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“A STUDY ON ECOTOURISM AND WILDLIFE PROTECTION, WITH A FOCUS ON UTTARAKHAND”

DR. DINESH JOSHI

ASSISTANT PROFESSOR,
DEPARTMENT OF COMMERCE,
INDIRA PRIYADARSHINI GOVERNMENT
GIRLS P. G. COLLEGE OF COMMERCE,
HALDWANI (Uttarakhand, India)

DOI No. **03.2021-11278686**

DR. CHANDRA PAL

ASSISTANT PROFESSOR,
DEPARTMENT OF COMMERCE,
SARDAR BHAGAT SINGH GOVERNMENT
P. G. COLLEGE, RUDRAPUR
(U.S.NAGAR) (Uttarakhand, India)

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ABSTRACT:

In Uttarakhand, the synergistic connection between ecotourism and biodiversity conservation is evident in the joint efforts to safeguard the region's unique natural heritage while promoting eco-conscious travel. Preserving the distinct flora and fauna of Uttarakhand, including rare and endangered species such as Bengal tigers and snow leopards, as well as a plethora of bird and plant species, is paramount to biodiversity conservation initiatives. The overarching objectives encompass habitat protection, establishment of wildlife corridors, strict enforcement of anti-poaching regulations, and the initiation of community-led conservation projects.

The conservation endeavors in Uttarakhand are significantly bolstered by ecotourism, which facilitates close encounters with nature for visitors while mitigating adverse environmental impacts. Engaging in guided hikes, wildlife safaris, bird watching expeditions, and nature strolls present opportunities for guests to immerse themselves in the area's natural wonders while simultaneously supporting the local community.

To ensure that ecotourism endeavors align with conservation goals, the Uttarakhand government collaborates with numerous entities, advocating for eco-friendly practices like waste reduction, energy conservation, and community engagement. Uttarakhand is steadfast in its commitment to preserving biodiversity, offering memorable experiences to visitors, fostering sustainable livelihood opportunities for locals, and striking a harmonious balance between conservation and tourism.

Keywords: *Commitment, Biodiversity, conservation, overarching.*

INTRODUCTION:

Biodiversity represents the intricate variety of life forms coexisting in a specific geographical area, encompassing fungi, plants, animals, and even microorganisms like bacteria. These diverse species and organisms form ecosystems that interconnect to support life and maintain equilibrium,

akin to a complex web. Every essential element for human survival, including food, clean water, medicines, and shelter, is intricately intertwined with biodiversity.

However, as human activities continue to exert escalating pressure on the Earth by exploiting resources at unprecedented rates, we face the peril of upsetting ecosystem stability and depleting biodiversity. The 2022 Living Planet Report released by WWF has illuminated a distressing global decline of 69% in the populations of mammals, fish, birds, reptiles, and amphibians since 1970.

The groundbreaking 2019 Global Assessment Report from the Intergovernmental Platform on Biodiversity and Ecosystem Services delivers a sobering message, revealing that a staggering 1 million plant and animal species are currently teetering on the brink of extinction—the highest figure recorded in human history. Roughly 66% of oceanic ecosystems and 75% of land environments have undergone substantial alterations. In the contemporary landscape, agricultural and livestock activities dominate nearly one-third of the world's land area and consume approximately 75% of its freshwater resources. The compounding effects of diverse environmental stressors, exacerbated by climate change, have led to upheavals such as overfishing, deforestation, water contamination, and climate-related disasters.

The widespread ramifications of human-induced impacts on biodiversity resonate on a global scale, permeating even our immediate surroundings. Thus, the urgent call for wildlife conservation becomes increasingly imperative to uphold ecological balance and preserve the fragile equilibrium of our planet.

