

## Threatened wetlands of Jammu region: concerns and way forward

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### Abstract

The Jammu region in the state of Jammu and Kashmir, because of its unique climatic conditions supports a number of wetlands. These wetlands act as productive ecosystems supporting a great variety of flora and fauna. They also act as a source of attraction for tourists. However, these wetlands are now at the brink of extinction due to a lot number of factors which include invasions, encroachment, pollution and human interference. Hence, the present article throws light on the urgency of various measures required to save these rich wetlands from the threat of overexploitation and hence extinction.

**Keywords:** wetlands, Jammu, encroachment, threats and extinction

### Introduction

One of the most productive ecosystems on earth are constituted by Wetlands. As per the U. S. Fish and wildlife service (1979), “wetlands are lands transitional between terrestrial and aquatic ecosystems where the water table is usually at or near the surface or the land is covered by shallow water”. The wetlands may be dominated by trees, shrubs or herbaceous vegetation. They are usually fed by precipitation or groundwater, with the pH of their water ranging from very acidic to alkaline. They are regarded as the Kidneys of planet Earth which fulfill a wide range of essential functions required for the sustenance of life.

Jammu region of our state J&K abounds in wetlands. The major wetlands of Jammu region include Gharana, Surinsar-Mansar, Pargawal, Kukarian, Nanga and Sangral- Asachak. They have great socioeconomic and ecological importance for mankind along with regional and religious significance. They act as life support system of our state as millions of people depend on wetlands for herding cattle, catching fish, and farming. Also the unique assemblage of aquatic and marsh biodiversity make them a storehouse and breeding ground for supremely good varieties of birds, mammals, reptiles, amphibians, fish and invertebrate species inhabit these wetlands. But with the increase in urbanization, water pollution, deforestation, road building, over exploitation for meagre commercial gains and so on, the existence of these serene ecotone zones is facing threat of extinction. However, recent efforts have accorded the status of Ramsar site to Surinsar- Mansar wetland. With Ramsar site we mean a wetland site that is designated of international importance under Ramsar convention. The Ramsar convention is an international treaty which aims at the conservation, sustainable use and maintenance of ecological character of wetlands. The present article provides information about various degrading wetlands of Jammu region and emphasizes the need of efforts on part of Government and local people to save these enigmatic ecosystems.

### General importance of Wetlands

- Wetlands are home to thousands of animals and plants, including many rare and critically endangered species.
- Their ability to promote vegetation growth lessens soil erosion and buffers water flow, providing a steady flow of water downstream while reducing the severity of disasters such as landslides, floods and droughts.
- Wetlands provide significant aesthetic, educational, cultural and spiritual benefits and a vast array of opportunities for recreation and tourism.
- Another important role is the regulation of global climate change through sequestering and releasing a major proportion of fixed carbon in biosphere.

### Attributes of wetlands under Jammu region

- Only two categories namely waterlogged and lakes and ponds are found in our state. The wetlands in Jammu region constitute app. 20.65 % of total geographic area (Source: wetland and water bodies atlas of Jammu and Kashmir). Jammu region has more of waterlogged area.
- Very high levels of turbidity is found in wetlands of Jammu region due to their close location to agricultural areas where sediments contribute to the turbidity.
- Pre-monsoon recession is very high in Jammu (99%).

### Major wetlands of Jammu region

**Surinsar-Mansar** has been declared the Ramsar site on 8<sup>th</sup> November, 2015 with the Ramsar site no. 1573. This wetland is revered through ages due to its religious importance and scenic beauty. It comprises of freshwater composite lake in semi- arid Panjab plains, adjoining the Jhelum basin with catchment of sandy conglomeratic soil, boulders and pebbles. Surinsar is rain fed without permanent discharge and Mansar is primarily fed by surface run-off and partially by mineralized water through paddy fields with inflow increasing in rainy season. (Source-JK- Envis centre)



Fig 1

### A view of Mansar wetland

It is rich in micronutrients which makes it an attractive habitat, breeding and nursery ground for migratory waterfowls like *Fulica atra*, *Podiceps nigricolis*, *Aythya fuligula*, *Anas* spp. etc. Migratory breeding birds visiting this wetland during winters include Night Heron, Grey Heron, Indian Coot, Indian White Wagtail, Rufous Black Shrike, Darter, Large Cormorant and Indian Golden Oriole. Fish spp. like *Cyprinus carpio*, *Channa* spp, *Puntius conchoniuis*, *Rasbora rasbora*, *Danio rerio* and *Trichogaster fasciatus*. Fishing is not encouraged due to religious reasons. The wetland also supports CITES- IUCN Redlist 2003 listed two species of soft shelled turtles viz. *Lissemys punctata* and *Trionyx gangeticus*. Also, this wetland nurtures a unique new fresh water cnidarian medusa species *Mansariella lacustris* (Reported for the first time by a team of Zoologists namely Prof. YR Malhotra, PL Duda and MK Jyoti). A number of trees like *Pinus roxburgii*, *Acacia nilotica*, *Mangifera indica*, *Calotropis*, *Morus nigra*, *Solanum nigrum*, *Adhatoda vesica* and ornamental plants like *Vinca rosea*, Bottle brush, *Thevetia*, *Tradescantia* etc. add to its beauty.



