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A Study on the Status of Biodiversity Conservation and Sustainable Ecotourism in Manas National Park, Assam

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ABSTRACT

Manas National Park is a biosphere reserve, a UNESCO Natural world Heritage site, a Project Tiger Reserve, an Elephant Reserve is located in the foothills of Eastern Himalayan mountain range and is contiguous with Royal Manas National Park of Bhutan. It is located at 26˚43N′90˚56′E is spread over an area of about 850 sq. km. Manas National park with its rich vegetation is abundant in diverse flora and fauna has huge potential for recreational and ecotourism which can act as a major source of income for the state as well as sustainable livelihood for the communities inhabiting in the area. Government officials as well as several NGOs are working together with the inhabitants of the area to promote eco-tourism and in turn reveal the ecological value and fragility of the park. Various awareness camps are organized to control environmental degradation and conservation of the biodiversity of the national park. Steps are taken to promote alernative source of income for the villagers instead of solely depending on timber and firewood for livelihood. The present paper is an attempt to study on the status and scope of increasing sustainable ecotourism in Manas National Park in harmony with the environment for making the national park a favourite tourist destination and earning revenue for the state thus helping in upliftment of the economy

Key words- Manas, biodiversity, eco-tourism, sustainable development

INTRODUCTION

Biodiversity is the sum total of all living organisms found on different ecosystems of earth. It provides commercial, social as well as ecological services to mankind. There are various hot biodiversity spots on earth in which certain plants and animal species are endemic to it. People from different countries visit these rich biodiversity regions to observe these exotic plants and animals for educational as well as recreational purposes thus serving as a source of earning huge revenue through ecotourism which inturn helps in the upliftment of the society. In the recent years there is an increase in the pressure on biodiversity due to various anthropogenic activities leading to its depletion thus the importance on biodiversity conservation has become a global issue.

Ecotourism is the tourism based on nature experience enabling economic and social development of local communities. It provides alternate source of livelihood to local communities which is more sustainable. According to the World Travel and Tourism Council, India earned about 16.91lakh crore rupees in 2018 and provided 8.1% of its total employment through ecotourism.

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Biodiversity is integral for the survival of mankind. About 50%-80% of global biodiversity lies in the tropical and sub-tropical regions of earth out of which 6% of them are found in India. North east India is one of the rich biodiversity regions of India. Among the north eastern states of India, Assam is one of the rich biodiversity states with various habitats such as grasslands, rainforests, bamboo thickets and numerous wetlands spread all over the state. According to Forest Survey of India(2017), about 35.83% area of Assam is under forest cover. Out of the 5 National parks present in the state, Manas National Park(26.35'-26.50'N, 90.45'-91.5E) located in the Himalayan foothills covers about 850 square kilometres and has been declared as UNESCO World Heritage Site, Tiger Reserve, Elephant Reserve and a wildlife sanctuary. It has rich biodiversity, spectacular landscape with alluvial grasslands and moist deciduous and semi-tropical forests.

REVIEW OF LITERATURE

Manas National Park is located at the junction of Indo-Gangetic, Indo-Malayan and Indo-Bhutan realms and is a key conservation area in the Jigme Dorji-Manas-Bumdaling conservation landscape in the eastern Himalayan eco-region. Twenty one animal species listed in Schedule I of India's national wildlife Protection Act(1972) inhabits the grasslands of the park (Neli,2014).165 species of butterflies were recorded in Manas National Park as published on the survey report of butterflies of Manas NP by Choudhury K, Gogoi MJ, Das B(2014).

Tourism in Assam is essentially nature based therefore National parks, wildlife sanctuaries, rivers, lakes, thick wooded forest are the major components of tourist attraction in Assam. Like other places in India Assam too has high prospects as to develop it as a tourism destination (Bordoloi, Das, & Priyata, 2012). Kherkatary A.(2015) made a study on "Status of ecotourism development in BTAD of Assam with special reference to Manas National Park" found out that during the study period, the number of foreign tourist inflow to the park was highest in the year 2007-08 (624 nos.) followed by the year 2010-11 (503 nos.). The revenue earned by the Manas National Park which was Rs.16.96 lakh in 2009-10 increased to Rs. 25.48 lakh in 2012-13 showing 50.24 percent increase during 2009-10 and 2012-13.

