

Eco-Tourism – A Key to Protect the Biodiversity in Maharashtra

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ABSTRACT: Biodiversity is an asset to tourism and it varies greatly across the globe. It is vital in maintenance of a healthy ecosystem. From the last couple of decades biodiversity has been affected due to rapid urbanization. Various efforts are made to conserve the biodiversity; one of them is protected areas which are reserved for rare and endangered species of flora and fauna. Maharashtra has up to 15,732 sq km reserved forest which is about 5.02 per cent of the State's geographical area. Maharashtra is rich with varied biodiversity ranging from forests, wetland, grassland to coast and evergreen forest. Natural site, Kaas in Western Ghats has been included in the World Heritage Site list by UNESCO. Conservation of endangered and rare species of flora and fauna is a challenge in developing countries as rules and regulations are not strictly followed.

Ecotourism is the key to conserve the endangered species because it is referred to as sustainable nature based tourism. It incorporates tourism in harmony with nature. Further it provides opportunities for tourists to experience and explore the powerful manifestation of nature. It also emphasizes the utmost necessity of protection of biodiversity and local culture. Ecotourism helps in economic development of area through employment generation. Awareness created and income generated through ecotourism enables to protect the endangered species.

This paper attempts to find out significance of eco-tourism in protection of biodiversity in Maharashtra. A detailed study is needed to investigate the pressure and negative impact on biodiversity. Adoption of ecotourism on the grounds of environment carrying capacity will lead to sustainable tourism development and this is the need of the hour.

KEY WORDS- ecotourism, biodiversity, employment generation

I. INTRODUCTION

Maharashtra, the third largest state is one of the most industrialized and urbanized states of India. It is located on the west coastline along the lush green Konkan region. Several hill stations and water reservoirs with semi evergreen and deciduous forests are found in Western Ghats and the Sahyadri mountain range. The Vidarbha region, northern part of Maharashtra, features dense forest. It is home to several wildlife sanctuaries and national parks. The state abounds in natural and cultural attractions ranging from unspoiled beaches, forest, wildlife, unique hill stations, ancient cave temples, forts, temples and rich tradition of fairs and festivals. Unique diversity of Maharashtra reflects through Kaleidoscope of races, languages, customs and traditions.

The state has recognized tourism as a major thrust area for economic growth. Maharashtra ranks 5th in domestic tourist arrivals in year 2011 with 6.50 % total tourist visits. It ranks first in foreign tourist visits with a share 24.70% (4815421) tourists in year 2011 and hence there is remarkable increase in budgetary allocation for promotion of tourism in the state.

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The scenic 720 km long coastline of the Konkan has been included for development as tourist circuit. The main attractions for the international tourism are the capital city Mumbai, the hill stations and the beaches. It is one of the states that have largest forest cover in India. Ecotourism is sustainable nature based tourism that helps to conserve the biodiversity. Biodiversity of Maharashtra continues to be threatened by growing human population that not only places pressure on its biological resources but also impacts the overall change in the pattern of seasons.

Eco-tourism focuses visiting natural areas featuring fragile, pristine and relatively undisturbed environment. It involves travel to the destination where flora, fauna and cultural heritage are prime attractions. It is aimed to offer insight into the impact of human beings on the environment and also to foster a greater appreciation of natural habitat along with educating travellers to provide funds for ecological conservation.

The World Conservation Union (IUCN) defines ecotourism as “ environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to appreciate nature (any accompanying cultural features – both past and present) that promotes conservation , has low negative impact; and provides for beneficially active socio-economic involvement of local population” (IUCN,1996).

World Tourism Organization (UNWTO), an apex body for development of tourism in the world, defines ecotourism as a tourism that involves travelling to relatively undisturbed natural areas with the specified objective of studying, admiring and enjoying the scenery and its wild plants and animals, as well as existing cultural aspects (both the past and the present) found in these areas.

