

## ECO-TOURISM – A TOOL FOR SUSTAINABILITY IN SUNDARBAN BIOSPHERE RESERVE, KHANGCHENDZONGA BIOSPHERE RESERVE, ACHANAKMAR AMARKANTAK BIOSPHERE RESERVE AND GREAT NICOBAR BIOSPHERE RESERVE: AN ANTHROPOLOGICAL APPRAISAL

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**Abstract:** Biosphere Reserves (BRs) nurture many rare and endangered species of flora and fauna. In India, the Biosphere Reserves are also home to many traditional communities who are living in core, buffer and transition zones of biosphere reserves. The forest ecosystems of the biosphere reserve not only meet a variety of their needs but also provide them food security. The biosphere reserves also sustain such activities as agriculture and pastoralism. By promoting eco-tourism in biosphere reserves, the pressures on biotic resources of the reserves can be reduced to a great certain extent. Eco-tourism means management of tourism and conservation of nature in a way as to maintain a fine balance between the requirements of tourism and ecology on one hand and the needs of the local communities for jobs, income-generating employment and better status for women on the other hand. However, the participation of local communities in eco-tourism is necessary to achieve the goal of conservation coupled with sustainable development.

The present paper endeavours to examine how far eco-tourism plays an important role in the sustainability of host communities in biosphere reserve based on the study conducted in Sundarban Biosphere Reserve (SBR), Khangchendzonga Biosphere Reserve (KBR), Achanakmar Amarkantak Biosphere Reserve (AABR) and Great Nicobar Biosphere Reserve (GNBR).

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It also tries to find out suitable strategies for sustainable development keeping in view the cultural integrity of the region, fragility of the ecosystem, preservation of biological diversity and maintenance of life support system for providing maximum satisfaction to people and tourists.

## Introduction

The origin of Biosphere Reserves goes back to the “Biosphere Conference” organized by UNESCO in 1968. This Conference resulted in the launching of the UNESCO “Man and the Biosphere” (MAB) Programme in 1970. It aims to facilitate the resolution of increasing conflict between people and the Protected Areas. Each biosphere reserve is intended to fulfil three basic functions, which are complementary and mutually reinforcing:

- (i) Conservation function - to contribute to the conservation of landscapes, ecosystems, species and genetic variation;
- (ii) Development function - to foster economic and human development which is socio-culturally and ecologically sustainable;
- (iii) Logistic function - to provide support for research, monitoring, education and information exchange related to local, national and global issues of conservation and development.

The Ministry of Environment and Forest, Government of India launched the Biosphere Reserve programme in 1986. The specific objectives are:

- a) To conserve the diversity and integrity of plants and animals within the natural eco-system
- b) To safeguard the genetic diversity of species on which their continuing evolution depends
- c) To ensure the sustainable use of natural resources through the most appropriate technology for the improvement of the economy and living standard of local people.

Biosphere Reserves are the areas of terrestrial and coastal ecosystems. The experiences of the past few decades have shown that increasing human interventions on ecosystems have accelerated the process of biodiversity loss. In order to preserve biodiversity, eco-tourism is a necessary component.

The World Tourism Organization (WTO, 2000) has defined eco-tourism as “Tourism that involves travelling to relatively undisturbed natural areas with the specified object of studying, admiring and enjoying nature and its wild plants and animals as well as exciting cultural aspects found in these areas”. The Eco-tourism Society defines ecotourism as “responsible travel which conserves environments and sustains the well-being of local people”. The World Wildlife Fund, which has a vested interest in the ecotourism industry

in terms of wilderness protection for habitats and various species present, believes “the term ecotourism refers to any travel to or through wilderness areas that have minimal impact on the natural environment and its wildlife while providing some economic benefits to local communities and the area’s indigenous stewards”.

The WTO had estimated that by 2015, the workforce in the Third World countries will expand by 700 million by which time the number of young workers in the industrialized countries would either stagnate or decline (Bezbaruah, 2002, pp.28). Statistics indicate that tourism grew by nearly 300 per cent between 1970 and 1990, and is expected to grow by half again before the end of the century. In 1991, 450 million international travellers generated more than \$3 trillion in tourism revenues. About 15 per cent, or nearly 68 million, of these travellers, participated in nature-related trips (Kandari and Chandra, 2004). Although not “nature-related” trips constitute ecotourism, it does show an increasing interest for outdoor activities, and possibly, education.

