

ECOTOURISM DEVELOPMENT AND BIODIVERSITY CONSERVATION AT HASTINAPUR WILDLIFE SANCTUARY

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Abstract:

The Hastinapur Wild Life Sanctuary was established in 1986 as part of “Asia Flyway” Project and spreads across more than two thousand square kilometres and covers more than one hundred seventy three kilometres of length of the holy River Ganga and extends up till the Districts of Hapur and Amroha covering the regions of Khaadar, Khola and Bangar. Khola boasts of dense forest cover whereas Khaadar region contains wide grass-land expanses with interspersed forests. The methods of Solid Waste Management used at Hastinapur Wild Life Snactuary include landfill and manure. Although Hastinapur Wild Life Sanctuary is viable ecotourism site, however, there is an urgent need to increase the variety or the richness of biodiversity therein. Besides, the already in use solid waste management techniques a couple of more may also be put to use to for better waste management. It is imperative to sensitise as well as mobilise the local population for preserving and promoting Hastinapur Wild Life Sanctuary as a potential ecotourism site wherein tourist can enjoy and observe from very close quarters the animal life in their natural habitat. For this to happen certain impediments are to be conquered. Taking cue from NEER Foundation effortst may be made to rope in some more NGOs and private companies to further expand this model. Road and infrastructure need special attention if we were to attract a higher tourist footfall here. This study is limited to the Meerut Range of Hastinapur Wild Life Sanctuary only.

Keywords: *Ecotourism, Biodiveristy, Biodiversity Conservation, Hastinapur Wild Life Sanctuary, Solid Waste Management, Nature-based travel, Natural Environment.*

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Introduction

Within the broader realm of tourism, ecotourism may be defined as a tourism activity that tends to integrate together as diverse aspects as environmental conservation, the local communities and sustainable travel. The Hastinapur Wild Life Sanctuary was established in 1986 as part of “Asia Flyway” Project. It spreads across more than two thousand square kilometres and covers more than one hundred seventy three kilometres of length of the holy River Ganga and extends up till the Districts of Hapur and Amroha covering the regions of Khaadar, Khola and Bangar. Khola boasts of dense forest cover whereas Khaadar region contains wide grass-land expanses with interspersed forests. The Sanctuary is home to State animal Swamp Deer and State Bird *Saaras*(Crane). It is famous for Twelve–Horned Deer or the “*Baara Singha*”. Under Crocodile Breeding Projects, baby crocodiles are released in the Ganga River near Hastinapur. Under the aegis of World Wildlife Fund, the Turtle Rehabilitation Program also has its centre near the Hastinapur Sanctuary. Foreign and Indian migratory birds regularly visit the Hastinapur Wildlife Sanctuary. Marshy ecosystem with more than three hundred species of birds, Sloth Bear and Wild Boar is a major tourist attraction. “Thirty-one years after the establishment of Hastinapur wildlife sanctuary, a plan was prepared to develop it as an eco-tourism destination”¹ with the help of Non Governmental Organisations and other concerned agencies that entails development of religious and historical sites in and around the sanctuary and job creation. The Forest Department is planning to barricade the entire forest areas of the Sanctuary and maintain enough water supplies for sustaining aquatic life in the Sanctuary. It is also proposed to develop Ganga Barrage as a bird sanctuary. On November 30, 2020 local NGO NEER Foundation approached the Uttar Pradesh Chief Minister Yogi Adityanath and expressed the desire to develop one hectare of land for eco tourism in the Sanctuary.² This research paper is an outcome of interviews with the Divisional Forest Officer (Meerut Range) of Hastinapur Wildlife Sanctuary and Ramankant Tyagi, Director NEER Foundation (A Non Governmental Organisation founded in 2004 and is active in the field of environment conservation).

