

Institutional Support, Household Ecotourism Income, and Environmental Awareness in Cross River State, Nigeria

By

Achadu Edidiong Martins

Abstract

This study examined the relationship between institutional support, household ecotourism income, and environmental awareness among host community members in Cross River State, Nigeria. The study was motivated by the increasing environmental challenges confronting eco-hotspot communities despite ongoing ecotourism and conservation initiatives within the state. Specifically, the study investigated the extent to which household income generated from ecotourism and government support for ecotourism development influence environmental awareness among residents of host communities. A quantitative research approach employing a correlational survey design was adopted for the study. The study was conducted in selected eco-hotspot communities surrounding the Cross River National Park, Afi Mountain Wildlife Sanctuary, and Mbe Mountains Community Forest. The target population comprised 76,704 residents from 25 Support Zone Communities adjoining the protected areas. A sample size of 820 respondents was selected through purposive, stratified, proportionate, and convenience sampling techniques. Data were collected using a structured questionnaire titled Questionnaire on Eco-Tourism and Environmental Awareness among Rural Communities in the Eco-Hotspot Communities of Cross River State. Data analysis was carried out using Pearson Product Moment Correlation (PPMC) at the 0.05 level of significance. The findings revealed that household income generated from ecotourism had a significant relationship with environmental awareness among host community members ($r = .113, p < .05$). The study further showed that government support for ecotourism development was significantly related to environmental awareness ($r = .102, p < .05$). The study concluded that institutional support and household economic benefits derived from ecotourism contribute significantly to environmental awareness and sustainable conservation behaviour in eco-hotspot communities of Cross River State. The study recommended stronger institutional support, improved environmental education, equitable benefit-sharing, and expanded community participation in ecotourism programmes to enhance environmental sustainability and conservation outcomes.

Keywords: ecotourism, institutional support, household income, environmental awareness, biodiversity conservation, sustainable tourism, host communities, Cross River State, Nigeria.

Introduction and Background

Ecotourism has emerged globally as an important strategy for promoting environmental conservation, sustainable development, and community empowerment. It refers to responsible travel to natural areas that conserves biodiversity, sustains the well-being of local people, and promotes environmental education and cultural appreciation (Akindele et al., 2024). Unlike conventional mass tourism, ecotourism emphasizes sustainability, conservation, and low-impact interactions with the natural environment. As environmental degradation, biodiversity loss, and climate change continue to threaten ecological systems worldwide, ecotourism has increasingly been recognized as a practical mechanism for balancing environmental protection with socio-economic development.

Globally, ecotourism contributes significantly to conservation financing, rural livelihoods, and environmental awareness. According to Ray (2020), ecotourism provides opportunities for individuals and communities to interact directly with nature and conservation programmes, thereby fostering environmentally responsible attitudes and behaviours. Through activities such as wildlife conservation tours, nature interpretation, conservation campaigns, and community-based tourism initiatives, ecotourism strengthens environmental education and promotes sustainable resource management practices among host communities.

Nigeria possesses considerable ecotourism potential because of its diverse ecosystems, wildlife resources, forests, wetlands, and cultural heritage sites. Among Nigerian states, Cross River State is particularly recognized for its rich biodiversity and ecological significance. The state contains major conservation landscapes such as the Cross River National Park, Afi Mountain Wildlife Sanctuary, Mbe Mountains Community Forest, and Ekuri Community Forest. These protected areas host endangered species including the Cross River gorilla (*Gorilla gorilla diehli*) and Nigeria-Cameroon chimpanzee (*Pan troglodytes ellioti*) (Nneji et al., 2021). Consequently, the state has attracted conservation and ecotourism interventions from organizations such as the World Wildlife Fund, Wildlife Conservation Society, and Nigerian Conservation Foundation.

Despite these conservation efforts, environmental degradation remains a serious challenge in many eco-hotspot communities within Cross River State. Illegal logging, bush burning, poaching, agricultural encroachment, and unsustainable exploitation of forest resources continue to threaten biodiversity and ecosystem sustainability. Many rural households within these communities depend directly on natural resources for food, medicine, fuelwood, and income generation. Consequently, environmental awareness among community members

becomes critical for promoting sustainable environmental practices and reducing ecological degradation.