As per UNWTO, Ecotourism is considered as the fastest growing market. Overall tourism has been growing at an annual rate of 4%; nature travel is increasing at an annual rate between 10% and 30%. According to World Travel and Tourism Council approximately 7% of international tourism sales are spends on nature tourism. (Richards & Hall 2000, Holden 2000)

II- RELATED WORK

Eco-tourism is nature based tourism with a special emphasis on education and interpretation of natural and cultural environment. It is an instrument for natural protection and at the same time assures sustainable economic benefits for the local people. (Hall & Brown 2000) . Ecotourism explains the mutual relations established between tourists, environment and culture which brings important benefits to the local economy and ensures the condition for long term development and maximum recreation satisfaction for the tourists. (Hodur, Leistriz and Wolfe, 2005) . The main objective of ecotourism is to create high quality tourism while protecting the environment and stimulating the durable local development. The key aspects for ecotourism are involvement of local community, activation of financing resources and realizing the environment resources. The various aspects which need attention at operational level for sustainable management of ecotourism are assessment of carrying capacities, better transportation managements, conservation and adaptations, design and control of developments, marketing effects in tune with the sustainability concept, local community involvement while planning eco tourist destinations (Cater, 1993) . If ecotourism projects are not planned and managed, it can inflict damage to natural environment. In addition, spread effects will be confined to the immediate community surrounding the tourist destination resulting in islands of affluence in a sea of poverty (Diaz, 1997). On the other hand, researchers on ecotourism have opined that participation of local people is to be ensured in the process of planning as they are assumed to have greater knowledge in the usage and effective management of the resources through application of traditional and customary practices.

III- SCOPE OF RESEARCH

Ecotourism is the most important aspect as it is concerned with environment protection. Eco-tourism is growing rapidly in Maharashtra. It is attracting lots of domestic and foreign tourists. With the increasing number of tourists, ecotourism is

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considered as one of the main source to generate the income. If ecotourism grows rapidly beyond limit, it will result in several environmental, social and cultural problems. Increased number of tourists beyond the carrying capacity may deteriorate the areas due to increase in accommodation units, shopping centers and other recreation facilities in ecosystem areas. It has every threat to wipe out the plant and wildlife species & further it may lead to replace the natural ecosystem by artificial landscape.

Biodiversity is an asset to tourism, with a strong need felt by the Maharashtra government towards conservation of depleting natural resources & income generation through it, the present study attempts

- to find out the significance of eco-tourism in protection of biodiversity in Maharashtra.
- to explore the biodiversity of Maharashtra and tourist attraction associated with it

IV- METHODOLOGY AND DISCUSSION

The present study on ecotourism is based on secondary data. The data has been obtained from the related articles, research papers, reports, policies and plan documents of Government of India and Maharashtra .Some data has been obtained from websites of Govt. of India and Govt. of Maharashtra, MTDC as well as Ministry of Environment . Visit to some site has been undertaken to know the environmental status.

Importance of Biodiversity

Biodiversity refers to the variety and richness of all the plants and animals species in a region. It has direct relation with geography, climate and patterns of vegetation and it is seen in ecosystem such as forest, grassland, lakes, rivers, wetlands, mountains and hills. Maharashtra has extremely rich diversity of aquatic and territorial flora and fauna. Coastal area of Maharashtra acts as a natural fish nursery. The mangrove forest reduces the fury of tidal cyclonic storm and prevents erosion due to tidal action. Millions of people depend on various forms of biodiversity for their livelihood such as fishing, collection of honey, fuel wood and timber and other forest product.

The geographical location of Maharashtra makes it home to a wealth of ecosystem which needs to be protected. The ecosystems representing biodiversity have become the major resource for ecotourism.

Ecosystem and biodiversity of Maharashtra-

Maharashtra is located in the western part of India with an area of 308,000 km. Geography of Maharashtra is an asset to the ecotourism development. Western Ghats runs parallel to the coast and has an average elevation of 12000 meter .Kalsubai near Nasik is the highest peak in the Sahayadri in Maharashtra. Konkan coast plain, 50-80 km in width, lie to the west of these hills. To the east of the Ghats is the flat Deccan plateau. The Western Ghats forms one of the three watersheds of India, from which many south Indian rivers originate. Godawari, Krishna flow eastward into Bay of Bengal forming one of the greatest river basins of India.

With the aim to protect and conserve the rich diversity of the region Wild Life Sanctuaries, National Parks and Project tiger reserves have been created in Maharashtra. There are 6 National Parks, 35 Wild Life Sanctuaries and 4 tiger reserves. Following table offers insight into special features of biodiversity which give rise to unique tourist attractions.

