



Research Paper

CAUSES FOR THE LOSS AND MANAGEMENT OF THE MALANGPORA WETLAND AT AWANTIPORA JAMMU AND KASHMIR

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Abstract

Wetlands in the Kashmir are unique ecosystem that supports rich biodiversity. They are favourite places of not only resident birds but also the migratory birds. Despite the part of the biosphere wetlands in the Kashmir are reducing to great extent especially in the South Kashmir as the lack of governmental attention. Mallangpora Wetland in South Kashmir is an endangered wetland at the brim of extinction. Lack of environmental education to the planners who have planned developmental projects against the interests of the wetland. The planners doesn't care potential impacts of the developmental projects on the environmental system. In Kashmir various developmental projects like railway track, railway station, roads, airport etc. have destroyed the Malangpora wetland to the potential that a major portion of the wetland has lost its quality of providing feeding and breeding habits. Other factors related with anthropogenic activities like domestic wastes, sewage, garbage agricultural runoff, etc. However, to ensure wise use and sustainable development of the wetland basic strategy pays emphasis on three key issues, viz co-ordination, training and awareness campaigns. For successful management action plan for wetland conservation some aspects protection, peoples support, research, agencies and legislation need to address in appropriate manner to sustain and restore wetland, maintain ecological character, and stop conversion of wetland for any other use and rehabilitation of degraded wetland.

Key words: Malangpora wetland, Developmental projects, Coordination, Training, Awareness.

INTRODUCTION

The U.S. Environmental Protection Agency defines wetland as “areas that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions”. They are also called as “kidneys of the landscape “and they

act as a sponge to absorb the water especially during floods. A transition zone between land and water bodies wetlands have socioeconomic importance that made wetlands globally a matter of great ecological interests. Besides, socioeconomic and ecological importance to mankind wetlands also play important role in oxygen & nutrient cycle, water storage during floods, retains ground water and maintains local climatic conditions. However, wetlands have been considered as wastelands associated with diseases and danger which certainly are not so. Ignoring their importance these habitats are considered as obstacle and were drained, filled and degraded for economic gains. Wetlands depend upon the upstream conditions and changing the hydrology of the streams the water level of the wetlands has been reduced to an extent that some submerged lands have become marsh lands. As the significance of the wetlands have not been fully understood both by Government and people the migratory birds are being threatened by hunting and disappearance of their feeding and breeding grounds due the anthropogenic activities like urbanization, Developmental constructions,(roads, railway tracks, etc.) and expansion of agricultural fields and siltation.

The Kashmir valley known for water bodies has a large number of wetlands and some are world famous like Dal lake, Wular Lake, Anchar Lake, Hokarsar, Haigam etc. However, some of the wetlands especially in the south Kashmir are still unexplored and face serious threat by human beings. Malangpora wetland one of the important wetland hosts a number of avian species both resident and migratory birds. The wetland spreads around an area of 1.5 sq. km, locals claim that wetland was once 3 sq. km. however, lack of knowledge about wetlands shrunked the wetland to an extent that the south of the wetland extincted while as other part has been fragmented into parts. The Baramulla-Banihal railway track is passing through the wetland destroyed the natural habitat of flora and fauna The unplanned construction of railway track and railway station is main reason for extinction of the wetland, while some other reasons that are threat for the existence of wetland are urbanization and expansion of agricultural practices .Wetland once heaven for migratory birds needs urgent management plans for its development. Appropriate management strategy by undertaking targets like demarcation of the wetland,creation of buffer zones,awareness on wetland ecosystem etc. may maintain the functions and characters of the wetland.