Environmental awareness refers to the knowledge, attitudes, values, and behaviours individuals possess regarding environmental protection and sustainable resource management (Mustofa, 2022). Ecotourism is widely regarded as an effective platform for promoting such awareness because it integrates conservation education, community participation, and livelihood opportunities. However, the effectiveness of ecotourism in promoting environmental awareness often depends on institutional and socio-economic factors within host communities.

One important factor is household income generated from ecotourism activities. Economic benefits derived from tour guiding, eco-lodge operations, transportation services, craft production, and other tourism-related activities may motivate residents to support conservation efforts and adopt environmentally responsible behaviours. When community livelihoods become directly linked to the sustainability of natural resources, residents are more likely to recognize the importance of environmental protection. Nevertheless, it remains uncertain whether economic benefits from ecotourism translate into genuine environmental consciousness or merely short-term economic interests.

Another important variable is government support for ecotourism development. Government support includes policies, infrastructure provision, conservation funding, environmental regulations, training programmes, and institutional partnerships designed to strengthen ecotourism and environmental sustainability. Effective government involvement can enhance environmental education, improve tourism infrastructure, strengthen community participation, and promote sustainable conservation practices. Conversely, inadequate institutional support may limit the effectiveness of ecotourism programmes and reduce their contribution to environmental awareness within host communities.

The interaction between household economic benefits and institutional support is important for understanding how ecotourism functions as both an environmental and developmental strategy. Existing studies on ecotourism in Cross River State have focused mainly on biodiversity conservation, tourism development, and community participation, with limited empirical attention given to the influence of institutional variables on environmental awareness among host communities. This creates a knowledge gap regarding how household income from ecotourism and government support contribute to environmental consciousness and sustainable behaviour among residents of eco-hotspot communities.

The study is further supported by the Environmental Education Theory, which posits that exposure to environmental knowledge and experiential learning promotes pro-environmental attitudes and behaviours. Ecotourism provides opportunities for such learning through direct interaction with nature and conservation activities. The study is also anchored on the Community-Based Natural Resource Management (CBNRM) model, which emphasizes community participation, local benefit-sharing, and institutional support as essential components of sustainable natural resource management.

It is against this background that this study seeks to examine the influence of institutional variables on the promotion of environmental awareness through ecotourism in Cross River State, Nigeria. Specifically, the study investigates the effect of household income generated from ecotourism and government support for ecotourism development on environmental awareness among host community members. The findings of the study are expected to provide useful insights for policymakers, conservation agencies, tourism planners, and development practitioners in strengthening ecotourism as a tool for environmental sustainability and community development.

Literature Review

Income Generated from Ecotourism by Households and Environmental Awareness

The relationship between household income generated from ecotourism and environmental awareness has received increasing scholarly attention because of its implications for sustainable development and conservation. Ecotourism is widely recognized as a mechanism that provides economic benefits to local communities while simultaneously promoting environmental consciousness and conservation-oriented behaviour (Foggin & Yuan, 2020). When households derive income from ecotourism activities, they are more likely to appreciate the economic value of environmental resources and support conservation initiatives that sustain those resources.

Early studies emphasized the role of ecotourism in improving local livelihoods and strengthening conservation awareness. Shoo and Songorwa (2013), in a study conducted around the Amani Nature Reserve in Tanzania, found that ecotourism contributed to household income through tourism-related employment and local business activities. However, the study observed that limited and unequal distribution of benefits reduced community satisfaction and weakened support for conservation programmes. The authors argued that equitable benefit-sharing and stronger community participation are necessary for ecotourism to achieve long-term environmental and developmental outcomes.

Similarly, Anup et al. (2015) examined the effects of ecotourism in the Annapurna Conservation Area of Nepal and found that participation in ecotourism significantly improved household income, employment opportunities, entrepreneurship, and educational development. The study further revealed that ecotourism contributed positively to environmental protection and cultural preservation. The authors concluded that economic benefits from ecotourism encourage communities to support conservation efforts because local livelihoods become directly linked to environmental sustainability.

Nabukenya (2018) investigated the role of ecotourism in income generation around Murchison Falls National Park in Uganda. Using quantitative and qualitative methods, the study found that many residents benefited economically through employment in hotels, tour guiding, security services, and local supply chains. Despite these benefits, challenges such as land conflicts, social change, and increased pressure on local resources were also reported. The study concluded that while ecotourism improves household welfare, sustainable management strategies are necessary to prevent environmental and social problems associated with tourism expansion.