Ecotourism

Concept

The concept of ecotourism is fairly young – hardly forty years old. It shot into prominence during the middle and late of the eighth decade of the last century as a result of heightened concerns and movements to protect the environment. Since then it has attracted the attention of policy makers, academicians, scholars national and international organizations who attempt to define it in no uncertain terms. Wight

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(1993), treats the concept of ecotourism as spectrum that consists of two factors namely (a) supply factors (nature and resilience of resources; cultural or local community preferences; types of accommodation) and (b) demand (types of activities and experiences; degree of interest in natural or cultural resources; degree of physical effort).³ “Ecotourism” within the broader realm of tourism, “is about uniting conservation, communities, and sustainable travel. Steward & Sekartjajarini (1994), identify two main perspectives of the concept of ecotourism namely activity based and definitional that is attempting to define ecotourism as an organised and independent industry. The former deals with role of the ecotourist that is “what ecotourists actually do” while the latter emphasises values attached to the ecotourist activities or to be more precise, “what ecotourists should do”. Orams (1995) visualises the activities of ecotourists as a continuum of low human responsibility pole and high human responsibility pole.

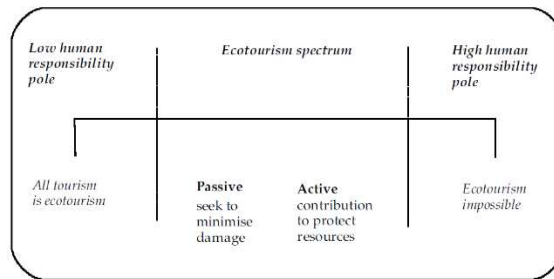


Figure 1: The Continuum of Ecotourism Paradigms

Source: Orams, M. B. (1995). Towards A More Desirable Form of Ecotourism. *Tourism Management*, 16 (1), 3-8.

Components and Structure

Laverde, Bernal, & Espinosa (2018) identify three discretely distinct but essentially interrelated components of ecotourism namely environmental, social and economic which are depicted in Figure 2.

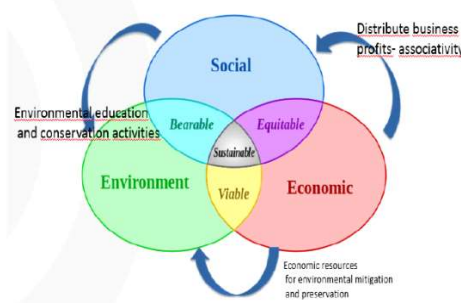


Figure 2: Components of Ecotourism

Source: Laverde, W. E.-M., Bernal, O. A.-V., & Espinosa, C. G. (2018). Green Engineering that Focuses on Ecotourism as an Environmental Strategy. *Global Journal of Engineering Education* , 20 (2), 132-138.

Blamey (1997) points out four main components of ecotourism viz (a) nature-based, (b) environmentally educated, (c) sustainably managed and (d) distance/time. Fennell (2020), describes in detail the structure of ecotourism the edifice of which basically rests on three fundamental parts viz essence, core crieteria and main issues. The entire ecotourism structure is depicted in Figure 3.

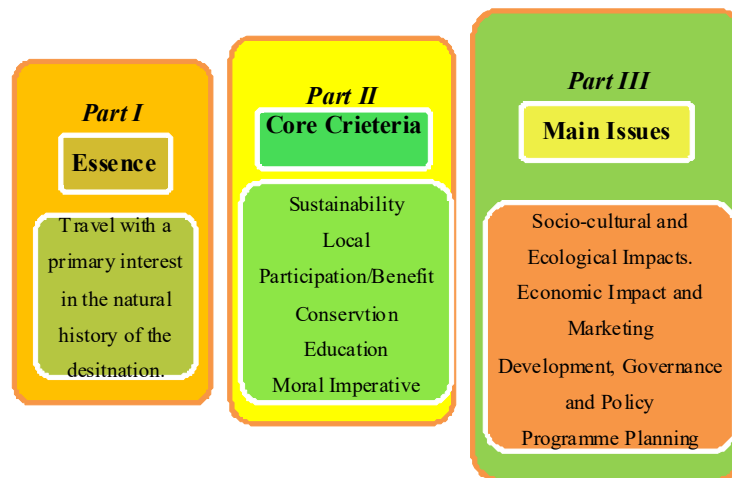


Figure 3 Structure of Ecotourism

Source: Fennell, D. A. (2020). *Ecotourism* (5th ed.). Oxon, New York: Routledge.p.46.

