

Ecotourism and Sustainable Development of Mountain Communities: A Study of Dhanolti Ecopark in Uttarakhand State of India

Chandra Prakash Kala*

Ecosystem and Environment Management, Indian Institute of Forest Management, Nehru Nagar, Bhopal, Madhya Pradesh, India

*Corresponding author: cpkala@yahoo.co.uk

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Abstract The value of ecotourism in creating opportunities for sustainable development of communities and management of ecosystem and environment was studied in the Uttarakhand state of India. This Himalayan state promotes ecotourism in national parks and sanctuaries, apart from exclusive areas created for ecotourism in the form of ecoparks. One such ecopark namely Dhanolti ecopark was surveyed intensively, which is jointly managed by the state forest department and the local communities. The ecopark's income has continuously increased since its inception and the participatory management practices have also improved its ecosystem and surrounding environmental conditions. The area that was once degraded due to dumping of non-degradable plastic waste is now almost free from such environmental-unfriendly substances. The study further argues that which model is more appropriate for meeting the requirement of ecotourism; whether the national park and sanctuary or the ecopark.

Keywords: *ecotourism, ecosystem management, sustainable development, Uttarakhand, national park, ecopark*

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1. Introduction

Natural areas with rich biodiversity and scenic beauty, such as the Himalayas, have been the major destination centers for nature lovers from historical time. With the passage of time, the heavy influx of unregulated tourism and its activities, however, have mounted unprecedented pressures on such areas of tourist's attractions in terms of loss of native biodiversity and degradation of ecosystems and environment [1,2]. The continuous degradation of such ecosystems and the loss of services supplied by them have evoked the need of sustainable development of tourism centric places all over the world. According to the United Nations World Tourism Organization (UNWTO), sustainability principles refer to the environmental, socio-economic and socio-cultural aspects of tourism development along with creating suitable balance between these three dimensions.

The concept of sustainable tourism has given birth to a quite popular and acceptable term 'ecotourism', which indicates the responsible travel to natural areas that conserves the environment and improves well-being of local inhabitants. The practice of ecotourism or sustainable tourism is known to have the potential of helping the conservation of natural areas in such a way so that the local communities may be benefited by improving their living standards without slowing down their age-old traditions and cultures [3,4,5,6,7]. Ecotourism is being

defined in different ways by different groups of people [8]. On one hand the scenic beauty of natural areas attracts large number of tourists, while on other hand many conservationists wish to regulate the flow of tourists and advocate implementation of existing conservation practices, especially in the environmentally sensitive areas [8,9,10].

Recently in 2013, the UNWTO has given the nod to adopt the resolution which recognized ecotourism as a key to fight against poverty, the protection of the environment and the promotion of sustainable development under the title '*Promotion of ecotourism for poverty eradication and environment protection*'. The recognition of ecotourism in creating opportunities for the conservation, protection and sustainable use of biodiversity and of natural areas by encouraging local and indigenous communities is a known fact, at present, which is supported widely. This fact encourages Member States to promote investment in ecotourism, in accordance with their national legislation, including creating small and medium-sized enterprises and cooperatives such as microcredit initiatives for the poor, local and indigenous communities, in areas of ecotourism potential and rural areas [11].

In view of the importance of ecotourism, the Government of India prepared a detailed set of guidelines on the selection, planning, development, implementation and monitoring of ecotourism in India. These directives and guidelines are applicable to all Protected Areas, including national parks, wildlife sanctuaries, sacred groves, or pilgrimage spots within protected areas and

forested areas. The guidelines intend to adopt low-impact tourism that protects ecological values of the destination and its surrounding areas, including building up environmental and cultural awareness, facilitating sustainability of ecotourism enterprises and activities, providing livelihood opportunities to local communities, and to use indigenous, locally produced and ecologically sustainable materials for tourism activities [12]. Realizing the diverse natural areas in the country, the responsibility to develop state-specific ecotourism plans are dispensed to the respective State Governments.

Uttarakhand is one of the Indian states, lies in the Himalayas, and is well known for its rich biodiversity, scenic beauty and tourist destination [13,14,15,16,17]. The Government of Uttarakhand promotes eco-tourism through its eco-tourism wing which is created to promote eco-tourism activities, especially in the forest areas of the state. The eco-tourism wing seeks to draft policies and provide funds for various eco-tourism projects and provide a framework for the promotion and development of eco-tourism in the state. The state has developed ecotourism areas in the national parks, sanctuaries and in forest areas. An eco-park has been developed in the hills of Uttarakhand under the banner of Dhanolti Ecology and Ecotourism Development Committee, which is commonly known as Dhanolti Eco-park. This eco-park has been selected as an example for studying various issues of ecotourism, its pros and cons and the avenues of developing appropriate strategies for promotion of ecotourism in the state. The study further discusses that which model of ecotourism, whether the national park and sanctuary or the ecopark, is more appropriate for meeting the requirement of ecotourism as chalked out by the UNWTO and the state government.

