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## **Delivering sustainable livelihoods to indigenous communities through ecotourism: insights from Western Odisha, India**

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**Abstract:** This paper is set in the context of five ecotourism hotspots in the western districts of Odisha, India. The main objectives of the study are to identify the positives and negatives of conservation and development actions and outcomes from the integration of ecotourism into indigenous livelihoods in Western Odisha. The study used mixed methods research to interview 300 households representing 25 villages, service providers, and government officials at various levels. The results indicate no significant improvement in indigenous livelihoods, a lack of educational components in ecotourism, and a general mismatch between policy and practice. The paper suggests diversification of tourism activities that include local cultures and way of life to create an enabling environment and encourage local participation. The study helps to gain important insights into the social component of ecotourism using indigenous livelihoods as a focal point.

**Keywords:** ecotourism; sustainable livelihoods; indigenous communities; Odisha; sustainable development; India.

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## 1 Introduction

A significant proportion of the world's 476 million indigenous peoples reside in remote areas of the globe. They make up over 6% of the global population and account for about 15% of the extremely poor. While indigenous communities own, inhabit, or utilise a fourth of the world's surface area, they secure 80% of its remaining biodiversity (World Bank, 2022). These biologically valuable regions have often been exploited for the sake of 'development' in the form of mining, the creation of protected areas, hydroelectric dams, and other such activities, thereby affecting indigenous communities. The livelihoods of indigenous communities often depend on local resources (minor forest produce, water, food), and their natural surroundings mainly drive their socio-economy. With the creation of protected areas, indigenous communities are now placed at the centre of potential man-animal conflicts, lack of access to natural resource bases, and alienation (Gadgil, 1990; Nepal and Weber, 1995). Protected areas are a manifestation of the world's political and economic commitment to conserve biodiversity and natural resources (Rajaratnam et al., 2008).

National parks have traditionally operated on the assumption that local livelihoods are a threat to biodiversity due to their consumptive nature and have established clear-cut borders that exclude local livelihoods and seldom facilitate local development (Coria and Calfucura, 2012). By excluding rural communities from protected areas by way of modifying the boundaries of communities and changing land use patterns, national parks have contributed to the marginalisation of and poverty in rural communities (de Sherbinin, 2008). In recent decades, however, there has been a paradigm shift in protected area management from the traditional 'fortress-conservation approach', in which the idea was to keep out people to protect biodiversity, to a more inclusive approach where equal importance is attached to conservation and concerns of people living in and around protected areas, particularly those of indigenous communities. Hence, the present notion is that the physical nature, people, and their cultures are fundamentally interlinked. The Brundtland Report (1987) introduced the concept of sustainable development and redefined both social and economic development actions to focus on sustainability. While poverty alleviation and environmental protection are the mainstays of sustainable development, there is a growing emphasis on community participation in and management of sustainable development projects (Grieves et al., 2014).

Ecotourism is recognised globally as a responsible form of tourism that promotes sustainable development and biodiversity conservation by providing a sustainable economic activity that ensures a harmonious balance between the two. However, over the past several decades, ecotourism has been the subject of numerous discussions and debates about what it is and is not. Although there are disagreements over what constitutes ecotourism, most of the disputes in the former case believe that all ecotourism initiatives should aim to create a synergistic relationship between empowerment, conservation, and sustainable development (Donohoe and Needham, 2006). In defining what ecotourism is *not*, efforts are commonly directed toward making a distinction between ecotourism and other forms of related tourism, namely, nature, wildlife, and adventure tourism (Björk, 2007; Honey, 1999). Despite the ambiguity surrounding the definition of ecotourism, all definitions strongly emphasise the ideals of socio-cultural, ecological, and economic sustainability as well as the preservation of biological and cultural resources (Mgonja et al., 2015).

Like many developing countries, India too aspires for sustainable development and recognises the need for different forms of social, economic, and environmental resource management strategies that can dampen the progression of environmental degradation and foster development that is environmentally and socio-economically sustainable (Singh et al., 2021). Most Indian states have realised the potential of ecotourism as an effective strategy to strike a balance between biodiversity conservation and sustainable development. The present study focuses on five ecotourism sites in Western Odisha of India, namely, Khandadhar Nature Camp (KNC), Debrigarh Wildlife Sanctuary (DWS), Karlapat Wildlife Sanctuary (KWS), Nrusingnath Nature Camp (NNC), and Hirakud Dam and explores the positives and negatives of conservation and development outcomes from the integration of ecotourism into the local economy with a focus on indigenous communities living in four districts of Western Odisha.

The paper is organised as follows. Section 2 discusses various perspectives surrounding indigenous involvement in ecotourism projects. Section 3 highlights the research methods employed for the study. Section 4 provides a brief highlight of the demographic profile of the study sites. Section 5 discusses the impact of ecotourism on indigenous livelihoods, the environment, and the socio-cultural life of local communities. Section 6 consists of a brief discussion of the findings of the study, and finally, Section 7 concludes the paper.

## **2 Review of literature**

Ecotourism can mean different things to indigenous communities who inhabit natural landscapes sought after by eco-tourists- a revival of traditional crafts and art, an influx of jobs, higher incomes, and improvement in overall well-being. However, it can also carry negative social impacts by introducing a crunch of land and resources and uprooting traditional values and ways of life. Although there are lingering questions about what constitutes proper ecotourism management, ecotourism does seem to provide developing countries with a sustainable economic infrastructure (Coria and Calfucura, 2012). Several studies have pointed out that income derived from ecotourism activities can promote income diversification and outcompete traditional subsistence practices (Mbaiwa and Stronza, 2010; Das and Hussain, 2016). However, for ecotourism to be effective and sustainable, local communities must be equal stakeholders in the planning and management processes and should have the ability to garner economic benefits. Studies also point out that the distribution of economic benefits is unequal among different stakeholders involved in ecotourism planning and management (Sinha et al., 2012). The prevailing inequality partly explains this unequal distribution of economic benefits between different stakeholders outside the protected areas and indigenous communities (Banerjee, 2012; Sinha et al., 2012).

