

ABSTRACT

BIODIVERSITY CONSERVATION AND SUSTAINABLE ECO TOURISM – CASE STUDY OF KAZIRANGA NATIONAL PARK ,A WORLD HERITAGE SITE IN ASSAM,INDIA

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Biodiversity Conservation emerges more important due to the globalize process of the world economy and also for survival of the world as a balance habitat. Biodiversity of an eco system is a vital issue of an economy. Soil, water, climatic condition, forest cover and biodiversity are crucial in determining the renewable resource flow of an economy . Sustainable development stresses on economic development alone with the object of conservation of environment. India is one of the twelve mega diversity country in the world. The country possess about 8 percent of global biodiversity occupying the 10th position in terms of plant species, out of the 25 hot spots of biodiversity in the world. North- Eastern region is one of the hottest hot spots ranking 6th position among the 25 biodiversity hot spots. Assam is one of the richest biodiversity zone in North East region. There are number of tropical rain forest in Assam. Moreover, there are riverine grass lands ,bamboo, orchards, and numerous wetland ecosystems. Many of these areas have been protected by developing national park, wildlife sanctuary and reserve forest. The state is enriched with extensive forest areas and famous for floras and faunas. Assam includes 5 number of National of National Parks and 18 number of wild life sanctuaries. As per the assessment by the forest survey of India (FSI), the forest cover in Assam is more than 35 percent of it geographical area.

Kaziranga National park declared as world heritage site by UNESCO in 1985, extends over an area of 430 sq.km with its proposed additional area of 429.49 sq.km upto 6th addition. The park has also given the status of Tiger Reserve forest in December 2007. The park has been also recognised as a “ biodiversity hotspot” in Indomalaya Ecozone. Kaziranga National park is divided as the Central, Eastern, and Western sectors consisting semi evergreen forested highland, rivulets, marshes and extensive plains. The park with its rich biodiversity resources is the favoured destination of both domestic and foreign tourists and getting the top priority as tourist destination in the state. This study mainly addressed to explore the rich floral and faunal diversity and also focused on the major problems for conservation of biodiversity of this world heritage site.

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1. INTRODUCTION

Biodiversity conservation emerges more important due to the globalize process of world's economy and also for survival of the world as a balance habitat. Biodiversity of an ecosystem is a vital issue of an economy. Soil, water, Climatic Condition, forest cover and biodiversity are crucial in determining the renewable resource flow of an economy. The "Earth Summit" in 1992 in Rio de Janeiro (Brazil) elevated the status of biodiversity and the convention on biological diversity was one of the issues resolved in the "Earth Summit". This convention includes certain specific objectives of biodiversity conservation and these are –conservation of biological diversity, sustainable use of biodiversity and fair and equitable sharing of the benefit arising out of the utilization of genetic resources. Sustainable development stresses on economic development along with the object of conservation of environment. The Bruntland Commission in its report "our common future" in 1983, articulated sustainable development as "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

India is one of the 12 mega diversity centres in the world. In a recent classification (Rodgers and Panwar, 1988), India as a whole is divided into 12 biogeography zones, i.e. (i) Trans Himalaya, (ii) West Himalaya, (iii) Eastern Himalaya, (iv) North East India, (v) The Indian Desert, (vi) Semi-arid Zone (vii) Gangetic plain ,(viii) Western ghats ,(ix) Deccan Peninsula (x) Indian coasts, (xi) Andaman and Nicobar Island and (xii) Lakshadweep Island. North Eastern Region embraces two biogeographic zones viz.- (a) Eastern Himalayas Comprising Arunachal Pradesh and (b) North East India i.e. –Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim . The Eastern Himalayas biogeographic zone is accorded as mega diversity in plant wealth. The North-East India biogeographic zone is most significant among all zones of India. This zone is recognized as the richest zone in biodiversity. The Khasi and Jaintia Hills of Meghalaya are perhaps the richest botanical habitats in entire Asia (Rao, 1994).