2. Methods

Dhanolti ecopark of Uttarakhand state in India was studied intensively and surveyed for collection of data on the yearly arrival of number of visitors and income generated by providing required facilities to the visitors and also conducting various activities in the ecopark. The ecopark authorities and employees were interviewed for the collection of information on the benefit sharing mechanism and employment generation after establishing ecopark. The official records of Dhanolti ecopark on various expenditures for developing and maintaining ecopark along with various sources of ecopark income, as maintained by Dhanolti Ecology and Ecotourism Development Committee (DEEDC), were also examined. The waste disposal mechanism of DEEDC was scrutinized. The collected information on the number of tourists and income generation at the ecopark was compared with the similar information available for the national parks and sanctuaries within the state of Uttarakhand.

3. Results and Discussion

3.1. Dhanolti Eco Park

In view of the wide recognition of ecotourism in the natural areas and also to fight against poverty, apart from protection of environment and promotion of sustainable

development, the state government of Uttarakhand in India has established an ecopark in Dhanolti – a small hill station. The Dhanolti ecopark is 30 km away from Mussoorie town and 63 km away from Dehradun - the capital city of Uttarakhand. The ecopark is situated at an altitude of 2280 m a.m.s.l. between 30° 42' N, 78° 24' E.

Before setting up the ecopark, the villagers in and around Dhanolti town were approached by the state forest department, and a series of consultative meetings were held with them on the prospects of developing an ecopark at Dhanolti. The numbers of problems of the villagers were identified during the consultative meetings. Unemployment was one of the major problems, which had forced local youths to migrate from their villages to cities in search of employment and better opportunities, especially to Dehradun and New Delhi.

The lack of knowledge and less-informed tourists and locals used to through garbage frequently in the surrounding deodar forest, which polluted the ecosystem and environment of this hilly region. Trespassing in reserve forest by hoteliers and locals were a matter of grave concern for forest department in order to manage the existing forests mainly composed of deodar, rhododendrons and oaks.

To mitigate pressure on the forest ecosystem, and at the same time to provide some employment to the local people apart from ascertaining their participation in the management of forest and ecosystem, the consensus emerged on developing an ecopark at Dhanolti. A committee was formed naming Dhanolti Ecology and Ecotourism Development Committee (DEEDC), which was registered in 2008 under the Society Registration Act 1860. The place, as offers a panoramic view of the Himalayas and magnificent deodar forests, the ecopark was finally established in about 13 ha of reserve forest chiefly dominated by deodar trees. The ecopark declared open for public and tourism activities were initiated here from June 2008.

3.2. Management of Ecopark

Dhanolti ecopark is managed by a committee of 18 members, including 3 members from woman folks. The main role of DEEDC is to manage the ecopark, conserve forest and ecosystem, dispose off and recycle garbage, and collect fees for various amenities, as provided to the tourists. Besides, the committee looks after the conservation and management of adjoining forest areas. The five major amenities provided by ecopark to the visitors are: accommodation facility in eco-huts, amusement facilities like flying fox and burma bridge, plantation of memory saplings, nature trails with yoga centre and a interpretation centre.

Eco-huts are made up of bamboo and are rented to visitors for night stay on some nominal charges (Figure 1). The adventure sports facility is available for visitors in the form of walking over the flying fox and burma bridges and riding horses. There is also a facility for visitors to plant a sapling of tree species in the memory of their beloved, which is called as memory sapling plantation. There is a Yoga centre in the ecopark's premises, which disseminate the power of Yoga to maintain health and keep one's body away from diseases. Besides, there is an interpretation centre which helps to generate awareness on

the conservation and management of the Himalayan ecosystem and biodiversity. Some local handicraft items

are also available in the ecopark to visitors for purchase.



Figure 1. An income generation source - the attractive bamboo huts - in Dhanolti ecopark of Uttarakhand state, India

3.3. Income Sources of Ecopark

There are different sources of income. The ecopark is divided into two major parts – the upper one is called as Ambar (sky) and the lower one is Dhara (earth). The visitors pay some nominal entry fees, which varies from Rs. 20 per adult [56 Rs. = 1 US \$] to Rs. 10 per kid for visiting Ambar and Rs. 15 per adult to Rs. 10 per kid for visiting Dhara. Per night stay charge in the bamboo hut is Rs. 1500. The charge for enjoying a walk over the Burma bridge is Rs. 20 per person and the charge for sliding on the flying fox is Rs. 50 per person. The cost of memory sapling plantation is Rs. 350.

