

ENVIRONMENTAL SUSTAINABILITY AND TOURISM DEVELOPMENT IN UTTARAKHAND

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Abstract: *Tourism as an industry has ushered into a new area of expansion and importance. The significance of tourism has been well recognized in both the developed and developing countries. In fact, tourism has enormous potential of employment generation and poverty alleviation. Tourism has also changed the landscape and nature based tourist destinations have emerged as most potential alternative forms of tourism. The recent policy changes will help in realizing the full potential of India in tourism growth; however, it faces numerous new challenges and a lot of competition both from within and outside of the country. Tourism has emerged as one of the most important area in the planning process of different countries. For a number of countries, it is one of the major sources of foreign exchange earnings. Eco-tourism has emerged as the most attractive, fast-growing and sustainable tourism development in the tourism industry worldwide. India has also paid attention to the development and promotion of eco-tourism; however, the regulation of tourism in protected areas and other nature based tourist destinations has to be ensured through the enforcement of laws relating to environmental protection and sustainable development of resources. The state of Uttarakhand has vast potential for tourism development as it has plenty of eco- tourism destinations, conducive policy environment, tourism infrastructure and services. Against this backdrop, present paper examines environmental sustainability and tourism development in Uttarakhand . The paper is based on secondary data and pertinent literature.*

INTRODUCTION

Uttaranchal has a rich and vibrant cultural heritage. It is also rich in natural and biodiversity. There are immense opportunities for tourism development in the state. The government has already taken up the development projects for promoting tourism in the state. The state has won the best performing state award for tourism in 2004, besides two more national awards. It has already registered its presence on the world tourist map. Three types of tourism are practiced in the entire state i.e., religious tourism, natural tourism, and adventurer tourism. Religious tourism is centuries old practice. Along with this natural tourism is also practiced from the very beginning. Recently tourism has been introduced in the area in the name of adventurer tourism, which includes river rafting, trekking, mountaineering, and skiing. The trend of adventurer tourism is growing fast in the wake of the increasing adventure attitude of the tourists. The entire state of Uttaranchal is made up of the Himalayan Mountain System, thus there are the areas of skiing, trekking, river rafting, and mountaineering. Skiing is developing as a winter's game and the teams are comprised by domestic and international level.

ENVIRONMENTAL SUSTAINABILITY

Environmental degradation and severe ecological imbalances are becoming a threat

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to mankind. Importantly, current development paradigms pose a serious threat to the environment and ecology, thus reducing the sustainability of development (Cohen, 1977). The list of environmental problems increases rapidly around the world. Global warming, destruction of the ozone layer, extinction of species, loss of genetic diversity, deforestation, land degradation, acid rain and deteriorating quality of urban environments (Thomson, 1989). Deforestation, overflowing, wasteful agricultural practices, mismanaged development undertakings (Singh, 1992) and taking tourists beyond capacity and developing infrastructure at the cost of environment and ecology are also causing an environmental crisis. Accelerated erosion, with subsequent negative effects on the highland environment, has become a common occurrence (Ives, 1987) as the most common threat. Importantly, environmental hazards are considered as natural phenomena, with hard-to-modify capabilities such as earthquakes, landslides, floods; Avalanche and others. Some hazards are also caused by human factors and are more than tolerable, creating imbalances and causing catastrophic loss of property, income and life. Frequent incidents of hazards such as landslides, avalanches, floods and other types of large-scale wastage are becoming a common feature in mountainous areas (Gardner, 1992).

These threats and the changing biophysical and socio-economic set-up of the mountainous region have a major impact on the overall settings of the highlands as well as the lowlands that symbolize complex contact systems (Singh, 1992). There is a problem of tourism in the mountains. The influx of tourists in the area at one time affects the activities and consequently injures the fragile environment. The carrying capacity is highly relevant for the overall development of tourism in hilly areas, especially high mountain areas having the ability to absorb tourist activities (Pandey, 2002). In addition, well-managed, controlled and integrated development of tourism can ensure sound health of the mountainous environment. In addition, the development of tourist spots in the mountains has been done to attract tourists who increase business and employment opportunities. This resulted in the development of built infrastructure, consumerism, overcrowding and unplanned development of settlements. The trend of three or four-story structures with little sympathy for the surroundings was apartments. Fertile agricultural land, horticultural land badly for tourism development and the price of land soared beyond the reach of the local. In addition, activities such as skiing, paragliding, trekking were promoted, encouraged and developed to attract tourists. This led to a change in the eco-system. Recently, there has been an increase in the incidence of tourist flow in nature based tourist destinations. These destinations have resulted in environmental pollution, hazards, and natives as a result of vehicles and consumables, especially the permission for plastic packaging. The infrastructure required to provide basic amenities to tourists accelerates the process of urbanization (Pandey, 1998).