Sr. No	Name of Ecosystem	Description Forest, Flora, Fauna	Major Tribes and their occupation(Cultural Diversity)
01	North Maharashtra Vidarbha	Dry tropical deciduous forest Tiger,Cheetal, Sambhar, Sparrow	Korkus of Melghat Gonds of Chapra
02	Western Ghats	Moist tropical, tropical wet evergreen, subtropical broad leaved forests.	Pujari in sacred grooves, Katkari

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		Leopards, Sambhar, Giant squirrel, Pythons, Racket tailed Drone, Tree frog, Sand Boar, Trap door spider.	
03	Grass land of Deccan Plateau	Semi arid ecosystem Nanaj, Pehkari, Supe – Thorn forest, grasses herbs Wolf, the Great Indian Bustard , Buzzard, Kestvel , Hare	Dhangers and Shepards
04	Aquatic ecosystem and wetlands	Springs-Western Ghats Dam catchment- Vidarbha Riverrine ecosystem- Deccan plateau Wetland –Nandur Madhemeshwar Bhigwan backwater of Ujani River turn feeding chick Greater Flamingo , Back winged Stilt, Pintail ducks, painted Stork	Inland and wetland fishing
05	Coastal ecosystem	Sandy coast, Rocky shore, coastal agriculture, coastal forest Fishing eagles , San piper snails, Prawns, Jelly fish, Octopus Rice , Varai, Nagli	Marine fisherman

Unique ecosystem found in Maharashtra

- **Gadchiroli** –located in east Maharashtra is a unique forest preservation site. It acts as benchmark of naturalness.
- **Kaas**- A unique site for ground flora. The flora of Kaas is of large number of endemic and threatened species. Kaas Plateau of Western Ghats in Maharashtra has been declared as World Heritage site by UNESCO.
- **Lonar**- Lonar is located in district Buldana of Vidarbha region. It is an important geological site featuring salt water ecosystem. This lake is created by meteor impact during Pleistocene age.

Western Ghats- This mountain range in Maharashtra is known as Sahyadri. It is incredible hotspots of biodiversity. The major characteristics features are the climate, topography, ecology, flora and fauna.

Splendors of biodiversity in Maharashtra

Biodiversity seen through these distinct ecosystems are the major spots which pull tourists both domestic and foreign. Environment in Maharashtra supports excellent and varied resources. Maharashtra houses a large number of animal species including the Tiger, Crocodile, Bison, Neelgai, Wild Deer, sambar and rare migratory birds. The State is a home for 27, 22 and 42 per cent of mammals, reptiles and birds respectively, found in India (GoM, 2003). The State has variety of flora and fauna consisting of about 3500 flowering plants, 85 mammals and 460 bird species.

The beauty of the green forest at Matheran and Mahabaleshwar in morning and evening , the majestic movement of tigers in Tadoba , eye catching movement of migratory birds at Bhigwan are the major incentives for nature lovers to explore the specific destination .

Each season gives different perspective of the biodiversity. In the rainy season the fresh green leaves appear full of youthful vigour and surrounds the cascading waterfall in Malshej Ghats of Western Ghats. Majestic white waves rolls in from the Arabian Sea offers leisure tourists visit coastal areas to discover sea world along with exploring water sports and Konkani cuisine .At the end of the rainy season Kaas plateau blooms with thousands of endemic species of flowers. Each winter, thousands of guest birds and colorful ducks transform the water bodies into bird sanctuary presenting bird lovers a chance to explore in bird paradise. The hot climate in summer push the residents to visit the hill stations located in Sahyadri mountain ranges. Adventures sports associated with all these are attributes of biodiversity.

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Attractions of biodiversity of Maharashtra

Description	Comment	Major destinations
Beaches	720 km coast line on western coast , Arabian sea Unspoiled virgin beaches	Mumbai Konkan coast Ganapatipule, Tarkarli, Diveagar , Harihareshwar
Climate	Cool and dry during hot season (March-May)	Hill stations Mahteran, Mahabaleshwar, Chikhaldara, Panchgani
Forest	Evergreen, Deciduous forest Mangroves	Wildlife Sanctuaries , National Parks Tadoba, Melghat, Radhanagari
Wildlife	Tigers, Leopards, Deer, Great Indian Bustard	Wildlife Sanctuaries , National Parks Tadoba, Melghat, Radhanagari Maldhok sanctuary
Lake	Lonar Crater ,Salt water ecosystem	Lonar
Culture	Specific to each region	Fairs and Festival Regional cuisine

Eco sensitive areas of Maharashtra

Specific places in Maharashtra have been identified as ecological sensitive areas by Biodiversity board of Maharashtra. These overexploited sites need special attention in development and conservation.

