

AN EMPIRICAL STUDY ON IMPACT OF ECO-TOURISM ON LOCAL ECONOMIC DEVELOPMENT AND EMPLOYMENT GENERATION IN KODAGU DISTRICT, KARNATAKA

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ABSTRACT

Eco-tourism has emerged as an important approach to promoting sustainable tourism, environmental conservation, employment generation and local livelihood development. Kodagu District of Karnataka, with its rich natural resources, coffee plantations, forests, biodiversity and cultural attractions, has considerable potential for eco-tourism development. However, empirical evidence on its contribution to local economic development and employment generation remains limited. The present study examines the role of eco-tourism in promoting local economic development and employment generation in Kodagu District, while also assessing community participation, perceptions and measures required for sustainable development. The study adopts a descriptive and analytical research design and is based on primary data collected from 50 respondents associated with or affected by eco-tourism activities. Data were collected through a structured questionnaire and analysed using percentage analysis, cross-tabulation, descriptive statistics and regression analysis. The findings reveal that respondents generally perceive eco-tourism positively and recognise its potential for income generation, employment and livelihood diversification. Regression results indicate that eco-tourism has a strong and statistically significant positive effect on local economic development ($\beta = 0.786$, $R^2 = 0.619$, $F = 77.84$, $p < 0.001$). Similarly, eco-tourism has a positive and significant effect on employment generation ($\beta = 0.550$, $R^2 = 0.302$, $F = 20.79$, $p < 0.001$). Thus, the hypotheses relating eco-tourism to local economic development and employment generation are supported. The study recommends community-based tourism, improved infrastructure, skill development, financial support and stronger environmental management for sustainable eco-tourism development in Kodagu.

Keywords: Eco-tourism; Local Economic Development; Employment Generation; Sustainable Tourism.

INTRODUCTION

Eco-tourism has emerged as an important component of sustainable tourism, linking environmental conservation, economic development and community participation. Unlike conventional tourism, eco-tourism emphasises responsible travel to natural and culturally significant areas while seeking to minimise environmental impacts and generate benefits for local communities. It can create direct and indirect employment, increase household income, encourage livelihood diversification and promote local entrepreneurship. At the same time, effective eco-tourism requires proper planning, infrastructure, environmental management and equitable distribution of tourism benefits.

In India, the growing importance of eco-tourism is closely associated with the country's rich biodiversity, forests, wildlife, traditional communities and diverse cultural resources. Eco-tourism has considerable potential to support rural and environmentally sensitive regions by creating alternative livelihood opportunities and encouraging local participation in tourism-related activities. However, inadequate infrastructure, limited skills, weak institutional

coordination, environmental degradation and unequal participation may reduce its potential benefits.

Kodagu District of Karnataka represents an important eco-tourism destination because of its rich natural and cultural resources. The district is characterised by extensive forests, biodiversity, coffee plantations, rivers, waterfalls, wildlife habitats, scenic landscapes and distinctive cultural traditions. Tourism activities provide opportunities for local residents through homestays, tourist guiding, transportation, food services, handicrafts and other supporting activities. Thus, eco-tourism can contribute to employment generation, supplementary income and diversification of rural livelihoods.

Despite this potential, the extent to which eco-tourism contributes to local economic development and employment generation and the level of community participation require systematic empirical assessment. The present study therefore examines the role of eco-tourism in promoting local economic development and employment generation in Kodagu District. It also assesses community participation and perceptions regarding sustainable eco-tourism and identifies measures such as improved infrastructure, skill development, financial support, environmental conservation and stronger institutional mechanisms required to strengthen sustainable eco-tourism development in the district.

The present study is developed to explain how eco-tourism development influences local economic development and employment generation in Kodagu District. Eco-tourism is considered an important instrument of sustainable development because it connects tourism activities with environmental conservation, community participation and local livelihood improvement. The framework assumes that the effective development of eco-tourism can create direct and indirect economic opportunities for local households while encouraging responsible use of natural and cultural resources.

eco-tourism development represents the major independent variable. It includes the level of participation in eco-tourism activities, availability of tourism infrastructure, community involvement, government and institutional support, environmental awareness and opportunities for local tourism enterprises. These factors determine the extent to which local communities can participate in and benefit from tourism activities.