Kezo A.(2015) in his paper "A critical review of empowerment through ecotourism: a case-study on Assam, India (2010-2015)" found that the local people have been empowered as a result of eco-tourism initiatives taken by the authorities. There has been an increase in the number of accommodations and the concept of homestays has gained popularity, many Self Help Groups established which provide local authentic food to the tourists, promotion of handloom products and handicrafts made by local people especially women.

Medhi S. made a study on " Planning for the development of Sustainable Tourism for upliftment of socio economic condition of the people – A case study of Manas National Park" found that the fringe villagers dependence on Manas National Park for fuel and animal fodder, the ever-increasing human as well as cattle population, the lack of awareness amongst the people about

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the need to preserve a biodiversity hotspot, and the protected area restrictions that took away the villager's traditional rights on the forest are some of the socio-economic factors that have had an adverse effects on conservation in Manas. Therefore the need of the hour was to provide the inhabitants with an alternate source of livelihood.

Tripathi et al(2016) made a review on "Perspectives of Forest Biodiversity Conservation in Northeast India" and found that the region is now experiencing severe alterations in land use and land cover type, due to shifting cultivation (locally known as jhuming), indiscriminate felling and illegal deforestation. These coupled with socio-economic changes have caused loss of natural habitats and complex assemblies of species. The reason of the extended shifting cultivation in last three decades is the absence of effective landuse policy.

OBJECTIVES OF THE STUDY

The objectives of this study are as follows :

i) To study the existing rich biodiversity of Manas National Park, Assam.

ii) To identify the various measures undertaken to promote tourism.

iii) To make some suggestions for biodiversity conservation and future prospect of tourism in Manas National Park.

METHODOLOGY

The site of study was Manas National Park, Assam. To determine the present status of biodiversity and sustainable ecotourism prospects of the park, data from secondary sources were collected. Secondary data was collected from Directorate of Manas National Park, forest officials, reports, papers.

BIODIVERSITY OF MANAS NATIONAL PARK

Manas National Park was declared as Manas Wildlife Sanctuary in 1950, as Tiger Reserve under Project Tiger in 1973, as World Heritage site by UNESCO in 1985, as Biosphere Reserve in 1989, as National Park in 1990. In 2003 it was declared as Chirang Ripu Elephant Reserve under Project Elephant. In 2011, 'danger' tag was removed following the advice of IUCN, UNESCO's World Heritage Committee. The climate is moist tropical.

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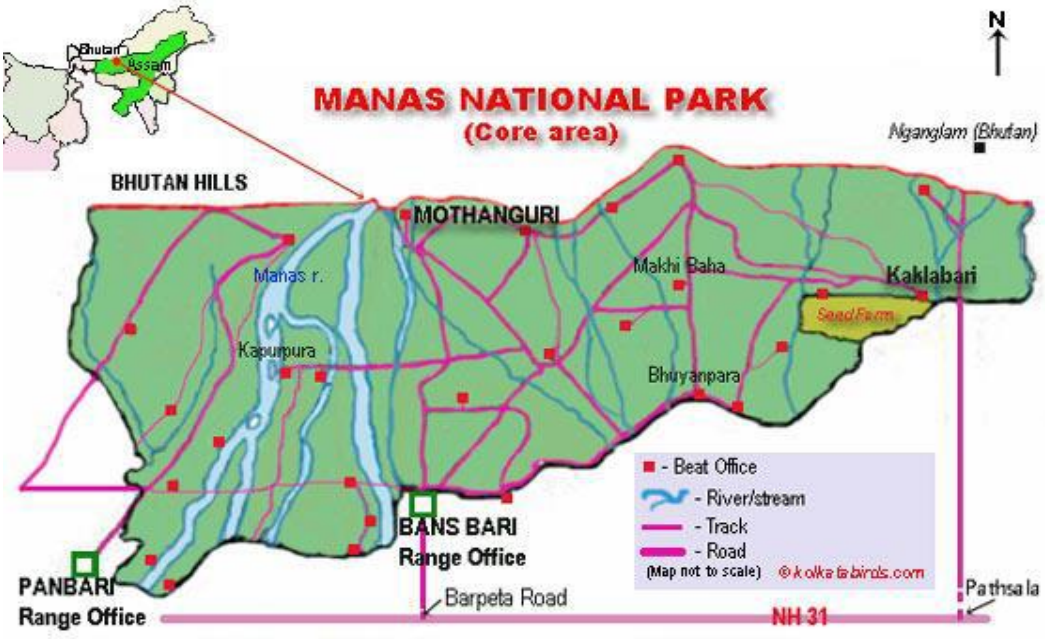