Islam and Managi (2019) further explored the relationship between environmental knowledge and pro-environmental behaviour in India using a natural capital accounting framework. Their findings indicated that environmental awareness significantly influences sustainable resource management practices. The study emphasized that individuals who understand the ecological value of natural resources are more likely to engage in environmentally responsible behaviour. This suggests that economic benefits alone may not guarantee environmental sustainability unless accompanied by environmental education and awareness.

More recently, Chandran and Bhattacharya (2022) developed sustainability criteria and indicators for eco-lodges and resorts in India to assess the environmental performance of ecotourism facilities. Their findings showed that only a few eco-lodges met sustainability standards, indicating weaknesses in environmental management practices within the ecotourism sector. The study highlighted the importance of sustainability monitoring, environmental certification, and community support in strengthening ecotourism's contribution to conservation awareness.

The reviewed literature indicates that income generated from ecotourism positively influences environmental awareness by increasing household dependence on environmental sustainability for economic survival. However, the effectiveness of this relationship depends

on equitable benefit-sharing, environmental education, and sustainable tourism management practices.

Government Support for Ecotourism Development and Environmental Awareness

Government support has consistently been identified as a major determinant of sustainable ecotourism development and environmental awareness. Effective government involvement through policies, infrastructure provision, funding, environmental regulations, and institutional support can strengthen conservation initiatives and encourage environmentally responsible behaviour among host communities.

Bhuiyan et al. (2011) examined government involvement in ecotourism development in Malaysia, particularly within the East Coast Economic Region (ECER). The study found that government initiatives such as infrastructure development, tourism promotion, employment generation, and conservation planning significantly enhanced ecotourism growth and community participation. The authors argued that government support is essential for balancing environmental conservation with economic development and recommended stronger institutional frameworks to sustain ecotourism initiatives.

Similarly, Theobald (2012) investigated government-supported ecotourism initiatives in the United States and found that communities involved in such programmes demonstrated stronger environmental awareness and conservation commitment. The study showed that partnerships among government agencies, conservation organizations, and tourism operators improved environmental education and increased local understanding of ecosystem sustainability.

In Nigeria, Ogechi and Igbojekwe (2012) explored the role of local government authorities in promoting sustainable tourism development in Imo State. The findings revealed that inadequate planning, poor infrastructure, weak institutional support, and limited autonomy constrained effective tourism development at the grassroots level. The authors recommended stronger collaboration among federal, state, and local governments as well as active community participation in tourism planning and implementation.

Fitriasari et al. (2019) further emphasized the importance of government policy in promoting ecotourism development within Indonesia's border regions. The study identified poverty, infrastructure inequality, and weak economic independence as major challenges limiting ecotourism development. The authors argued that effective ecotourism policies should focus on empowering local communities, improving infrastructure, and utilizing local ecological

resources for sustainable development. Ogweno (2021) examined ecotourism and sustainable development in Kenya and observed that government support through conservation policies, environmental education, and tourism planning contributes significantly to environmental sustainability. The study stressed that ecotourism can only achieve long-term success when supported by strong institutional frameworks and continuous environmental education programmes.

More recent studies have further reinforced the importance of government support in ecotourism development. Yang and Bi (2024), in a study of community-based ecotourism in Thailand, found that government-backed community participation, local leadership, and stakeholder collaboration strengthened environmental conservation and tourism sustainability. Likewise, Khater et al. (2024) argued that effective environmental laws and regulatory enforcement are critical for balancing tourism development with ecosystem protection. Their study demonstrated that weak policy implementation often limits the environmental benefits of tourism initiatives. Muhamad et al. (2025) investigated sustainable ecotourism infrastructure and policymaking in Indonesia and found that government investment in environmental infrastructure, waste management, and ecological monitoring significantly influenced sustainable tourism development. Similarly, Ijatuyi et al. (2025) reported that government-supported green tourism initiatives in South Africa contributed positively to conservation, local economic development, and community participation despite infrastructural and governance challenges.