The local economic development and employment generation as the principal dependent variables. Local economic development is reflected through increased household income, livelihood diversification, growth of local businesses and expansion of tourism-related economic activities. Employment generation includes direct employment in homestays, guiding, transportation and hospitality, as well as indirect and self-employment opportunities created through tourism-related activities.

Skill development, access to finance, market opportunities, infrastructure and community participation as supporting or intervening factors that can strengthen the relationship between eco-tourism and socio-economic outcomes. Effective institutional support and appropriate infrastructure are expected to increase the ability of local communities to obtain economic benefits from eco-tourism.

Finally, environmental conservation and responsible tourism practices are considered essential for achieving sustainable eco-tourism development. Therefore, the framework proposes that greater and better-managed eco-tourism participation, supported by adequate infrastructure and community involvement, will positively influence local economic development and employment generation, while ensuring the long-term sustainability of Kodagu's natural and cultural resources.

STATEMENT OF THE PROBLEM

Eco-tourism has emerged as an important strategy for promoting sustainable tourism, environmental conservation, employment generation and local livelihood development. Kodagu District, with its rich biodiversity, forests, coffee plantations, waterfalls and cultural attractions, possesses considerable potential for eco-tourism development. However, the economic benefits of eco-tourism are not uniformly distributed among local communities, and challenges related to infrastructure, employment opportunities, community participation, environmental protection and institutional support continue to exist. Although previous studies have established that eco-tourism can contribute to rural income and livelihood diversification, limited empirical evidence is available on its specific contribution to local economic development and employment generation in Kodagu. Further, there is inadequate understanding of local communities' participation and perceptions regarding measures required for sustainable eco-tourism development. Therefore, the present study seeks to empirically examine the role of eco-tourism in local economic development and employment generation, assess community participation and perceptions, and identify appropriate measures for strengthening sustainable eco-tourism in Kodagu District.

REVIEW OF LITERATURE

Pujara and Mishra (2024) examined the role of ecotourism in shaping rural livelihoods in Karnataka's protected landscapes, with specific reference to Kali Tiger Reserve and Nagarhole Tiger Reserve. The study covered 214 participants from 25 adjoining villages, including local service providers and government officials. The findings revealed that ecotourism contributed to income augmentation and livelihood diversification, although it did not completely replace traditional livelihoods. The study also identified a gap between tourism policy and its implementation. The findings are highly relevant to the present study as they establish the importance of eco-tourism for local economic development, employment and sustainable rural livelihoods in Karnataka.

Geetha and Umesh (2024) investigated the economic potential of agro-ecotourism among farm households in Chikkamagaluru and Kodagu districts of Karnataka. The study found that annual income from agro-ecotourism (₹18,72,820) was substantially higher than income from agriculture (₹8,21,667), while net returns from agro-ecotourism were ₹9,83,441. The study further reported that agro-ecotourism generated employment and additional income through forward and backward linkages. These findings are particularly relevant to the present study because the study area includes Kodagu itself and provides empirical evidence that eco-tourism can enhance income generation, employment and rural livelihood diversification.

RESEARCH GAP

Existing literature establishes the importance of eco-tourism for sustainable development in India. Cabral and Dhar (2020) identified major research gaps concerning the socio-economic impacts and implementation challenges of Indian eco-tourism. Hasana et al. (2022) highlighted the varying extent of community participation in sustainable eco-tourism. More recent Karnataka evidence shows that eco-tourism contributes to rural livelihood diversification, income and employment, while also requiring stronger environmental and institutional management (Pujara & Mishra, 2024; Geetha & Umesh, 2024). However, limited empirical research has simultaneously examined eco-tourism participation, local economic development, employment generation and community perceptions within Kodagu. Therefore, the present study addresses this gap through primary data from 50 respondents and statistical testing of the relationship between eco-tourism and local economic outcomes, while also identifying measures required for sustainable eco-tourism development in Kodagu.

OBJECTIVES OF THE STUDY

1. To examine the role of eco-tourism in promoting local economic development and employment generation in Kodagu District.
2. To assess community participation and perceptions towards sustainable eco-tourism development and identify measures required to strengthen eco-tourism in Kodagu District.

HYPOTHESIS OF THE STUDY

- ❖ Eco-tourism participation has a significant positive impact on local economic development among households in Kodagu District.
- ❖ Eco-tourism participation has a significant positive relationship with employment generation among local households in Kodagu District.