The spread of ecotourism into remote forested areas often coincides with areas that are still the traditional homelands of indigenous populations. The presence of indigenous communities in biologically valuable regions of the world has given rise to debates between those who view the presence of indigenous people as beneficial to conservation and those who opine that their presence is a threat to biodiversity conservation (Redford and Stearman, 1993; Schwartzman et al., 2000; Terborgh, 2000; Zimmerman et al., 2001). Several arguments suggest the compatibility of ecotourism with the development

of indigenous communities. One argument supports this compatibility by referring to the traditional linkages of indigenous communities with nature and the explicit desire of eco-tourists to positively impact the host communities of the places visited (Coria and Calfucura, 2012). However, there are a few discouraging arguments as well, which express that it is a flawed notion to presume that indigenous communities are inherently environmentalist owing to their traditional linkages with nature; indigenous communities have not always been able to manage resource scarcity in a sustainable manner and over-exploitation has been the norm (Fennell, 2008).

Although ecotourism recognises the special cultural links between natural areas and indigenous peoples, ecotourism practices across the world do not seem to reflect this recognition. Indigenous communities involved in ecotourism are often reduced to mere stereotypical representations catering to the propagation of the *tourist gaze*. As the demand for an *indigenous* touristic experience grows, indigenous communities have been recast from self-reliant populations to small-scale powerless actors in the global economy. Although ecotourism offers change for indigenous peoples, it also places necessary preconditions for its success. Ecotourism can only be a panacea if the multi-billion-dollar industry creates conditions where indigenous communities can retain the most measure of autonomy and decision-making power and exercise self-determination in ecotourism planning and management (Alfitri et al., 2022). Despite these opposing arguments, the world development community is dedicated to the socio-economic welfare of indigenous communities by introducing ecotourism as a sustainable livelihood option to establish a synergistic relationship between indigenous communities, tourism, and protected areas (Stronza and Gordillo, 2008).

Responsible tourism as an effective tool for community development has gained momentum in recent years. The potential of ecotourism to contribute to community livelihoods is particularly relevant in developing economies where poverty, inequality, and unemployment are prevalent (Honey, 1999; Dong, 2022). A growing body of research has examined the impact of tourism on community livelihoods, including its social, economic, and cultural effects. Tourism's key benefits are its potential to create jobs and support local entrepreneurship, its ability to support the growth of local businesses, and the preservation and promotion of cultural heritage (Jalani, 2012; Puri et al., 2019; Eshun, 2022). However, despite these benefits, the impact of tourism on community livelihoods is a subject of ongoing debate. Several studies show that tourism in any form can lead to the displacement of local communities, particularly in terms of reducing access to resources such as land, water, and other natural resources (Karwacki and Boyd, 1995; Koens et al., 2009). Some studies have found that the quality of employment generated by the tourism industry is often low and that the income generated by the industry is often not sustainable (Orams, 1995; Lonn et al., 2018). Despite these debates, there is a growing consensus in the literature that the impact of tourism on community livelihoods is complex and context-specific and that it depends on a variety of factors, including the type of tourism development, the location and scale of the tourism development, and the level of community participation in planning and implementation of tourism initiatives (Wall, 1997).

### 3 Methodology

The study uses a sustainable livelihoods approach to improve the understanding of the livelihoods of the poor. The analysis of ecotourism as a sustainable livelihood strategy focuses on achieving livelihood outcomes such as more income, increased well-being, reduced vulnerability, improved food security, and more sustainable use of the natural resource base. This approach can aid in planning developmental activities and assessing the contribution that existing activities have made to sustaining livelihoods. This approach considers the various social, economic, and environmental factors that impact livelihoods and seeks ways to promote sustainable tourism practices that support local communities while preserving the environment. By taking a holistic view of the issue, the sustainable livelihoods approach helps ensure that ecotourism is developed and managed in a way that is sustainable and equitable over the long term.

**Table 1** Data collection overview

<i>Source</i>	<i>Type</i>	<i>Emphasis</i>	<i>#</i>
Local residents (participants and non-participants).	Questionnaire	Socio-economic status of local communities	300
Local businesses, environment conservation committee, key informants at the sites and government officials.	Semi-structured interviews	Social and environmental practices, structure of ecotourism, green practices, impact of ecotourism at the sites.	20
Local residents (employed in tourism), village youth, hotel and lodge operators, and tourists.	Focussed group discussions (5) and informal discussions, non-participant observation.	Scope of livelihoods, attitudes towards conservation, local perspectives about ecotourism, tourist behaviour.	-
Ecotourism sites	Transect walks and heritage walks	Distribution of resources, tourist and local behaviour, Development of ecotourism infrastructure.	5

#### 3.1 Area of study

##### 3.1.1 Khandadhar Nature Camp

Nestled in a dense forest, Khandadhar is a sparkling waterfall in the Sundergarh District of Western Odisha. It boasts of 400 plant species with a wide variety of orchids, bryophytes, angiosperms, fungi, and lichens and a diverse faunal diversity consisting of 22 species of mammals, 75 bird species, 19 species of lizards, and 25 species of snakes. The forest is a rich source of income for the communities living in the peripheral areas of the Khandadhar Forest. The ecotourism infrastructure at Khandadhar is operated by the state in collaboration with the forest and tourism departments, with little or no presence of private ecotourism businesses.