Fig 2

**Gharana wetland** in R.S.Pura sector is located about 27 kms away from Jammu city, close to the International border with Pakistan. It has been the winter destination for Siberian birds. It is known as “the bird- watcher’s paradise” as it acts as an abode for about 170 spp. of resident and migratory birds (Ghar-ana- meaning come home). Few flagship species include Bar headed Geese, Grey lag Goose, Shelduck, Pochard, Gadwill, Pintail duck, Mallard, Spoonbills, Common

cranes, Wooly necked storks, Wigeon, Whistling Teals etc. It has the land most suitable for Basmati cultivation and thus, called as the “city of white gold”.



Fig 3

### Migratory birds in Gharana wetland

Kukdian wetland is located downstream of river Tawi, about 10-20 kms away from Jammu, near border with Pakistan. This wetland is comparatively in better position but are fast encroached by the locals and nomads. Barheaded Geese, Brahimney ducks along with other migratory birds are the regular visitors.

Pargwal wetland is a group of islands and small streams downstream of river Chenab in Akhnoor tehsil about 50 kms away from Jammu district. This wetland is not much known to the citizens of Jammu and hence is in better condition. 3000 to 5000 Bar headed Geese and other migratory birds visit this wetland every year.

### Threats to these Wetlands

Various major threats suffered by these wetlands include:

#### Encroachment

Illegal occupation of wetland areas by unauthorized persons has resulted in the shrinking of these wetlands. The Gharana wetland has reported a very disappointing picture of shrinkage from the original area of 97.17 kanals to only 15 kanals. Reports reveal that local people have made the wetland a garbage dumping ground and then they grab over the land. The major threat to this wetland is from agricultural field expansion by farmers which is consuming the natural wetland.



Fig 4



## Agricultural encroachment in Gharana wetland



Fig 5

## Agricultural wastes in Gharana wetland



Fig 6

## Encroachment in Mansar wetland (residential areas)

### Pollution

Various sources adding to the pollution of these wetlands include agricultural wastes, faecal matter, sewage from drains, solid waste from households, construction works, garbage from cities. Bathing and washing practices causes nutrient enrichment accelerating algal blooming and increased BOD. These pollutants make these wetlands unsuitable for feeding and swimming of fish and bird fauna of these wetlands. It also results in mass killing due to the spread of diseases and unhygienic conditions.

### Hydrologic activities

Construction of canals and diversion of streams and rivers for irrigation in nearby fields has significantly degraded the wetlands of these particular areas.

### Farming

People in the adjoining areas are mostly the farmers. The use of fertilizers and manures in fields ultimately finds way to the wetlands and result in eutrophication.

### Loss of fauna

Farmers usually kill and scare the flying wealth of these wetlands as they claim that the birds destroy their crops. However, these birds form the rare migratory species which add crown to the beauty of our state.

## Deforestation

Cutting of trees in the adjoining areas of wetlands for agriculture purposes or for timber extraction causes denudation, thus enhancing the silting process.

## Climate Change

Increased air temperature, shifts in precipitation, increased frequency of droughts and floods, increased carbon dioxide concentration also affects wetlands.

## Way forward

The conservation of these wetlands requires coordinated approach both by local residents as well as the State Government. Wetlands are not delineated under any specific administrative jurisdiction. The primary responsibility for the management of these ecosystems lies with the Ministry of Environment and Forests. Although some wetlands are protected after the formulation of wildlife protection act, still an effective coordination between different ministries, energy, fisheries, revenue, agriculture and water resources is essential for protection of these ecosystems. Various protection measures which could work in this respect could be:

### Efforts on part of Government:

- A number of wetlands which are biologically and economically important but have no legal status must be brought under special legislation. An appropriate forum which could resolve the conflict on wetland issues must be set up.
- Relevant ministries must allocate appropriate funds towards the conservation of these ecosystems.
- While formulating any national strategy, researchers must be consulted to understand the limnological, physico-chemical dynamics of these ecosystems.
- Organisation of new protected wetland areas (Ramsar sites) in our state.
- Building awareness among general public, educational and corporate institutions must be created for achieving sustainable success of these wetlands.
- Restoration of encroached areas of wetlands should be done.
- Fencing is one of the simplest ways to protect the wetland areas having excessive human interference. It is highly potent in case of those wetlands along streams and lakes where degradation directly impacts water quality.
- Establishment of native vegetative buffer or greenbelt around the wetlands which serves to uptake the excessive nutrients and slow the velocity of overland flow. The native vegetation adjacent to wetland areas will also meet the need of nesting and feeding sites of rare bird species which were destroyed by human encroachments.

### Efforts on Parts of local residents

- Report illegal activity such as filling, clearing or dumping in wetlands to the Govt. authorities.
- Prevent seepage of septic systems into the wetlands which may be polluting the wetlands.
- People living nearby the wetland areas or those who have

encroached over the wetlands could build nest boxes for the birds who have lost their habitat.

### **Conclusion**

These wetlands of Jammu region are actually the Nature's gift to we people and God's gift to the birds who fly thousands of miles every year to visit these wetlands. These wetlands also provide an excellent opportunity for the development of eco-tourist spots, bird watching grounds, birding fairs which fetch huge income to our state. But it is a bad story that these wetlands have not received any proper attention. All these wetlands are notified under J&K Wildlife Act and are recorded as important birding sites by BNHS but the apathy lies in the non serious attitude of Government, the Wildlife Department and non-cooperation from the locals. Thus, there is a need of synergized efforts by people living along the wetlands, Governmental and non-governmental groups to prevent their degradation and help them take refreshing breaths. This will help not only in reviving our ecosystem but also boost our state's economy.

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