Until the 1970s, few anthropologists showed much academic interest in tourism. Though tourism was certainly relevant to the peoples and places, many anthropologists were studying and few perceived it as a legitimate focus of analysis (Nash 1996). One exception was Nunez, who described weekend tourism in a Mexican village in 1963. In the past two decades, a whole field has emerged, complete with referred journals, most notably *The Annals of Tourism Research*, conferences, university courses, and oft-cited seminal works. One of the best-known pioneering works in the academic study of tourism is by Smith (1989), first published in 1977. Her volume provided both a preliminary theoretical perspective and 12 case studies documenting the impacts of tourism. Mac Cannell (1976) has also been highly influential, especially for developing a theory of tourism in modern society. Several key scholars have published field-defining articles over the years (Cohen 1972, 1984; Crick 1989; Graburn 1983; Jafari 1977; Nash 1981; Nash and Smith 1991). More recent introductory compendiums include those by Burns (1999), Chambers (1997, 1999), and Nash (1996). Smith (1977) defined cultural tourism as the absorption by tourists of features resembling the vanishing lifestyles of past societies observed through such phenomena as house styles, crafts, farming equipment and dress.

Turner and Ash (1975) typified this perspective: The tourists’ superior economic wealth rapidly erodes the sensuous and aesthetic wealth of cultures that have developed in isolation from the western world. Tourism of the present has already begun the work of obliterating cultures. A limited number of studies stress the positive effects of tourism on culture. If support for conservation is regarded as a desirable cultural trait, then the comments can be viewed as a source of or remedy for problems. Evans (1976) postulated that cross-cultural communications between tourists and their hosts may promote adaptive changes in local culture while preserving or revitalizing local ethnic and cultural identity. Evans

considered the quality of cross-cultural communication to be of paramount importance if it is to contribute to the promotion of understanding between tourists and their hosts.

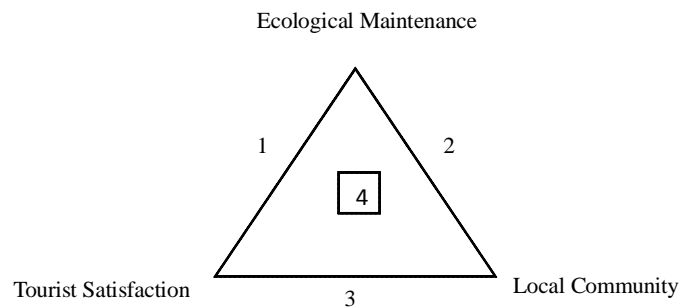
Biosphere Reserves (BRs) nurture many rare and endangered species of flora and fauna. In India, the Biosphere Reserves are also home to many traditional communities who are living in core, buffer and transition zones of biosphere reserves. The forest ecosystems of the biosphere reserve not only meet a variety of their needs but also provide them food security. The biosphere reserves also sustain such activities as agriculture and pastoralism. By promoting eco-tourism in biosphere reserves, the pressures on biotic resources of the reserves can be reduced to a great certain extent. Eco-tourism means management of tourism and conservation of nature in a way as to maintain a fine balance between the requirements of tourism and ecology on one hand and the needs of the local communities for jobs, income-generating employment and better status for women on the other hand. However, the participation of local communities in eco-tourism is necessary to achieve the goal of conservation coupled with sustainable development.

The present paper endeavours to examine how eco-tourism can play an important in the sustainability of host communities based on the study conducted in Sundarban Biosphere Reserve (SBR), Khangchendzonga Biosphere Reserve (KBR), Achanakmar Amarkantak Biosphere Reserve (AABR) and Great Nicobar Biosphere Reserve (GNBR). It also tries to find out suitable strategies for sustainable development keeping in view the cultural integrity of the region, fragility of the ecosystem, preservation of biological diversity and maintenance of life support system for providing maximum satisfaction to people and tourists.

Word sustainable tourism is a synonym of eco-tourism. Lesley France’s model of strategic approaches to sustainable tourism is considered for the present study.

Strategic approaches to sustainable tourism are discussed below in the model.

There are four possible strategic approaches for sustainable tourism.



Source: Lesley France, 1997

Situation (1) could be demonstrated by small numbers of tourists who visit a relatively remote area, thereby gaining a high level of satisfaction from their visit and leaving their

destination relatively unchanged. If such a visit is organized and operated by an external company, perhaps a multinational, benefits are unlikely to filter down to the local community and therefore will not improve the quality of life of those in most need. Specialized package holidays, like small scale safaris, typically satisfy these criteria.

A small-scale local guest house could illustrate the situation (2). It would provide accommodation within a physical and social environment that has been modified relatively little. The standard of comfort provided for tourists is likely to be lower. Nevertheless, the original environment is preserved and any economic benefits that do accrue will go directly to the local community.

