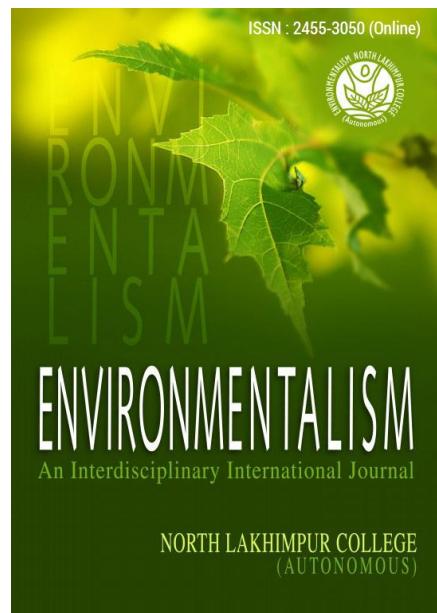


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WETLAND AS AN ECOTOURISM INDUSTRY: A COMPREHENSIVE STUDY OF WETLANDS OF ASSAM

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Abstract

Ecotourism activities have been expanding rapidly over past two decades world-wide and further growth is expected in the future. Recognizing its global importance, the United Nations designated the year 2002 as the International Year of Ecotourism, and its Commission on Sustainable Development requested international agencies, government and the private sector to undertake supportive activities. Ecotourism means management of tourism and conservation nature in a way so as to maintain a fine balance between the requirements of tourism and ecology. Assam is the second largest biodiversity hot spot having rich cultural heritages. Wetlands are the integral features of the fluvial landscape of Assam. They play vital role in balancing ecosystem and in maintaining healthy environmental conditions of the area. Through this paper author tries to give potentiality of ecotourism in the context of wetland ecosystem.

Keywords: Ecotourism, Wetland, Ecosystem, Biodiversity.

1 Introduction

Ecotourism means management of tourism and conservation nature in a way so as to maintain a fine balance between the requirements of tourism and ecology on one hands and the needs of local communities for jobs knew skills, income generating employment and a better status for the people on the other (Yadav 2002).

The term “Ecotourism”, like “sustainable development”, and “no net loss of wetlands “, has beguiled both idealists and industry opportunities with its ambiguity. Ecotourism hope that they could promote conservation by making it pay. By economic incentives to local inhabitants, they anticipate to protect the world’s last wild places and motivate everyone concerned to defend environmental values (Mukherjee 2008). In a review of the literature on the economic impact of the global ecotourism industry, there is the feeling among some researchers that ecotourism is expanding even faster than the tourism industry as a whole with towards of 20% of the worlds travel market (Hawkins 1993). Jenner and Smith estimate that ecotourism had a global value of 4 dollar billion in 1980, 5 dollar billion in 1985 and 50 dollar billion by the year 2000, such statistics indicates the desperate views that exist on the economic impact of ecotourism.

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Assam has tremendous potentiality for growth and development of ecotourism forms a part of global biodiversity hot spot with varieties of flora and fauna which provides a sound base for ecotourism venture. Such ventures can be used for advocating environmental awareness, long term conservational measures and economic benefit of the local (Bhattacharya 2002a). The chief ecotourism elements are Scenery and Landscape, Wild Life viewing, Birds Watching, Water Sports and Trekking nearby the area etc.

Wetlands are diverse ecosystem that link people, wildlife and environment in special and often interdependent ways through the essential life-support functions of water. Yet, once armed with the technology, human endeavour has focused primarily on the large scale dehydration of these landscapes, apart from exceptional and localized circumstances such as the creation of medieval fish ponds, more recent aquaculture developments, decoy habitats for hunting or aquatic gardens. Although considerably depleted in area compared with their historical extent, a new perspective of wetlands is now emerging and it is this change in attitude that underpins the philosophy, rationale and motivation behind the study of wetland in general (Maltby and Barker 2009).

The term wetland has been long used pejoratively, inferring land conditions that are less than ideal for the majority of practical purposes. Wetland is the collective term for marshes, swamps, bogs and similar areas (Merriam-Webster 2006). Wetlands are found in flat vegetated areas, in depressions on the landscape, and between water and dry land along the edges of streams, rivers, lakes and coastlines. Wetland areas can be found in nearly every country and climatic zones. Inland wetlands receive water from precipitation, ground water and or surface water. Coastal and estuarine wetlands receive water from precipitation, surface water, tides and or ground water. Wetlands are the most precious life-sustaining water resources. Besides playing a crucial role in the hydrological cycle, wetlands are the most productive ecosystems of the world and a potential source of carbon sequestration, although they account only for about 6% of the earth's ice-free land surface. Wetlands are the first among the victims of modern development and degrading with time.