Table 1. Expenditure in developing eco-park Dhanolti and subsequent income generated

Year	Total expenditure (in Rs.)*	No. of visitors	Income generated		Total income generated (in Rs.)
			Bamboo huts	Park activities	
2008-09	9602600	43281	0	538660	538660
2009-10	2231797	114154	87785	1615131	1702916
2010-11	750000	107350	621811	2112749	2734560
2011-12	464000	119745	699747	2614951	3314698
Total	13048397	384530	1409343	6881491	8290834

*One US \$ = 56 Rs. as on June 2012

The ecopark income has continuously increased since its inception in 2008 from Rs. 5,38,660 to Rs. 33,14,698 in 2012, which is over 6 times higher (Table 1). Over the period of four years the ecopark has generated a total Rs. 82,90,834. Of this income 83% is gained by conducting various activities in the ecopark and remaining 17% is contributed by providing accommodation in the eco-huts. Eco-huts were made functional in 2009, and since then the income generation from these eco-huts has continuously

increased, as they provide the pleasure of living in huts and the scenic beauty, as well. In the initial stage of establishing ecopark the expenditure was naturally higher for developing infrastructure, which is declined over the years.

Table 2. Non-biodegradable waste disposal from the ecopark

Year	Waste disposal (in kg)
08-09	2040
09-10	951
10-11	910
11-12	210

3.4. Ecosystem and Environment Management

The approach of participatory conservation through DEEDC has improved the ecosystem and environment conditions of Dhanolti. The area which was once degraded due to dumping of non-degradable plastic waste is now almost free from such non-biodegradable substances. The use of such wastes has declined over the years and so that the quantity of its disposal has reduced (Table 2). DEEDC has placed holdings on the road and vantage points depicting the ill effects of non-biodegradable substances and other garbage, which help in spreading awareness among the tourists and locals to use dustbins rather than littering anywhere in nature. The waste is gathered and transported to the nearest city, Dehradun, where it is recycled or disposed off properly. The reduction in garbage has helped the local flora to revive. In addition, over 1000 saplings of tree species, mainly of deodar, have been planted as memory plantations in the ecopark area. These saplings flourish well, as they all are under intensive care of the DEEDC. The encroachment activities have also been minimized.

3.5. Benefit Sharing and Livelihood Generation

The total income as generated by conducting different activities in the ecopark is shared in such a way so that the ecopark can be made functional besides providing benefits to the local people. Of the total ecopark income, the maximum share (40%) is provided as honorarium to the local people for conducting various activities in the ecopark and environmental conservation. Thirty percent of ecopark income is used for the maintenance and development of ecopark. Twenty percent is allotted as revenue in state exchequer, and remaining 10% of total ecopark income is deposited in the corpus fund.

The ecopark provides regular employment to 25 local youths, including 3 women. Various park activities and increase in tourist's influx have enhanced livelihood opportunities to many other local people who are not

regular employees of ecopark such as, local mule owners, photographers, small shopkeepers, hoteliers, restaurant owners, porters, vendors, including local farmers producing seasonal vegetables and fruits etc.

3.6. Sustainable Mountain Development

Dhanaulti eco-park contributes considerably to establish the concept of eco-tourism as a tool for sustainable development of communities along with nature and natural resources. The well designed mandate of this ecopark ensures participation and engagement of local communities in conservation and management of ecosystem and environment. It further helps to create awareness in masses about the conservation of biodiversity and natural resources by synchronizing these valuable assets with the livelihood of local people (Figure 2).



Figure 2. Sharing of experiences with the post graduate students by Dhanaulti Ecology and Ecotourism Development Committee members on the management of Himalayan ecosystem and environment

Table 3. Status of national park and sanctuaries in Uttarakhand state of India (One US \$ = 56 Rs. as on June 2012)

Name of protected area	Year of establishment	Area (in square km)	Number of tourists	Total revenue generated (Rs. in lakhs)
Corbett National Park	1936	520.82	210262	719.38
Rajaji National Park	1983	620.42	21061	52.42
Gangotri National Park	1989	2390.02	15367	38.15
Valley of Flowers National Park	1982	87.50	6855	11.39
Nanda Devi National Park	1982	624.60	63	.13
Govind National Park	1990	472.08	2297	4.88
Govind Pashu Vihar Wildlife Sanctuary	1955	485.89		
Binsar Wildlife Sanctuary	1988	45.59	17775	37.57
Sonanadi Wildlife Sanctuary	1987	301.18	17111	29.41
Kedarnath Wildlife Sanctuary	1972	975.20	803	1.31
Ashkot Musk Deer WLS	1986	599.93	Data not available	Data not available
Mussoorie WLS	1993	10.82	Data not available	Data not available
		7134.05	291594	894.64