Definitions

The focus of nearly all of the definitions is on nature and natural environment aimed at minimizing impact, education, conservation, local people while a few add the cultural heritage dimensions as well. “Ecotourism is a form of tourism that attempts to minimize its impact upon the environment, is ecologically sound, and avoids the negative impacts of many large-scale tourism developments undertaken in the areas which have not previously been developed.”⁵ The United Nations World Tourism Organization (UNWTO) adopts a more holistice approach while defining ecotourism. It says, “All forms of tourism in which the main motivation of tourists is the observation and appreciation of nature and that contribute to the conservation of the natural environment and cultural heritage with the least possible negative impact.”

Highlighting the education value of ecotourism Allcock & Evans-Smith (1994) stress “Ecotourism is nature based tourism that involves education and interpretation of natural environment and is managed to be ecologically sustainable” while Buckley (1994) believes “Ecotourism as tourism that is nature based, environmentally educative, sustainably managed and conservation supporting.” The International Ecotourism Society (2015) puts “Ecotourism” as “responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education” and a purposeful “travel to enjoy the world’s amazing diversity of natural life and human culture without causing damage to either” (Tickell, 1994, p. ix). Global Ecotourism Network (2016), defines “Ecotourism” as responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and creates knowledge and understanding through interpretation and education of all involved (visitors, staff and the visited)”⁶. According to Richardson (1993), ecotourism is “ecologically sustainable tourism in natural areas that interprets local environment and cultures, furthers the tourists’ understanding of them, fosters conservation and adds to the well-being of the local people”. Hunt, Durham, Driscoll, & Honey (2015) point out that there is a close interconnection between ecotourism, environmental conservation and “the well-being of local people”. Ecotourism Australia defines ecotourism as, “Ecologically sustainable tourism with a primary focus on experiencing natural areas that fosters environmental and cultural understanding, appreciation and conservation.”⁷ Honey, (2008) claims, “Ecotourism is the practice of low-impact, educational, ecologically and culturally sensitive travel that benefits local communities and host countries” (p. 71). Mexican ecotourism and cultural tourism expert Ceballos-Lascurain delineates, ecotourism as, “traveling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestation (both past and present) found in these areas.” Norris, (1994) imagines ecotourism as a tourism that “integrates both protection of resources with provision of local economic benefits.” According to Ziffer (1989):

“Ecotourism is a form of tourism inspired primarily by the natural history of an area, including its indigenous cultures. The ecotourist visits relatively undeveloped areas in the spirit of appreciation, participation and sensitivity. The ecotourist practices a non-consumptive use of wildlife and natural resources and contributes to the visited area through labor or financial means aimed at directly benefiting

the conservation of the site and the economic well-being of the local residents”. (p. 6)

According to Boo (1991), “Ecotourism is a nature tourism that contributes to conservation, through generating funds for protected areas, creating employment opportunities for local communities and offering environmental education” (p. 4). “Nature-based tourism that is focused on provision of learning opportunities while providing local and regional benefits, while demonstrating environmental, social, cultural, and economic sustainability” (Forestry Tasmania, 1994, p. ii). “Nature-based tourism that involves education and interpretation of the natural environment and is managed to be ecologically sustainable. This definition recognizes that natural environment includes cultural components, and that ecologically sustainable involves an appropriate return to the local community and long-term conservation of the resource” (Australian Department of Tourism, 1994, p. 17). “Travel to remote or natural areas which aims to enhance understanding and appreciation of natural environment and cultural heritage, avoiding damage or deterioration of the environment and the experience for others” (Figgis, 1993, p. 8). “A responsible nature travel experience, that contributes to the conservation of the ecosystem while respecting the integrity of host communities and, where possible, ensuring that activities are complementary, or at least compatible, with existing resource-based uses present at the ecosystem” (Boyd & Butler, 1993, p. 13). “Low impact nature tourism which contributes to the maintenance of species and habitats either directly through a contribution to conservation and/or indirectly by providing revenue to the local community sufficient for local people, and therefore protect, their wildlife heritage area as a source of income” (Goodwin, 1996, p. 288). “Ecotourism is tourism and recreation that is both nature-based and sustainable” (Lindberg & McKercher, 1997, p. 67). Miller (2016), lists three benefits of ecotourism such as (a) It provides sustainable income for local communities (b) It allows for new experiences with the environment and (c) It helps with research and development.⁸