Situation (3) can occur when a large tourism enterprise employs many local people. Not all members of the local community will obtain jobs and a large enterprise such as this may well satisfy certain types of tourists but, in the process may irreparably damage the environment.

Situation (4) Small-scales, locally managed tourism enterprises that may spread benefits more widely through the community are the best example.

The present paper endeavours to examine how far eco-tourism plays an important role in the sustainability of host communities in biosphere reserve based on the study conducted in Sundarban Biosphere Reserve (SBR), Khangchendzonga Biosphere Reserve (KBR), Achanakmar Amarkantak Biosphere Reserve (AABR) and Great Nicobar Biosphere Reserve (GNBR). It also tries to find out suitable strategies for sustainable development keeping in view the cultural integrity of the region, fragility of the ecosystem, preservation of biological diversity and maintenance of life support system for providing maximum satisfaction to people and tourists.

Standard anthropological methods such as interview, schedule, case study, observation etc. are employed for yielding field data.

### **Eco-tourism in Sundarban Biosphere Reserve**

Sundarban Biosphere Reserve is the only tropical semi-evergreen mangrove reserve inhabited by the 'Royal Bengal Tiger' in the world. This biosphere reserve is also declared as "World Heritage Site" in 1987. The Sundarban Biosphere Reserve nurtures many rare and endangered species of flora and fauna. This biosphere reserve is also declared as "World Heritage Site". The biosphere reserve nurtures many globally important rare and endangered species of flora and fauna. The region is home of 1100 species of Angiosperm, 150 species of Algae, 15 species of prawns, 67 species of crabs, 23 species of mollusc, 163 species of birds, 40 species of mammals, 56 species of reptiles, 165 species of fishes. This only mangrove tiger land of the planet harbours are rare and endangered mammals like – *Panthera tigris tigris*, *Prionailius bengalensis*, *Platanista gangetica*, etc. (Debnath, 2002).

The ethnographic atlas of the area shows an agglomeration of ethnic groups both tribals and non-tribals. The major tribal groups of the area are the Munda, Bhumij, Oraon and the Santal. The non-tribals mainly represent communities namely the Poundra Kshatriya, Bagdi, Bedia, Chamar, Jele Kaibarta, Malo, Namasudra, Rajbanshi, Brahman, Bauri, Gowala, Tanti, Kayastha, Mahishya, Napit and so on ( Raha, 2004; Singh, 2008 and Dinda, 2006). There are communities who depend on forest and river for the collection of honey, wood and fish because agriculture does not fulfil their need due to saline water. The area is mono-crop in nature. The forest products like fuel, thatching leaves, honey and wax are the main source of commerce to local people. Besides another profession, they work as a very cheap labourer for an additional source of income. During the agricultural lean season, people resort to fishing by spreading net in the rivers and collecting prawn seeds even risking their lives from man-eating tigers and crocodiles. During April-May, some people also enter the Reserve Forests with permits, for the collection of honey. They also collect prawn seeds from inter-dial areas. These activities cause damage to the mangrove forest and also to the ecosystem as a whole through the rapid depletion of resources. The near-total dependence of the people on the natural resources of the ecosystem is due to many factors. One of the reasons is uncontrolled population growth with low-income level. A steep rise in population – 176 per cent between 1947 and 1991 census has led to the loss of forest cover in 54 of the 102 islands of Sundarbans (Debnath, 2002). The biosphere reserve is the major source for providing ecotourism which sometimes aggravates its fragile nature. Due to the introduction of eco-tours, new job opportunities are opened for the local people in different tourism sectors such hotels and lodges, restaurants and tea stalls, shops, tour operators and travel agents, tourist guides, transport and communication etc.

### **Eco-tourism Spots of Sundarban Tiger Reserve**

The eco-tour spots of Sundarban Tiger Reserve are Sajnekhali, Sudhanyakhali, Dobanki, Netidhopani and Burirdabri.

Sajnekhali Mangrove Interpretation Centre, two watchtowers, one crocodile pond and one turtle breeding centre are the main attractions for tourists. Deers are easily found here and there. *Bonobibi* temple is also here. In Sudhanyakhali one watchtower for tiger sighting and Mangrove Park is opened for tourists. Deers and wild boar are easily found here. Dobanki is opened for tourists in 2003 where a canopied path running for almost 250 meters has been built 12 feet above the ground. The path is enclosed by netting that allows tourists to look down upon the densely wooded region and watch the wildlife in all its' natural splendour. Dobanki is also one of the tiger sighting zones in the STR. Netidhopani is one of the most important tiger sighting zone in the STR. One watchtower serves as a tiger seeing event for curious visitors. The journey from Sajnekhali to Netidhopani

is the most adventurous one. The width of the rivers is so broad here as the rivers fall in the Bay of Bengal in near areas. Burirdabri Eco-tourism complex is opened for tourists in November, 2003. A shielded tunnel that runs along the ground for a kilometre into the forest is found at Burirdabri. From behind offence, tourists can get a glimpse of wildlife in the heart of the jungle. Burirdabri is one of what are called the 'tiger sighting zones in the STR. One watchtower is also found here for seeing wild animals. Bonobibi temple is found in all the tourist spots as well as in different points near the coastal side of the rivers.