Biodiversity conservation is the practice of safeguarding, managing, and revitalizing the rich array of species, ecosystems, and genetic resources present on Earth. Its primary goal is the preservation of the planet's biological diversity, the promotion of healthy and resilient natural systems, and the protection of ecosystem services crucial for human welfare. Conservation strategies encompass the establishment of protected areas, the rehabilitation of habitats, the implementation of sustainable resource management practices, initiatives for conserving species, and educational campaigns to raise public awareness. Upholding ecological balance, enhancing food security, mitigating climate change, and fostering sustainable development all hinge on the preservation of biodiversity. Fostering collaboration among governments, conservation groups, local communities, and individuals is essential in combating prevalent threats such as habitat loss, pollution, overexploitation, and climate change to ensure the long-term survival of Earth's diverse life forms.

With the goal of preserving the resilience and health of natural systems as well as the services they offer to humans, it includes the preservation of a wide range of ecosystems, species, and genetic resources. These are explained as below:

1. **Protection of Ecosystems:** Safeguarding intact ecosystems, such as rivers, grasslands, wetlands, forests, and coral reefs, is vital for preserving biodiversity. These ecosystems support

a diverse array of plant and animal species and provide essential functions like soil fertility, carbon sequestration, water purification, and climate regulation.

2. **Conservation of Species**: Conservation efforts focus on rescuing vulnerable and endangered species like fish, insects, amphibians, birds, mammals, and plants. Actions may include habitat restoration, captive breeding programs, establishment of protected areas, regulation of endangered species trade, and enforcement of wildlife protection laws.

3. **Genetic Diversity**: Preserving genetic diversity within species is crucial for biodiversity conservation as it enhances adaptability, resilience, and evolutionary potential. Breeding programs in agriculture, forestry, and medicine rely on genetic resources stored in seed banks, gene banks, botanical gardens, and animal conservation centers to sustain biodiversity.

4. **Sustainable Resource Management**: Conservation initiatives promote sustainable management of natural resources to meet the needs of fisheries, forests, water sources, and agricultural lands. The aim is to balance human requirements with the long-term preservation of ecosystem health and productivity for future generations.

5. **Protected Areas**: Establishing protected areas like national parks, wildlife sanctuaries, marine reserves, and biosphere reserves is a crucial strategy for biodiversity conservation. These areas minimize human disturbances, provide safe habitats for wildlife, protect critical ecosystems, and facilitate scientific research, education, and ecotourism.

In essence, ecotourism represents a transformative approach to travel that transcends mere sightseeing, offering a profound and meaningful connection with the natural world. It serves as a powerful tool for environmental education, cultural exchange, and sustainable development, empowering travelers to make positive contributions to the places they visit while experiencing the beauty and wonder of our planet in a responsible and respectful manner.

According to **Brandt S. Jodi et al. 2019** Ecotourism is proliferating in biodiversity hotspots and its proponents claim it can achieve conservation and economic development goals. In many places, ecotourism is now a key factor in socioeconomic change and economic expansion.

The state of Uttarakhand, an integrated part of the Himalaya and the world-famous ecotourism destination, has distinct physical features – snow-clad Himalaya, perennial lakes within forest areas, rolling alpine meadows, exotic wildlife, dense forests, and wetland habitats. It supports rich biodiversity in the forms of NPs and WLSs and varied panoramic forest landscapes from the plain regions to Shivalik hills, middle Himalaya, and the snow-capped Himalayan ranges. The climate of the Uttarakhand Himalaya varies with height, leading to variations in the faunal, floral, and avifaunal resources. Tourism is one of the important service sectors in Uttarakhand. It ranks 12th in the global tourism ranking (Sati, 2013, 2015, 2018) and shares a total of 52% Gross State Development Product (SGDP). Tourism practices vary from pilgrimage tourism to natural tourism,

adventurer tourism, and eco-tourism. However, pilgrimage tourism is practiced largely, followed by natural tourism, and adventurer tourism. Eco-tourism is still in its infancy and needs more development.. In the meantime, the forest landscape and climate support eco-tourism development in the Uttarakhand Himalaya. (Sati Prasad Vishwambhar, 2021)

LITERATURE REVIEW:

1. **Sati Prasad Vishwambhar (2021).** This study analyzes the potential for ecotourism development as well as the base of ecotourism resources to look at trends and possibilities for ecotourism development in the Uttarakhand Himalaya. The Uttarakhand Himalaya is one of the biodiversity hotspots and has a high biodiversity, according to this study. Its breathtaking three-dimensional forest vistas offer ideal starting points for the growth of ecotourism. However, because the ecotourism resource bases are not being used sustainably, ecotourism development has been unable to materialize. This study notes that it is crucial to conserve wildlife in its natural environment and suggests policy strategies for the growth of ecotourism in the Uttarakhand Himalaya.
2. **Vishnoi Ritika, Kumar Dinesh (2021).** This study focuses on Uttarakhand Himalaya's unique biodiversity. Important dangers and preservation tactics are also covered. For this priceless natural resource to continue to exist, biodiversity conservation is desperately needed. It also mentions that strict laws and regulations, the use of contemporary instruments and methods, public awareness, etc., are required. For the sake of future generations, these natural resources of the Uttarakhand Himalayas must be preserved and restored.
3. **Lad Ramdas (2020).** It was discovered that ecotourism would give the state's skilled workers jobs and business prospects. Consequently, via training, education, and the provision of full-time job possibilities, conservation management and tourism-related activities may offer men and women in the Nainital community equitable, social, and cultural benefits. It was noted that Nainital is endowed with a stunning, priceless, and significant terrain, but that neither the general people nor visitors are properly aware of this. As a result, creating an ecotourism center is necessary.
4. **Kukreti Mohan (2020).** In particular, the framework of the Indian government and the state of Uttarakhand, as well as the research and reviews of their ecotourism policies, are the focus of this article. Generally speaking, it assesses and examines the future and importance of Uttarakhand's natural resources for the growth of community-based ecotourism and the villages' sustainable development, which includes biological variety preservation and also suggests that A comprehensive plan is required, with a focus on visitor satisfaction with regard to hospitality, particularly in Homestay in rural areas; maintaining carrying capacity; appropriate waste management plans; and making the most use of local handicrafts, artifacts,

and cultural activities to foster a sense of community among visitors and guarantee a peaceful and healthy environment for local tourism.

5. **Brandt S. Jodi, Radeloff Volker, Allendorf Teri, Butsic Van and Roopsind Anand (2019).** Using data from 15 ecotourism hubs and non-ecotourism areas across 4 Himalayan countries, this study attempted to determine whether or not ecotourism affected the rates and trajectories of forest loss in Himalayan temperate forests between 2000 and 2017. As ecotourism is now implemented in the Himalaya, the results indicate that its effectiveness as a strategy for forest protection depends on the specific setting. Ecotourism may be a more environmentally beneficial method of economic development in an area where there is significant pressure to deforest than other methods. In areas where deforestation is limited, ecotourism may, nevertheless, accelerate the loss of forests.
6. **Sharma Ruchika, Singh Kumar Manoj, and Tamta Sushma (2017).** This article seeks to provide light on the state of Uttarakhand's biodiversity, the main problems that it faces, and the conservation measures the government has taken to protect it. Additionally, it says that since humans are completely dependent on biodiversity and reap its benefits, they should protect it in order to stop the depletion and destruction of natural resources and keep biodiversity at a threshold level where future generations can continue to benefit from it as well.

OBJECTIVES OF THE STUDY:

1. **Analyzing the Role of Biodiversity Conservation in the Advancement of Ecotourism Identifying Challenges in Biodiversity Conservation and Tourism Promotion.**
2. **To assess the steps taken by the government to encourage ecotourism and wildlife preservation.**

RESEARCH METHODOLOGY:

The assignment is entirely centered around utilizing secondary data gathered from a variety of research papers and articles obtained from platforms such as Shodhganga, ResearchGate, and Google Scholar.

RESULTS AND DISCUSSION:

OBJECTIVE 1: To Analyzing the Role of Biodiversity Conservation in the Advancement of Ecotourism Identifying Challenges in Biodiversity Conservation and Tourism Promotion.