MATERIALS AND METHODS

Study Area

The wetland is in the Pulwama district merely 5 kilometers away from the Awantipora located at the latitude, altitude, and longitude of 33-53' 58, 74-58' 55 & 1600 respectively. The wetland is locally called "Rakh" spreaded at an area of around 1.5 sq.km and has depth 0.2-0.4 mt. The wetland is permanent and enjoys a submediterranean climate. It is a marsh type of wetland fed by a small canal, however, major source of the water during summer is agricultural runoff. The nutritious agricultural runoff causes the abundant growth of macrophytes like *Azolla* spp. *Typha angustata*, *Lemna minor*, etc. The Baramulla-Banihal railway track divides the wetland into two parts one smaller towards west and one larger towards east and east part of the wetland is further bifurcated by a small link road into two parts with the same directions. A local resident said that the wetland was once around 3 sq. km in area spreaded to railway station and was divided by Awantipora-Pulwama road. He further said that the wetland provides habitat to a large number of resident and migratory birds.

Methodology

The study area being divided into parts by developmental projects and all parts of the wetland was observed from all sides. During the observation, keen attention was taken towards the hazards for the wetland. The thorough discussions and input of local residents were made whenever visit to the study area. Besides, this available research was reviewed to find out previous history with the management plans. However, it was found that no any basic step was taken from government or any environmental organization for the conservation of the wetland.

CAUSES FOR THE LOSS OF THE WETLAND

We focused mainly on developmental projects as many of the developmental projects are involved for loss of natural habitates and also because they can have a potentially significant negative impact on wetlands by fragmenting the area and noise of military air port. Unplanned and wrongly designed developmental projects caused destabilization of the natural environment that is evidenced by construction of railway station in the wetland. Wetlands reaches its highest level and its greatest risk in Kashmir due to the lack of knowledge regarding environment.

Unplanned construction includes residential colonies have damages the wetlands of the state and paper drawn up by the state's revenue department is also responsible for loss of wetlands.

I. Developmental Projects

a. Construction of railway station. The railway station in Malangpora Awantipora is located in the south of the wetland with an elevation of 1591mts. The construction of railway station in the south of the wetland not only destroyed a portion of the natural wetland but also disturbs the whole area of the wetland. The wetland once a habitat to a number of fauna and flora is converting into a barren land and this kills most of the organism. The loss of the habitat directly or indirectly preventing the migratory birds to visit the wetland.

The conversion of the wetland formulated the undisturbed location, a busiest area and the most of the organisms also left the habitat.

The wetland provides a suitable breeding and feeding place to number of birds that are sensitive and alien in other habitats and die. The railway station not only disturbed the area of the wetland, but also the surrounding area of the wetland.

b. Railway Track: The Baramulla-Banihal railway track has bifurcated the wetland into east (larger) and west (smaller) parts. This reduces the core area and increases edge area and the birds which prefer to interior portion of the wetland badly affected due to disruption of their inter-relationships. Some birds are rare species which tend to disappear as their habitat shrinks due to the fragmentation. This fragmentation also reduces the area of free movement of birds and this may lower their reproductive capacity. The railway track converted a part of the wetland into barren land. This portion of the wetland habitat once hosts a number of birds including migratory birds, has no feeding and breeding characters.

c. Link Road: In the rural areas the roads are essential for long term development but the environmental consequences cannot be neglected only foreseeing economy. The western region of the wetland besides by railway track, a small link road connected from Awantipora-Pulwama road to the Malangpora village, fragmented the smaller part of the wetland into smaller parts. This portion of the wetland is already disturbed by human interference as expansion of local construction and house hold generated wastes (domestic wastes).

d. Noise from trains and aircrafts- The noise from trains generally is serious nuisance as is lower frequency than that of roads vehicle. Besides the closeness of defense air port to the wetland where noise nuisance from subsonic aircraft for several reasons during flying overhead or are taking off and landing at airport. The noise from railway traffic and aircrafts scare the birds and disturbs their qualities especially feeding and breeding qualities.

e. Population Growth: It is an old saying that more population means more mouths to eat, that requires agricultural land, water and other natural resources for more agricultural production. This can be made available by clearing forests and repelling of wetland. Rapid population growth is also a factor for the loss of the Malangpora wetland. To get more food people of the locality have converted the wetland into the agricultural land and to get more space for the construction of the houses people without knowing its importance have encroached the wetland. The people use manures, fertilizers and pesticides in the agricultural land that has due to the runoff reach into the wetland. This is the main cause of the eutrophication of the wetland. Further people are collection animal wastes and throwing domestic wastes into the wetland that played an important role in the destruction of the wetland. The physical and chemical quality and parameters of the water and soil vary according to natural system. This caused the ecological disaster to the wetland and less number of the birds are living in and around the wetland.