### Tourist Flow in Sundarbans

The total number of tourists who visited Sundarbans in the year 2002- 2003 is 59861 tourists which are 106 per cent compared to 1999-2000. In 2012-2013, 1.4 lakh tourists visited Sundarbans. From 1 April 2016 to 31 March 2017 more than 2 lakh tourists had visited Sundarbans and international tourists counted more than 4,000.

In total 140 domestic tourists and 40 foreign tourists are interviewed during the present fieldwork in 2005. Tourists from all over the continents visit Sundarbans for enjoying of thrilling of the 'mangrove – tiger' land. Among 180 tourists 80.00 per cent tourists from Asia, followed by Europe (17.23 per cent), North America (1.67 per cent), Australia (0.55 per cent) and Africa (0.55 per cent) are interviewed (Jan-Feb, 2005). Among 140 domestic tourists 89.29 per cent, 2.86 per cent, 2.15 per cent, 1.44 per cent are respectively from West Bengal, Gujarat, Uttar Pradesh and Orissa. Each 0.71 per cent of domestic tourists are from Madhya Pradesh, Karnataka, Tamil Nadu, Maharashtra, Punjab and Uttaranchal. The frequency of tourists from other states is less due to not a proper advertisement in media. Out of 40 foreign tourists 77.50 per cent, 10.00 per cent, 7.50 per cent, 2.50 per cent, and 2.50 per cent foreign tourists are from Europe, Asia, North America, Australia and Africa respectively (Dinda 2007, 2011).

The number of persons directly involved in different tourism sectors within Gosaba block and outside Gosaba block is given below in the tabular form:

**Table 1: Persons involved in different tourism sectors in STR (2004)**

<i>Category</i>	<i>No. of Persons (Local i.e. within Gosaba block)</i>	<i>No. of Persons (Outsiders i.e. outside of Gosaba block)</i>
Hotel owners	15	6
Restaurant owners	19	5
Tour operators	20*	450*
Tourist guides	17	0
Shops	23	0
Craftsman	1	1
Workers involved in different tourism sectors	90*	8*
Total	185	470

\* The number of persons sometimes varies as per situation demand

Besides this involvement, there is a huge number of people indirectly involved in different tourism sectors both in and around Gosaba block and outside of Gosaba block i.e. Kolkata and other areas. In such interior destination, tourism plays a vital role in sustainable development (Dinda 2010, 2012, 2020).

Besides the positive aspect of sustainable tourism, some of the negative impacts of tourism in Sunderban are given below: Frequent movements of launches and *bhatbhati* (locally made boat) break the solitude of Sundarban Tiger Reserve which hampers the normal life of wild animals and plants besides oil spillage in the rivers.

Local villagers opine that tourists' drunkenness, dress, free mixing (*'drishya dushan'* termed by local people), etc. are not healthy for villagers.

### **Eco-tourism in Khangchendzonga Biosphere Reserve**

The Khangchendzonga Biosphere Reserve (KBR) is under the geographical and administrative entity of Sikkim, which is coterminous with the neighbouring country of Nepal, and China. Khangchendzonga Biosphere Reserve is declared a World Heritage site in 2016. The Khangchendzonga Biosphere Reserve nurtures many rare and endangered species of flora and fauna. The biosphere reserve is the major source for providing ecotourism which sometimes aggravates its fragile nature. Due to the introduction of eco-tours, new job opportunities are opened for the local people in different tourism sectors such as hotels, restaurants, shops, tour operators, tourist guides etc. The population of Yuksam, Khecheopalri and its' adjoining areas of West District, Sikkim consists mainly of the Nepalese, the Lepchas and the Bhutias. The villagers used to practice a wide variety of crops such as rice, maize, pea, cereals, green vegetables etc. however the practices slowly diverted to large cardamom because of its high value, and low manpower.