Fig. 1: Map of Manas National Park (Source : http://www.kolkatabirds.com/manas/manas)

Table 1: Reserve Forest included in Manas National Park(MNP) and its total area

Sl. No.	Reserve Forest	Area(in sq. km)
1	Manas R. F. (part)	120.00 Sq. Km.
2	North Kamrup R.F.	271.02 Sq. Km.
3	Panbari R.F.	16.30 Sq. Km.
4	Kahimata R.F.	34.86 Sq. Km.
5	Kokilabari R. F.	77.59 Sq. Km.
Total Area		519.77 Sq. Km.

Source: Field Director Office, Manas National Park

Table 2: Distribution of wetlands in different ranges of MNP

Sl. No	Name of Ranges	No. of fresh water lake	No. of Ponds
1	Kohora Range	82	11
2	Bagori Range	54	12
3	Agoratoli Range	48	12
4	Burapahar Range	7	10
	Total	191	45

Source: Field Director Office, Manas National Park

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Table 3: Elephant population in MNP

Sl no.	Year	No. of Elephant
1	2008	780
2	2011	945
3	2017	1034

Source: Field Director Office, Manas National Park

Table 3 shows that the elephant population has increased from 780 in 2008 to 1034 in 2017.

Table 4: Rhino population in MNP(2006-19)

Sl. No.	Year	Total no. of Rhino
1	2006	3
2	2007	3
3	2008	5
4	2009	5
5	2010	7
6	2011	10
7	2012	22
8	2013	28
9	2014	30
10	2015	32
11	2016	28
12	2017	29
13	2018	34
14	2019	38

Source: Field Director Office, Manas National Park

There were 3 One-horned Rhinos in 2006. As part of Indian Rhino vision-2020, 18 rhinos were translocated to Manas National Park between 2008-12. In 2019 the present number has increased to 38.

Table 5: Tiger population in Manas National Park(1972-2018)

Sl no.	Year	Tiger population
1	1972	10
2	1975	41
3	1976	51
4	1988-89	53
5	1994-95	80
6	1996-97	89
7	2000-01	65
8	2008	80

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9	2011	9
10	2012	18
11	2013	12
12	2014	11
13	2015	16
14	2016	11
15	2017	31
16	2018	30

Source: Field Director Office, Manas National Park

Table 5 shows that tiger population was 80 till 2008 then decreased to 9 in 2011 but now it has gradually increased to 30 in 2019.

Table 6: Total number of visitors and revenue earned in MNP(2006-19)

Sl. No.	Year	Total visitors			Total Revenue(Rs.)
1		Indian	Foreign	Total	
2	2006-07	69	1689	11829	1421879.00
3	2007-08	239	2127	9785	743890.00
4	2008-09	139	9597	17913	1318435.00
5	2009-10	503	503	10237	1625266.00
6	2010-11	129	4793	16996	159177.00
7	2011-12	177	13167	24207	2374655.00
8	2012-13	91	5214	18419	1718890.00
9	2013-14	22840	325	23165	3093075.00
10	2014-15	9786	475	10261	3347583.00
11	2015-16	40559	614	41173	7369007.00
12	2016-17	36201	351	36552	7624053.00
13	2017-18	37592	480	38072	8130830.00
14	2018-19	42340	650	42990	10663500.00

Source: Field Director Office, Manas National Park

Table 6 shows that the lowest tourist inflow was in 2007-08 with 9785no. There has been considerable decrease in the number of number of foreign tourists from 2011-12 to 2018-19 but increase in number of Indian tourists. The revenue earned has gradually increased from 2006-07 to 2018-19.