On 16 June 2013, there was a massive disaster in Uttarakhand, besides heavy casualties and destruction. The entire state was hit by heavy rains and flash floods. Although all thirteen districts of the state were hit, the five districts, Bageshwar, Chamoli, Pithoragarh, Rudraprayag and Uttarkashi were the most affected. The disaster coincides with the peak tourist and pilgrimage season, greatly increasing casualties

and adversely affecting rescue and relief operations. The impact of the disaster was highest in Mandakini valley of Rudraprayag district. Torrential rains, along with the possible collapse of Lake Chorabadi, flooded the Kedarnath shrine and areas around Rambara, Agassamuni, Tilwara and Guptkashi. Other pilgrimage places in the region including Gangotri, Yamunotri and Badrinath were also affected by thousands of devotees traveling in the summer season. People were stranded together for several days in important places like Harsil Roorpund and Hemkund Sahib. More than one lakh people were trapped in various areas of the state due to damaged roads, landslides and flood-induced debris. During the entire crisis period, the Uttarakhand government tried its best to manage the disaster despite the huge proportion of the disaster. Soon after the disaster, the state government started a massive rescue and evacuation operation with the help of various central and state government agencies.

The state of Uttarakhand is highly vulnerable to multi-disasters. Uttarakhand is located in the seismic interval of the 1934 Bihar-Nepal earthquake and the 1905 Kangra earthquake, and falls in Zone IV, given the possibility of earthquakes, flash-very high vulnerability, earth potential, landslides, flash floods and cloudburst etc. It is classified in and V i.e. the state falls in the highest seismic risk zones of the country. Uttarakhand has two regional tectonic features, including earthquake potentials, the main central thrust (MCT) and the main boundary thrust (MBT). The state of Uttarakhand is highly vulnerable to multi-threats. Earthquakes, flash-floods, landslides, hailstorms, avalanches, dam burst droughts, but especially earthquakes, as the state falls in the highest seismic risk zones of the country i.e. zones V and IV. The past record and tectonic profile of seismic activity in the state, the probability of a high impact earthquake, can be expected in the future. Deforestation in the Himalayas has increased the severity of flooding during the rainy season and reduced stream flow and dry springs during the dry seasons. Increased soil erosion has reduced the water carrying capacity of rivers, resulting in flooding of the plains. Low-lying areas of the state are presented below: Effectively for mapping and monitoring flood-affected areas using satellite data for flood damage assessments, flood hazard zones and subsequent flood surveys of rivers configuration and conservation operations.

Eco-sensitive zones like Gangotri Glacier, Yamunotri, Valley of Flowers, Kedar Dome, Hemkund Sahib, Nagtibba, Binsar, Chandrashila etc. are famous for pilgrims and trackers. These areas are now ending. Emissions of greenhouse gases, cooking stoves, generators, etc. from vehicles are threatening the ecological balance and sustainability of glaciers. In addition, catchment areas are being heavily polluted by tourists with large amounts of plastic and other non-offending elements that are responsible enough for landslides and flashfloods. During recent years, the urban population in Uttarakhand has steadily increased mainly in Dehradun, Haridwar, Nainital and Udham Singh Nagar districts. The expansion of road network, development in tourism, market improvement, development of rural service centers, etc. are important factors of urban development. Earlier, there were some old urban centers in the state, Dehradun, Nainital, Mussoorie, Sirinagar etc. Urban centers like Devprayag, Sonprayag, Rishikesh, Bardinath, Rudraprayag, Gopeshwar Rudrapur etc. have been developed as stagnation

centers of Chardham Yatra. Seasonal economic activities gave them an opportunity to grow as small or medium cities. After 2000, the population of these cities and cities has grown rapidly due to mass tourism, related job opportunities. In this way a large number of unplanned urban local bodies developed without basic civic amenities and basic facilities. These unplanned urban local bodies are major threats to the entire river system of the state. Decomposed solid waste and many pollutants are being dumped into rivers that are hindering the hydrology cycle, river ecology and morphology.