Types of Ecotourism Sites

Ahmed & Mollah (2014) apply three criteria namely habitat, cultural and manmade to classify ecotourism sites into five major categories. Table 1 provides an overview of this classification. **Table 1: Types of Ecotourism Sites**

S. No.	Types	Sites
1.	Marines	Marine-Protected Areas, Coral Reefs, Islands, Beaches, Bays
2.	Terrestrial	Mountain, Volcanoes, Caves, Trails, Forest Areas
3.	Freshwater	Lakes, Rivers, Hot and Cold Springs, Waterfalls
4.	Cultural	Churches, Historical Sites, Festivals
5.	Manmade	Urban Parks, Reforestation Sites

Source: Ahmed, S., & Mollah, M. (2014). A Framework for Classifying Ecotourism Initiatives in Bangladesh. *Bangladesh Research Publications Journal* , 9 (4), 240-248.

Characteristics of Ecotourism

Some important characteristics of ecotourism mentioned at www.ectourism.com are as follows:

- **Involves travel to the natural destination:** These destinations are often remote areas, whether inhabited or uninhabited, and are usually under some kind of environmental protection at the national, international, communal, or private travel.
- **Minimize impact. Tourism causes damage:** Ecotourism strives to minimize the adverse effects of hotels, trails, and other infrastructure by using either recycled or plentifully available local building material, renewable sources of energy, recycling and safe disposal of waste and garbage, and environmentally and culturally sensitive architectural design.
- **Builds environmental awareness:** Ecotourism means education, for both tourist and residents of nearby communities. Well before the tour begins, tour operators should supply travelers with reading material about the country, environment, and local people, as well as a code of conduct for both the traveler and the industry itself. Ecotourism projects should also help educate members of surrounding communities, schoolchildren, and the broader public in the host country.
- **Provides direct financial benefits for conservation:** Ecotourism helps raise funds for environmental protection, research, and education through a variety of mechanisms, including park entrance fees; tour company, hotel, airline, and airport taxes. And voluntary contributions.
- **Provides financial benefits and empowerment for local people:** Ecotourism holds that national parks and other conservation areas will survive only if, there are happy people around the perimeters. The local community must be involved with and receive income and other tangible benefits (potable water, roads, health clinics, etc.) from the conservation area and its tourist facilities.
- **Respects local culture:** Ecotourism is not only “greener” but also less culturally intrusive and exploitative than conventional tourism. Whereas prostitution, black markets, and drug often are byproducts of mass tourism, ecotourism strives to be culturally respectful and the human population of a host country.

- Supports human rights and democratic movements: The United Nations-sponsored World Tourism Organization proclaims that tourism contributes to “international understanding, peace, prosperity, and universal respect for and observance of human rights and fundamental freedoms for all.”