In the tropics, notably in India, particularly in Assam and adjoining places like Bangladesh, wetlands are generally shallow depressions which could normally be in the form of a basin at the centre of hillocks on all sides, or could be abandoned segment of a river or a shallow portion of a river course which is detached from the main river course during the dry season. Sometimes, wetlands in North East India are formed due to tectonic activities (Kar *et al.* 1996). Geographically, natural wetlands are found in natural low lying area and also in coastal area of sea or ocean. Some wetlands are permanent and some are temporary; some are with static water bodies like lake, beel, marshy area and some are with moving water bodies like spring or flood plains. On the basis of vegetation coverage, some are open, i.e., without any plant or some are covered by plants or weeds.

In Assam, particularly in the Brahmaputra Valley, part of Eastern Himalayas Global Hotspot of Bio-diversity harbors a numbers of globally important wetland ecosystem, supporting the major portion of life forms in the state (Abbasi 1997). The state holds 3413 wetlands of various sizes ranging from one hectare to about 600 hectares and covers a total area of about 1.01 lakh hectares. The total water spread and vegetation areas are 96,818 hectares and 4406 hectares respectively (Thakuria 2014). In general, most of the wetland areas in Assam fall under natural fishery area and the morphological study of wetland of Assam indicate that this wetland had formed due to various causes. The configuration beel/wetlands of Assam can be divided into five categories viz. linear,

compact, irregular, and discrete and oxbow shaped.

Geographically, natural wetlands are found in natural low lying areas of the state. Almost all the wetland found in the state is covered by plant and weeds. The present study is an approach in understanding the comprehensive values of wetlands in respect to growing attention requires regarding management policies as well as to explore the possibilities of the development of ecotourism in certain wetlands. In this paper information's are being collected from field survey and secondary sources such as books, journals, and reports has been used.

2 Study area

The study area mainly confined to wetland of Brahmaputra valley of Assam, India. Among the different wetlands only the following three wetlands were studied.

2.1 Deepor Beel

Deepor Beel is a riverine ecosystem is highly valued ecosystem, situated in between $91^{\circ}35' E$ - $91^{\circ}43' E$ and $26^{\circ}05' N$ - $26^{\circ}11' N$ with a total area of about 40 km^2 , located in Kamrup District of Lower Assam. Deepor Beel is a permanent freshwater lake is a former channel of the Brahmaputra river of great biological importance and also essential as the only major storm water storage basin for the city of Guwahati. It is to be believed that the beel is an abandoned channel of the Brahmaputra system. Earlier it has its natural linkage with the river Brahmaputra through Borhola beel and swampy areas of Pandu. However, now a days the link has been disrupted due to construction of the national highway and residential buildings. In fact Deepor beel plays a significant role in maintaining the water regime of the Guwahati city. It acts as a temporary reservoir for storm water for the Guwahati city and the adjoining Meghalaya hills, which alternately get discharged into the Brahmaputra through khanajan outlet. The wetland is a major breeding ground for a large number fish and supply fish stocks to other nearby wetlands and rivers (Saharia 1999). The wetland is a staging site on migratory flyways and one of the largest concentrations of aquatic birds in Assam (Collar *et al.* 1994). It provides home to a good population of endangered rare residential as well as migratory avifauna like Greater Adjutant Stork, Lesser Adjutant Stork, Spotted Billed Pelican, Graylag Goose, White Eyed Pochard, Asiatic Golden Plover etc. The wetland is also home of numbers of globally threatened birds' species like Spot billed Pelican, Greater Adjutant, Lesser Adjutant etc. (Gopal 2000). The neighbouring hills and forest are the home of many endangered and rare species of animals and insect and this enriched the tourist importance of the wetland.

In recent years Deepor beel is facing many problems. The major threat for the wetland are due to heavy silt deposits, fishing, hunting of migratory water birds, pollution, fertilizer and industrial wastes and by water hyacinth. In addition to these there are certain open problems like continuous encroachments over the beel site for construction of houses and infrastructure. Municipality solid wastes are dumped in the littoral areas at every interval and the also untreated sewage water from the Guwahati city flows in to the beel. The newly constructed BG railway line along the southern fringe of the beel is now stand as the bearer in the elephant corridors and also become the source of intolerable noise for peace loving migratory and local birds sheltering the wetland. All these adversely affect the natural environment of the beel by affecting its flora and fauna (Saikia and Bhattacharjee, 1987).

The value for biodiversity is enormous. For conservation of this biodiversity conservation of Deepor Beel is must (Choudhury, 2000). Conservation process should initiate activities to uplift the economics of the villagers

through various developmental processes to reduce their dependencies on this wetland and should follow a sustainable process of conservation (Mehlhop *et al.* 1994).