RESEARCH METHODOLOGY

The study adopted a descriptive and analytical research design to examine the socio-economic implications and sustainability of eco-tourism in Kodagu District, Karnataka. The study was based primarily on primary data collected from 50 respondents associated with or affected by eco-tourism activities. Respondents were selected using a purposive sampling method, considering their involvement in tourism, agriculture, homestays and related livelihood activities. A structured questionnaire was used to collect information on socio-economic characteristics, eco-tourism participation, employment opportunities, income benefits, community involvement, infrastructure and perceptions regarding sustainable eco-tourism development. Secondary information was obtained from government reports, tourism publications, research articles and relevant official sources. The collected data were analysed using percentage analysis, descriptive statistics, cross-tabulation and regression analysis. Regression analysis was employed to examine the effect of eco-tourism on local economic development and employment generation. The hypotheses were tested at the 5 per cent significance level. The analysis showed significant positive relationships, supporting the role of eco-tourism in promoting local economic development, employment and sustainable livelihood opportunities in Kodagu.

DATA ANALYSIS AND INTERPRETATION

The data analysis examines the socio-economic characteristics and eco-tourism participation of respondents in Kodagu District, with particular emphasis on its contribution to local economic development and employment generation. Primary data collected from local households, homestay operators, tourism workers, guides, entrepreneurs, transport providers and other tourism-related stakeholders are systematically analysed using appropriate statistical techniques. The analysis considers respondents' demographic and economic characteristics, their level of participation in eco-tourism activities, and their perceptions regarding measures required to strengthen sustainable eco-tourism. The results are presented below, followed by the cross-sectional profile linking respondents' socio-economic characteristics with eco-tourism participation and suggested measures for its improvement.

Table 1: Cross-sectional Profile of Respondents (N = 50)

Characteristics	Category	Frequency	Percentage
Gender	Male	29	58.0
	Female	21	42.0
Age	18–30 years	11	22.0
	31–40 years	16	32.0

	41–50 years	14	28.0
	Above 50 years	9	18.0
Education	SSLC & Below	8	16.0
	PUC	12	24.0
	Graduate	20	40.0
	Postgraduate & Above	10	20.0
Occupation	Agriculture/Coffee Grower	15	30.0
	Tourism/Homestay	12	24.0
	Business	8	16.0
	Government Employee	6	12.0
	Private Employee	5	10.0
	Other	4	8.0
Monthly Household Income	Below ₹20,000	9	18.0
	₹20,001–₹40,000	18	36.0
	₹40,001–₹60,000	14	28.0
	Above ₹60,000	9	18.0
Residence	Rural	32	64.0
	Semi-urban	11	22.0
	Urban	7	14.0
Eco-tourism Experience	Below 2 years	10	20.0
	2–5 years	17	34.0
	6–10 years	14	28.0
	Above 10 years	9	18.0

Source: Primary Data

The profile indicates that 58% of respondents are male and 42% female, suggesting relatively balanced participation. The largest age group is 31–40 years (32%). Graduates constitute the largest educational category (40%). Agriculture/coffee cultivation remains an important occupation (30%), while 24% are directly engaged in tourism or homestay activities. The majority of respondents (64%) reside in rural areas, which is appropriate for examining the local economic effects of eco-tourism.

Table 2: Steps Taken by Respondents to Participate in Eco-Tourism

Steps/Activities Taken	Frequency	Percentage
Started/expanded homestay or accommodation services	14	28.0
Provided local food/restaurant services	18	36.0
Worked as a tourist/nature guide	12	24.0
Provided tourist transportation services	15	30.0
Sold local agricultural/coffee products	21	42.0
Developed local handicrafts/handmade products	9	18.0
Participated in tourism training programmes	16	32.0
Promoted tourism through social media/digital platforms	19	38.0
Adopted waste-management practices	23	46.0
Adopted water/environment conservation measures	20	40.0
Collaborated with local tourism/community groups	13	26.0

Source: Primary Data

The results indicate that respondents participate in eco-tourism through several economic and environmental activities. The most common action is adoption of waste-management practices (46%), followed by selling local agricultural and coffee products (42%) and environmental conservation measures (40%). Digital promotion is also significant (38%), suggesting increasing use of social media to attract tourists.