Site	Description	Threat
Matheran	Forest	Infrastructure construction for tourism
Mahabaleshwar Panchgani	Evergreen forest, high rain fall, great floral wealth.	Rapid urbanization for tourism
Dahanu	Forest cover and horticulture	Land use pattern changed , power plant

Conservation approaches

The threat to biodiversity is site specific in nature and related to the natural resources, their exploitation patterns and socio-economic profile of the area. There is a need of proper conservation approaches for protecting the rich biodiversity of Maharashtra. Growing population is the greatest threat to the biodiversity as livelihood of the inhabitants depends on it. Activities like fishing, felling wood, hunting, destroy the natural resources.

Ministry of Environment and Forest had designed guidelines for ecotourism in and around the protected areas to enable the optimum use of the biodiversity as a tourist attraction. To protect and conserve the biodiversity, central and state government along with Non Government Organisations have adopted several approaches like Protected areas in the form of National Parks ,Wild life sanctuaries and tiger reserves

- Encouragement to alternative livelihood
- Development of ecotourism
- Afforestation
- Encouragement to eco-friendly accommodation and other facility
- Establishment of interpretation centres

These activities of eco-tourism development are carried out in coordination with forest department .In developing countries like India where large number of tourists travel to forests more vigorous conservation policies, strategies and laws are required.

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Ecotourism Initiative

To Several schemes are launched by Maharashtra state for exploring full potential of eco-tourism. Some of them are listed as

- The forest Department of Maharashtra (FDCM) Ltd provides accommodation at Bor, Nagzira, Tadoba, Melghat and Maharashtra State Tourism Development Corporation (MTDC) co-ordinates the booking.
- FDCM will be appointing the India Society of Environment, art, culture and heritage to organize eco-tours in the vicinity of forest in Maharashtra. As state it offers excellent potential for eco-tourism, with the help of available infrastructure, FDCM plans to organize guided tours, nature tours and rural tours in forest areas, sanctuaries national parks.
- To study diversity of ecologically rich area predominantly forests and hills, environment awareness and nature interpretation centers are planned to setup. These are designed to cater to the needs of special interest group like students, nature lovers and environmentalists. For example nature interpretation centres at Vidarbha will provide information of biodiversity found in 27 wildlife sanctuaries, 4 national parks, nature trails and trekking routes through posters and audio visuals.
- Amboli, an ever green forest has been identified as a region for undertaking special eco-tourism initiatives. Other sites identified are Tadoba –Navegoan national park and regions of Sahyadri.
- The mountain range of Sahyadri offers plenty of opportunities for trekking, hiking and rock climbing. MTDC looks after the promotion of wildlife and adventure tourism. Tadoba and Melghat and Sahyadri have potential to attract more visitor and needs to be developed and marketed strongly.
- State government has released Rs. Five crores to boost eco-tourism in the protected areas for Kalsubai, Harishchandragad santuraries, Chikal Dara, Melghat tiger reserve and others.
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Government of Maharashtra has formulated 'Eco-tourism Policy' in the year 2008. The policy highlights are

- Employment generation
- Increased involvement of local people
- Protection of environment and culture
- Promotion of sustainable tourism in the state
- Provision of infrastructure

M.T.D. C has been assigned as a key role player. It coordinates with the stake holders. MTDC is promoting tourism through highlighting wildlife in advertising. Various brochures are also published as part of promotional campaign. Eco-tourism policy also defined the role of MTDC, private tour operators and government .It had provision of training programmes for the local people to develop alternative livelihood and income generation.

MTDC launched village tourism plan with emphasis on women's enterprises, and a scheme to turn the Sawantwadi region into a specialist arts and crafts center. Mahabhraman –unique tourism experience scheme introduced by MTDC to explore biodiversity and highlights are Agrotourism, Ecomantra, Konkan tour, Nature trails, Nisarg Vihar, Tiger trails etc. Tour operators are appointed to develop and market the packages.