### *3.1.2 Hirakud Dam*

Hirakud Dam and Reservoir is the longest earthen dam in the world and offers a variety of sights in its peripheral areas, such as observation towers, artificial lakes, temples, picnic spots, popular fishing spots, island cruises, and water sports. The ecotourism infrastructure is owned by the state in collaboration with Forest Department and is managed by local communities and forest-dependent communities who coordinate the programme by donning the role of eco-guides.

### *3.1.3 Nrusinghnath Nature Camp*

Nrusinghnath is one of the most interesting ecotourism hotspots because of its unique location and attractions. Located at the base of the Gandhamardan Hills, Nrusinghnath is a hotspot for both eco-tourists and pilgrims. Nrusinghnath temple finds mention in the writings of Hiuen-Tsang, the Chinese traveller who described it as a centre of Buddhist scriptural learning during the 5th century. This ecotourism site offers a glimpse of history with its 9th-century temples, picturesque waterfalls, hills, and hiking trails. The ecotourism infrastructure is managed by the Forest Department of Odisha and offers a wide range of accommodation facilities.

### *3.1.4 Karlapat Wildlife Sanctuary*

KWS is a popular tourist destination located in the Kalahandi District of Western Odisha. The sanctuary is a dry deciduous forest spread over an area of 175 square kilometres and a sizeable wildlife population and avian species. Apart from the rich fauna, the sanctuary also houses the Phulijharan Waterfall, which attracts visitors in droves every day. The sanctuary has inadequate accommodation facilities as ecotourism infrastructure is still being developed.

### *3.1.5 Debrigarh Wildlife Sanctuary*

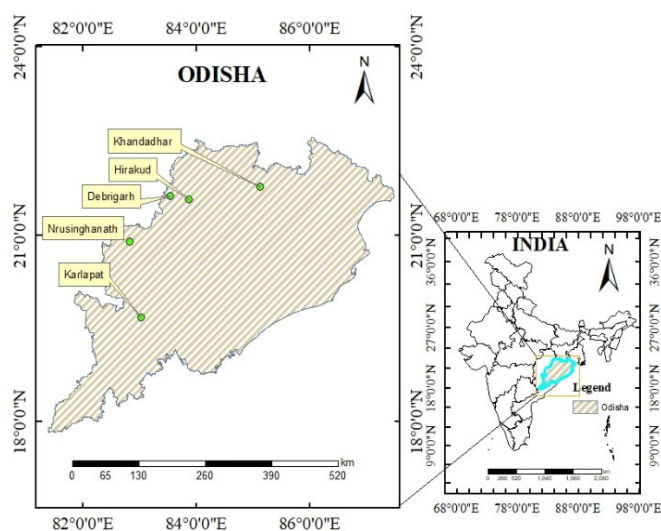
DWS is located between the Hirakud Dam and Reservoir in the Bargarh district, covering an area of 346.91 square kilometres. The sanctuary is home to about 40 species of mammals, 40 species of reptiles, 12 species of amphibians, and 200 species of birds. DWS is located in the adjoining areas of the Hirakud Reservoir and is quite popular for its flora and faunal diversity, ancient caves and rock paintings, and adventurous hiking trails. Ecotourism infrastructure in this location is developed by the state and mainly managed by local communities comprising indigenous communities subsisting on fishing and forest produce.

## *3.2 Sample selection and data collection*

The five ecotourism sites were selected using a purposive sampling method and on the basis of indigenous population concentration. Using random sampling method, 300 samples from 25 adjoining villages of the ecotourism sites were selected on the basis of ethnic criteria. Finally, government officials at various levels from the departments directly associated with ecotourism at each site were interviewed. Thus, the study covered 300 households representing 25 villages, 75 service providers (tour guides, porters, cooks, hotel and lodge operators, and local shop owners), and government

officials at various levels. Employing a mixed methods approach, primary data was gathered from multiple stakeholders involved in ecotourism using questionnaires, semi-structured interviews, and heritage walks. As part of qualitative data collection, anthropological methods such as observation (participant and non-participant), key informant interviews, and some PRA techniques like focussed group discussions and transect walks were employed. Focussed group discussions, observation, and informal interview techniques were used to gather data from stakeholders with respect to ecotourism practices, livelihood changes, local perspectives on tourism development, and the impact of tourism across the rural landscapes to analyse the development and conservation outcomes of ecotourism practices across the study sites. Secondary data was acquired from published and unpublished government records, policy documents, and scientific journals from various disciplines such as economics, anthropology, and geography.

**Figure 1** Location map of the study areas (see online version for colours)



Source: Authors compilation

#### 4 Demographic profile of the study areas

As many as 62 indigenous communities in Odisha have been notified by the Government of India as scheduled tribes (ST). Some of the main indigenous communities living in Western Odisha are the *Munda*, *Paudi Bhuyan*, *Kishan*, *Gond*, *Sohara* and *Oram*. In the study areas, four ethnic compositions can be found, i.e., general castes, scheduled tribes (ST), scheduled castes (SC), and other backward castes (OBC) (Table 2). At KNC, DWS, and KWS, STs are found to have the highest population, followed by scheduled castes (SC) and other backward castes (OBC). Out of the five study areas, KNC, DWS, and KWS had the highest illiteracy, which was mainly attributed to poor economic conditions and a general lack of educational infrastructure. However, 64.67% of the respondents across the five ecotourism sites had received different levels of formal education, while



35.33% of respondents had no formal education. While agriculture remained the predominant occupation, the respondents were also engaged in agricultural labour (18.67%) and unskilled labour (31.67%). It was observed that respondents were increasingly opting for unskilled labour due to a lack of income diversification in the study areas. While Hiraikud and Nrusinghnath are well-connected and populated, Khandadhar, Debrigarh, and Karlapat wildlife sanctuaries are sparsely populated and have inadequate transport and communication infrastructure.