Sacred lakes and confluences that have spiritual value as well as environmental importance are polluted by uncontrolled discharge of wastewater and solid waste. Uttarakhand is prone to natural disasters. The state has high seismic zones, besides floods, forest fires, landslides and cloudburst occurrences. Climate change has also increased vulnerability to natural disasters as the glaciers are melting considerably. Outbreaks of glacial lakes have also increased the impact of flash floods. Cloud burst and heavy rains during the monsoon increased the severity of landslides and floods. Studies have shown that landscape is the most important motivation for people to spend holidays. The ecology of any region has limited capacity to provide livelihood to a limited number of people and no more. During the tourist season, there is a sharp increase in the population, which has to subsist from the life support system of the region (Pandey, 1998). Significantly, there has been an increase in urban population in nature-based tourist destinations like Mussoorie, Nainital, Ranikhet, Kausani, etc., which has seen a rapid growth of the built environment to accommodate and facilitate the native population or visitors. The haphazard construction of hotels and guesthouses without considering the geographical, morphological and hydrological aspects has led to stress on the environment and the eco-system, leading to a disastrous situation. Another important factor is the shift from tradition paper bags and jute bags to polyethylene, one of the most widely manifested effects of tourism in hill stations. This danger is more widespread for tourist destinations as tourists are mobile and have a practice of dropping them out of the packet. Most tourist destinations have polythene and disposable materials, water bottles, etc., which cause environmental degradation and harm to the health of wildlife. The government's failures to ensure the planned expansion of the tourism industry and enforce building laws have taken a heavy environmental toll in these ecologically fragile valleys in Uttarakhand. If recurring flash floods, repeated landslides and the increasingly erratic behavior of the rivers and many of its tributaries are any indication, the valleys are already on the verge of an ecological disaster. Significantly, the built environment at nature-based tourist destinations has led to ecological damage and a branded pattern of debris deposition in debris. Large-scale excavation of boulder and sand has increased the control bed of the river substantially compared to the normal level. This is one of the major causes of land slipping, bank erosion and flooding.

The important thing is that the tourism industry is virtually standing in the forest box. Mushrooming of concrete structures has not only taken care of lush green areas but also encouraged illegal felling and misuse of trees allotted to the villagers under the rules. Even, the trade of tourists has stopped poaching in cities and urban agglomerations as

well as protected areas. The carrying capacity of any tourist destination is a maximum number of tourists, which can be accommodated at any destination for tourists as well as locals without any difficulty. The number of tourists visiting Uttarakhand's major tourist attractions is increasing continuously. For this it is necessary to promote the planned development of transport network, resting places at destination, resting place for boarding and boarding facilities and recreational facilities. Destinations should have more of the following facilities (Nigam, 2002): (i) construction parking slots; (ii) expansion of housing facilities; (iii) improvement of transport facilities; (iv) opening of new fast food centers; (v) Improvement of electricity and drinking water facilities; (vi) to expand the existing telecommunications facilities; (vii) availability of better medical facilities to tourists; (viii) construction of new toilet facilities; (ix) Improvement of booking facilities in transit areas; (x) establishment of tourist information service. Urgent steps need to be taken to bring environmental protection to picturesque places of attraction (Basu and Gautam, 1989). This requires that tourists be motivated to use the least polluting and public transport so that they can reach all the premises of the tourist destination. Thus the campus should be made accessible to the people. Traffic management is called upon to minimize unsafe travel conditions, congestion and the negative effects of travel and tourism on the destination. Again, being a good neighbor and improving the local environment is to ensure good communication with the local community. A broad-based training framework is necessary to deal with the problems of tourism and to deal with the crisis like conditions in a destination. These trainings should cover tourism agents and local agents of travel and tour operators such as hotels, restaurants, resorts, lodges, tour operators, travel guides, travel agents, transport operators, etc. Importantly, the establishment of some vocational educational institutions in the vicinity was encouraged. Planned and regulated tourism is essential in all important tourist centers.