Attractions for ecotourism aficionados seeking deep-dive experiences in nature: Uttarakhand's abundant biodiversity and stunning landscapes have made it a top destination. Rich in flora and animals, the region's many ecosystems—from verdant woods to lofty peaks—make it the perfect place for ecotourism pursuits. The objective of this essay is to examine the complex relationship that exists between the preservation of biodiversity and the expansion of ecotourism in

Uttarakhand, Emphasizing the ways in which conservation initiatives support the industry's growth.

Ecotourism's Foundation: Biodiversity Conservation:

In Uttarakhand, the preservation of biodiversity is the cornerstone of ecotourism, serving as the source material for experiences centered on the natural world. As the cornerstone of ecotourism, protected places like national parks, wildlife sanctuaries, and biosphere reserves give tourists the opportunity to see and appreciate the region's rich natural heritage. The preservation of wildlife habitats and a variety of ecosystems paves the way for the growth of ecotourism in a sustainable manner, guaranteeing that Uttarakhand's scenic landscapes will remain beautiful for future generations.

Economic Gains from Ecotourism Associated with Conservation:

In Uttarakhand, the upkeep of biodiversity and the economic gains from ecotourism are strongly related. The area's pristine natural settings and distinctive animals captivate tourists, which increases demand for ecotourism lodgings and services. The revenue earned through ecotourism activities including guided tours, accommodations, and mementos directly supports funding for conservation and the preservation of natural areas. Additionally, ecotourism generates job possibilities for nearby people, motivating them to engage in conservation efforts and cultivating a sense of responsibility towards natural resources.

Principles of sustainability and ethical tourist practices serve as the foundation for the preservation of biodiversity and the expansion of ecotourism in Uttarakhand. Operators of ecotourism follow regulations designed to reduce their negative effects on the environment. These include encouraging wildlife-friendly behavior, controlling waste, and restricting the number of visitors. Ecotourism makes sure that tourism development in Uttarakhand is both financially feasible and environmentally sustainable by putting a priority on the preservation of ecosystems and cultural heritage. This helps to protect the area's natural resources for coming generations.

This can be more highlighted with the best example of **The Nanda Devi Biosphere Reserve** in Uttarakhand's Himalayan area is a shining example of how biodiversity conservation promotes the growth of ecotourism. The varied range of ecosystems found in this UNESCO World Heritage Site, which includes high-altitude forests, glaciers, and alpine meadows, serve as home to many rare species. Countless tourists participate in ecotourism activities like hiking, climbing, and animal observation every year, which brings in money for the reserve's conservation efforts. As an example of how ecotourism may promote sustainable development and save delicate ecosystems, consider the Nanda Devi Biosphere Reserve, which strikes a balance between tourist and conservation. The Corbett Tiger Reserve in Uttarakhand serves as a significant exemplar of the interconnection between ecotourism and biodiversity conservation. Initially established as Hailey National Park in 1936, the reserve was later renamed in honor of renowned conservationist Jim Corbett. Presently, it