Functions of Ecotourism

Ross & Wall (1999) outline the five fundamental functions of ecotourism which are namely (a) Protection of natural areas (b) Education (c) Generation of money (d) Quality tourism and (e) Local participation. These functions are intrinsically related to the ecotourism objectives. **Table 2 details out this interrelationship with examples of variables.**

S. No.	Function	Objectives	Examples of Variables Achieving Objectives
1	Protection of natural areas	1. Provisions of local socio-economic benefits	Increased employment opportunities. Local distribution of tourism revenues. Improved local infrastructure (transportation, communication, access to and provision of goods and services. Improved access to social benefits (e.g. health care, education). Improved intercultural relations and appreciation (through positive interactions from host and tourist). Local capacity building towards self-sufficiency/decentralization/local empowerment.
2	Generation of Money	2. Provision of Environmental Services	Passive and active learning through interpretative services in protected areas or ecotourism sites. Involvement and participation of local communities, committees and schools in environmental education or interpretative services and programmes. Heightened awareness and nature appreciation (transformative values) for visitors and local residents.
3	Education	3. Conservation of the natural area	Money generated from tourism to contribute to maintenance, protection and management of natural areas and its habitants Protection which occurs from concerned participants in ecotourism and conservation (through donations or through active involvement) (<i>Heightened if Objectives 1, 2, and 4 are fulfilled</i>)
4	Quality Tourism	4. Provision of a high-quality experience	<i>If Objectives 1-3 are fulfilled</i>
5	Local Participation	5. Increased foreign exchange. 6. Promotion of environment stewardship /advocacy	By receiving international tourists who contribute to the local economy. Both tourists and local residents support conservation of natural resources because of transformative values nurtured from positive experiences with nature, and by achieving objectives 1-5.

Source: Ross, S., & Wall, G. (1999). Ecotourism: Towards Congruence Between Theory and Practice. *Tourism Management*, 20 (1), 123-132.

Ecotourism, in the context, of wildlife may be referred to as, “Tourism to areas of ecological interest (typically exotic and often threatened natural environments), esp. to support conservation efforts and observe wildlife”.⁹

Biodiversity

Concept and Definition

Biodiversity is the sum-total of “the variety of plant and animal life in the world or in a particular habitat, a high level of which is usually considered to be important and desirable” (*The Oxford Dictionary*). Walter G. Rosen, according to Edward Wilson, coined the term “Biodiversity” in 1986 which actually is the compound word formed by contracting two distinct words “Biological” and “Diversity” that Raymond F. Dasmann used in his book *A Different Kind of Country* (1968). As part of United Nations Environment Program the international Convention on Biological Diversity held in the year 1992 adopted the definition of Biological Diversity as, “The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.” Wilson & Peter (1988), consider biodiversity as, “The variety of life at every hierarchical level and spatial scale of biological organisations: genes within populations, populations within species, species within communities, communities within landscapes, landscapes within biomes, and biomes within the biosphere.” According to *The National Geographic Encyclopedia*, “Biodiversity” is, “A term used to describe the enormous variety of life on Earth. It can be used more specifically to refer to all of the species in one region or ecosystem. Biodiversity refers to every living thing, including plants, bacteria, animals, and humans. Scientists have estimated that there are around 8.7 million species of plants and animals in existence.”¹⁰ *The Encyclopedia Britannica* presents a broad based definition of “biodiversity” which “encompasses the genetic variety within each species and the variety of ecosystems that species create. Biodiversity, the variety of life found in a place on Earth or, often, the total variety of life on Earth. A common measure of this variety, called species richness, is the count of species in an area.”¹¹

The conservation aspect of biodiversity shot in to prominence after the Earth Summit held in the Brazilian Capital Rio De Janerio in 1992 which may be thought of as the process of “protection, upliftment and scientific management of biodiversity so as to maintain it at its threshold level and derive sustainable benefits for the present and future generation.”¹² Thus, it encompasses the entire spectrum of activities aimed at, “protecting all organisms and species within their natural habitats with the aim of

ensuring intragenerational and intergenerational equity.”¹³ It is essentially important to conserve biodiversity “because” along with quite a few social benefits “biodiversity provides certain services and resources that are essential for life on earth”¹⁴ as well. Biodiversity conservation exercise is undertaken with basically three chief goals in mind : “(a) To preserve the diversity of species; (b) Sustainable utilization of species and ecosystem and (c) To maintain life-supporting systems and essential ecological processes.”¹⁵

