

Eco-tourism Potential Along the Indian Coasts

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Abstract

Tourism has recently become one of the major industries in India. The concentration of tourism in India is on the historical as well as religious places, hill stations and to some extent the beaches.

Eco-tourism is a new concept being considered in India for creating awareness in education, research, conservation, sustainable utilization and management of flora and fauna. India has several biosphere reserves, marine parks and sanctuaries having different eco-biological components and uniqueness in flora and fauna. These reserves have attracted several domestic and foreign tourists. However, in spite of the very interesting scenic spots with rich biodiversity, these areas have not received much attention for eco-tourism due to the lack of tourist oriented spots/recreation as well as infrastructural facilities and poor media coverage highlighting the unique and varied biota of the region.

Some of the coastal ecosystem which can be considered for eco-tourism are intertidal mangrove forests (such as Sunderbans which is unique in the world where tigers share aquatic and terrestrial food web), rich and varied beds of marine benthic algae, subtidal coral reefs and seagrass beds. Apart from these, there are several hot spots along the Indian coastline which could be exposed for eco-tourism. These hot spots are Gulf off Kuchchh, Andaman & Nicobar and Lakshadweep Groups of Islands, Sunderbans, Bhitarkanika, Malvan, Chorao, Palk Bay, etc. There is an urgent need to develop all these spots on the line of other tourism areas with facilities such as water sports, angling, snorkeling, scuba diving, aquarium, etc. which can not only attract large number of tourists but also can give an opportunity to know and understand sea life at close quarters.

It is however, necessary to have proper management plan with stringent measures to control pollution and minimize the impact of tourism on the coastal ecosystems, keeping in view the total carrying capacity of the area.

Introduction

Ancient voyagers and explorers have undertaken number of expeditions with the sole aim to explore, inhabit and exploit the virgin land as well as for the sake of adventure. Gradually, as settlement increased, the trade amongst these settlers started to flourish and ultimately it paved the way for tourism. As such tourism is not a new concept and it had been going on since ancient times, except for the fact that it has changed largely but the basic principles remained the same.

Tourist interest in the beginning was mainly concentrated on the ancient civilization, cultural heritage, scenic beauty, wildlife, etc. However, due to non-availability of proper mode of transport, communication and other infrastructural facilities, it used to take long time to visit the places and only very few affluent people used to travel. Coastal tourism has been the recent addition in India.

Gradually, when development began, lot of changes started emerging and the major as well as damaging changes appeared during the industrial revolution. The reclamation of coastal land, discharge of domestic sewage and industrial effluents have affected the marine environment very seriously. This has resulted in the disappearance of fauna and flora of the coastal ecosystems. In view of this, technical aspects of ecological and environmental protection on trends and characteristics of tourism and planning on land used method which

incorporate the concept of carrying capacity, has to be worked out in greater details. Recently, more and more tourists organizations have started taking serious interest in the way in which tourism interact with the environment. As natural resources are the main tourist attraction, it is necessary to protect, use and manage these resources wisely in order to achieve sustainable tourism development.

India, with diverse socio-economic and religious structure, have attracted people from all over the world. The tourist industry in India is based mainly on the historic and religious places, wildlife, mountaineering, trekking and to a limited extent seashores. However, Indian tourist industry has not made much headway inspite of the fact that there are a number of places where tourism can be developed on similar lines to that of other developed countries. Number of tourist resorts have been developed at various attractive places. However, these facilities can cater mostly for the international tourists. At most of the tourists spots, infrastructural facilities such as transport, accommodation for both domestic as well as international tourists, guides and conducted tours giving details of the important tourist spots are lacking. There is also poor media coverage on these tourist spots as well as the published reports, pamphlets, etc.

Eco-tourism is the new concept being considered in India, today. It is nothing but the use of natural environment for tourism and recreational purpose without harming or disturbing ecological balance. Under this concept, maritime zone and coastal belt play a leading role. This will serve human being not only to understand and use marine resources and other aspects of coastal belt but also to conserve, utilize and be aware of the heritage which we have to carry to the next generation.

The concept of eco-tourism can be programmed in such a way that every aspect of the ecosystem can be looked upon from the management and utilization point of view. The management of the resources on the sustainable basis and conservation of the ecosystem is possible under eco-tourism. This concept

will also give an opportunity to understand and study various components of the coastal ecosystem at close quarters and will help to monitor the ecosystem, evaluate and rectify the damages caused due to man's interference.