Assam is one of the richest biodiversity centre in N.E. Region of India.. There are number of tropical rainforest in Assam. Moreover, there are riverine grasslands , bamboo, orchards and numerous wetland ecosystems. Many of these areas have been protected by developing National Parks, Wildlife Sanctuary and Reserve Forest. The state is enriched with extensive forest areas and famous for floras and faunas. Assam includes 5 number of National Park and 18 number of wildlife sanctuary. As per the assessment made by the Forest Survey of India (FSI), the forest cover in Assam is more than 35 percent of its geographical areas.

OBJECTIVES OF THE STUDY

The objectives of this study are as follows :

- i) To make an in-depth study of the existing rich biodiversity in Kaziranga National Park (KNP), Assam;
- ii) To identify the entrepreneurial activities in this tourist spot;
- iii) To study the satisfaction of both domestic and foreign tourists;
- iv) To make some suggestions for biodiversity conservation and future prospect of tourism in K.N.P.

METHODOLOGY

The present study is confined to the biodiversity hot spot tourist destination K.N.P. The data for the study have been collected both from primary and secondary sources. So far as primary data are concerned, these are collected through cross section interaction through discussion and interviews with Domestic Tourists, Foreign Tourists, and Entrepreneurs of the study area. Information are also collected through schedules from these three sections, Data through schedules have been collected from one hundred and fifty respondents. Each group consists fifty number of respondent. The primary data have been collected during the period from November to April in 2009. All collected data have been firstly classified and tabulated systematically and then these have been analysed and interpreted.

The secondary data have been collected from the Directorate of K.N.P., Directorate of Economics and Statistics, Assam, Directorate of Tourism , Assam, Published news items and articles in news paper , magazine etc.

KAZIRANGA NATIONAL PARK

Kaziranga National Park, the richest biodiversity hot spot in the Indomalaya Ecozone, has been included as world heritage site by UNESCO in 1985 under the Criteria N (ii) and N (iv). The Park extends over an area of 430 sq.km., with its proposed additional areas of 429.49 sq.k. up to 6th addition. It is bounded by the Karbi Anglong Hills on the South and Brahmaputra river on the North. The government had published the preliminary notification for declaring the park to a reserve forest in 1905 and Kaziranga Reserve Forest was opened to visitor in 1937. The Park was declared as wildlife sanctuary in 1950 and accorded the status of National Park in 1974. In 2007, the park was also given the status of Tiger Reserve Forest. The park is divided in to Central, Eastern and Western Sector, consisting of Semi evergreen forest high land, rivulets, marshes and extensive plains covered with tall elephant grass. The park is mainly famous for one horned rhinoceros. It is also the home of variety of wildlife like, Wild buffalo, Elephant, Swamp deer, Hog deer, Barking deer, Samber, Wild boar, Tiger etc. The park has recorded 34 number of mammals and 480 species of birds, out of which 18 number of birds are globally threatened. Birds like the Egrets, Pond herons, River tern, Black necked storks, Pelican Partridges, Bengal Florican stock, Pied horn bill, Fishing eagle are found abundance. The table No. 1.01 gives some of the animal census from 1991 to 2009.

WETLANDS IN KNP

Kaziranga National Park is a unique place of wetland ecosystem with diverse flora and fauna. The fresh non-polluted environment of this park always draws the attraction of both domestic and foreign tourist and becoming a Prime tourist destination in our country. The fresh water lakes (locally called beel) of this park covers 24.32 sq.km. which is 5.96 per cent of the total area. The ox-bow lake (erasuti) covers 3.96 sq.km. Total number of 191 beels and 45 number of pond like deep areas have been scattered in four forest ranges in this park. The table no. 1.02 has shown the number of beels and ponds of different forest range.

Animal Census

Table 1.01.

Source : Directorate of K.N.P.

Types of Animal	1991	1993	1997	1999	2000	2001	2006	2007	2009
Rhino	1069	1164	-	1552	-	-	1855	-	2048
Elephant	515	1094	945	-	-	-	1293	-	-
Buffalo	1090	1034	-	1192	-	1431	-	1048	-
Tiger	50	72	80	-	86	-	-	-	-
Swamp Deer	635	427	-	398	468	-	-	681	-

Beels and Ponds

Table – 1.02

Source : Directorate of K.N.P.