Environmental Protection Agency while highlighting the importance of biodiversity for sustaining life on the Planet Earth states:

“Biodiversity is the variety of all forms of life and it is essential to the existence and proper functioning of all ecosystems. Biodiversity supports habitats for all species by providing many unique environments in which species can exist; these include ecosystems of all types and sizes, rare ecosystems, and corridors between habitats. Many scientists believe biodiversity, as it represents all forms of life on earth, provides or supports the core benefits that humans derive from their environment. Biodiversity is fundamental for the provision of ecosystem services, which we depend on for food, air, and water security, and multiple other natural benefits.”¹⁶

The three major components of biological diversity are: Ecological Diversity (the variety of terrestrial and aquatic ecosystems found in an area or on the earth), Genetic Diversity (the variety of genetic material within a species or a population), Species Diversity (the number and abundance of species present in different communities).¹⁷ Figure——presents the hierarchical relationship between these components.

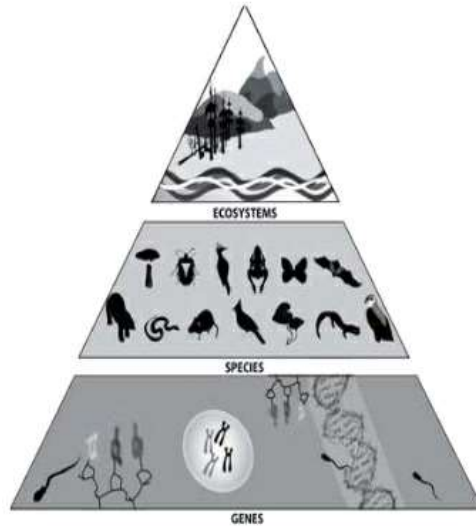


Figure 4: Components of Biodiversity

Source: <https://image.slidesharecdn.com/biodiversity-vss-150708065149-1va1-app6892/95/biodiversity-6-638.jpg?cb=1436338482>

Ecosystem Diversity refers to the diversity of a place at the level of ecosystem.

Species Diversity is the effective number of species that are represented in collection of individuals.

Genetic Diversity the level refers to the total number of genetic characteristics in the genetic makeup of a species .¹⁸

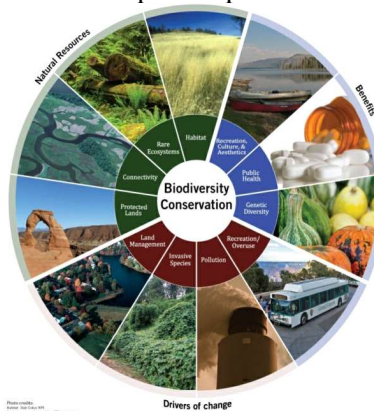


Figure 5: Eco-Wheel

This eco-wheel image shows natural resources provided by biodiversity, the benefits and beneficiaries, and drivers of change.

Source: <https://www.epa.gov/enviroatlas/enviroatlas-benefit-category-biodiversity-conservation>

Types and Kinds

There are four types of Biodiversity Conservation such as (a) Genetic Diversity (b) Species Diversity (c) Economic Diveristy (d) Global Diversity.¹⁹ The biodiversity conservation methods are broadly classified into two main categories: (a) In-Situ includes the conservation of species within their natural habitat. In this method, the natural ecosystem is maintained and protected²⁰ for example National Parks, Wildlife Sanctuaries and Biosphere Reserves and (b) Ex-Situ which “biodiversity involves the breeding and maintenance of endangered species in artificial ecosystems such as zoos, nurseries, botanical gardens, gene banks.”²¹