Since the mountains of tourist paradise are ecologically fragile and natural disasters cause huge difficulties in smooth movement of traffic. Sometimes, bus accidents result in the loss of tourists and pilgrims. Planned and regulated tourism in the region may also consider installing ropeways in most routes of travel, so that vehicular pollution does not spoil the environment (Hawkins & Hunt, 1993). Several remedial steps can be suggested to investigate environmental pollution. However, the major ones are: (i) Only smoke-free vehicles allowed; (ii) Restrictions on blowing frequency of horns from vehicles; (iii) Use of lead free petrol or diesel in the vehicle only; (iv) Investigation on indiscriminate felling of deforestation trees; (v) to promote social forestry and environmental protection programs; (vi) Only biodegradable items allowed in destination premises; (vii) to develop appropriate sewage systems; (viii) Promotion of eco-tourism destinations.

TOURISM DEVELOPMENT

Diverse forest and grassland ecosystems, which vary from alpine pastures to desert thorn forests and tropical rain forests; unique geological landscapes; rivers; valleys; magnificent coast lines and towering mountain peaks offer immense opportunities for nature based tourism in India. These forests are the home to thousands of species of

wild animals and plants including the tiger, snow leopard, Asiatic lion, clouded leopard, one horned rhinoceros and Asiatic elephant. Millions of domestic and foreign tourists visit these areas for recreation; sightseeing; hiking; rafting; cycling; nature awareness or simply leisure. With almost of a quarter of the geographical area of India under forests (ISFR, 2017) some of which form part of national parks and sanctuaries; the potential for nature based tourism in forest and wildlife protected areas is immense and has perhaps not been fully realized.

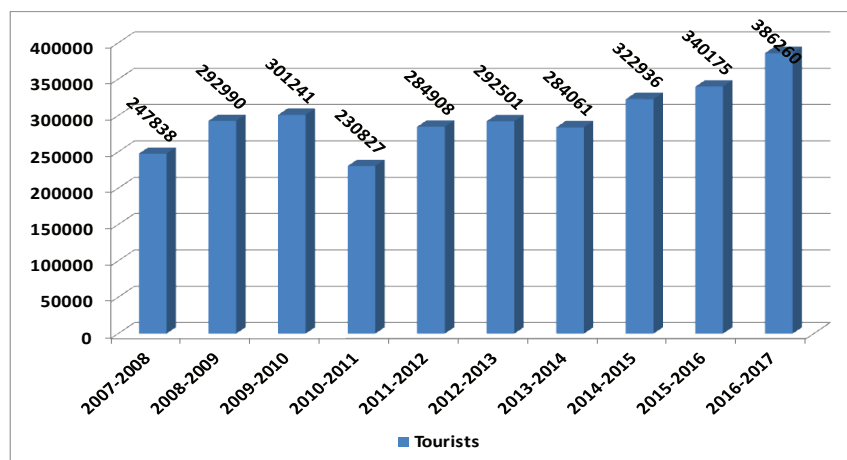
Wildlife tourism plays an important role in the economy of the state and is helping to provide livelihoods to the local residents. Millions of visitors come to these national parks, sanctuaries and conservation reserves each year. At the same time it also plays an important role in conservation of such areas and raising the environmental awareness of both the residents and the visitors. 6 national parks, 7 wildlife sanctuaries and 4 wildlife conservation reserves have been constituted in different ecological regions of the state. Three of these have also been declared as tiger reserves under the Project Tiger. These are home to a variety of birds and animals including the tiger, leopard, snow leopard, elephant, different species of deer, crocodiles, snakes and other reptiles & many species of resident as well as migratory birds. These national parks, wildlife sanctuaries and conservation reserves attract millions of visitors each year and are the most important destination for eco-tourists in the state.