Sl.No.	Name of Forest Range	Fresh water Lake/beels	Ponds.
1	Kohora Range	82	11
2.	Bagori Range	54	12
3.	Agoratoli Range	48	12
4.	Burapahar Range	07	10
	Total	191	45

The wetlands of this park are the habitats of varieties of mammals, mainly one horned rhinoceros. Wetlands are also the habitats of varieties of fauna including amphibians, birds and reptiles. These are the breeding places of migratory birds.

TOURISM SCENARIO

Kaziranga National Park is a world famous eco-tourism spot. Central government has included Kaziranga in Eco-Tourism Circuit of the Integrated Development Tourism Circuit Scheme. State government also included this park in “Manas-Guwahati- Kaziranga” Wild life circuit. Central and state government’s continuous effort for tourism infrastructure development

has helped to increase both domestic and foreign tourists every year. Private sector investment in this tourist spot helps in changing the state tourism scenario. Most of the prominent private sector hotels have already started their business in Kaziranga. National and international tourist agencies have also included Kaziranga in their tourist package. Table No. 1.03 gives the volume of tourist traffic and revenue earned by forest department from 2004-05 to 2009-10.

TOURISM INFRASTRUCTURE

Central and State government have taken various initiatives for the development of eco-tourism in Kaziranga National Park. The tourism project for up gradation and expansion of tourist facilities in Kaziranga is completed. The Central government has sanctioned Rs. 200 lacs as project cost of Luxury Cruise Vessel project. The Assam Tourism Development Corporation (ATDC) in association with private parties has taken the Luxury vessel project between Kaziranga and Guwahati. ATDC and Cane & Bamboo Technology Centre first inaugurated bamboo based eco-tourism cottage in Kaziranga in Jan, 2007. The Ministry of Tourism, government of India and United Nations Development Programme (UNDP) has also developed a Tourism village named Dugapur in K.N.P. State government has also completed tourist cottage at Kohora and Agaratoli. In 2006 Central government has sanctioned Rs. 44.95 lacs for development of adventure tourism in Kaziranga. State government's continuous effort in organizing Kaziranga Elephant Festival has helped in increasing both domestic and foreign tourists.

Volume of Tourist Traffic

Table 1.03

Source : Directorate of KNP.

Year	Domestic Tourist	Foreign Tourist	Total	Revenue earned by Forest Deptt. In Rs.
2004-05	67,719	5,154	72,873	66,12,508
2005-06	72,362	4,711	77,073	76,41,019
2006-07	69,574	6,493	76,067	82,57,236
2007-08	53,640	6,106	59,746	87,34,185
2008-09	1,00,384	5,767	1,06,151	1,12,20,698
2009-10	1,05,264	7,580	1,12,845	1,21,67,974

FINDINGS OF THE STUDY

The age level of both domestic and foreign tourist and entrepreneurs have been studied. The age factor of these three groups have been shown on the basis of percentage in table No. 1.04.

The respondents of both domestic and foreign tourist have been grouped in the three categories, based on their level of satisfaction as- low, medium and high. The tourist satisfaction scale has maximum score of 40. The low level score is 0-

10, Medium level score is 11-24 and High level score is above 25. The table no. 1.05 has indicated the extent of tourist satisfaction.

The preference of nature or wildlife tourism is 95 percent in K.N.P. for both domestic and foreign tourists. The duration of stay in Assam is nominal as compared to India. It is 12.5 Percent for domestic tourists and 7.7 percent for foreign tourists. Lack of infrastructure is the major problem of this tourist destination as pointed out by foreign and domestic tourists. More than 84 percent tourist are accommodated in Private hotels. Government Sector has limited accommodation facilities in this tourist spot. The responses of the entrepreneurs in Kaziranga National Park have been included in table No. 1.06.

Age levels

Table 1.04.