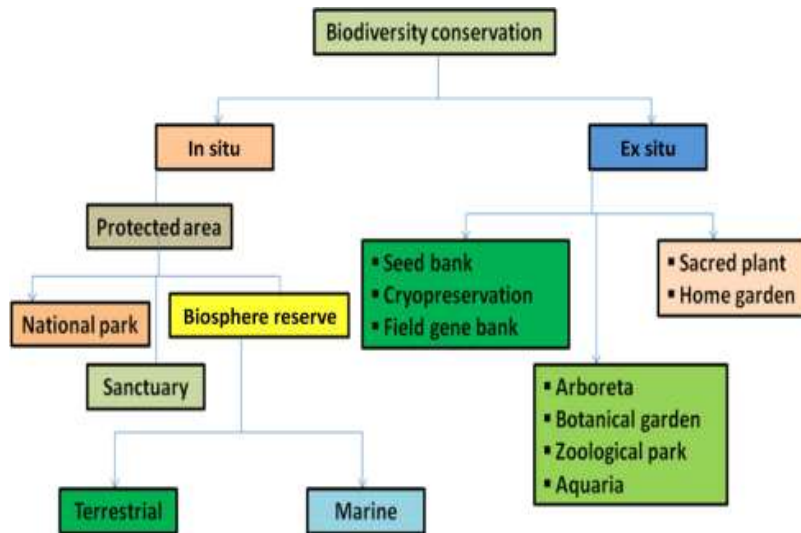


Figure 6: Types of Biodiversity Conservation

Source: <https://ars.els-cdn.com/content/image/3-s2.0-B9780128130643000193-f19-06-9780128130643.jpg>

Wildlife Sanctuary is “the region where only wild animals are found. Human activities such as timber harvesting, cultivation, collection of woods and other forest products are allowed here as long as they do not interfere with the conservation project. Also, tourists visit these places for recreation.”²²

Hypotheses

The hypotheses of the study are:

- Though the Hastinapur Wild Life Sanctuary is a sustainable ecotourism spot but with sparse tourist footfall.
- The Hastinapur Wild Life Sanctuary is a home to a huge biodiversity that includes aerial, terrestrial and water and aquatic animals.
- The Hastinapur Wild Life Sanctuary holds immense potential to attract high volume of tourist footfall and biodiversity conservation.

Objectives

The objectives of the study are to:

- Study the solid waste management techniques used at Hastinapur Wild Life Sanctuary.
- Examine the biodiversity at Hastinapur Wild Life Sanctuary.
- Suggest ways and means to improve tourist footfall as well as to increase biodiversity at Hastinapur Wild Life Sanctuary.

Interrelationship Between Ecotourism and Biodiversity Conservation

There exists a strong relationship between ecotourism and biodiversity conservation. Both of them are so intricately intertwined with each other that is apparently impossible to spate them out. Therefore, it is imperative to look at this relationship as an all-encompassing, without the one the other is incomplete and vice versa. Figure——beutifully depicts this relationship.

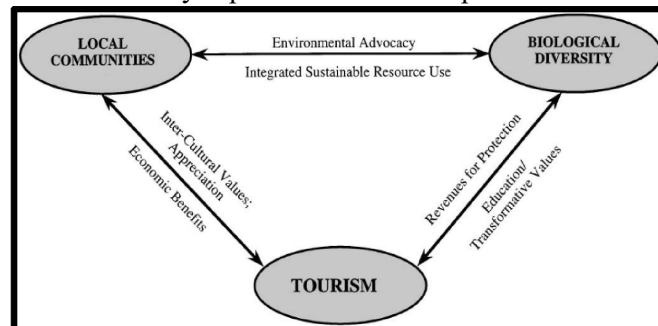


Figure 8: Relationship Between Ecotourism and Biodiversity

Source: Ross, S., & Wall, G. (1999). Ecotourism: Towards Congruence Between Theory and Practice. *Tourism Management* , 20 (1), 123-132.