The Bhutias are living in Tsoka village of core zone in case of Khangchendzonga Biosphere Reserve. The Bhutia, the Lepcha and the Nepali are mainly live in the transition area of Khangchendzonga Biosphere Reserve. Pastoralism is common here and mostly yak and sheep are herding in high altitudes. Dzo (hybrid animal of Yak and Cow) are used for carrying goods of tourists during trekking.

### **Unique Flora and Fauna**

Flowering plants – 4500, Orchids – 448, Rhododendrons – 36, Bamboos – 20, Ferns – 362, Mammals – 144, Birds – 550, Butterflies – 700, Lakes and Wetlands – 227 etc. are the main attractions of the tourists in KBR.

**Flora:** The flora of the Khangchendzonga landscape is full of *Alnus Nepalensis* (Uttis), *Castanopsis* (Kattus), *Quercus* (Oak), *Castanopsis* (Kattus), *Acer* (Kepasi), *Lithocarpus* (Bantey), *quercus* (*Buk*, *Bajrant*) mixed with Rhododendrons (*Guransh*, *Chimal*), Dwarf Rhododendrons



i.e. *Rhododendron* anthopogon, tough clumps of Juniper, Berberis and Rosa are common (Verma, 2007).

**Fauna:** Mammals consist mainly of the Snow Leopard, Clouded Leopard, Lesser Cats, Blue Sheep, Tibetan Fox, Red Panda, Himalayan Black Bear, Barking Deer, Wild Dog, etc. While trekking from Yuksam to Dzongri, these wild lives are one of the most curious items for seeing of the trekkers.

### Places of Tourist Interest in Yuksam, Khecheopalri and its Adjoining Areas

Pemayanatse Monastery, Pelling, Khecheopalri Lake, Yuksam, Dubdi Monastery, Khang-Chen-Dzonga waterfall, Rabdentse Ruins, Sanga – choling Monastery, Singshore Bridge / Uttarey, Rangit water world, Tashiding Monastery, Kongrt – Labdang, Varsey, Soreng, Rinchenpong – Kaluk Hee Beermiok, Dentam, Sirijonga Yuma Manghrm Mortam, Sirijonga Fooku and wadhan (cave), Limboo Cultural Centre, Tharpu etc. are the tourists' spots of West Sikkim. The present fieldwork has been mainly done in Yuksam, Khecheopalri, Dubdi, Yuksam – Tshoka trekking trail. Kathok and Khecheopalri lakes are two important lakes in this area. Khecheopalri is known as, 'wishing lake' is one of the most sacred lakes of Sikkim.

Comparing to the year 2003, when a total figure of visitors to KBR as 1912 number (850- domestic and 1062 –foreigners), an expanded number of visitors over the past five years, for both domestic and foreigners, totalling a fluctuated figure between 2618 in the year 2008-09 and 3559 in the year 2005-06, has been recorded, which offers the great potential of eco-tourism sector in the KBR.

**Hotel:** There are 75 hotels, 8 restaurants and 6 travel agencies at Pelling. A section of tourists of Pelling visits Yuksam. Trekkers generally visit Yuksam directly from Gangtok and Darjeeling. There are 12 hotels/lodges at Yuksam.

**Table 2: Persons involved in different tourism sectors in KBR (2007)**

<i>Category</i>	<i>No. of Persons (Local i.e. within Yuksam and Lachen)</i>	<i>No. of Persons (Outsiders i.e. outside of Yuksam and Lachen)</i>
Hotel owners & home stay	37	81
Restaurant owners	14	75
Tour operators	52*	120*
Tourist guides	28	45
Shops	61	0
Craftsman	16	0
Workers involved in different tourism sectors	125*	150 +400 Pelling*
Total	333	396

\* Number of persons sometimes varies as per situation demand

Hence it could be concluded that ecotourism has played a greater role for the local population in the case of Khangchandang Biosphere Reserves compare to Sundarban Biosphere Reserve (Table 1 and Table 2).

### **Eco-tourism in Great Nicobar Biosphere Reserve**

**The Locale:** The Great Nicobar Island is declared as one of the important Biosphere Reserve in 1989 having a total forest cover area 885 sq. kms., in which core zone as 705 sq. kms. and buffer zone as 180 sq. kms. Great Nicobar Island lies between 6° 45' and 7° 15' latitudes and 93° 38' and 93° 55' longitudes. The northern half of the Great Nicobar Island is dominated by mountain ranges and while patches of flat land stretch along the coast and river valleys in the southern half. The topography of the island is extremely undulating; with the minor hill ranges with gradients 50 and 60. These hill ranges serve as a barrier against an outsider who wants to visit the Shompen area. The terrain of the Great Nicobar is completely undulating and hilly. The island has differentiated itself from the other islands with the perennial rivers and streams. Amongst them, the Galathia, the Alexandria and the Dogmar are the important rivers where navigation is only possible. The rivers of the Great Nicobar Islands are full of aquatic life like the crocodile, turtle, varieties of fish, etc. The island has coconut, areca nut, palm trees, pandanus, bananas, papaya, bamboos, varieties of hardwood trees, different types of wild edible fruits and roots, etc.