**Table 2** Demographic profile of the study areas

	<i>Number of participants (n= 300)</i>	<i>Percentage</i>
Community composition		
Scheduled castes	71	23.67
Scheduled tribes	141	47
Other backward castes	63	21
General category	25	8.33
Gender		
Male	254	84.67
Female	46	15.33
Education		
No education	106	35.33
Elementary	33	11
Primary	52	17.33
Middle	32	10.67
High	49	16.33
Higher secondary	12	4
Graduation and above	16	5.33
Age		
<18	0	0
18–25	32	10.67
25–40	58	19.33
40–60	162	54
>60	48	16
Primary occupation		
Agriculture	41	13.67
Fishing	12	4
Agricultural labour	56	18.67
Unskilled labour	95	31.67
Government/private sector	23	7.67
Self-employed	46	15.33
Unemployed	27	9

*Source:* Authors compilation

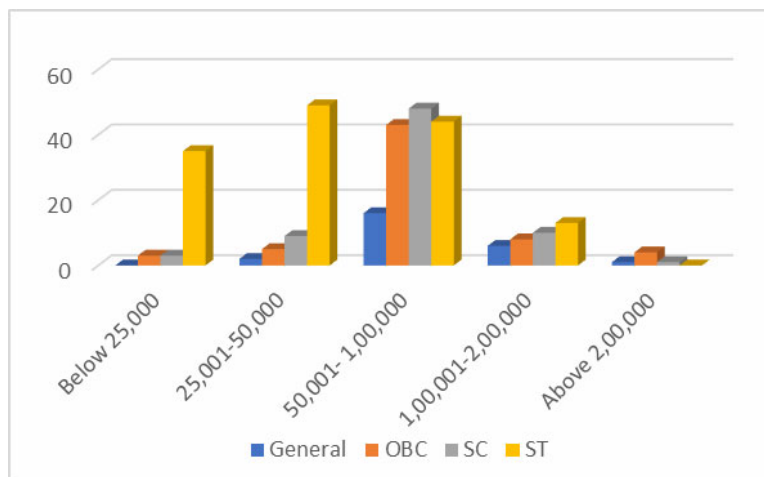
## 5 Results

The findings of the study have been classified into three themes to address the impact of ecotourism on local livelihoods, biodiversity conservation, and the socio-cultural life of local communities.

### 5.1 Tourism and non-tourism livelihoods in Western Odisha

Ecotourism in India usually operates in and around protected areas characterised by insufficient infrastructure, lack of formal education, unemployment, increasing outmigration, and resource-use conflicts, leaving no scope for alternative livelihoods (Tao and Wall, 2009). Ecotourism has presented itself as a sustainable alternative to degrading traditional livelihoods with an explicit focus on introducing a form of economic activity that aims to strike an effective balance between development and conservation (Pujar and Mishra, 2021). The accrual of economic benefits to local communities is an essential aspect of ecotourism. The participation of local communities in ecotourism planning and management depends on how many tangible benefits they are able to acquire. There are several examples of ecotourism initiatives in India that have successfully elicited participation from local communities, resulting in job creation, alternative livelihoods, and enhanced incomes (Das and Chatterjee, 2015; Bhalla et al., 2016; Das and Hussain, 2016).

**Figure 2** Income status of the respondents (see online version for colours)



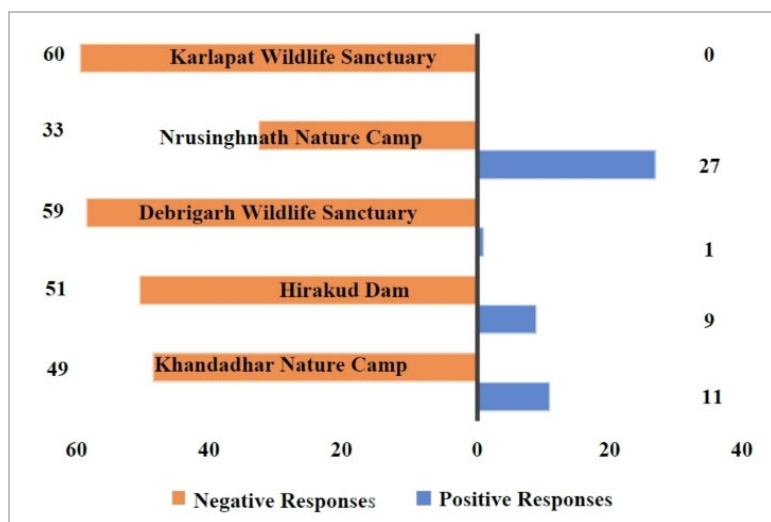
Source: Authors calculation

Indigenous communities living in the study areas relied mainly on agriculture (13.67%) and labour work (50.34%) and also complemented their work with the collection of minor forest produce (Table 2). Although agriculture and labour work were the main economic activities in the study areas, some of the respondents were also involved in fishing, private and government sector jobs, or ran businesses. The household information collected from all the sites reveals that most indigenous communities earned less than INR 1,00,000 (\$1,309) annually (Figure 2). Most of the respondents involved in

tourism activities came from non-indigenous communities. In most cases, respondents from indigenous communities were primarily engaged as daily-wage labourers, which required temporary migration to nearby areas. In 2016, the state government adopted a CBM model providing a set revenue-sharing mechanism that promises 80% of the earnings towards salaries, management of nature camps, infrastructural maintenance, and local development. However, this model is still in its nascent stage, and its future trajectory remains to be seen.