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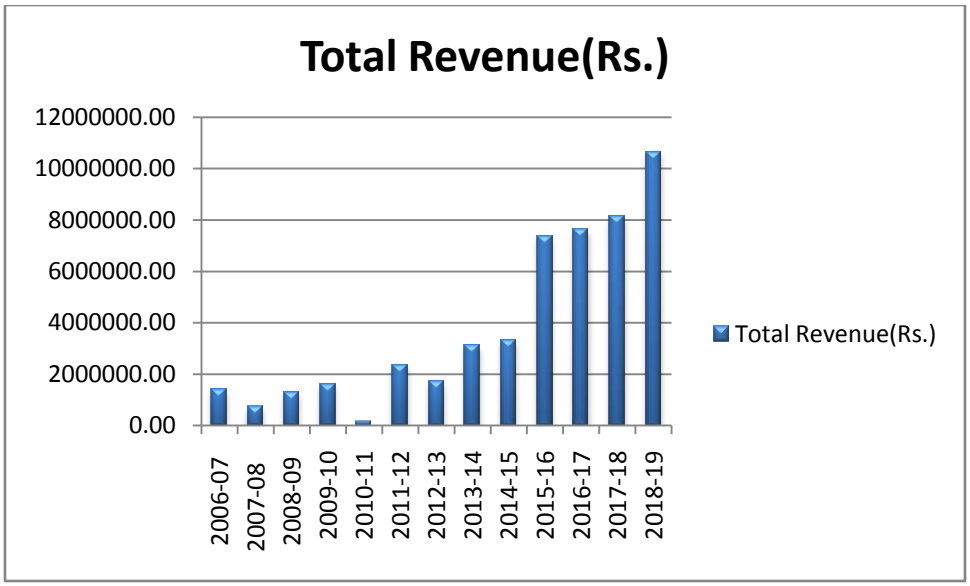

Fig. 2: Figure showing the increase of revenue earned through tourism in Manas National Park(2006-19)

FINDINGS OF THE STUDY

To promote effective conservation, training programmes have been arranged since 2016 for the staff members with the collaboration of some well-known NGOs like AARANYAK, PANTHERA etc. in different phases which include General Patrolling, Combat, Ambush, Map reading, use of GPS, etc. New Roads, installation of fencing, erection of new boundary pillars and digging of trenches to demarcate the Park Boundary are being carried out to check further encroachment. A total of 543 plants species have been recorded from core zone of which 374 species are dicotyledons(including 89 trees), 139 species monocotyledons and 30 are pteridophytes and gymnosperms(Bora,2018). 736 species of Angiosperms belonging to 138 families has been found. A total of 60 mammals, more than 470 species of birds, 42 reptiles, 7 amphibians and more than 300 insects have been recorded in Manas. A total of 50 species of Orchids belongs to 26 genera are recorded from the Manas National Park. Out of 50 species 21 taxa are Terrestrial and 29 taxa are *Epiphytic herb* and they belong to the endangered and rare category. The number of translocated Swamp deer from Kaziranga National Park has increased from 19 in 2014 to 26 in 2017. Similarly the number of tiger and elephant has also increased since 2011. The rhino population has increased from 3 in 2006 to 38 in 2019. The Manas Park Authority with support of Wildlife Trust of India (NGO) organized a series of awareness activities to increase media exposure and bring out the local people into the conservation fold and encourage them to participate in the protection and promotion of wildlife of Manas National Park.

Sustainable Ecotourism Scenario

The BTC administration with the aid of the state and Central government has taken several steps to promote the infrastructure and ecotourism in Manas National Park. The park is being funded by Biosphere Reserve, Project Tiger, Project Elephant, CORPUS Fund, APFBC, CAPA fund, etc. Several national and international NGOs like Aranyak, AITREE, WTA, WWF,etc. are engaged in the conservation of the wildlife species. There are several tourist lodges, facilities for