The island is covered with dense forest, full of tropical trees – White Chuglam (*Terminalia bialata*), White Dhoop i.e. Resin (*Canarium euphyllum*), Mango (*Mangifera silvatica*), Jamun (*Schizigium* sp.), Rudraksh (*Eliocarpus gangestus*), Coconut, Pandanus (*Pandanus tectoria*), Jungli Supari (*Areca triandra*), Jungle Bet (*Calamus longisetus*), Lal Bet (*Kostbalsia laciniosa*) etc. are found in plenty, some of them are endemic in nature. Lush mangroves swamps and sea-grass meadows provide the necessary habitat for crocodiles and turtles. The wood and leaves of a good number of trees are used for various purposes such as canoe making, fencing, hut construction, thatching of roofs, fire drills etc.

In comparison with the floral beauty of the island, the fauna varieties are less in number. Wild mammals like, pig (*Sus nicobarensis*) and black-faced grey monkey (*Macacus umbrosus*) are the endemic variety of the island. In the bird variety, the Great Nicobar Serpent Eagle (*Haenatronicheela* Klossi), Megapode (*Megapodius nicobariensis* Abbotti) are the endemic variety of this island. There are lots of lizards, pythons and snakes mostly non-poisonous and saltwater crocodiles (*Crocodilus palustris*) widely distributed in almost all the creeks and back-waters.

Great Nicobar Biosphere Reserve is four days ship journey from Port Blair. There is no hotel for tourist stay except Andaman Public Works Department (APWD) guest house

at Campbell Bay. It is generally used for Government work. Only during Turtle breeding, few scientists visit Galathia river area at 45 kilometres.

**The Shompen:** The Shompen by nature are shy and timid. The Shompen live in small groups in the dense forest along the river or stream, numbering about 214 individuals (Rizvi, 1990). They are settled in Jhaunalla, Trinket Bay, Laful, Kokyan, Galathia river area, East-West 35 km. East-West 27 / 28 km., Dogmar river, Alexandria river area. The Government of India designated some groups of the scheduled tribes as 'Primitive Tribal Groups' (PTGs) where the Shompen of Great Nicobar Islands occupy their position as one of the indigenous PTG as their prime problems have been identified as declining or stagnant population, low level of literacy, pre-agricultural technology – primarily belonging to the hunting and gathering stage and extreme backwardness. The Shompen still live in their primitive technological level and are still keeping them apart from the civilized society and retain their traditional mode of living. Their means of subsistence is food gathering, hunting and fishing, domestication of pigs and a bit of horticulture. Gardening is the prime economic activity of the Shompen.

Tourists do generally not visit Great Nicobar Biosphere Reserve except few scientists visit turtle breeding at Galathia river area at 45 kilometres. Hence there is no question of the sustainability of local people.

### **Eco-tourism in Achanakmar- Amarkantaka Biosphere Reserve (AABR)**

Achanakmar – Amarkantak Biosphere Reserve is the 14<sup>th</sup> Biosphere Reserve of India. It is named after Achanakmar, a forest village and Amarkantak a holy place from where the Narmada and Sone River emerge. The Achanakmar – Amarkantak Biosphere Reserve lies between latitude 22°15" to 22°58"N and longitude 81°25" to 82°25"E having an area 3835.51 sq. km. This Biosphere Reserve is located in two different states i.e. Madhya Pradesh and Chattisgarh and in two different cultural zones i.e. Baghelkhand and Chattisgarh in Anuppur and Dindore district of Madhya Pradesh and Bilaspur district of Chattisgarh. Out of 3835.51 sq. kms., 1224.98 sq. kms. fall in Madhya Pradesh and 2610.53 sq. kms in Chhattisgarh. Out of the total area, 68.1% lies in Bilaspur district of Chhattisgarh state 16.2% in Anuppur district (Madhya Pradesh) and 15.7% in Dindori district (Madhya Pradesh). The geographical area of AABR is predominantly distributed among five tehsils of Mandla, Shahdol (M.P.) and Bilaspur (Chattisgarh) districts.