Tourism is an important and key industry of Uttarakhand State. Tourism is considered to be an important vehicle for economic and social development of the state. Uttarakhand has a lot of potential for tourism development and various tourist activities. Tourism is an important source of foreign exchange and also can potentially contribute to the national balance of payments and act as a major source of income and employment. Throughout the world, the most compelling reason for pursuing tourism as a development strategy is its alleged positive contribution to the local or national economy (Sharpley, 2004). Leisure, adventure, and religious tourism play a major role in Uttarakhand's economy. The Corbett National Park and Tiger Reserve and the nearby hill-stations of Bhimtal, Nainital, Almora, Mussoorie, Kausani, and Ranikhet are the most regularly visited destinations of India. There are also various mountain peaks that interest the mountaineers. Other national wonders include the Valley of Flowers along with Nanda Devi National Park is a UNESCO World Heritage Site. Uttarakhand is also a great religious tourism destination. Yamunotri and Gangotri are the sources of both the Yamuna and Ganges respectively. They fall in the upper reaches of the state and together with Kedarnath (Shiva shrine) and Badrinath (Vishnu shrine) form the Char Dham. To the immediate northeast in Tibet, Mount Kailash, the traditional abode of Shiva and mythical centre of the world can be found. Haridwar is a leading religious destination too. It hosts the Kumbha Mela every twelve years, which fetches millions of pilgrims from all parts of the India and the world. Rishikesh is known as the paramount yoga centre of India. The state has many temples and shrines of local deities or manifestations of Durga and Shiva in accordance with the Hindu scriptures and legends. These temples differ slightly from other parts of India in terms of design and they have a typical type of architecture. Jageshwar (a complex of 124 temples built

in deodar woodland) temples are historically the most famous for their marvelous architectural designs. Hemkund is a chief pilgrimage center for the Sikhs. Tibetan Buddhism has also recently reconstructed Mindroling Monastery and its Buddha Stupa, which is the world's highest lying southwest of Dehradun. Uttarakhand is also well known destination for hiking, mountaineering and rock climbing in our country. White water rafting and other adventures sports found this state as a best suited place for them. Rural tourism, agri-tourism and Eco tourism have also established new foundation in several villages.

Tourists arrival in national parks and sanctuaries in Uttarakhand is shown in Chart 1. There has been significant increase in tourists arrival in national parks and sanctuaries in the state during the period of 2007-08 to 2016-2017. However, the growth of revenue received from national parks and sanctuaries (241.59 per cent) as compared to growth of tourists arrival (55.85 per cent) during the corresponding period.

Chart 1: Tourists Arrival in National Parks and Sanctuaries in Uttarakhand



Source: Department of Forest, Government of Uttarakhand

The wildlife tourism promotion requires a perspective plan and strategic management of visitor's impacts on eco-system and wildlife. Knowledge of the ecology, habitat preference and distribution of wildlife within its range also involves the identification of wildlife resources, recreation facilities and basic amenities to visitors. Thus, management of wildlife tourism should consider developing a zoning plan to define and delineate site within the protected areas as well as in common or private property that should be allocated for wildlife tourism (Chawla, 2003). Spatial zoning is the most common technique to reduce the negative impact of tourists on wild life. The special I structures provide tourists a sense of security in an unknown place and enhance their appreciation of nature. These structural elements also serve as a protective barrier between tourists and wildlife (Dredge, 1999). Wildlife tourism management also involves full supervision, monitoring and control so as not to disrupt the breeding behavior and reduce the breeding success of the animals (Sinha, 2001).

Tourists arrival in protected areas of Uttarakhand are shown in Table 1. Tourist's arrival was recorded high for Corbett National Park followed by Rajaji National Park and Sonanadi Wildlife Sanctuary. Similarly, revenue was collected high from Corbett National Park followed by Rajaji National Park and Sonanadi Wildlife Sanctuary.

Table1:Tourists Arrival in Protected Areas of Uttarakhand

Protected Area	Indian	Foreigner	Total	Revenue (in Lakhs)
Corbett NP	260232	6268	266500	918.33
Rajaji NP	45361	2206	47567	101.45
Gangotri NP	11457	1186	12643	31.67
Valley of flowers NP	8962	649	9611	17.20
Nanda Devi NP	5387	353	5740	7.85
Govind WLS	9503	168	9671	25.73
Sonanadi WLS	24163	375	24538	50.31
Kedarnath WLS	9510	480	9990	15.53

Source: Department of Forest, Government of Uttarakhand

Tourists' arrival in eco-tourism destinations in Uttarakhand are shown in Table 2. There has been increasing trend in tourists' arrival in eco-tourism destinations such as Botanical Gardens, Zoo, waterfalls and eco-parks. In view of the development of tourism destinations nearby major tourist destinations, eco-parks have been developed which attracted a number of tourists. These parks provided employment to local people and played crucial role in conservation of nature.