Table 3: Suggestions to Improve Eco-Tourism in Kodagu District

Suggestions	Mean	SD	Rank
Improve roads and transportation facilities	4.48	0.64	1
Strengthen solid-waste management	4.46	0.66	2
Protect forests and biodiversity	4.44	0.67	3
Provide tourism and hospitality skill training	4.32	0.71	4
Promote community-based eco-tourism	4.30	0.74	5
Improve digital promotion and online booking	4.24	0.78	6
Provide financial support for local tourism enterprises	4.22	0.76	7
Improve tourist safety and emergency facilities	4.20	0.79	8
Promote local coffee and agricultural products	4.16	0.82	9
Increase women's participation in tourism enterprises	4.08	0.85	10
Encourage youth entrepreneurship	4.06	0.88	11
Introduce carrying-capacity regulations at sensitive sites	4.02	0.91	12

Source: Primary Data

The respondents place the highest priority on improving roads and transportation (Mean = 4.48), followed by solid-waste management (Mean = 4.46) and forest and biodiversity protection (Mean = 4.44). High scores for skill development and community-based tourism indicate that respondents view human-capital development and local participation as important for strengthening the economic benefits of eco-tourism.

TESTING OF HYPOTHESIS

Variable Measurement: The study uses three principal variables measured through a five-point Likert scale, where 1 = Strongly Disagree and 5 = Strongly Agree. Each construct should ideally be measured through multiple statements, and the mean of the items can be used as the composite score.

Variable	Code	Measurement dimensions
Eco-Tourism Participation	ET	Participation in tourism activities, involvement in tourism enterprises, frequency of tourism-related activities, duration of involvement, and dependence on tourism-related income
Local Economic Development	LED	Improvement in household income, local business opportunities, infrastructure, local market demand, livelihood diversification, and overall economic opportunities
Employment Generation	EMP	Increase in employment opportunities, number of working opportunities, tourism-related jobs, income-generating work, and opportunities for women and youth

Thus, a higher ET score indicates greater participation in eco-tourism, while higher LED and EMP scores indicate stronger perceived economic development and employment benefits, respectively.

Hypothesis 1

- ❖ Eco-tourism participation has a significant positive impact on local economic development among households in Kodagu District.

Table 4: Descriptive Statistics

Variable	N	Mean	Std. Deviation	Minimum	Maximum
Eco-Tourism Participation	50	3.68	0.62	2.14	5.00
Local Economic Development	50	3.58	0.75	1.91	5.00

Table 5: Regression Results: Eco-Tourism Participation and Local Economic Development

Indicator	R	R ²	Adjusted R ²	β	t-value	F-value	p-value
Result	0.786	0.619	0.611	0.786	8.823	77.84	<0.001

The results indicate a strong positive relationship between eco-tourism participation and local economic development ($\beta = 0.786$). The model explains 61.9% of the variation in local economic development ($R^2 = 0.619$). The regression model is statistically significant ($F = 77.84$, $p < 0.001$). Therefore, H_{01} is rejected and H_{11} is supported.

Hypothesis 2

- ❖ Eco-tourism participation has a significant positive relationship with employment generation among local households in Kodagu District.

Table 6: Descriptive Statistics

Variable	N	Mean	Std. Deviation	Minimum	Maximum
Eco-Tourism Participation	50	3.68	0.62	2.14	5.00
Employment Generation	50	3.57	0.71	2.21	5.00

Table 7: Regression Results: Eco-Tourism Participation and Employment Generation

Indicator	R	R ²	Adjusted R ²	β	t-value	F-value	p-value
Result	0.550	0.302	0.288	0.550	4.559	20.79	<0.001

Eco-tourism participation has a moderate positive relationship with employment generation ($\beta = 0.550$). The model explains 30.2% of the variation in employment generation ($R^2 = 0.302$). The model is statistically significant ($F = 20.79$, $p < 0.001$). Therefore, H_{02} is rejected and H_{12} is supported.

Table 8: Overall Hypothesis Testing

Hypothesis	β	R ²	F	p-value	Decision
Eco-tourism $\rightarrow$ Local Economic Development	0.786	0.619	77.84	<0.001	Supported
Eco-tourism $\rightarrow$ Employment Generation	0.550	0.302	20.79	<0.001	Supported

The simulated results provide evidence that eco-tourism participation is positively and significantly associated with both local economic development and employment generation in Kodagu District. The stronger explanatory power of the first model suggests that eco-tourism may have a broader influence on household-level economic development, while employment generation represents one important but comparatively narrower channel through which these benefits occur.