2.2 Maguri Motapung Beel

Maguri Beel, in Assam, is considered to be an ornithologist's paradise and a major tourist attraction. It extends in between $27^{\circ}34'22''N$ - $95^{\circ}02'29''E$, located almost 30 Km away from Tinsukia district of Assam. This beel is one of the large wetlands of the state with an area of 1000 hectares. Lakhs of migratory birds come to the wetland every year making it one of the most loved destinations for the birdwatcher from across the world those are Black-breasted Parrot bill and many other birds such as Striated Grass bird, Marsh Babbler, Little Cormorant, Bronze-winged Jacanathis, White Wagtail, Yellow Wagtail and many others, This is not just a marshy lake but a complete biodiversity that is believed to house close to 500 species of resident as well as migratory birds. The birds are in good company and share their home with fishes, plants and insects.

The crisis starts seven years ago after an oil company initiated a project to set up a pipeline over the wetland. Although the locals have opposed the move and urged the company to divert the pipeline in order protect the rich biodiversity of the wetland but their request seems to be in deaf ears (Sharma; A, 2014). The wetland is also being affected by the illegal spraying of fertilizer by the neighbouring tea estates, which leads to killing of several birds' species in and around the wetland. Changing hydrology of the wetland is also a matter of concern. The evulsions of Lohit and Siang rivers in 1980 had impacted on the Dibrugarh River that flow through the wetland. The wetland had been receiving lot of silt from the Lohit and Siang River.

2.3 Joysagar temple tank

The location of Joysagar temple tank is between $26^{\circ}58'60''N$ to $94^{\circ}37'60''E$ of Sivasagar district. The history of temple tank in Assam dates back to the medieval period. Temple tank were constructed across the length and breadth of the state by Kings who ruled this region. In this regard, the contribution of the King of the Ahom dynasty of Assam is foremost. The Sivasagar district of Upper Assam and its adjoining areas shows traces of more than 500 large and middle size tank, of these, the four largest tanks were the Joysagar tank with an area of 318 acres dug in 1697 A.D, the Sibsagar tank have 129 acres in 1734, Gaurisagar tank have 150 acres in 1724 and Rudrasagar tank in the year 1773 A.D. The Joysagar tank is the oldest of the four and is situated 5 Km away from the Sivasagar town. It was excavated by the king Rudra Singha in memory of his mother Joymoti konwaree. In past, this tank supplied water to the Rangpur Palace which was situated 1.50 Km away.

The tank is paradise for the birdwatcher as this tank documented 12 winter migratory species like Greylag Goose, Barheaded Goose, Lesser Whistling teal, Pintail, Common Teal, Mallard etc. Now a day, they are facing increasing threat because of the noise pollution with the steady rise in the number of motor vehicle along with the motorized boats rides across and around the tank. It has also been observed that roar of the engines and sound waves emitted by these boats scare away the birds that once alighted fearlessly on the paradise.

By recognizing the area of concern one must attempt to find plausible solutions to tackle the problems of both the Maguri and Temple tank wetland. The best way of tackling this threat is to develop eco-tourism, which entails innovating tourist destinations and judicious promotion of tourism to generate income and employment for the residents while having a minimum impact on the environment and local culture.

3 Result and Conclusion

These three wetlands viz. Deepor Beel, Maguri Beel and Joysagar Temple tanks are favorite destinations for local and migratory birds as well as diverse species Fishes. Bird life international recognizes this area as Important Bird Area sites. If we would look at the value and productivity of this ecosystem they have species diversity, breeding grounds and food chain supporter. Deepor beel and Maguri beel harbors a good numbers fish species which is an income source for large population residing nearby. There are tremendous scope for development of eco-tourism like bird watching ventures, boat riding in temple tank, trekking etc.

Conventional tourism offers diverse effect on environment therefore priority should be given to ecotourism like elephant safaris, trekking, walking and peddle boats etc. side by side eco-friendly accommodations should be provided for the tourists (Bhattacharya, 2002b). Apart from these we can develop culinary tourism like Brahmaputra Beach festival, Dihing Patkai festivals etc. which will bring a new arena in the concept ecotourism. Ecotourism can make local people aware and give economic support for their survival by providing job opportunities. With the help of ecotourism venture people can aware sustainable use as well conservation ecotourism and gain economically as well as provide respect to nature.

Ecotourism brings economic development for different communities those who are residing nearby particular sites. It involves conservation, business enterprise and community development. An ecotourist always prefer rural areas and wants to live with nature, so that they can get the chance to know about the life and culture of particular community where they shortly reside. The local youth can serve as tour guide with proper knowledge to explain particular local resources to the tourist. This ecotourism encourage traditional craft centers run by village women where tourist can by local handicrafts and it certainly uplift the women in a particular society. Tourism department should encourage the local people by providing training to the youths, to take care the tourist as well as safety to tourist and for publicity.

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