It seems that the responsibility for these causes are lack of Environmental education. An Engineer who has designed whether railway track or road or irrigation canal does not know its impact on natural ecosystem. I think he only performs his assigned job without considering the interests of the biodiversity, he is destroying the ecosystem. For this educationists are linked with destruction of natural habitat of biodiversity as they are not taking keen interest towards the environmental education while framing the syllabus and curriculum. As per my research it seems that government while planning for any developmental project tries to conserve the budget, that is why wetlands are used for all types of developmental projects. Further, there is a University and research institutes in the vicinity of the wetland if the research in the University does not comprise the surrounding problems then what is fun for establishing the University.

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MANAGEMENT PLANS

The wetland ecosystem has two complementary phases- aquatic and terrestrial (during dry season) and flooded during rainy seasons/irrigation season. The wetland management program generally involves activities to protect, restore, manipulate, and provide for the functions and values emphasizing both quality and acreage by still advocating sustainable usage of them [Walters, C. 1986.]. It requires an intense monitoring, increased interaction and co-operation among the various agencies (state/centre departments concerned with environment, soil, natural resource management, public interest groups, citizen groups, agriculture, forestry, urban planning and development, research institutions, government, policy makers, etc).

The strategy pays emphasis on three key issues, viz; coordination, training and awareness campaigns. All this would help in understanding wetlands better and evolving a more comprehensive solution for long-term conservation and management strategies.

Coordination is necessary to pursue a cross –sectoral approach, so that various implementing agencies and specialists can sit together and contribute to develop appropriate alternatives. It is important to remember that even railway project is economically viable and technically sound it has to be ecologically balanced and socially acceptable for the plan to succeed. The major components of coordination are; advanced scientific & technical information, people's perception and development agencies active on wetlands.

Similarly, training facilities will aim at creating indigenous ability to carry out sustainable development work. Advanced scientific training and technological information are important for avoiding ecological imbalance and possible disaster And raising the level of awareness of environmental issues amongst the people is considered as a matter of vital importance in the whole range of activities in resource conservation.

A few of the agencies mainly require the coordination, and may impart training and awareness campaigns for the conservation of the wetland are; Department of Agriculture, Department of Irrigation and Food Control, Department of Rural Development, Research Institutes and University Programmes.

However, it is relatively difficult to have these solutions implemented, because implementation is by and large a political and social matter.

Creation of Buffers zones for Wetlands protection: The natural functioning of the wetland can be recovered by creating buffer zones for limiting anthropogenic activities. The criteria for determining adequate buffer size to protect wetlands and other aquatic resources depend on [Castelle et al. 1994].

- Identifying the functional values by evaluating resources generated by wetlands in terms of the economic costs, etc.
- Identify the magnitude and the source of disturbance, adjacent land use and project the possible impact of such stress in the long term, etc.
- Buffer characteristics - vegetation density and structural complexity, soil condition and factors.

A fully formed functional In-buffer must function, it has to perform, consider the magnitude of the identified problems, resource to be protected. Such a buffer zone could be consisting of biodiversity of wetland along the perimeter of water body, preferably an indigenous one serving as trap for sediments, nutrients, metals and other pollutants, reducing human impacts by limiting easy access and acting as a barrier to invasion of weeds and other stress inducing activities [Stockdale, 1991].

