned manner. Further, the policy emphasizes that the environmental needs of the aquatic eco-system, wetlands, and embanked flood plains should be recognized and taken into consideration while planning for water resources conservation.

Based on the directives of National Environment Policy, 2006, and recommendations made by the National Forest Commission, Central Government notified the Wetlands (Conservation and Management) Rules, 2010. As per the provision under Rule 5 of the wetlands rules, the Central Wetlands Regulatory Authority (CWRA) has been constituted under the chairmanship of Secretary, Environment and Forest. The Expert Group on Wetlands (EGOW) has also been constituted for examining management action plans of newly identified wetlands. The rules put restrictions on the activities such as reclamation, setting up industries in vicinity, solid waste dumping, manufacture or storage of hazardous substances, discharge of untreated effluents, any permanent construction, etc. within the wetlands. It also regulates activities (which will not be permitted without the consent of the State government) such as hydraulic alterations, unsustainable grazing, harvesting of resources, releasing treated effluents, aquaculture, agriculture, and dredging.

However, only selected wetlands based on the significance of the functions performed by them for the overall well-being of the people are being regulated under these rules. Lack of regulations, especially of wetlands below 2500 m, totally neglects the management and conservation of some of the crucial smaller wetlands in urban and rural areas. Further river channels (included as wetlands under Ramsar Convention definition) and irrigation tanks are excluded from protection status under the Wetland Rules.

Thus, despite the recent national legislation on wetland regulation, a majority of the wetlands continue to be ignored in the policy process.

However, it should be noted that the latest National Wetland Atlas, which is prepared by SAC, ISRO with support from the Ministry of Environment and Forest, does include tanks in the wetland database. The rules limit the involvement of the community and local stakeholder groups in the management of the wetlands. This goes against the recommendation 6.3 of Ramsar Convention (relating to encouraging active and informed participation of local and indigenous people at Ramsar listed sites and other wetlands and their catchments), made during the Sixth Conference of Parties in 1996.

Given that only a small fraction of total wetlands have been taken up for conservation and growing threat to their ecosystem, it is essential that other ecologically important wetlands be identified and protected. Further, it is important to regulate large scale land-use changes in the catchment area of wetlands and also prevent them from getting polluted in order to maintain their hydrological and ecological integrity. For achieving the second objective, an effective and proper water quality monitoring plan needs to be devised. India is also a signatory to the Ramsar Convention on Wetlands and the Convention on Biological Diversity.

**Conclusion**

In India, wetland ecosystems support diverse and unique habitats and are distributed across various topographic and climatic regimes. They are considered to be a vital part of the hydrological cycle and are highly productive systems in their natural forms. Wetlands not only support large biological diversity but also provide a wide array of ecosystem goods and services. In India, wetlands offer multiple services for tourism, including drainage, domestic water supply, freshwater fisheries, and energy. They also have an important role to play in groundwater recharge, flood control, carbon sequestration, and pollution reduction. Wetland management has, however, received inadequate attention on the agenda for the national water sector. Due to which many of the urban and rural wetlands are subjected to anthropogenic pressures, including land-use changes in the catchment; industrial and household pollution; encroachments; tourism; and over-exploitation of their natural resources.

Furthermore, the institutional aspects of wetland management (policy, rules, regulation, and organizations) have received limited attention and have only recently attracted the imagination of research scholars. In order to achieve stronger and systematic management strategies for wetlands experiencing increasing stress from a number of anthropogenic and climatic influences, more work focus is thus needed on the environmental, socio-economic, and structural factors influencing the state of wetlands and their use.

India has an abundance of wetland ecosystems supporting diverse and unique habitats. Such wetlands offer various ecological goods and services, but are under tremendous stress as a result of rapid urbanization, industrialization, and intensification of cultivation, evidenced by the shrinking in their scale and the deterioration in their hydrological, economic and ecological roles. This paper reviews India's wetland wealth in terms of its geographic distribution and extent, the ecosystem benefits it generates, and the various stresses it is exposed to. The paper further addresses the efforts being made to protect these fragile ecosystems, describes the structural void, and recommends focus areas where greater action is required to devise effective management plans for these active processes.

**Suggestions**

The solutions for the depletion of wetlands have already been stated before. In addition to that, the citizens of the country should be made aware of the consequences this depletion has. The people do not realize and continue their act which in indirect or direct ways affects the natural habitat. In a few years, we won’t have any wetland left which would be a great problem for future generations thus contradicting the whole meaning and aim of sustainable development goals.

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