stands as a prominent ecotourism destination while also serving as a secure sanctuary for Bengal tigers. Conservation efforts aimed at preserving the tiger population and their habitat not only contribute to safeguarding the region's biodiversity but also attract a substantial number of tourists annually, thereby significantly bolstering the local economy. The Corbett Tiger Reserve has emerged as a favored spot for ecotourists and wildlife enthusiasts due to its diverse array of flora and fauna, including captivating mega fauna such as tigers. The reserve offers an array of activities like guided safaris, nature walks, and bird watching excursions that allow visitors to immerse themselves in the natural splendor and ecological richness of the area. Furthermore, the implementation of responsible tourism practices and ecologically sound accommodations ensures minimal environmental impact from tourism, thus safeguarding the reserve's ecosystems. Moreover, the ecotourism proceeds generated by the Corbett Tiger Reserve play a direct role in supporting community-driven conservation initiatives, habitat restoration projects, and anti-poaching efforts, among other biodiversity preservation endeavors. Beyond offering employment opportunities as guides, lodge staff, and artisans, ecotourism also benefits local communities through revenue-sharing schemes that encourage active participation in conservation programs. An essential characteristic of ecotourism lies in exploring pristine natural environments with minimal ecological footprint. Furthermore, it promotes the sustainable utilization of biodiversity, generates employment for local residents, preserves the heritage and traditions of host communities, and contributes to the sustainable development of the region. Ensuring the conservation of biological and cultural diversity by safeguarding ecosystems is paramount. Sustainable tourism not only safeguards the environment and upholds community welfare but also delivers economic benefits and empowerment to local populations. By disseminating this knowledge, indigenous communities and local populations can garner socio-economic advantages by openly showing their support and engaging in the management of ecotourism endeavors. Emphasizing recycling, energy efficiency, water conservation, and fostering entrepreneurship opportunities for nearby residents are pivotal components of ecotourism practices (Lad Ramdas, 2020). By examining instances like Nanda Devi and the Corbett Tiger Reserve, we witness how biodiversity conservation endeavors have not only fostered the growth of ecotourism in Uttarakhand but have also encouraged a symbiotic relationship between economic progress and conservation efforts. To ensure the enduring sustainability of the tourism sector alongside the preservation of the region's natural ecosystems, prioritizing biodiversity conservation is imperative. This objective can be achieved through the promotion of sustainable tourism strategies, enhancement of visitor experiences, and provision of support to local communities.

OBJECTIVE 2: To assess the steps taken by the government to encourage ecotourism and wildlife preservation.

The preservation of biodiversity in Uttarakhand is a crucial endeavor that sheds light on the

challenges impacting the sustainability and ecological health of the region. A major obstacle to conservation efforts is habitat loss, primarily driven by deforestation, increased agricultural activities, urbanization, and infrastructural development. These activities disrupt ecosystems, displace wildlife populations, and fragment natural habitats, making species more susceptible to extinction, reducing breeding grounds, and intensifying competition for resources. To combat habitat loss, it is essential to understand its root causes and implement conservation measures that protect and restore critical habitats across Uttarakhand.

Another challenge to biodiversity preservation in Uttarakhand is the presence of invasive species, which outcompete native species for resources and upset ecological balance. Human activities, whether intentional or accidental, can lead to the rapid spread of invasive species, posing a significant threat to indigenous wildlife and plant life. Invasive plants like *Lantana camara* and *Parthenium hysterophorus* can overtake landscapes, diminishing the quality of wildlife habitats, while invasive species such as Himalayan thar and feral pigs can disrupt ecosystems through overgrazing and disease transmission. Effective management strategies must be employed to control and mitigate the impact of invasive species on Uttarakhand's biodiversity.

Climate change poses another grave threat to the preservation of Uttarakhand's biodiversity, exacerbating existing risks and introducing new challenges. Altered precipitation patterns, rising temperatures, and extreme weather events can increase the frequency and intensity of natural disasters, disrupting ecosystems and altering species distributions. For instance, melting glaciers and changing river flows can affect freshwater habitats and aquatic species, while shifting temperature regimes can impact the phenology and distribution of plants and animals. To mitigate the effects of climate change on Uttarakhand's biodiversity, adaptive management practices, enhanced ecosystem resilience, and reduced greenhouse gas emissions are essential.

Furthermore, human-wildlife conflict presents a significant barrier to biodiversity conservation in Uttarakhand. As human populations expand and encroach upon wildlife habitats, conflicts between people and wildlife escalate, leading to habitat loss, retaliatory killings, and negative attitudes towards conservation efforts. These conflicts can result in biodiversity loss, declining wildlife populations, and disruptions to ecosystem functioning. Addressing human-wildlife conflicts and promoting coexistence between humans and wildlife in Uttarakhand require effective mitigation strategies such as habitat restoration, conflict resolution techniques, and community-based conservation programs.