**Forest Resources:** The forest area of the AABR represents tropical deciduous vegetation and can be classified into Northern Tropical Moist Deciduous and Southern Dry Mixed Deciduous forest. The former type is predominant in the BR area. Sal (*Shoran robusta*) is the dominant species in the region along with other important plants sp. as Bija (*Pterocarpus marsupium*), Saja (*Terminalia tomentosa*), Dhaora (*Anogeissus latifolia*), Bhirra

(*Chloroxylon swietenia*), Tendu and Salai, Karra (*Cleistanthus collinus*), Mundi (*Mitragyna parwidia*), Bhornmal (*Excelsum Lagerstroemia*), Shisam (*Dalbergia latifolia*), Sagon (*Pectona grendis*) in Lormi, Kota and Pendra Road tehsils.

AABR is famous for its Tiger Reserve. Regarding the availability of prey base bison (hair), the spotted deer (*Axis axis*), the Sambar (*cervus - unicolour*), barking deer (*Muntiacus-muntjak*), a sizeable number of wild boar (*Sus serofa*), Sloth baeat (*Melursus ursinus*) are major omnivores. The mixed troops of langurs are in abundant. There are rich diversity of avifauna at least 89-90 species identified so far with sizeable population of migrating ones.

### **Ethnoscape**

All the 24 villages in AABR of the core area are forest villages. They are mostly inhabited by tribal communities viz. the Baiga, the Gond, the Oraon, the Kol, the Kaware and the Dhanwar. In addition, there are other caste communities also like Brahman, Yadav, Rajput, Dhobi, Dhimar, Lohar, Lonia etc. The Oraon community has migrated from Sarguja district of Chattisgarh in search of occupation between the years 1970 to 1980. Now they are settled in the core area of AABR. Baiga has migrated from Mandla and Dindori districts of Madhya Pradesh. The Gond has also migrated from the Mandla district of Madhya-Pradesh. Some of the caste groups had migrated from Bilaspur, Kota, and Rewa etc. Among all these tribes the Baigas are found in each and every village of the core area of the biosphere reserve. The Baiga is one of the Particularly Vulnerable Tribal Group (PVTG) in Chattisgarh. Hindi language and Devanagari script are used for inter-group communication (Singh, 1994: 79-82). The Baiga people used to practise shifting cultivation and subsisted on the collection of non-timber forest produce / minor forest produce. Of late, they have taken up settled cultivation and they continue to collect non-timber forest produce / minor forest produce. Since shifting cultivation in forest areas has been completely banned, the Baiga now depend on agriculture, collection of non-timber forest produce and wage labour. The Yadav are dependent on cow herding.

There are 22 villages in the core area as per forest record, but two additional villages i.e. Ghameri and Babutola have been added as they exist separately and recognized by the *sarpanch* of the Niwaskhar Panchayat. The population of these two newly came-up villages are the immigrants from neighbouring villages. During the field investigation, it was known that forest official had tried in vain to get remove these two villages from encroached forestland during the eighties. Now for all practical purposes, these two settlements are considered separate villages. Among these 24 villages altogether 29 communities of different constitutional status are residing. These 24 villages are covered fall under eight panchayats but none of the sarpanch posts is reserved for tribal groups. As per the divisions of the

forest into different ranges, these 24 villages come under three forest ranges namely Lamini and Achanakmar Ranges.

One forest guest house at Achanakmar village and three small tourist cottages are at Chaparwa village. Both the guest houses are adjacent to the national highway. Very few tourists visit Achanakmar Amarkantak Biosphere Reserve in 2007 and 2008. Previously in 2009, tourists are allowed to stay at these guest houses but now (2020) tourists are not allowed to stay here. Very few tourists visit AABR. Hence, there is no such question of the sustainability of local people.

### **Conclusion**

Sundarban Biosphere Reserve and Khangchendzonga Biosphere Reserve attract a good number of both domestic and foreign tourists of which the numbers of nature lover tourists are comparatively more. Great Nicobar Biosphere Reserve and Achanakmar – Amarkantak Biosphere Reserve attracts very few tourists. Hence, the sustainability of local people in the case of Sundarban Biosphere Reserve and Khangchendzonga Biosphere Reserve are high compare to Great Nicobar Biosphere Reserve and Achanakmar – Amarkantak Biosphere Reserve. If we follow Lesley Frances model number 4, the sustainability of local people will be very high. The dependency of local people on the biosphere will be low if we enhance ecotourism in all the Biosphere Reserves in a controlled manner. Tourist flow in biosphere reserve increases conservation processes by way of tourist's movement in reserve area which controls poaching as well a collection of forest resources from reserve forest.