Methodology

Two separate interview questionnaires: one for the Divisional Forest Officer (Meerut Range) of the Hastinapur Wild Life Sanctuary and the other for the Director

of NEER Foundation were prepared. Before administering the interview questionnaire to the DFO the co-author received all the necessary permissions from the college and then interviewed the DFO. The DFO questionnaire contained twenty questions which can be grouped into three categories (a) tourists and tourist facilities (b) Solid waste management and (c) future planning. The first category contained questions on site pressure, total annual tourist footfall, total annual revenue generation, tourist attractions, tourist guide and peak and low season. The second category contained specific questions on solid waste management at HWLS while the questions in the third category sought to know the future plans.

Ramankant Tyagi, Director of Meerut based NEER Foundation, is the Member of the Wild Life Board and on November 30, 2020 he met the Chief Minister of the North-Central Indian State of Uttar Pradesh, who happens to be the Chairman of Wild Life Board, and proposed a plan to develop one hectare land inside Hastinapur Wild Life Sanctuary as ecotourism spot. Hence, in order to obtain detail information about his proposal the co-author interviewed him too. The interview was centered around eight important questions that dealt with the project proposal, government and individual efforts to develop ecotourism and conserve biodiversity, effect of these activities on locals. During the course of the interview he revealed that he plans to promote the one hectare land piece of land inside the Hastinapur Wild Life Sanctuary as a village and agricultural tourist site.

Conclusion and Recommendations

The interview of the Divisional Forest Officer (Meerut Range) revealed that the methods of Solid Waste Management used at Hastinapur Wild Life Sanctuary include landfill and manure. Also, the government has undertaken a lot of initiatives to promote Hastinapur Wild Life Sanctuary as an ecotourism spot. Not only this some of the modern conservation techniques also utilised to preserve biodiversity at the Hastinapur Wild Life Sanctuary. The interview with Director of NEER Foundation revealed that there exist a scope for further developing Hastinapur Wild Life Sanctuary as an ecotourism spot with a particular emphasis on increasing biodiversity richness and adopting modern conservation techniques. We strongly believe that although Hastinapur Wild Life Sanctuary is viable ecotourism site, however, there is an urgent need to increase the variety or the richness of biodiversity therein. Besides, the already in use solid waste management techniques a couple of more may also be put to use to for better waste management. It is imperative to sensitise as well as mobilise the local population for preserving and promoting Hastinapur Wild Life Sanctuary as a potential ecotourism site wherein tourist can enjoy and observe from

very close quarters the animal life in their natural habitat. For this to happen certain impediments are to be conquered. First and foremost it is absolutely essential to promote Hastinapur Wild Life Sanctuary as a hot ecotourism site. For this purpose the services of tourism consultants and marketing companies may be hired. Taking cue from NEER Foundation effortst may be made to rope in some more NGOs and private companies to further expand this model. Road and infrastructure need special attention if we were to attract a higher tourist footfall here. The persuit of these goals should be directed at: (a) creating environemental and cultural awareness that should invariably lead to forging a positive experience both for the tourist as well as the local host (b) creating direct financial benefits for all the stakeholders including the local residents as well as ectourism development and increasing and biodiversity (c) incentivising private players to develop Hastinapur Wild Life Sanctuary at international standards with world class safety measures for the tourists and build and operate low impact facilities.

This study is limited to the Meerut Range of Hastinapur Wild Life Sanctuary only. It is recommended that utilising our model future studies may cover the entire Hastinapur Wild Life Sanctuary for evolving a comprehensive policy that may pave the war for bringing Hastinapur Wild Life Sanctuary at par with international standards.

Finally, in the light of above discussion, apart from the traditionally accepted dimensions of a wild life sanctuary as an ecotourism destination, we add another one of Solid Waste Management. Hence, we propose wild life sanctuary within the broader ecotourism framework may be defined as follows:

Wild Life Sanctuary is an ecotourism destination which is designated protected expanse of wild flora and fauna wherein only wild animals are found in their natural habitat. Human activity, wood cutting and collecting other forest products is permissible albeit on a limited scale as long as they do not obstruct the natural behaviour of wild animanls and conservation project and at least one of the solid waste management techniqe is being practiced.

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