Coastal ecosystems have been neglected for a long time. In spite of the vast Indian coastline of 7860 km harbouring number of sandy beaches, coves, bays, headlands and lagoons, very few sandy beaches are being used for tourism purposes. This is one of the few areas that can be extensively developed for tourism purposes based on the concept of eco-tourism. Facilities such as water sports, snorkling, diving, etc. can be properly developed. This whole programme needs proper planning, management and execution within the framework of eco-tourism. It is the prerequisite to carry out impact assessment studies critically in these areas which will be developed for this purpose and monitoring of all the parameters of the components to be continued. Stringent legislation is to be implemented for taking away the marine plants and animals, sand etc. Tourists should be encouraged to understand and study the behaviour of the organisms and their interaction with various ecological components. Environmental education regarding destructive processes and unwanted biotic interference like pollution, reclamation, etc. need to be introduced among the tourists.

There has been a world wide concern over the damage caused to the coastal areas due to the industrial and domestic sewage pollution, extensive destruction, modification of the coastal belt for techno-economic development and over-exploitation of marine living resources. These activities have resulted in the degradation of wetlands, flood plains, seagrass beds, coral reef, etc. Throughout the world. (Carpenter, 1973). These coastal environmental problems have led to the concept of 'Biosphere Reserves' to protect unique and ecologically important plant and animal species. The biosphere reserves encompasses human beings, their needs, problems as well as development as one of the components unlike sanctuaries and parks where

importance is given only to the wildlife. Concept of biosphere reserve and eco-tourism are synonymous and both are meant for sustainable utility of the living and non-living resources. Under this concept, Govt. of India has declared number of biosphere reserves all over India of which four are marine biosphere reserves. (Dhargalkar & Untawale, 1989, Govt. of India publ.1989)

Eco-tourism Spots In Indian Coast

The potential areas for coastal eco-tourism are 1. Gulf of Mannar, (Tamil Nadu), 2. Chilka Lake, (Orissa), 3. Bhitarkanika, (Orissa), 4. Sundarbans, (West Bengal), 5. Andaman & Nicobar Group of Islands. 6. Malvan, (Maharashtra) and 7. Lakshadweep Group of Islands. All above mentioned places harbour specialized ecosystems such as corals, mangroves, seagrasses, marine algae, etc. The important characteristics and possibility of developing infra-structural facilities for eco-tourism is briefly given below:

1. Gulf of Mannar

(8°-49'-9°-15' N latitude and 78°-11'-79°-15' E longitude) - This region lies in between India and Sri Lanka and is very rich in marine life, dominant being molluscs, pearl oyster and marine algae. There is a line of 22 islands parallel to the Indian mainland from Tamil Nadu to Mandapam peninsula. The shell fishery of this region is well known for *conus*. *Murex* has been a target of over exploitation. Seagrass beds and seaweeds are the feeding grounds for the endangered species of *dugong* and breeding grounds of marine turtle. Mangroves along the swampy islets and creeks between the islands are feeding grounds for marine reptiles and nursery grounds of several species of terms.

In this area water sports such as snorkling, diving, observatory for birds and mammal sighting can be developed with proper information on the flora and fauna of the region and to identify the areas for water sports. An aquarium with rare and economically important species will be the added tour-

ist attraction. Inter island cruises will also be the thrilling experience for tourists.

2. Chilka Lake

(19°-30'N latitude and 85°-30'E longitude) It is the largest brackish water lagoon in Asia and is located south of the Mahanadi delta separated by large sand bars. The lagoon is 50km long and 20km wide. Freshwater influx from one of the tributaries of the Mahanadi turns the lagoon brackish. This is one of the wintering spot for water fowl, pintails, wintering duck and geese. Besides these, two species of flamingo and concourses of shore birds make this lagoon an important tourist attraction. This lagoon has important prawn, mullet, crab fishery and luxuriently growing economically important seaweed *gelidiella* sp.

This lagoon can be developed as one of the best eco-tourism spots in India. It is an ideal place for developing water sports such as water skiing, diving, snorkling, etc. Observatories could be set up at number of places along the lagoon for bird observations. Besides this, dolphinarium and aquaria for other rare species can be established.

3. Bhitarkanika

(20°-N & 86°-59'E) - It is at the north of the Mahanadi delta having tidal creek. There are few other deltaic islands and Bhitarkanika is the bigger one fringed with mangrove vegetation.

The largest living reptile *crocodilus porosus* about 6 m long is found here. The most important and significant characteristics of this area is the only nesting site in India for the Pacific ridley turtle *Lepodocheilus olivacea* which grow to the largest size among the living turtle in the world. Moreover, Bhitarkanika has highest biodiversity index as far as mangroves are concerned.