Awareness: Local people need to be aware about importance of the wetland, emotionally understand its relationship with common people, sensitivity to all changes occurred in the wetland and understanding how the environment works. It can be shaped through schools, social media, daily newspapers, radio and television programmes. Awareness can also be shaped at religious gathering (masques), family level at home, leaders and politicians. Some of the activities help in creating awareness among public are

- Organize events on environmental and its related days
- Posters should be posted on electric poles, public gathering places
- Distribute books and brochures among local people
- Involve illiterate local people in all its conservative activities

Community support: For successful conservation, management and restoration of the wetland a combined, comprehensive multiagency cooperation all working with the aim of a common goals including the educational institutions (local schools colleges and 7 universities including Islamic University of Science & Technology) forest department,

Irrigation department, Public Works Department (PWD) and Pollution Control Boards. Likewise active participation of local community, conservation organisations, (like NGO's,) and citizens' groups with active support from the media at all levels of planning, executing and monitoring is required for implementation of measures for the conservation of the wetland.

Schools, Colleges, Universities and other Research Institutes : Wetlands requires a collaborated research involving natural, social and inter-disciplinarian study aimed at understanding the various components, such as, monitoring of water quality, socioeconomic dependency, biodiversity and other activities as an indispensable tool for formulating long term conservation strategies [Kiran et al., 1999]. This needs multidisciplinary-trained professionals in educating the essence of wetland importance involving the local school, colleges, universities and research institutions. Initiate educational programs aimed at raising the levels of public awareness and comprehension of aquatic ecosystem restoration goals, and methods.

The active participation from the different education institutes like schools, colleges and universities in the vicinity of the wetland may value the opportunity for hands-on environmental education. Also it entails setting up of laboratory and other facilities at the site to monitor the wetland regularly that provide a vital inputs for conservation and management.

Regulatory Bodies: In order to develop effective wetland programmes covering significant components of the wetland a coordinated effort from all agencies involved in programs affecting the health of wetland ecosystems directly or indirectly will help in the conservation and management of the wetland. A regulatory body comprising personnel from departments involved in rural planning , resource management (Forest department, Fisheries, Horticulture, Agriculture, etc.), and supervisory bodies such as Pollution Control Board (PCB), local citizen groups, research organisations and NGOs would help in developing effective wetland programs covering significant components of the wetlands.

Policy Makers and Legislation: According to National Wetland atlas (2011) India had more than two lakh wetlands and as per report of SACON India lost 38% of wetlands in just a decade between 1991-2001. To counter the unplanned developmental projects and reduce the impact of the local population growth, management of the Malangpora wetland in terms planning, execution and monitoring should be legislative

approach. The need for protection and conservation of environment and sustainable use of natural resources is reflected in constitutional framework of India and also in the international commitments of India. The constitution under part IVA (Art 51A-Fundamental Duties) casts a duty on every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creature. Further, the Constitution of India under Part IV (Art 48A-Directive Principles of State Policies) stipulates that the State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country. In India a number of laws have been designed for wise use and to regulate the quality of the wetlands, like

- Indian Fisheries Act, 1949
- Indian Forest Act, 1927
- Water (Prevention and Control of Pollution) Act, 1972/1977
- Forest (Conservation) Act, 1980
- The Environmental (Protection) Act, 1986
- The Environment Impact Assessment Notification, 1994
- The Wild life (Protection) Act, 1972
- The Wild life Amendment Act, 1991

All the Acts are somehow related to conservation of the wetland however implementation is difficult due to political and bureaucratic hindrances. Those who are involved in making laws and taking decisions may be either unable or unwilling to grasp the economic implications. Although India has signed an intergovernmental treaty in Ramsar (Iran) for the wise use of the wetlands and work towards the conservation of the wetlands.

Conservation, management and restoration mechanism in terms of law and acts need to be framed and implemented in order to protect and regain the physical, chemical and biological integrity of the Malangpora wetland.

However, immediate management and restoration mechanisms need to be implemented in order to regain and protect the wetland ecosystems are:

- Demarcation of the wetland
- Reduction of agricultural runoff entering into the wetland
- Regulation of the anthropogenic activities around the wetland

- Immediate ban of conversion
- Ban on burning of the wetland vegetation
- Constitution of the protection force

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