The reviewed literature therefore demonstrates that government support significantly enhances environmental awareness by improving tourism infrastructure, promoting environmental education, strengthening conservation policies, and encouraging community participation in ecotourism activities. However, the success of such interventions depends on effective policy implementation, stakeholder collaboration, institutional capacity, and equitable community involvement.

Methodology

Research Design

The investigation employed a quantitative survey method using a correlational framework to determine the association between ecotourism-related factors and environmental awareness among residents of eco-sensitive communities in Cross River State, Nigeria. The choice of this design was informed by its suitability for examining naturally occurring relationships among variables without any form of experimental manipulation. Specifically, the study explored how community participation in ecotourism activities, access to educational

opportunities within ecotourism programmes, and the frequency of ecotourism events relate to environmental awareness among community members.

Study Area and Population

The research was carried out in selected eco-hotspot communities situated around the Okwangwo axis of the Cross River National Park, the Afi Mountain Wildlife Sanctuary, and the Mbe Mountains Community Forest. These locations are internationally recognized for their ecological importance, biodiversity conservation initiatives, and ongoing ecotourism activities. The study population comprised inhabitants of the 25 officially recognized Support Zone Communities adjoining the protected areas. Population estimates obtained from the Nigeria National Park Service (2020) and the National Bureau of Statistics (2024) placed the total number of residents at approximately 76,704. The population was considered appropriate because the communities interact directly with conservation projects and ecotourism programmes operating within the study environment.

Sampling Procedure and Sample Size

A combination of sampling procedures was adopted to obtain a representative sample for the study. Initially, purposive sampling was applied in selecting communities located within the Okwangwo, Afi, and Mbe ecotourism corridors due to their active participation in conservation and tourism-related programmes.

Subsequently, the identified Support Zone Communities were organized into eight strata according to location, socio-cultural characteristics, and intensity of ecotourism activities. A proportionate sampling technique was then used to select respondents from each stratum in order to ensure fair representation across the study area. Based on approximately 1.2% of the total population, a sample size of 820 respondents was derived. At the stage of questionnaire administration, convenience sampling was utilized in selecting respondents who were available and willing to participate in the study. This approach was necessary because many residents were engaged in farming and other livelihood activities, making household-based systematic selection difficult during fieldwork.

Instrument for Data Collection

Primary data were obtained through a researcher-designed questionnaire titled Questionnaire on Eco-Tourism and Environmental Awareness among Rural Communities in the Eco-Hotspot Communities of Cross River State. The instrument was divided into three sections. The first section collected demographic information such as respondents' age, sex, educational qualification, and occupation. The second section addressed ecotourism-related

variables, including income derived from ecotourism activities, and government support for ecotourism development. The final section measured respondents' level of environmental awareness. The questionnaire contained 48 items generated from previous empirical studies and related literature on ecotourism and environmental sustainability. Responses were structured on a four-point modified Likert response format ranging from Strongly Agree (4 points) to Strongly Disagree (1 point). Items framed negatively were scored in reverse during data processing.

Procedure for Data Collection

Data collection was carried out through direct field administration of questionnaires by the researcher within the selected support zone communities around the Okwangwo Division, Afi Mountain Wildlife Sanctuary, and Mbe Mountains Community Forest. Prior to administration, respondents were briefed on the purpose of the study and assured that all information provided would be treated confidentially and used strictly for academic purposes.

Method of Data Analysis

Returned copies of the questionnaire were carefully screened, coded, and prepared for statistical analysis. Responses for positively worded items were scored as Strongly Agree = 4, Agree = 3, Disagree = 2, and Strongly Disagree = 1, while negatively worded statements were reverse coded. The processed data were entered into statistical software for analysis. Both descriptive and inferential statistical procedures were employed in analyzing the data, while the formulated hypotheses were tested at the 0.05 level of significance.

Results

HO₁

Income generated from eco-tourism by households is not significantly related to environmental awareness among host community members in Cross River State. In the present hypothesis the independent variable is income generated from eco-tourism by households while the dependent variable is environmental awareness among host community members in Cross River State. In testing this hypothesis, Pearson Product Moment Correlation (PPMC) was used. The result of data analysis is presented in Table 1.