Understanding the barriers preventing the sustainable growth of the tourism sector in the area is essential for promoting tourism in Uttarakhand. The absence of suitable infrastructure, such as lodging, facilities, and transit networks, is a major barrier. Inaccessible roads make it difficult for visitors to easily explore the region's attractions, especially in rural areas. Furthermore, during the

busiest travel seasons, there might not be enough lodging options to accommodate the demand, which would result in crowding, annoyance, and unhappy tourists. In order to improve Uttarakhand's tourism appeal and accessibility, it is imperative that any infrastructure deficiencies be addressed.

Also, a major barrier to Uttarakhand's efforts to promote tourism is the use of inefficient marketing techniques. Even though the area has unmatched natural beauty and a rich cultural legacy, insufficient marketing efforts do not adequately convey these benefits to prospective visitors. The state of Uttarakhand's tourism is not well-known, both nationally and globally, which makes it difficult to draw visitors and change the types of people who visit. Furthermore, erratic branding and marketing initiatives make it more difficult for the area to stand out from other travel destinations and draw in target audiences. To promote Uttarakhand as a top travel destination, large sums of money must be invested in extensive marketing campaigns and business alliances.

Despite the enormous potential for eco-tourism in the state, its growth is lagging. The majority of people in Uttarakhand—roughly 70%—live in rural areas. They reside in and surrounding forest areas, which are essential to the people's livelihood in addition to conventional agricultural and animal husbandry practices. Therefore, the growth of ecotourism in rural regions will improve rural livelihoods. **(Sati Prasad Vishwambhar, 2021)**

An additional challenge to Uttarakhand's tourism promotion is the seasonal variations in visitor numbers. The summer and winter months are the region's busiest travel seasons, with lots more tourists and more activities related to travel. On the other hand, off-peak seasons see a sharp fall in tourism, which puts a strain on the finances of companies that depend on the industry as well as the underuse of services and infrastructure. Furthermore, seasonal congestion at busy times can put a burden on nearby resources, worsen environmental damage, and lower the quality of the visitor experience. To mitigate seasonality and ensure the long-term viability of Uttarakhand's tourism economy, year-round tourism measures like off-peak attraction development, tourism diversification, and visitation incentives during quiet seasons must be implemented.

Uttarakhand's efforts to promote tourism are further hampered by worries about over tourism. Uncontrolled tourism can have detrimental effects on the environment, nearby communities, and guest experiences, even while tourism growth is crucial for economic development. Popular tourist destinations that are overcrowded, congested roads, littering, and the destruction of natural habitats can all lower the standard of travel experiences and make the area less appealing as a travel destination. Mitigating the negative consequences of over tourism and safeguarding Uttarakhand's natural and cultural legacy for future generations need the implementation of carrying capacity evaluations, visitor management plans, and sustainable tourism practices.

The interdependence between biodiversity protection and tourism marketing in Uttarakhand emphasizes the importance of addressing barriers such as unsustainable tourism practices and

human-wildlife conflict from an integrated perspective. Understanding the complex relationships between tourism and conservation is crucial to finding cooperative solutions that balance socioeconomic growth with environmental preservation. Engaging stakeholders, including government agencies, conservation organizations, tourism stakeholders, local communities, and researchers, is essential for developing inclusive action plans and fostering transparent, collaborative efforts to overcome barriers and promote sustainable development in the region.

CONCLUSION & FINDINGS:

The symbiotic relationship between biodiversity conservation and ecotourism in Uttarakhand presents opportunities for sustainable economic growth and ecosystem preservation. By implementing responsible ecotourism practices, Uttarakhand can showcase its natural beauty to visitors while raising awareness about the importance of protecting its diverse ecosystems. To ensure effective ecotourism initiatives that benefit both local communities and biodiversity, it is crucial to address challenges such as sustainability, ecosystem impact, and community involvement through proper planning, regulation, and management. Through collaborative efforts and responsible ecotourism development, Uttarakhand can strengthen biodiversity protection and support local livelihoods for the long-term benefit of the region.

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