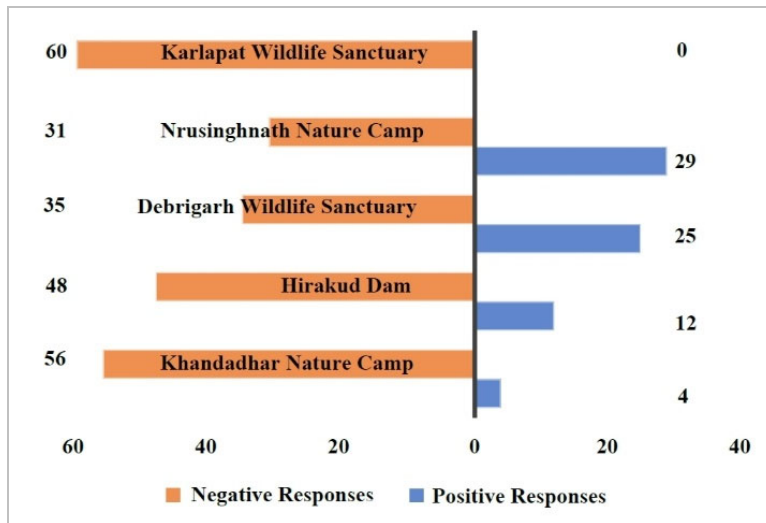
The state exercises ultimate control over all ecotourism infrastructure in the five study sites. All ecotourism projects sanctioned by the state government are executed by the combined efforts of the forest department, tourism department, and regional government agencies. To voice the opinions of local communities living in and around protected areas, institutions such as the eco-development committee/VSS and eco-development groups are formed. These organisations initiate dialogues with the state apparatus to harness the maximum possible tangible benefits to local communities when they participate in ecotourism or general conservation efforts. These institutions are working towards generating awareness among local communities with respect to natural resource management and skill development. Local residents believed that the growing demand for nature-based tourism had improved transportation and communication infrastructure, and they could now have better access to health and education infrastructure. Although ecotourism has come up short in improving the livelihoods of all in the study areas, local residents believe that ecotourism could positively affect the local economy and environment if it provided more scope for local participation in planning and management. Due to the occasional training and awareness programmes arranged by the forest authorities, local residents are now more aware of the immense potential of the natural areas inhabited by them and the need for conserving flora and fauna. The following subsections provide a detailed account of the status of livelihoods across the five study sites.

**Figure 3** Local perceptions about the impact of ecotourism on household incomes (see online version for colours)



Source: Authors calculation

**Figure 4** Local perceptions on the potential of ecotourism to promote alternative livelihoods (see online version for colours)



Source: Authors calculation

### 5.1.1 Khandadhar Nature Camp

In recent years, the government has undertaken a flurry of infrastructural establishment to promote ecotourism in Khandadhar. Although the government has defined a set benefit-sharing mechanism and a community-based management approach for ecotourism, there are fewer participants from indigenous communities in ecotourism. The local Paudi Bhuyan community, who subsisted mainly on agriculture, now work as daily-wage labourers. The indigenous communities living in Khandadhar have been traditionally dependent on the forest for their livelihoods. Indigenous communities living in the region reveal that access to forest lands has been reduced to a great extent. Although the Paudi Bhuyan Development Agency (PBDA) has been working on raising awareness on various aspects of environmental management systems and conservation, there are not many people from indigenous communities participating in tourism. This can be partly attributed to the seasonal aspect of tourism and the inability to capture economic benefits from tourism. In addition to these problems, mining activities in the region pose a grave threat to local communities and biodiversity. Also, the allocation of water to the surrounding industries is a significant threat to biodiversity conservation and local development.

Not all people in a host destination participate in tourism equally. Some people in a tourist destination engage with tourists directly and interact with them on a regular basis as guides, performers, or artisans, whereas some participants in tourism are involved in the background, such as support staff or wholesalers of food and supplies. Even from an economic perspective, the time and energy invested in tourism by local communities also differ. However, local communities seldom have any direct relation with the visitors to Khandadhar. The peak tourist season in Khandadhar is the winter, when most local people are involved in agricultural activities, and there are very few takers for

tourism-related activities. It was observed that ecotourism in KNC is not diversified, i.e., despite the presence of rich, vibrant indigenous cultures and an abundance of flora and fauna, there are hardly any activities for tourists except treks, watching a waterfall, and a garden. Recently, adventure activities such as zip line and sky cycling have been introduced to draw tourists, and its future trajectory remains to be seen.

It seems that the attention paid to infrastructural development vastly overshadows the efforts to develop skills among the local communities to elicit their meaningful participation in the ecotourism industry. Although the government has put in its best efforts to promote KNC as an ecotourism destination, it has remained more or less a picnic spot mostly frequented by day visitors. During the peak tourist season, it was observed that a number of poor locals completely depended on the food donated by picnickers. Group discussions with local villagers revealed that this practice had created a dependence among locals and was deemed undesirable. Overall, the sustainable ecotourism goals are largely defeated in the region due to the shortage of activities for tourists, a lackadaisical development approach, and inadequate livelihood opportunities for local communities other than a few temporary unskilled jobs.