Table 2: Tourists Arrival in Eco-Tourism Destinations in Uttarakhand

Destination		2013-14	2014-15	2015-16	2016-17	2017-18
Dehradun Zoo	Tourists	198700	238225	270744	411740	619450
	Revenue (In Rs lakhs)	23.28	25.61	40.77	76.73	198.85
Himalayan Botanical Garden	Tourists	5224	15519	18534	53856	
	Revenue (In Rs lakhs)	1.04	3.10	3.70	10.77	NA
Sariyatal Waterfall	Tourists	82660	146000	214485	232220	
	Revenue (In Rs lakhs)	4.13	7.30	10.72	33.30	NA
G.B. Pant High Altitude Zoo- Nainital	Tourists	177160	226747	278893	301290	
	Revenue (In Rs lakhs)	80.06	103.12	127.57	137.36	NA
Lachiwalla	Tourists	160327	219302	238306	258510	255037
	Revenue (In Rs lakhs)	33.019	40.40	44.98	51.11	81.59

Source: Department of Forest, Government of Uttarakhand

Number of tourists who enjoyed river rafting is shown in Table 3. There has been significant increase in number of tourists who enjoyed river rafting during the period of 2003-04 to 2016-17. There were 17760 tourists who enjoyed river rafting during 2003-04

while the number of such tourists were recorded 46748, registered a growth of 163.22 per cent in 2016-17.

Table 3 : Number of Tourists Who Enjoyed River Rafting

Year	Indian	Foreigner	Total
2003-2004	15,145	2615	17,760
2004-2005	18,002	2861	20,863
2005-2006	22,577	3085	25,662
2006-2007	26,798	2720	29,518
2007-2008	28,271	3589	31,860
2008-2009	23,499	3179	26,678
2009-2010	23,366	2017	25,383
2010-2011	65,320	6911	72,231
2011-2012	59,508	4,665	64,173
2012-2013	52,190	4,768	56,933
2013-2014	37,965	3,983	41,948
2014-2015	49,620	3,330	53,388
2015-2016	53,682	3,446	57,128
2016-2017	43,715	3,033	46,748

Source: Tourism Development Board, Uttarakhand, 2018

Environmental protection has become a major issue in the recent years. Tourism has positive as well as negative impacts on physical environment, built environment and ecology. There is a peaceful coexistence of tourism and the environment by the proposition: (i) tourism and travel promotes environmental awareness; (ii) well managed tourism is a good friend of the environment; (iii) a successful tourism industry needs a high quality environment. Importantly, most of the tourists themselves are becoming increasingly environmentally conscious. Apart from the alternative forms of tourism, which have traditionally been searching for unspoiled natural settings, the trend for green consideration is emerging in the mass tourism market as well (Archer & Fletcher, 2000). Moreover, the protection, conservation, renovation and transformation of historical sites, buildings, heritage and monuments have also been stimulated by tourism activity. In addition, tourism often stimulates the creation of national parks, manmade attractions and marine conservation units. In various projects worldwide, millions of plants have been planted; while wild animals and rare species have been protected. Interestingly, scope of eco-tourism has emerged in the recent past since tourists are no longer prepared to spend their holidays at crowded, spoilt and unhealthy destination. The summary of sectoral impact of tourism on mountain environment also shows more negative effects than positive effects.

CONCLUSION

Thus, it can be concluded that environmental sustainability in tourism can be managed effectively through planned development of tourist destinations, mapping of potentially

hazardous sites and preparedness. Crowded tourist destinations require strict regulations while eco-tourist destinations can be developed to nearby important tourist destinations keeping in view the capacity and environmental sustainability. Alternative tourist accommodation such as cottages, huts, home stays, tree houses, etc. can provide the best options for tourist accommodation. Home stay program of Uttarakhand state is gaining importance. It is likely to contribute to sustainable tourism development and reduce traffic congestion in important tourist destinations during peak tourism season, however, regulation of the operation of the Home Stay requires and standards must be maintained so that these home stays are important in nature to contribute to conservation and livelihood development in local areas.

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