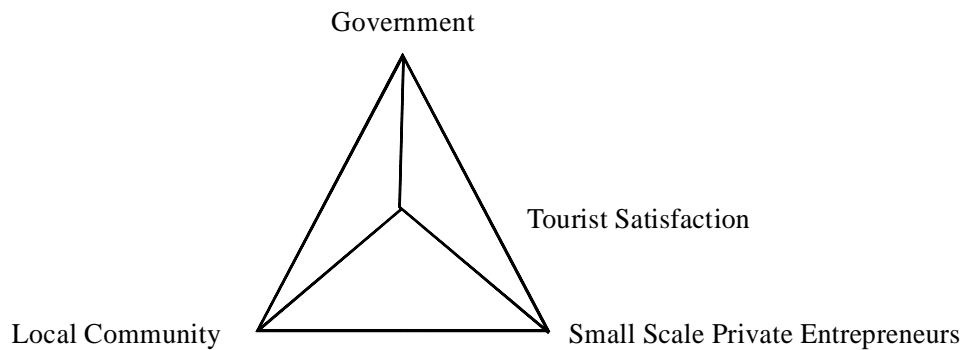
Conservation by way of planting trees, not collecting prawn seeds, fishes, not uprooting mangrove, chugam, saja and other trees, by not killing tigers, white bears, leopards and other wild and endangered animals, by creating awareness among villagers by way of showing videos, performing dramas, *jatras* (open theatre) etc. are the best example of preservation of biosphere reserve.

Eco-tourism reduces pressure on biosphere Reserves by means of alternative income from the hotel, homestay, restaurants, travel agents, tourist guides, porters etc.

Sundarban Biosphere Reserve and Khanchandzonga Biosphere Reserve are successful stories of Eco-tourism as the tourist flow is comparatively high. Local people get jobs. Pakhirala can be a model village for ecotourism as fifty per cent of hotel owners are from the village itself in the case of SBR. It can be replicated in transition/buffer villages of SBR. In turn, it reduces anthropogenic pressure from SBR. In the case of KBR, the author notices the presence of home stay both in the North and West Sikkim district. Most of the hotel owners are from Yuksam and Khecheopalri villages in West District and Lachen, Lachung and Zangu villages in North District in case of KBR. On the other hand,

Achanakmar -Amarkantak Biosphere Reserve (AABR) and Great Nicobar Biosphere Reserve (GNBR) are the failed stories of eco-tourism as the tourist flow are very less. In the case of GNBR, tourist flow is very less due to its long distance from Port Blair. It is also not well connected with Port Blair both by ship and air route. In the case of AABR six-core villages are vacated and rehabilitated outside of AABR. Other 18 villages are within core areas of AABR. These villagers used natural resources from the biosphere (2009).

Eco-tourist's degree of satisfaction depends on several factors. Some of the important factors are the availability of the proper infrastructural facility, involvement of the local community in ecotourism activity, proper tourism management, maintenance of eco-tour spots and fragile ecosystem.



### *A Strategic Approach to Sustainable Tourism for Sundarban Tiger Reserve*

In the management process of tourism, the interplay of three indicators *viz.* local community, small scale private entrepreneurs and government determine the degree of management in terms of availability of infrastructure, conservation of ecology, benefit to local community and satisfaction to tourists. In the case of Sundarban Biosphere Reserve and Khangchendzonga Biosphere Reserve which has a fragile ecosystem, greater participation of the local community along with decisive government intervention in the management of tourism is suggested to safeguard the interest of the local community and protect the ecology. It, in turn, will ensure maximum satisfaction to tourists. So far as private entrepreneurship is concerned, small scale private entrepreneurs' involvement should be encouraged (Dinda, 2006, 2008). If we follow the same model of sustainable tourism in the case of Achanakmar -Amarkantak Biosphere Reserve (AABR) and Great Nicobar Biosphere Reserve (GNBR), sustainability of local people can be achieved in near future.

Increasing numbers of visitors to ecologically sensitive areas like Sundarban Biosphere Reserve and Khangchendzonga Biosphere Reserve can lead to significant environmental degradation. Likewise, indigenous culture faces numerous challenges with the influx of

foreign visitors and wealth. Eco-tourism promotion is bound to have a series of economic, socio-cultural, environmental impacts on the habitats which would require a systematic evaluation and analysis using scientific techniques before development decisions are taken.

The physical environment of any place plays a vital role in society which is governed by the implementation of government schemes. Hence, it is urgently realised that planning for implementing any government scheme must be area-specific, community-specific and also with their likings and disliking of a particular scheme and also the magnitude of the devotion of the authority. It has also been observed from the above study that economic backwardness, low literacy level and non-participation in politics causing poverty and have a direct effect on the interrelationship among communities at the micro-level.

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