### *5.1.2 Hirakud Dam*

Hirakud Dam is the longest earthen dam in the world and is surrounded by many attractions that are of particular interest to eco-tourists, such as bat island, the congregation of migratory water birds, vibrant indigenous cultures, and diverse flora and fauna. Thousands of tourists visit the dam and other sightseeing places throughout the year. Although there is great scope for enhancing rural livelihoods through ecotourism in the region, efforts are usually directed toward developing tourism products and catering to tourists rather than local development and skill-building. Only a handful of people from indigenous communities reportedly participate in ecotourism and are primarily engaged in unskilled jobs such as sweepers, porters, and security guards. Most households, except the ones living in the vicinity of Hirakud Dam, depend on forest resources for subsistence. Rapid population growth and frequent changes in occupational patterns have increased their dependency on forest resources in the recent period.

Although the state is promoting ecotourism in the region, a general lack of information, entrepreneurial skills, and capital has deprived indigenous communities from harnessing the benefits arising out of the expansion of ecotourism. Discussions with villagers around the site revealed that very few people realised the touristic potential of their surroundings and still relied heavily on unskilled labour for their livelihoods. Due to the promotion of ecotourism and the ensuing demand from tourists, 15 respondents from the local communities revealed that they were able to set up petty stalls (tea, snacks, beverages, etc.) during the peak tourist season from December- February, which enabled them to increase their incomes temporarily. However, Figures 3 and 4 show that for most households (85%), ecotourism has not been able to increase incomes or widen the scope for alternative livelihoods (80%). Although ecotourism has been extensively promoted by the state, less attention has been paid to developing initiatives to diversify livelihoods through ecotourism. It appears to be profit-oriented, where any benefit to local communities is merely incidental.

### 5.1.3 Karlapat and Debrigarh Wildlife Sanctuary

There are about 20 villages in and around DWS, depending on forest resources for their livelihoods. Before the declaration of the protected area as a wildlife sanctuary, locals traditionally collected forest produce such as timber, *mahua* (*Madhuca longifolia*), *sal* (*Shorea robusta*), Kendu leaves (*Diospyros melanoxylon*), edible mushrooms, and wild honey and sold it in the nearby local markets. Over the years, ecotourism in DWS has evolved to garner maximum support from local communities who play an important role in biodiversity conservation and ecotourism management. The forest department has organised several skill-building programmes periodically in DWS, such as bamboo crafting programmes and hospitality and catering programmes. It has also paid special attention to marginalised communities and acted as a mediator between the fisheries department and local communities. The forest department has encouraged fishing communities to use their boats to provide country-boat facilities for tourists to initiate the promotion of alternative livelihoods. Despite such efforts, local residents are dissatisfied, partly because of the seasonal nature of tourism and the inability of ecotourism to provide a better alternative to their traditional sources of income.

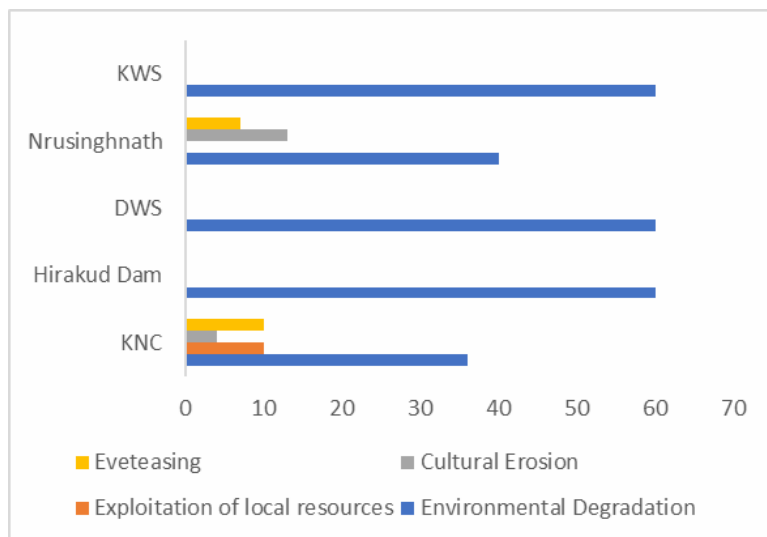
Recently, the Odisha government has successfully negotiated a massive relocation exercise, probably the biggest in the state- from DWS. Due to successful attempts of the forest department and district administration at confidence-building measures, 420 families living in four zero-connectivity villages inside the sanctuary have agreed to a resettlement proposal containing assured land, housing, financial aid, and other facilities. The rehabilitation plan seeks to create an inviolate space for wildlife and facilitate better sustenance for people depending on the forests. Local communities were deprived of basic facilities like roads, health, and education inside the sanctuary and lived in extreme conditions, which prompted them to welcome the resettlement plan. Although separated from their traditional homelands, local communities were hopeful of broader livelihood opportunities after completing the resettlement plan.

KWS is located in the Kalahandi district of Western Odisha, one of the state's most backward districts. Local communities depend entirely on either farming or daily wage labour for their livelihoods. Local communities primarily work as unskilled labour in different sectors such as restaurants, mechanic shops, bus stations, construction work, etc. Farmers with agricultural lands in the fringe areas of the wildlife sanctuary are constantly at risk from crop damage by herds of elephants. In association with EDC and VSS, the forest department has organised several programmes such as aquaculture, tailoring, apiculture, health camps, and occasionally distributed solar cookers, poultry, and so on. Although the major objective of such initiatives is to reduce the dependency of local communities on forest resources, they are not organised consistently. The villagers blame it on the apathy of the forest department, while forest officials express that such initiatives tend to create a dependency among the villagers on the department. In both KWS and DWS, villagers living in and around the protected areas lose about one-fourth of their harvest to wildlife. The locals, especially indigenous communities, living in and around the protected area do not have clear access to transport and communication. The local communities allege that the Forest Department has not taken any initiation in enterprising forest-based livelihoods in the region. Despite the promotion of nature-based tourism activities in KWS, all the respondents expressed that neither did tourism increase their household income nor promote alternative livelihoods.