The finding on Table 1 showed that income generated from eco-tourism by households had a mean score of 13.8432 with a standard deviation of 2.30015 while environmental awareness among host community members had a mean score of 27.13541 with standard deviation of 3.28316. The result further showed that the r-calculated value of 0.113 is significant at .05 level of significance and 818 degrees of freedom. Also, the $p < .000$ is less than $p < .05$. Based

on this result the null hypothesis which stated income generated from eco-tourism by households is not significantly related to environmental awareness among host community members in Cross River State was rejected indicating income generated from eco-tourism by households is significantly related to environmental awareness among host community members in Cross River State. The null hypothesis was therefore rejected

Table 1: Pearson Product Moment Correlation (PPMC) of relationship between Income generated from eco-tourism by households and environmental awareness among host community members in Cross River State (N=820)

Variables	\bar{x}	SD	r-ratio	Df	p-level
Income generated from eco-tourism by households (X)	13.8432	2.30015	.113*	818	.000
Environmental awareness (Y)	27.13541	3.28316			

*Significant at .05 level; $p < .05$.

HO₂

Government support for eco-tourism development is not significantly related to environmental awareness among host community members in Cross River State. In the present hypothesis the independent variable Government support for eco-tourism development while the dependent variable is environmental awareness among host community members in Cross River State. In testing this hypothesis, Pearson Product Moment Correlation (PPMC) was used. The result of data analysis is presented in Table 2.

The finding Table 2 showed that Government support for eco-tourism development had a mean score of 12.3131 with a standard deviation of 67181 while environmental awareness among host community members had a mean score of 27.13541 with standard deviation of 3.28316. The result further showed that the r-calculated value of 0.102 is significant at .05 level of significance and 818 degrees of freedom. Also, the $p < .000$ is less than $p < .05$. Based on this result the null hypothesis which stated that Government support for eco-tourism development is not significantly related to environmental awareness among host community members in Cross River State was rejected indicating Government support for eco-tourism development is significantly related to environmental awareness among host community members in Cross River State. The null hypothesis was therefore rejected

Table 2: Pearson Product Moment Correlation (PPMC) of relationship between Government support for eco-tourism developments and environmental awareness among host community members in Cross River State (N=820)

Variables	\bar{x}	SD	r-ratio	Df	p-level
Government support for eco-tourism developments (X)	12.3131	2.67181	.102*	818	.000
Environmental awareness (Y)	27.13541	3.28316			

*Significant at .05 level; $p < .05$.

Discussion of Findings

Income Generated from Ecotourism by Households and Environmental Awareness

The findings of the study revealed a significant relationship between household income generated from ecotourism and environmental awareness among host community members in Cross River State. The null hypothesis was rejected because the obtained correlation coefficient ($r = .113$, $p < .05$) indicated that increased household benefits from ecotourism were associated with higher levels of environmental awareness among residents. The finding suggests that when households derive economic benefits from ecotourism activities, they are more likely to appreciate the value of environmental resources and support conservation-oriented practices.

The finding aligns with the broader ecotourism literature which argues that economic incentives linked to natural resource conservation encourage environmentally responsible behaviour among local populations. Foggin and Yuan (2020) observed that ecotourism promotes environmental consciousness by connecting community livelihoods to the sustainability of ecological resources. Similarly, Anup et al. (2015) reported that ecotourism participation in Nepal significantly improved household income while simultaneously encouraging environmental protection and conservation participation among residents.

The present finding also agrees with Nabukenya (2018), who found that ecotourism activities around Murchison Falls National Park in Uganda enhanced household income through tourism-related employment and local enterprise development. According to the study, residents who benefited economically from tourism activities demonstrated stronger support for conservation initiatives because their livelihoods depended on the sustainability of the

tourism environment. Likewise, Shoo and Songorwa (2013) noted that ecotourism-generated income contributed positively to conservation support in communities surrounding the Amani Nature Reserve in Tanzania, although inequitable benefit-sharing reduced the overall effectiveness of conservation efforts.

The agreement between the present study and earlier studies may be explained by the direct economic dependence created through ecotourism activities. Households benefiting from ecotourism are likely to perceive environmental protection as economically beneficial, thereby strengthening environmental awareness and conservation behaviour. However, the relatively low correlation coefficient obtained in the present study suggests that income alone may not be sufficient to guarantee strong environmental consciousness unless supported by environmental education, equitable benefit-sharing, and effective conservation policies.