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jeep safari, elephant safari, river rafting, etc. to attract tourists from all over the world. Home stay facilities are also provided in the park which help the villagers residing near the park to earn livelihood. An IUCN supported Livelihood support Programme has been started in the fringe areas to improve cooperation and support of nearby villagers. Altogether eighteen (18) nos. of Eco-Development Committees have been formed in the fringe areas of Bansbari and Bhuyanpara Ranges. Manas Tiger Conservation Programme Livelihood along with the Conservation Education team led by Aranyak have prepared from six clusters - Bhuyanpara Cluster, Koklabari Cluster, Bansbari Cluster, Kahitama cluster, Borpathar Cluster and Kochubil cluster list of beneficiaries based on their interest and trainings were being conducted on different trades and livelihood interventions. To promote sustainable livelihood and subsidiary sources of revenue, capacity building trainings on Boiling and Dyeing of yarns and cloths, modern looms, Product Development, Pig Farming and Mushroom Farming and Management has been carried out. Manas Spring Festival in the month of April are held where villagers of fringe areas showcase their food, handloom products, and culture helping in the boosting of the communities. Exhibition and livelihood fair held under the Manas Tiger Conservation Programme helps to encourage and boost the local communities with diversified and sustainable livelihood. Local NGOs like Manas Maozigendri Ecotourism Society (MMES), Manas Ever Welfare Society (MEWS)etc. are involved in organizing awareness programme among the surrounding villages to build up community participation to promote ecotourism in the area.

Policy Implications

The Manas National Park have rich biodiversity and tremendous tourism potential. But it faces several challenges some of which are as follows-

i) Lack of proper transport and communication facilities.

ii) Lack of sufficient funding from the government.

iii) Lack of private sector investment to promote tourism.

iv) Lack of sufficient advanced instruments and vehicles for monitoring and patrolling.

v) Lack of sufficient number of trained forest guards.

vi) Incomplete electric fencing to prevent wild animals from entering fringe villages.

vii) Poaching and encroachment of areas of the park.

viii) Lack of proper and planned promotion of the national park.

Furthermore the villagers of fringe areas are still depend heavily on the forest for their livelihood which puts pressure on the ecosystem of the park. They practice fishing, hunting, wood collection, etc. as source of income which threatens the endangered wildlife although alternative sources of income are being implemented.

SUGGESTIONS

Government is making rigorous efforts to promote biodiversity conservation and encourage sustainable ecotourism in Assam. It is possible through increasing community participation which will increase the employment opportunities inturn enabling biodiversity conservation. To

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promote the biodiversity conservation and ecotourism, effective measures needed to be taken some of which are as follows-

i) Providing sufficient funds required for building infrastructure of the park for ecotourism.

ii) Providing sufficient trained forest guards and vehicles for patrolling.

iii) Providing advanced tools required for communication and data profiling.

iv) Implementing systematic habitat management activities in the park.

v) Promotion of tourist spots and adequate marketing strategies to promote ecotourism.

vi) Creating alternate source of livelihood for the villagers of fringe areas and create tourist friendly environment.

vii) Awareness programmes, local fairs and exhibitions to be held to promote local small industries.

Through the new tourism policy of Assam, 2017 the government have encouraged promoting wildlife tourism where new avenues for sustainable livelihood will open for the villagers of fringe areas of Manas National Park. The NGOs working in the park are also engaged in the monitoring of the diverse flora and fauna of the park and increasing community participation and awareness programmes. Besides that, promotion of the park to attract students, investors, local and foreign tourists by giving sufficient information on facilities present in the park are also carried out by the park authority in collaboration with the local and national NGOs.

CONCLUSION

Biodiversity conservation is now a global issue where government of different countries are making and implementing several conservation policies, treaties with neighbouring countries to preserve the rapidly degrading environment of the earth which is critical for the survival of mankind. Government, NGOs and local communities need to work together for the conservation of wildlife. Ecotourism can help in the promotion of the rich biodiversity of the world and in turn help in earning livelihood for local communities. Manas National Park has several rare and endemic species which need to be conserved. Community participation need to be increased so that local youths can become aware on the huge potential of the park and participate in the monitoring and conservation of the rare and endangered species of the park. Through promotion of ecotourism it can help in the economy of the area along with creating awareness of the endangered species of the park. Though several policies and steps are being undertaken to promote conservation and ecotourism by the government, there are still several shortcomings where the government and park authority need to focus in this regard. They need to work together with the NGOs and local communities for the conservation and promotion of sustainable ecotourism which will help in the upliftment of the economy of the state.

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