Source : Field Study.

Category	Age	Domestic Tourist	Foreign Tourist	Entrepreneur
A	60& above	18%	30%	
B	40-59	58%	50%	58%
C	18-39	24%	20%	42%

Extent of Tourist Satisfaction

Table 1.05.

Source : Field Study.

Level of Satisfaction	Domestic Tourist	Foreign Tourist.
Low	15(30%)	13 (26%)
Medium	20 (40%)	21(42%)
High	15 (30%)	16 (32%)
Total	50	50

The entrepreneurs in KNP, are engaged in hotel business, tourist guide, jeep Safari, elephant riding, sale of handicraft and handlooms products etc. Most of the entrepreneurship in this tourist destination are running their business as seasonal business which is for only six months, mainly during the month of November to April. The performance of micro entrepreneurs engaged in selling of handicraft, handloom and cultural activities in KNP has been shown in table No. 1.07.

Responses of Entrepreneurs.

Table 1.06.

Source- Field Study.

Tourism Related Business	Common Business	Self Finance	Bank Finance	Satisfactory sales Turnover	Not satisfactory Sales Turnover
1		2		3	
60%	40%	70%	30%	90%	10%

Encouraging Marketing facility	Not encouraging Marketing facility	Satisfactory Government Policy	Not Satisfactory Government Policy
4		5	
05%	95%	05%	95%

Performance of Micro-Entrepreneurial Activities

Table – 1.07

Source – Field study.

Sl. No.	Product and Cultural Activity	Price Per unit		Time
		Minimum	Maximum	
1.	Gamusa (Hand loom)	80/-	1000/-	
2.	Ari Shaw (Handloom)	550/-	1200/-	
3.	Wooden Rhino 8"	500/-	2,000/-	
4.	Bhihu dance (Group)	1,000/-		One hour
5.	Jamur dance (Group)	1,000/-		One hour
6.	Satriya Dance (Individual)	500/-		One hour.

The minimum and maximum selling prices of handloom and wooden products are higher than the common market prices. Tourist have been satisfied in buying these products. Generally the tourists buy the handloom products at weaver's looms, in appreciation of the artistry of our weavers. The traditional foods of Self Help Groups have good demand. Assamese cultural activities have enhanced demand and these are having excellent attractions for both domestic and foreign tourists.

CONCLUSION

The biodiversity hot spot KNP is a unique place for its diverse flora and fauna and it attracts large number of tourists every year. It is an ideal tourist spot in Assam. K.N.P. needs systematic and scientific approach for long-term sustainable tourism development. The following are some of the suggestions for fostering sustainable tourism development.

- i) The recurring flood and erosion of river Brahmaputra, Poaching, Mimosa Menace, Stray Rhino , Pollution of the neighbouring areas etc. are the major threats for conservation of biodiversity of this world heritage site. Priority should be given for the protection and conservation of wildlife and natural resources of this park.
- ii) In order to earn benefit of eco-tourism, infrastructure development, especially road, transport, power, accommodation should be developed and enhanced.
- iii) Stress should be given on publicity in national and international level. Advertisement and press can play a vital role in this area.
- iv) The entrepreneurs should get financial assistance from bank and other financial institutions. Proper training through government and non-government agencies will enable the entrepreneurs to introduce innovative practices in their activities.
- v) State government should take serious steps for the development of the tourism of this destination.
- vi) Co-operation between state tourism department, forest department, and N.G.Os. is needed for boosting up of tourism in this area. Forest department should strictly follow the code of conduct of eco-tourism in this sector.

Conservation of biodiversity states the planning and management of biological resources in a way so as to secure their wide use and continuous supply, maintaining their quality, value and diversity. The importance of conservation of biodiversity is related for the enhancement of agricultural production, ecological balance, mitigation of environmental pollution and natural calamities. The Kaziranga National Park has been recognized as an idea tourist destination. We need concerted effort from all section of people of the society for conservation of rich biodiversity of this world heritage site by spreading the slogan “Man and nature need each other and by hurting one we wound the other”.

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