

# Eco-Tourism and Conservation in Uttarakhand: Opportunities and Challenges in Eco-Sensitive Zones

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**Abstract-** In the biodiversity-rich and naturally beautiful state of Uttarakhand, ecotourism is now a crucial component of sustainable development. The state has designated a number of Eco-Sensitive Zones (ESZs), such as Nandhaur Wildlife Sanctuary, Bhagirathi ESZ, Nanda Devi National Park ESZ, and others, providing a framework for protecting fragile ecosystems and promoting environmentally conscious tourism. The study looks at the intricate relationships that these protected areas have with ecotourism and conservation. The goal of the study is to provide insights into how Uttarakhand might reconcile the development of tourism with ecological preservation by examining the potential, challenges, and policies related to eco-tourism within ESZs. The study also highlights the need for community involvement, appropriate planning, and sustainability for ecotourism in these sensitive areas.

**Keywords-** Eco-tourism, Eco-Sensitive Zones, Biodiversity conservation, Sustainable development, Managing Eco-Tourism

## I. INTRODUCTION

Uttarakhand, with its majestic natural scenery and revered religious monuments, is dubbed the "Land of the Gods". There is also an amazing variety of vegetation and wildlife to be found. The state's remarkable location in the Indian Himalayan region makes it a global biodiversity hotspot that attracts tourists, explorers, and environmental enthusiasts. However, the increased human activity in these locations is also putting stress on the environment. The Indian government responded by designating some places in Uttarakhand as Eco-Sensitive Zones (ESZs) under the Environment Protection Act of 1986, in reaction to deforestation.

Ecotourism, however, and other projects that promote sustainable development are encouraged. The establishment of ESZs is particularly crucial in a state like Uttarakhand where tourism is both a

significant source of revenue for the local population and an environmental danger.

The purpose of this essay is to examine the potential benefits of ecotourism for local communities and conservation efforts in Uttarakhand's ecologically sensitive zones (ESZs). This study evaluates current regulations, identifies problems, and offers suggestions for reform while looking at important eco-tourism zones, such as Nandhaur Wildlife Sanctuary, Bhagirathi ESZ, Nanda Devi National Park ESZ, and Binsar Wildlife Sanctuary ESZ.

This research focuses primarily on the tension that arises between environmental preservation and tourism growth, as well as the potential for sustainable livelihoods that eco-tourism presents. Eco-sensitive zones are buffer zones that surround national parks and wildlife sanctuaries. Certain activities are prohibited in these zones to lessen

their adverse effects on the environment. These restrictions vary, but generally speaking, they prohibit extensive infrastructure development, mining,

### Objective

- Evaluate the effect of ecotourism on Uttarakhand's efforts to conserve biodiversity.
- Analyze how well regulatory structures and policies about ecotourism minimize environmental deterioration.
- Identify the difficulties that ecotourism encounters in these areas.
- Recommend suggestions to strengthen initiatives to promote long-term environmental sustainability and economic benefits for nearby people.

## II. METHODOLOGY

Literature Review - Examine the literature on ecotourism, conservation, and sustainable development in Uttarakhand's ESZs, including studies, policies, and case studies.

### 1. Eco-Sensitive Zones in Uttarakhand: An Overview

#### Nandhaur Wildlife Sanctuary ESZ

Nandhaur Wildlife Sanctuary was established in 2012 and is situated in the Terai Arc Landscape in the Himalayan foothills. The sanctuary, which covers an area of about 270 square kilometers, is a component of the Nandhaur Tiger Reserve, which began accepting visitors in 2015. Almost 200 different species of birds, tigers, wild elephants, leopards, and jungle cats can all be found in Nandhaur (Ajaz Hussain Spengku et al , 2020). The sanctuary is ideally situated between the Corbett and Rajaji Tiger Reserves, creating a vital wildlife corridor in the area and providing an essential habitat for these species.

Nandhaur enjoys the advantages of an ESZ, which is a stringent set of regulations intended to reduce human intervention in the fragile environment of the sanctuary. Large-scale development, mining, and tree-cutting are all forbidden, but eco-tourism is actively encouraged as a way to raise money for

environmental preservation. Because of the sanctuary's designation as an ESZ, eco-friendly tourism pursuits like tiger safaris, nature walks, and bird watching have grown in popularity and serve to both inform and draw visitors about the value of conservation (Mehta & Kothari, 2016).