#### 5.1.4 Nrusinghnath Nature Camp

Nrusinghnath is an interesting destination in the Bargarh district of Odisha for both pilgrims and eco-tourists. Apart from the temple, this site provides a picturesque view of the *Gandhamardan* Mountain, providing a livelihood source for many of its local communities. Owing to the rich bounty of natural resources on the mountain, the Forest Department of the Paaikmal Range of Bargarh Division has undertaken an initiation by constituting fifteen EDCs or Vana Sangrakhyan Samitis' (VSS), which are the associations assigned to the conservation of natural resources at fifteen different revenue villages. The members of VSS are involved in the preservation of medicinal plants and have the right to collect minor forest produce (MFP). While discussing the impact of ecotourism on rural livelihoods, around 45% of respondents revealed that their household income had a positive impact, while 48.3% of respondents believed that ecotourism had widened their scope for alternative livelihoods (Figures 3 and 4). However, the participation of indigenous communities was relatively less for several reasons, such as lack of capital and entrepreneurial skills and inadequate benefits from ecotourism-related activities. Among the indigenous communities in the region, women are responsible for collecting forest produce, namely, *sal leaf* (*Shorea robusta*), and weaving them into plates. Due to the promotion of ecotourism, indigenous women reported increased demand for their products. The Gandhamardhan Herbal Processing and Sale Centre at Nrusinghnath, where many locals are employed, also reported an increase in the purchase of Ayurvedic medicines and herbal products due to a higher influx of tourists in the area. The Nrusinghnath Nature Camp has been recently established and shows promise to elicit participation from local communities. Overall, due to the constant flow of tourists (pilgrims and nature enthusiasts), indigenous communities were able to benefit from the tourist influx and reported a marginal increase in their incomes due to tourism-related activities in the region.

**Figure 5** Local perceptions on the impact of ecotourism (see online version for colours)



Source: Authors calculation

## *5.2 Environmental impact*

The study revealed that unsupervised tourism activities were responsible for environmental degradation in all five sites. Due to the absence of specified hiking trails, tourists tend to create alternative routes through the forest, trampling on the underlying vegetation and contributing to soil erosion. Discussions with forest officials revealed that unchecked trekking activities could impact the behaviour of wild animals. Food and cooking materials discarded by tourists sometimes attract wild animals resulting in a disruption of feeding behaviour and nesting patterns of the wildlife. Overcrowding is evident in all the study sites, especially Khandadhar and Nrusinghnath, which can be attributed to a lack of visitor control mechanisms in the areas. Research shows that the activities mentioned above can have an impact on species, communities, and populations by influencing their feeding, reproduction, and social behaviour (Medina, 2005). A general lack of visitor control mechanisms at all the study sites has resulted in an increasing use of automobiles by tourists causing extensive damage to the ecosystem. KNC is usually frequented by day tourists, who are mostly picnickers. These tourists cook food using firewood sourced locally, but locals complain that they frequently leave their cooking fires untended, thereby putting the natural habitat at risk.

Local residents from KWS and DWS also complain that fires lit by tourists sometimes pose a threat to the surrounding biodiversity. Around 85.33% of the local residents in the study areas believed that the growing influx of tourists, who were mainly thrill seekers, was responsible for biodiversity degradation in the protected areas (Figure 5). It was observed from all the study sites that because there are no mechanisms to control visitor numbers, there is significant pressure on the local resource base and ecology. Tourists throng Khandadhar during the winters and are responsible for disrupting both local life and flora and fauna. With respect to resource conservation, the study found that the interests of the government and the common man stood in opposition. The Forest Department places utmost importance on biodiversity conservation, while local communities are concerned with their livelihoods. The local communities living in and around these protected areas, bereft of sustainable and profitable economic activities, have come to rely increasingly on forest resources for sustenance. Local communities living in the peripheral areas of DWS and KWS have often been at loggerheads with the forest department, partly due to the historical injustice meted out to them during the formation of the wildlife sanctuaries and accusations by the forest department that locals were responsible for biodiversity degradation owing to their exploitative subsistence practices.

## *5.3 Socio-cultural impact*

Ecotourism is operated as a high-end, luxurious form of modern responsible travel, which has created a contradiction between the tourist quest for authentic and exotic natural and cultural experiences and the local residents' desire for modern life. This can be attributed to a general lack of policies focussing on the preservation of local culture and heritage. The government places utmost importance on biodiversity conservation, where the preservation of cultural heritage is only considered a by-product. The infrastructure developed for ecotourism across the selected sites does not focus on vernacular architecture, and there are hardly any educational components that could potentially highlight the local culture and heritage and showcase the socio-cultural lifestyle that



could generate awareness among the tourists and create a sense of pride and motivate local communities to participate in ecotourism.

Due to the rapid expansion of tourism in the study areas, local culture, and traditions are gradually being undermined. Local communities across the study sites described a loss of local cultural values due to the regular exposure of their traditional societies to the well-off urban tourists. The influx of tourists across the sites has grown manifold over the years and has also resulted in an increase in crime. Eve teasing by unruly tourists is a problem frequently resonated by respondents from KNC and Nrusinghnath (Figure 5). Although a general inability to harness the benefits of ecotourism is a prime cause of non-participation by local communities, incidents like eve teasing, violent crimes, and robberies drive them further away from ecotourism because they attribute the turmoil in their society to the influx of tourists. In the long term, the village institutions across the study sites may well adapt to the exacting circumstances brought about by tourism. However, in the short-run, these institutions were reported to diminish gradually and be vulnerable to exploitation.