3.7. Comparison of Dhanolti Ecopark with other Ecotourism Sites

Uttarakhand being a Himalayan state that harbours rich biodiversity and breathtaking landscape beauty, as per the Wildlife Protection Act 1972 a total 12 protected areas have been set aside along the width and breadth of the state covering various ecosystems, forest types and landscapes [18]. The reasons of creating these protected areas include the purpose of protecting, propagating or developing biodiversity and maintaining ecological and geomorphological values of the areas declared as a national park or sanctuary. Half of these total protected areas are national parks and half of the protected areas are wildlife sanctuaries (Table 3). These protected areas altogether cover 13.95% of the state's total geographical area.

The history of protection differs across the protected areas and the Corbett National Park being the oldest protected area in India still boasts high biodiversity including tiger and hence attracts tourists from far and wide. Within a year, from April 2011 to March 2012, a total 2,91,954 tourists paid their visit to 10 protected areas of Uttarakhand out of total 12 existing protected areas (excluding Ashkot and Mussoorie Wildlife Sanctuary as data were not available for these two). Within one year period, these protected areas altogether generated Rs. 894.64 lakhs revenue, of which the Corbett National Park alone contributed Rs. 719.38 lakhs, which forms 80% of the total revenue generated by all 10 protected areas.

In one year, from April 2011-March 2012, Dhanolti ecopark, which spans over 13 ha of land, was visited by 26,14,951 tourists. In a year the ecopark earned Rs. 33, 14,698 revenue, which is higher than the revenue earned by 6 important national parks and sanctuaries such as the Valley of Flowers National Park, Nanda Devi National Park, Govind National Park, Govind Wildlife Sanctuary, Sonanadi Wildlife Sanctuary and Kedarnath Wildlife Sanctuary. The Nanda Devi National Park may be excluded from this comparison to Dhanolti ecopark, as there are restrictions on tourism in this national park, and also the park remains under snow for major part of the year.

Table 4. The trends in number of visitors to the Corbett National Park and Dhanolti ecopark

Year	Number of Tourists	
	Corbett National Park	Dhanolti Ecopark
2008-09	221,083	43281
2009-10	223,761	114154
2010-11	189,793	107350
2011-12	210,612	119745

The number of visitors to the Corbett National Park shows some declining trend from 2008-09 to 2010-11. Interestingly, there was a marginal fall in the number of tourists to Dhanolti ecopark in the same year (2010-11); nonetheless the visitor's number shows continuous increase in the ecopark, since its inception in 2008 (Table 4). The yearly proportion of visitors to the Corbett National Park and the Dhanolti ecopark is almost similar. There are some points, which go in favor of better ecotourism prospects in the model of Dhanolti ecopark. It

is a newly established ecopark, spans over a small area, and even not advertized properly within the country. Despite several such limitations, the park has attracted a large number of visitors and has got considerable recognition within past four years.

Dhanolti ecopark, as an example, indicates tourist's attractions in community managed ecotourism. In addition, local support is required for biodiversity conservation and ecosystem management by combining co-ownership and co-management, as reflected by a long-term study conducted in the neighboring country of Nepal by Bookbinder et al. [19]. Further, the community-based tourism can foster changes in local attitudes toward forest and wildlife, as ecotourism encourages local guardianship of resources. Dhanolti model of ecotourism is expected to sensitize masses for coming forward seriously for the conservation of biodiversity and ecosystem. The need of the hour is therefore to develop responsible eco-tourism based on thoroughly thought and rigorously applied rules and regulations.

It is a subject of debate whether the protected areas, especially the national park, should be opened for ecotourism or they should be closed down for tourism activities. There are reports which indicate that a large number of wild animals stay outside these protected areas, and the wildlife density remains comparatively high in the unprotected human-dominated landscape outside some of the old national parks [20]. Such results suggest the need of proper conservation policy, which can address rightfully the conservation of biodiversity and ecosystem while promoting ecotourism. Merely promulgating protected areas is not a viable solution.

The present study of Dhanolti ecopark suggests the need of proper identification of natural sites, either focusing conservation of biodiversity and ecosystem or ecotourism. The keep off zones must be identified properly and demarcated so that some natural wilderness areas are made available for sensitive flora and fauna. At the same time, innovations in ecotourism are also required. To meet this objective, the concerned institutions should develop proper planning and policy for meeting the sustainability of natural resources.

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