#### Bhagirathi ESZ

310 05'46.54"N latitude and 790 25'11.65"E longitude towards the east; 790 04'32.21"E longitude and 310 27'23.28"N latitude towards the north; 300 51'03.95"N latitude and 780 22'57.78"E longitude towards the west; and 300 39'08.09"N latitude and 780 31'26.41"E longitude towards the south constitute the boundaries of the Eco-sensitive Zone. (a) The Eco-sensitive Zone contains eighty-eight communities. In accordance with the Gol's instructions, the addition of one more village, Harshil, to the Eco-sensitive Zone has been recommended.



Fig. 1: Wildlife protected area network in Uttarakhand

Bhagirathi ESZ was proclaimed in 2012 and extends over 4,179 square kilometers, from Gaumukh to Uttarkashi, encompassing 88 settlements. This ESZ is of great importance since it borders the Bhagirathi River, a key tributary of the Ganges, and includes a piece of the sacred Gangotri Glacier. This area has been designated as an ESZ in order to preserve the natural resources and biodiversity of the area, as well as the ecological integrity of the river system (Tewari & Pant, 2019).

The overlap of conservation goals with local livelihoods is one of the main management difficulties in Bhagirathi ESZ. Just a tiny portion of the region's land is open for agricultural and other commercial uses because the bulk of it is designated as protected. The requirements of the local community and environmental conservation have become tense as a result. On the other hand, ecotourism has been positioned as a workable alternative that may strengthen local businesses and conservation initiatives. Popular activities in the Bhagirathi ESZ include trekking, river rafting, and cultural tourism, which allow visitors to interact with the area's natural and cultural history while leaving as little of an environmental imprint as possible (Chand, 2022).

#### **Nanda Devi National Park ESZ**

Part of the broader Nanda Devi Biosphere Reserve, Nanda Devi National Park is situated in the northern region of Uttarakhand and is recognized as a UNESCO World Heritage Site. The park is well-known for its distinct alpine ecosystems, snow-capped peaks, and high-altitude scenery. Nanda Devi National Park is one of the most significant conservation areas in the state, including an area of about 630 square kilometers with its surrounding ESZ.

The Nanda Devi National Park ESZ is subject to strict rules that restrict the number of people and the types of activities allowed due to its delicate ecosystem. Strict regulations govern trekking and mountaineering, and measures are taken to reduce the negative effects of tourism on the surrounding ecosystem (Pandey & Bhatt, 2018). Here, ecotourism is concentrated on offering a wilderness experience that emphasizes the value of protecting the area's distinctive flora and animals. But the park also has to deal with how to balance preservation efforts with the growing demand for high-altitude adventure travel (Sinha, 2021).

#### **Binsar Wildlife Sanctuary ESZ**

The 47.07 square kilometer Binsar Wildlife Sanctuary is surrounded by an estimated 81.63 square kilometer ESZ. It is situated in the Kumaon region of Uttarakhand, close to Almora. The

sanctuary is a hub for biodiversity, supporting a diverse range of bird species in addition to the Himalayan black bear, goral, and barking deer (Joshi, 2020). The sanctuary is a well-liked location for eco-tourists interested in hiking, wildlife observation, and photography because of its lush forests made up of oak, pine, and rhododendron trees (Geetanjali Upadhyay, et al, 2023)

Similar to other ESZs, Binsar is subject to a number of regulations meant to stop environmental deterioration. Large-scale infrastructure development is not allowed, and eco-friendly tourism management techniques are used to reduce the negative effects on the region's species and habitats. The sanctuary's ecological integrity is threatened by issues with trash management and an increase in visitors, yet these issues have also been faced (Rana, 2017).

### **III. ECO-TOURISM AS A TOOL FOR SUSTAINABLE DEVELOPMENT**

In Uttarakhand's ESZs, ecotourism has shown to be a potent instrument for advancing sustainable development. By giving an alternative to mass tourist, eco-tourism tries to reduce environmental degradation while providing economic advantages to local people. This strategy is in line with the ideas of sustainable development, which aim to strike a balance between social justice, environmental preservation, and economic progress.

#### **1. Economic Benefits of Eco-Tourism**

The ability of ecotourism to bring in money for nearby communities is one of its main advantages. Because of the limitations imposed by the ESZ laws, agriculture and traditional lifestyles are no longer viable in many regions of Uttarakhand. An alternate source of revenue that can boost regional economies and protect the environment is eco-tourism (Chauhan, 2019). For instance, people around Nandhaur Wildlife Sanctuary have benefited from increased tourism money generated by activities such as guided wildlife tours, homestays, and handicraft sales (Sharma, 2020).

