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ASSESSING COMMUNITY PARTICIPATION IN NATURAL CONSERVATION AND ECOTOURISM ACTIVITIES IN JELI, KELANTAN

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ABSTRACT

Sustainable tourism seeks to balance environmental conservation with socio-economic development, particularly in forest-dependent rural districts such as Jeli, Kelantan. This study aims to assess the level of community involvement in conservation and ecotourism initiatives. A cross-sectional survey of 219 household heads from three villages was conducted, complemented by rapid rural appraisal and consultations with community leaders. Participation was measured across four dimensions, which are planning, implementation, monitoring, and benefit-sharing. Results of studies using an engagement index were analyzed through descriptive statistics and multiple linear regression. The findings indicate moderate overall participation (Engagement Index = 0.33), with stronger involvement in benefit-sharing (0.53) and implementation (0.30), but comparatively low engagement in planning (0.26) and monitoring (0.24), suggesting functional rather than empowered participation. Perceived benefits were largely environmental and social, while direct economic gains were limited. Regression results reveal that knowledge exposure ($B = 0.28$, $p < .001$) and association membership ($B = 0.18$, $p = .01$) significantly predict participation, whereas years of formal education do not, with the model explaining 23% of variance ($R^2 = 0.23$). This study contributes new district-level empirical evidence on participation dynamics in rural Malaysia. It highlights the critical role of environmental knowledge and social capital in strengthening inclusive governance, offering practical insights for designing more participatory and resilient ecotourism frameworks.

Keywords: Community participation; Ecotourism; Natural resource conservation; Sustainable tourism; Rural development

INTRODUCTION

Sustainable tourism has gained prominence as a strategy for reconciling environmental conservation with socio-economic development, particularly in rural and forest-dependent regions. Ecotourism, as a nature-based form of tourism, is widely recognized for its potential to generate local income while supporting biodiversity conservation and sustainable resource management. However, the long-term success of ecotourism initiatives depends substantially on the depth and quality of local community participation, which shapes both conservation outcomes and the equitable distribution of benefits.

Jeli District in Kelantan, Malaysia, presents a natural forest district with numerous forest landscapes and new ecotourism attractions that offer great potential for sustainable development. In these circumstances, there is a pressing need for more community participation, which will help enable environmentally sustainable behavior, bolster local ownership and contribute to an open distribution of benefits. Extensive participation does not just reflect operational involvement but also planning, decision making, monitoring and governance processes involved in conservation and tourism activities.

This study is conducted under the Forest Research Institute Malaysia as part of the United Nations Development Programme project on “Sustainable Tourism Recovery,” which aims to advance environmentally responsible tourism while enhancing community resilience. Within this framework, assessing the extent and nature of community participation in Jeli is essential for understanding how conservation and ecotourism initiatives can be both ecologically effective and socially sustainable. Despite growing attention to community-based ecotourism in Malaysia, there is limited district-level empirical evidence regarding the effectiveness of such activities, thus highlighting the importance of context for rural areas such as Jeli.

Participation of the community in tourism development has been conceived broadly as a multi-level process that includes but is not limited to decision-making authority and governance engagement. Tosun and Timothy (2003) propose a normative model of participatory tourism development that emphasizes equitable benefit distribution, democratic decision-making, and empowerment of local communities. Their approach distinguishes between tokenistic participation and genuine empowerment, arguing that structural and institutional constraints often limit community influence in developing countries. Similarly, Rasoolimanesh et al. (2016) apply the Motivation–Opportunity–Ability (MOA) model to show that meaningful participation depends not only on willingness but also on access to opportunities and relevant knowledge. In the Malaysian context, social capital has also been identified as a critical enabler of rural development. Ali and Mansor (2006) point out that trust, networks, and association membership enhance collective efforts and participatory governance in rural areas. These theoretical perspectives provide an important evaluation for assessing the depth and determinants of participation in Jeli District.

LITERATURE REVIEW

Community Participation in Natural Conservation and Ecotourism

Community participation has become one of the guiding principles regarding natural conservation and ecotourism development, particularly in protected and rural areas where local livelihoods are closely linked to natural resources. Sustainable conservation efforts increasingly recognize that excluding local communities from decision-making processes may result in resistance, reduced cooperation, and

weakened environmental benefits. Therefore, evaluating the level and effectiveness of community participation is critical for understanding the sustainability of conservation in the long run.

Karunanithi et al. (2026), in their study of Kubah National Park in Malaysia, show that communities living in nearby areas have complex views of conservation policies. While biodiversity conservation was highly valued, issues regarding restrictions on land use and livelihood opportunities remained significant. Their findings suggest that conservation success depends not only on ecological priorities but also on balancing socio-economic interests. This is particularly relevant to Jeli, Kelantan, where rural communities may depend on forest resources and nature-based activities for income.

Similarly, Somarriba-Chang and Gunnarsdóttir (2012) emphasize that governance structures and management systems strongly influence community participation in ecotourism. In lacking of decision-making and institutional support, participation remains superficial. Their research indicates that economic benefits alone are insufficient; meaningful participation requires empowerment, transparency, and shared responsibility in conservation management. This perspective underscores the importance of assessing not only whether communities in Jeli participate, but also how and to what extent they are involved in planning and implementation processes.

Participation and Conservation Outcomes

The relationship between community participation and conservation behaviour is well examined in ecotourism. Stem et al. (2010) found that direct employment in ecotourism does not necessarily lead to stronger conservation attitudes. Instead, indirect benefits, education levels, and broader socio-economic welfare gains were related more positively to environmental behaviour. Their findings highlight that conservation participation must extend beyond economic incentives and incorporate awareness-building and capacity development.