V.RESULT

Ecotourism plays vital role in conservation. It is travel to destinations where flora, fauna and cultural heritage are primary attraction .It focuses on local culture, wilderness, adventure, and volunteering personal growth and to find out new ways to live without harming the natural resources. Sustainable tourism involves activities that minimize adverse effects of traditional tourism on natural environment to enhance the cultural integrity of local people. This responsible form of tourism encourages going back to natural areas making very little harm to nature and encouraging protection of wildlife and habitat.

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Considering the immense value of biodiversity in Maharashtra and subsequent loss of the same during last couple of years, enormous conservation efforts were made for restoring the biodiversity of various habitats.

Eco-tourism activities like wildlife tourism, bird watching, trekking helps the government to improve the management of natural resources. The eco-tourist visit sites to observe the wildlife and as a result money is spent on that area. Local government and people can utilize these incentives to maintain areas in natural condition to ensure continued visit by the eco-tourist. If the carrying capacity exceeds because of increase in number of tourist visits to ecosystem will lead to destruction of rare and endangered species due to trampling, killing, disturbing the balance of breeding habit. Other important factors needs to be controlled are the development of transport routes, construction of accommodation unit which will put pressure on the ecosystem by the way of noise pollution, water pollution, vehicular emission and untreated sewage. Environment impact assessment programs have to be implemented to study effect of growing tourism.

In developing and promoting eco-tourism, attention should be given on management of solid waste and waste water treatment. Increase in number of tourists at hill station like Mahabaleshwar and Matheran exerting negative impact on environment by deforestation for construction of hotels. In Kaas, pathway in eco-friendly manner will save endemic species which are getting destroyed by trampling. Ban on use of plastics should be strictly implemented to reduce plastic accumulation in Kaas.

Public awareness is an effective tool for conservation, organization of various campaigns in the vicinity of ecological important site are urgently required to inculcate environment consciousness amongst people. To lessen the damage and destruction of ecosystem alternative ways of income should be encouraged and promoted to maintain the balance between natural resources.

Promotion of eco-tourism in Maharashtra with an aim to protect the biodiversity and generate income for the communities whose livelihood depends on nature, additional conservation approaches for creating sustainable eco-tourism awareness are

- Educational programmes to generate mass education about threatened biodiversity at various levels highlighting needs for Wild life protection
- Introduction of Environment as a subject helps in creating awareness in the minds of youngsters, the future of the country.
- Statistical data analysis and documentation to record the present status of biodiversity.
- Regular survey and analysis of eco-tourism parameters by government and NGO.
- Strict adherence to the measures suggested by forest department to reduce man-animal conflict.
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VI. CONCLUSION AND SUGGESTIONS

Eco-tourism provides opportunities to visitors to experience powerful manifestations of nature and culture. It focuses on the significance of conservation of biodiversity and local culture. At the same time it generates income for conservation and economic benefits for the communities living in rural and remote areas. The relationship between tourism and conservation is symbiotic one. While the tourists enjoying nature through nature and wildlife tour, the local people provide services like tour guide, translator, story teller, food and beverage and even facilitate tourists by providing accommodation. Income generated from these activities is used in the development of infrastructure and it is also directed to environment protection. Active participation of local communities in eco-tourism will convince that their resources are more valuable when intact than extracted from ecosystem. Entry fees are the key element in biodiversity protection. Use of indigenous guide and local products along with environmental education at various level and minimal travel comforts protect local flora and fauna. It also provides local people with an economic incentive to safeguard their environment.

Currently the involvement of local community in tourism is limited. Their involvement should be considered from policy formulation phase to gain thrust and active participation.

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There is need for long term research on issues and investigation of other sites experiencing tourist pressure. Research is also needed to determine what level and rate the tourist traffic triggers negative impact on wildlife. This will enable the forest department to set level that will minimize the impact on the biodiversity. Tourism development in Maharashtra needs to be sustainable. The restrictions on number of tourist visits should be followed strictly. Future ecotourism plans must be based on carrying capacity of the ecosystem. The tourism promotional strategies designed should match environment quality, social equality, community empowerment, cultural integrity and economic efficiency through training and awareness programmes for all stakeholders. Enormous potential of biodiversity in Maharashtra will benefit the society and environment and lead to economic development of the region and conserve endemic species.

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BIOGRAPHY



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