Ecotourism has a wider economic impact than only jobs directly tied to tourism. Additionally, it gives local business owners the chance to launch environmentally beneficial ventures including sustainable transportation services, handicrafts, and organic farming. Eco-tourism aids in reducing the reliance of local communities on environmentally harmful industries like mining and logging by encouraging sustainable livelihoods (Mehta & Kothari, 2016).

## **2. Environmental Education and Awareness**

Environmental conservation awareness-raising is greatly aided by eco-tourism. Eco-tourism aims to create a stronger bond between visitors and the environment, in contrast to mass tourism, which frequently places a higher priority on immediate financial rewards than environmental sustainability. Eco-tourism projects in Uttarakhand's ESZs frequently involve educational programs that enlighten visitors about the region's ecosystems, fauna, and conservation efforts (Sinha, 2021).

For instance, Nanda Devi National Park has created a trekker education program that highlights the value of protecting the park's alpine habitats. In a similar vein, Binsar Wildlife Sanctuary provides guided nature walks that emphasize the value of habitat conservation and the biodiversity of the area (Joshi, 2020). Eco-tourism contributes to the expansion of the base of support for environmental protection by involving visitors in conservation activities.

## **Challenges in Managing Eco-Tourism in Eco-Sensitive Zones**

In Uttarakhand's ESZs, ecotourism has numerous advantages, but it also has drawbacks. These include problems with infrastructural development, garbage management, and striking a balance between tourist and conservation. In order to guarantee the state's ecotourism industry's long-term viability, these issues must be resolved.

### **Management of Waste**

Waste management is one of the biggest issues facing ecotourism in Uttarakhand's ESZs. Particularly in well-liked hiking and camping

locations, the surge in tourists has coincided with an increase in garbage output (Tiwari & Pant, 2021). Inadequate disposal of garbage can harm nearby ecosystems by contaminating waterways and endangering wildlife.

Some ESZs have put in place stringent waste management procedures to address this problem. For instance, Bhagirathi ESZ forbids the use of plastic and mandates that hikers remove their trash from the region (Tewari & Pant, 2019). However, there is still work to be done to guarantee that trash is appropriately managed in all ecotourism sites, as implementation of these policies is frequently uneven.

### **Development of Infrastructure**

The desire for improved infrastructure, including roads, hotels, and transportation, frequently runs counter to the objective of minimizing environmental damage, even if eco-tourism promotes low-impact travel. For instance, rising road traffic and construction activities have sparked worries about habitat fragmentation and wildlife disturbance in the Nandhaur and Binsar ESZs (Kumar & Verma, 2018).

Planning is essential to strike a balance between conservation objectives and infrastructural development. One way to reduce the environmental impact of tourism is to concentrate on creating eco-friendly infrastructure, such as solar-powered lodging and environmentally friendly transit choices (Chand, 2022). Furthermore, fewer visits in sensitive locations can lessen the strain on nearby ecosystems.

### **Harmonizing Tourism and Conservation**

In Uttarakhand's environmentally sensitive zones (ESZs), the main obstacle to ecotourism is striking a balance between the benefits of tourism and conservation goals. Even though tourism is a crucial source of funding for conservation initiatives, the very ecosystems that tourism aims to save may be in danger. Striking a balance between these competing objectives requires stringent regulation and ongoing monitoring of the environmental impact of tourism (Pandey & Bhatt, 2018).

Limiting the number of tourists in especially delicate habitats is one strategy, as Nanda Devi National Park has done. This preserves the park's allure as a wilderness getaway while assisting in lowering the negative effects of tourism on the ecosystem (Sinha, 2021). Involving local people in decision-making processes is another tactic to make sure they have a stake in eco-tourism initiatives' success as well as environmental conservation (Chauhan, 2019).

#### IV. CONCLUSION

The Eco-Sensitive Zones of Uttarakhand present a significant opportunity for sustainable development through eco-tourism. Eco-tourism can benefit local economies by offering an alternative to mass tourists and by fostering environmental education. This can help maintain the region's rich biodiversity. However, rigorous waste, infrastructure, and tourism activity management is essential to the viability of eco-tourism. Since local communities are both the stewards of the environment and the recipients of sustainable tourism practices, their active participation is also necessary.

Maintaining a balance between boosting tourism and protecting the environment is crucial as Uttarakhand's eco-tourism industry grows. Ecotourism in the state's environmentally sensitive zones (ESZs) has the potential to be a model for sustainable development, benefiting the local population as well as the environment, provided that it is planned for and regulated appropriately.

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