## **6 Discussion**

Ecotourism has brought sweeping changes to the way tourism has traditionally operated. Local communities in natural areas have begun partnering with tour operators and voluntary organisations to direct outside attention to their culture and natural landscapes in the hopes of ushering in positive changes for their communities. Ecotourism has also effected a change in the perceptions and behaviours of tourists in a way that has changed their perceptions about the visited landscapes and raised cultural awareness. Governments around the world, especially developing countries, have adopted ecotourism to mitigate poverty and the degradation of the natural environment. Because of its fundamental focus on maintaining the biological and socio-cultural integrity of the visited places, ecotourism has gained traction around the world, from the Americas to Africa, Europe, and Asia continents.

Ecotourism is an opportunity for rural communities who live in areas characterised by poverty, lack of diversified incomes, and lack of education and health infrastructure. The study reveals that the ecotourism infrastructure in the state is mostly planned and managed by the state government, where local communities can be observed to be participating in the sector as mere service providers. Though the introduction of ecotourism has diversified rural livelihoods to some extent in the study areas, it still hasn't had a positive spin-off effect with respect to household incomes. Except for Nrusinghnath, Hirakud Dam, and DWS, there are still very few economic opportunities for local communities from nature-based tourism activities. As there is little scope for alternative livelihoods, local communities have resorted to consumptive practices, which have proved detrimental to the environment. Although there have been positive changes in the landscapes, increased tourism has also exacerbated environmental degradation, increased resource-use conflicts, and given rise to social disturbances in the region.

Of the five study sites, only KNC, DWS, and KWS rely primarily on nature and its diversity as a tourist attraction, while NNC and Hirakud Dam possess multiple key attractions such as natural landscapes, architectural marvels, and spiritually significant sites, which draw more visitors. Although these destinations are promoted as ecotourism hotspots, they are visited mainly by day tourists, thrill seekers, picnickers, and pilgrims

with little or no environmental awareness, which is the prime cause of littering, pollution, and damage to natural habitats. Except for DWS and KWS, the other sites lack an educational component in their ecotourism models to generate environmental awareness among visitors. However, NNC and Hirakud Dam generate higher revenues owing to multiple attractions and popularity across different types of tourists. It is to be noted that none of the five study sites had control mechanisms to regulate the flow of tourists, thereby causing immense pressure to the natural habitat and also the social institutions of local communities.

Indigenous people in the region are more disadvantaged than other communities as they are not able to harness the tangible benefits arising out of ecotourism owing to their marginal socio-economic status and a general lack of employable skills. However, the state government is imparting various skills to local communities in KNC, DWS, and KWS to promote a CBM model of ecotourism and empower marginalised communities in the region. The study reveals that ecotourism initiatives in the study areas have affected community livelihoods both positively and negatively. Although the positive impacts of ecotourism generally seem to overshadow the negative impacts, the economic benefits from ecotourism are limited to a few households whose members are directly employed. The improvements in physical assets such as roads and other amenities have not met the expectations of local communities in the region. Improvement in human capital and financial capital are also limited to only those few who have been trained and employed to work in the ecotourism sector. Finally, the improvements in natural capital and social capital have been offset by the negative impacts brought out by unequal access to the natural resource base, mistrust between the government and the locals, and alleged misappropriation of funds.

## **7 Conclusions**

The study found a general mismatch between nature tourism policies and practices across the study sites. Ecotourism is often operated as luxurious, high-end tourism, which has exacerbated the inability of indigenous communities to participate meaningfully and capture the economic benefits arising from ecotourism. There is a need to diversify ecotourism activities to incorporate local cultures and introduce outdoor activities that have an educational component for visitors. Meaningful participation in ecotourism and an ability to harness economic benefits from it can have positive spin-off effects in the form of change in attitudes towards conservation, improved willingness among local communities to participate in ecotourism activities, and promotion of local life and culture.

The CBM model adopted by the state government, although a welcome step, is still in a nascent stage. To ensure the success of this model, there is a need for improved inter-departmental cooperation and a holistic implementation of the model. A carefully planned ecotourism model should take into account the informed decisions of community members with respect to the planning and functioning of ecotourism projects which is based on their own needs, available resources, and visions. Additionally, grassroots agencies that respect and understand local institutions and conditions can collaborate with local communities to encourage the use of local governing techniques to create community-initiated projects, which can also help in mitigating the negative tourist

impacts. Embedding a carefully planned ecotourism model into existing livelihoods can make way for livelihood diversification to contribute to the sustainable development of local communities by fostering the conservation of natural capital, promoting human capital development, building social capital, generating financial capital, and preserving cultural capital.

The study revealed that although ecotourism has made inroads into the indigenous livelihoods, it has not been able to complement or out-compete other forms of economic activity due to a number of reasons highlighted in the study. Ecotourism cannot be treated as the only win-win approach for the sustainable development of indigenous communities in the region. Various factors like government policies, the land tenure system, market forces, ethnicity, class, and gender need to be taken into account for the promotion of nature-based tourism in Western Odisha, India. It is crucial to develop a prudent strategy of best practices to ensure the long-term sustainability of the nature-based tourism industry, one that mitigates and prevents further damage to the environment and ensures sustainable livelihoods across Western Odisha.

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