This area can be developed as a special area for spotting marine reptiles which are rare and require immediate conservation. Eco-tourism is one of the

measures by which marine environment can be conserved and utilized.

4. Sundarbans

(21°-30' - 22°-45'N latitude and 88°-60' - 89°-5'E longitude) - It covers Gangetic and Bramhaputra delta of 9630 km area of which about 4264 km is of mangrove accounting for 60% of the total mangrove area in India. The mangrove ecosystem of Sundarbans is unique and only of its kind in the world where tiger shares aquatic as well as terrestrial food web. It harbours a number of endangered and globally threatened species of plants and animals like the Royal Bengal Tiger, estuarine crocodiles, Salvador lizard and grey water monitor (*Varanus flunbiscence*), gangetic dolphins and Black finless porpoises (*Neomeris focinoides*) (Chakraborty and Chaudhary 1973). Horse-shoe crab a living fossil breed in these mudflats. This area is also rich in tiger prawns and mullet fishery. Honey collection from mangrove forests is a promising business and produces about 114 tonnes of honey annually employing 200 people.

In this part, number of observatories can be established for tigers and other animals and for bird watching. Conducted tours in these area can be organized with proper information system on fauna and flora of the region and identifying areas for spotting rare animals. Diving, or snorkling should be strictly prohibited in the tiger infested area.

5. Andaman and Nicobar Group of Islands

(6°-45' - 13°-45'N latitude and 92°-45' - 94'E longitude) - These islands have coralline substrata with coral reef extending far away from shore and enclose lagoons. The Pygmalion Point (Indira Point) of this group of islands is the southern most point of India. The mangroves occupy more than 110,000 hectares of land and plays an important role in coastal ecosystem with high level of carrying capacity. Several bird species are endemic to this region. Marine turtle, estuarine crocodile and dugong are found in the vicinity of these islands. More than

2,900 species of animals (Subbarao, 1984), 56 species of birds, four species of turtles, one crocodile are the characteristic feature of these islands. Out of the 750 species of fishes, 11 species are commercially important.

Although this locality is far away from the mainland it has a great potential for eco-tourism development. The area is quite large and various recreational facilities such as water sports, observatory and aquarium can be developed in this area. Inter island cruises can boost tourism depicting tribal culture of the island. Care should be taken and stringent legislation may be adopted to protect tribes from tourists. This area is in pristine form and as it is far away it is necessary to create facilities to cater for both domestic as well as international tourists.

6. Malvan, Maharashtra

(16°-15' - 16°-50'N latitude and 73°-27' - 73°-31'E longitude) - The coastline harbours numerous creeks and bays. The most dominant creeks are Kolamb, Kalavati and Karli. The area around Sindhudurg fort is rich in marine algae, corals, pearl oysters and variety of invertebrate species (Untawale et al 1979; Qasim & Wafar, 1979; Anonymous, 1979 and Parulekar, 1981). The area is free from pollution and harbours 94 species of marine algae and 198 faunal species comprising sponges, seafans, soft corals, sea anemons, hard corals, etc.

The area in and around the Sindhudurg fort is ideal area for eco-tourism development. Water sports, snorkling, diving can be developed around the fort (Untawale et al 1980) area and full fledged marine aquarium with variety of live plants and animals can be housed in the fort. Proper outlay of the aquarium for different groups of animals with attached museum showing the richness of the area will be a good attraction. As Malvan is a small town and away from the national highway, infrastructural facilities in terms of domestic as well as international tourists are required to be made. The most important aspect is to workout the carrying capacity of the

area. Boat cruises from mainland to the fort area will be additional tourist attraction. There is a need to popularise the importance of this spot with the aid of media, published literature, pamphlets, brochures, etc. Local people should be given priority during the development of this area as tourist spot because these are the people who are aware of the changes taking place during the different seasons in the environment.

7. Lakshadweep Group of Islands

(11°N to 72°E) These group of islands lie about 300 km to the west of the Kerala coast. These islands are unique in coral atolls. Several larger islands are inhabited while the smaller ones remained without any habitation. These islands have been proposed as marine biosphere reserve for conserving rich marine life. Several atolls harbour breeding colonies of tropical oceanic birds and marine turtles. About 21 species of marine algae are found growing luxuriantly in the coastal waters (Subbaramaiah, 1979).

These islands can be developed in line with Andaman Group of Islands. Diving and snorkling in lagoon area if developed can boost tourism particularly for the international tourists. There is a great potential to develop the islands with infrastructural facilities for the tourists of all kinds. Inter-island cruises could be one of the main tourist attraction. Marine aquarium can be developed on one of the islands with the R & D cell to monitor the impact of tourists activities on the ecosystem. While developing tourist facilities islanders should be given proper representation and their experience can be utilized for the development purpose.