Government Support for Ecotourism Development and Environmental Awareness

The study further established a significant relationship between government support for ecotourism development and environmental awareness among host community members in Cross River State. The null hypothesis was rejected because the calculated correlation coefficient ($r = .128$, $p < .05$) showed that government involvement in ecotourism development significantly influenced environmental awareness among residents. This finding indicates that institutional support through policies, infrastructure, funding, environmental regulation, and conservation programmes contributes positively to environmental consciousness within host communities.

The finding is consistent with previous empirical studies emphasizing the importance of government intervention in promoting sustainable ecotourism and environmental stewardship. Bhuiyan et al. (2011) found that government-supported ecotourism initiatives in Malaysia enhanced conservation awareness, community participation, and environmental sustainability through infrastructure development, policy implementation, and tourism promotion strategies. Similarly, Theobald (2012) observed that communities participating in government-backed ecotourism programmes in the United States demonstrated stronger environmental commitment because they received environmental education, institutional support, and access to conservation resources.

The present finding also aligns with Ogwen (2021), who emphasized that effective government support through tourism planning, environmental education, and conservation policies is essential for achieving sustainable ecotourism development in Kenya. Likewise, Muhamad et al. (2025) reported that ecotourism infrastructure and environmental policy

support in Indonesia significantly enhanced sustainable tourism governance and environmental management practices. The findings further agree with Yang and Bi (2024), who observed that government-backed community participation and stakeholder collaboration strengthened environmental sustainability within community-based ecotourism programmes in Thailand.

The consistency between the present study and reviewed literature may be attributed to the role government institutions play in providing the structural and policy framework necessary for sustainable ecotourism development. Government support often improves environmental education, conservation monitoring, infrastructure development, and stakeholder collaboration, all of which contribute to stronger environmental awareness among residents. Nonetheless, the relatively modest correlation coefficient suggests that government support alone may not produce substantial environmental awareness unless complemented by active community participation, effective policy implementation, and continuous environmental sensitization programmes.

Conclusion

This study examined the relationship between institutional support, household ecotourism income, and environmental awareness among host community members in Cross River State, Nigeria. The findings demonstrated that both household income generated from ecotourism and government support for ecotourism development were significantly related to environmental awareness among residents of eco-hotspot communities. The study therefore confirms that ecotourism contributes not only to local economic development but also to the promotion of environmental consciousness and sustainable resource management.

The findings suggest that households benefiting economically from ecotourism activities are more likely to appreciate the importance of environmental conservation because their livelihoods are directly connected to the sustainability of natural resources. Similarly, government support through policies, infrastructure, environmental education, funding, and conservation programmes enhances environmental awareness by creating institutional conditions that encourage sustainable environmental practices within local communities.

Although the relationships observed were statistically significant, the relatively low correlation coefficients indicate that environmental awareness is influenced by multiple interacting factors beyond income and institutional support alone. This implies that ecotourism can only achieve its full environmental potential when supported by effective environmental education, equitable benefit-sharing, active community participation, and consistent policy implementation.

Overall, the study concludes that strengthening institutional support systems and expanding household participation in ecotourism-related economic activities are important pathways for promoting environmental awareness and achieving sustainable conservation outcomes in Cross River State.

Recommendations

Based on the findings of the study, the following recommendations are proposed:

1. Government agencies should strengthen institutional support for ecotourism through improved infrastructure, funding, environmental regulations, and sustainable tourism policies in eco-hotspot communities.
2. Conservation agencies and tourism planners should create more income-generating opportunities for local households through ecotourism activities such as eco-guiding, craft production, eco-lodge management, and community-based tourism enterprises.
3. Environmental education and awareness programmes should be integrated into ecotourism initiatives to ensure that economic benefits are accompanied by stronger conservation values and environmentally responsible behaviour.
4. Benefit-sharing mechanisms within ecotourism projects should be made more equitable and transparent to increase community trust, participation, and long-term support for conservation programmes.
5. Government and non-governmental organizations should organize regular sensitization campaigns and community training programmes on biodiversity conservation, sustainable tourism, and environmental protection.
6. Greater collaboration should be encouraged among government institutions, conservation organizations, tourism operators, and local communities to improve policy implementation and sustainable ecotourism governance.
7. Future studies should examine additional socio-economic and institutional variables influencing environmental awareness, including educational level, community participation, cultural values, and access to conservation information.

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