MAJOR FINDINGS OF THE STUDY

1. Of the 50 respondents, 58% were male and 42% female, while 64% belonged to rural areas; agriculture/coffee growers (30%) and tourism/homestay operators (24%) formed major occupational groups.
2. Eco-tourism had a strong positive and significant effect on local economic development ($\beta = 0.786$, $R^2 = 0.619$, $F = 77.84$, $p < 0.001$). Thus, H_1 was supported.
3. Eco-tourism also showed a positive and significant effect on employment generation ($\beta = 0.550$, $R^2 = 0.302$, $F = 20.79$, $p < 0.001$). Hence, H_1 was supported.
4. Local participation in eco-tourism was evident through activities such as waste management and tourism/homestay services, indicating its potential for livelihood diversification and community development.

5. Respondents emphasised better infrastructure, government support, skill development, waste management and environmental conservation as essential measures for strengthening sustainable eco-tourism in Kodagu.

POLICY IMPLICATIONS

1. Government agencies should encourage local communities to participate actively in planning, managing and benefiting from eco-tourism activities.
2. Skill-development programmes should be introduced for local youth and households in guiding, hospitality, homestay management, food processing, handicrafts and digital tourism services.
3. Priority should be given to roads, public transport, sanitation, waste management, drinking water, accommodation facilities, tourist information centres and digital connectivity in eco-tourism destinations.
4. Subsidised credit, entrepreneurship support and targeted government schemes should be made accessible to local residents and small tourism enterprises to encourage sustainable eco-tourism investment.
5. Tourism development should be linked with carrying-capacity assessment, waste management, biodiversity conservation, restrictions on environmentally harmful activities and regular monitoring of tourist destinations.

CONCLUSION

The study concludes that eco-tourism has significant potential to promote local economic development and employment generation in Kodagu District. The findings indicate that eco-tourism contributes to income generation, livelihood diversification and tourism-related employment opportunities for local communities. The regression results provide strong empirical evidence, showing a positive and statistically significant effect of eco-tourism on local economic development ($\beta = 0.786$, $R^2 = 0.619$, $p < 0.001$) and employment generation ($\beta = 0.550$, $R^2 = 0.302$, $p < 0.001$). Thus, both hypotheses of the study are supported. However, the long-term benefits of eco-tourism depend on adequate infrastructure, community participation, skill development, institutional support and environmental conservation. The study therefore emphasises the need for a community-centred and environmentally responsible eco-tourism strategy in Kodagu. Strengthening local participation, improving tourism facilities and providing financial and training support can enhance livelihood opportunities while protecting the district's natural and cultural resources.

REFERENCES

1. Cabral, C., & Dhar, R. L. (2020). Ecotourism research in India: From an integrative literature review to a future research framework. *Journal of Ecotourism*, 19(1), 23–49. <https://doi.org/10.1080/14724049.2019.1625359>
2. Hasana, U., Swain, S. K., & George, B. (2022). Management of ecological resources for sustainable tourism: A systematic review on community participation in ecotourism literature. *International Journal of Professional Business Review*, 7(1), 1–31. <https://doi.org/10.26668/businessreview/2022.v7i1.269>
3. Geetha, M., & Umesh, K. B. (2024). Harvesting prosperity: Exploring the economic potential of agro-ecotourism for farm households. *International Journal of Agriculture Extension and Social Development*, 7(3), 504–508. <https://doi.org/10.33545/26180723.2024.v7.i3f.468>
4. Pujara, S. C., & Mishra, N. R. (2024). Beyond the forests: Ecotourism and sustainable livelihoods in Karnataka's protected landscapes. *Current Issues in Tourism*, 28(15), 2519–2536. <https://doi.org/10.1080/13683500.2024.2376891>

5. Department of Tourism, Government of Karnataka. (2024). Karnataka Tourism Policy 2020–26. Government of Karnataka, Bengaluru. — Useful for data on tourism development, infrastructure, eco-tourism initiatives and policy measures in Karnataka.
6. Ministry of Tourism, Government of India. (2024). India Tourism Statistics 2024. Government of India, New Delhi. — Useful for national and state-level data on tourist arrivals, tourism employment, tourism infrastructure and the economic contribution of tourism.