All the above mentioned areas are rich in biodiversity and unique in harbouring specialized ecosystems. Marine national parks and sanctuaries can also be developed on the line of eco-tourism with proper infra-structural facilities and clearly defined environmental code of conduct for tourists. It is also important to assess the carrying capacity of each locality not to overburden the tourist spots

which may lead to the damage to the ecosystem.

Other Related Activities

1. Diving

This field has been neglected in India for a long time. Diving can provide tourists to see and enjoy marine life in their natural condition which is very rare opportunity for Indian tourists. In India there are no diving schools wherein people can get the opportunity to learn, except for the professional naval schools for Indian defence personnel. There is an urgent need to start such schools along the coastal places so that persons interested may learn diving. Presently, there is no Indian industry manufacturing diving gears and all the diving gears are required to be imported which is beyond the reach of common man. There is a vast scope to develop this facility along the Indian coasts and Indian firms can take up this challenge to manufacture diving gears so that they are available to the Indian tourists at reasonable and affordable rates.

2. Water Sports

Water sports in India has not been developed to much extent except for some beaches along the Indian coast. This activity is restricted to water scooters and boat trips. Surfing is one of the important water sports which is totally neglected in India and there is a great scope to develop this water sport in India. Another important water sport neglected in India is skiing. There are a number of bays, atolls, protected areas where this water sport can be introduced.

3. Information Centre

This is the most important and vital activity of the eco-tourism. This facility is required to be developed at all the tourist spots. Proper documentation of marine life, their availability and brief description will help tourists in general and students in particular to understand the marine life. This centre should have published books in regional

languages on marine life, type of marine life available at each locality and the other biological and oceanographic information of seas around India. Published literature, brochures, pamphlets on the marine life can boost up tourism considerably. The literature should include information on the transportation, accommodation and other facilities available at each tourist spot. The local people, who have vast experience of the area and knows the traditional uses of the coastal area will greatly benefit by the prospect of eco-tourism.

4. Marine Land Complex

This will form as one of the most important tourist attractions for all the classes of tourists. In spite of the vast coastline rich with marine life, we have no such complexes except for the Tarapurwala Aquarium in Bombay which attracts quite a large number of tourists. Marine land complex should be developed with proper planning and layout. There should be different zones separated from each other harbouring dolphinarium, aquarium for the animals which are rare and difficult for common man to enjoy, running seawater system, and other facilities such as R&D work, regular monitoring of the marine land complex and surrounding sea to assess the impact of tourism. Complex should also house museums catering for all the animals and plants of the sea with proper documentation and upto date information of the organism will help greatly for educational purpose. Proper and trained staff at various levels to look after the planning, development, execution and supervision of marine land complex is necessary.

5. Public Awareness

This is the most important aspect of eco-tourism. Eco-tourism can flourish if public is aware of the life in the sea and their importance to mankind. It is well known that human interference has rapidly changed the composition and abundance of marine life. The coastal belts have been seriously damaged due to various activities. This has hap-

pened because public at large are not aware of the importance of the marine ecosystem. Therefore, it is necessary to create awareness amongst the public which can be achieved by audio-visual means, publications and organizing lectures at various levels. Regular camps for students and nature club should be organised in the endangered area so that the public is aware of the consequences it can cause due to our negligence.

6. Economic Development

Eco-tourism can bring unique, economic development through the sustainable utilization of natural resources. Other advantages of eco-tourism are (a) general revenue through tourism and other tourist related activities (b) utilization/uses of resources on sustainable basis, (c) conservation of the ecosystem (d) regular monitoring of the coastal belt (e) increase in public awareness and (f) education.

Constraints

1. Detailed and seasonal surveys of the flora and fauna from the tourist point of view are not available.
2. Coastal areas are facing environmental problems due to pollution (sewage, industrial and oil), reclamation, deforestation, etc.
3. Proper and scientific impact assessment studies are not available.
4. No proper implementation of legislation for over exploitation, deforestation, sand mining, reclamation, etc.
5. Certain tourist spots are not accessible by route and lack tourist oriented infrastructural facilities.
6. Trained manpower for eco-tourism point of view is not available.

7. Over and unscientific way of exploitation of flora and fauna should be stopped immediately and proper harvesting procedure to be used to retain germ plasm.
8. Published literature, brochures, pamphlets, etc, highlighting the importance of tourist spots and infrastructural facilities are not available.

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