Supporting this view, Sobhani et al. (2022) found a significant relationship between local community participation and sustainable ecotourism development in protected areas in Iran. Communities with stronger attachment to natural environments were more actively engaged in conservation-related activities. This suggests that emotional and cultural ties to nature can strengthen participation outcomes. For Jeli, where forest landscapes and river systems play important ecological and cultural roles, understanding local attachment to natural resources may help explain levels of engagement in conservation and ecotourism initiatives.

Thus, these studies indicate that community participation enhances conservation effectiveness when supported by education, equitable benefit-sharing, and strong institutional frameworks. Therefore, assessing participation in Jeli should consider social, economic, and governance dimensions rather than focusing solely on employment statistics.

Community-Based Ecotourism and Local Resilience

Ecotourism has been recognized as a mechanism for strengthening community resilience and promoting rural development. Shakarmamadova et al. (2020) argue that community-based ecotourism (CBET) contributes to income diversification, social cohesion, and adaptive capacity, especially in geographically marginalized regions. However, the study also reveals that without institutional strengthening and coordinated support, the potential of CBET remains underutilized.

Similarly, Nizamiev et al. (2025) found that local communities in the Kulun-Ata Nature Reserve showed a strong willingness to participate in ecotourism activities despite infrastructural and administrative barriers. Their research emphasizes that structured participation models and adaptive management approaches are necessary to translate willingness into effective engagement. This is highly relevant for Jeli, Kelantan, where natural attractions and forest reserves present opportunities for ecotourism expansion, yet institutional coordination and community empowerment may determine the sustainability of such initiatives.

These findings suggest that assessing community participation in Jeli should include evaluation of institutional support, access to resources, training opportunities, and the distribution of ecotourism benefits.

PROBLEM STATEMENT

Natural resource conservation and ecotourism development have become pillars for sustainable development, specifically in rural districts endowed with natural resources such as Jeli, Kelantan. As ecotourism initiatives increasingly aim to balance environmental protection with socio-economic development, the active support and participation of local communities are considered important factors influencing the sustainability of ecotourism programs. Community involvement not only enhances environmental stewardship but also strengthens local ownership, social cohesion, and long-term commitment to conservation outcomes.

Although several conservation and ecotourism projects are conducted in Jeli District, data on the actual level of community engagement and motivation are still scarce. Current initiatives generally focus on infrastructure, but few efforts have been made to examine whether residents are involved, supportive or empowered to participate in those programs. Without meaningful community support, ecotourism programs risk becoming externally driven projects that lack sustainability and long-term viability. Moreover, there is a limited systematic assessment of the specific factors that shape community involvement in conservation and ecotourism activities within the district. It remains unclear whether participation is influenced primarily by formal educational attainment, exposure to environmental knowledge, or social connectedness through community associations. The lack of empirical work on these determinants provides a major evidence gap, preventing policymakers and practitioners from developing the evidence-based interventions necessary to mobilize local communities.

Thus, a comprehensive baseline assessment is needed to evaluate community participation and support for conservation and ecotourism programs in the Jeli District of Kelantan. This study aims to add to a greater understanding of local participation in the sustainable management of biodiversity and the development of ecotourism by identifying the main socio-demographic and knowledge barriers to participation.

The primary objective of this study is to assess the level of community involvement in the conservation and sustainable management of natural resources, regarding ecotourism in Jeli District, Kelantan. This study aims to evaluate the extent of local community participation in ecotourism activity and natural resource conservation to determine the positive and negative aspects and the reasons for participation in those activities.

METHODOLOGY

This study employed a cross-sectional research design to examine local community participation in natural resource conservation and ecotourism initiatives in Jeli District, Kelantan. The study focused on three villages identified under the United Nations Development Programme (UNDP) listing, namely Kg Renyok, Kg Lawar, and Kg Gunong.

A quantitative household survey was conducted to capture community-level perspectives at a single point in time. To complement and triangulate the survey findings, qualitative insights were obtained through structured discussions with the Mukim (sub-district) Head and selected community leaders. This mixed approach strengthened understanding of participation patterns and local governance dynamics.

The focus of the survey was to assess the degree of local community engagement among residents living within designated ecotourism areas. Participation was operationalized and measured using a standardized framework across four dimensions, which include planning, implementation, monitoring, and benefit-sharing. These dimensions were applied to both conservation activities (e.g., forest protection, environmental awareness programmes) and ecotourism activities (e.g., tourism operations, community-based initiatives, benefit distribution mechanisms).

Participation was measured using a five-point Likert scale reflecting frequency of involvement. Responses were coded as follows:

- 0.2 = Never
- 0.4 = Rarely
- 0.6 = Occasionally
- 0.8 = Frequent
- 1.0 = Very Frequent

An Engagement Index (IP) ranging from 0 to 1 was computed by averaging item scores. Higher values indicate greater levels of participation. The rescaling to a 0–1 index facilitates clearer interpretation and comparison across participation dimensions.

The selection of independent variables was guided by theoretical and empirical literature on community participation in tourism and conservation contexts.

Knowledge exposure was included based on evidence suggesting that residents with greater awareness and information are more likely to engage in participatory activities (Rasoolimanesh et al., 2016). Association membership was incorporated for social capital, reflecting organized community networks that facilitate cooperation and action.

Years of education was included to assess whether formal educational level influences participation behaviour.

The participation framework adopted in this study aligns with the typology proposed by Tosun and Timothy (2003), which distinguishes between operational participation and decision-making empowerment.

Data Collection

This study involves the collection of two types of data, primary and secondary. Primary data were gathered through rapid rural appraisal (RRA), group and individual discussions, and household surveys. Secondary data were obtained from published sources, including books, journals, reports, and relevant articles.

Secondary Data

Secondary data collection involved sourcing information from printed and digital publications relevant to the study. Key references included official publications from the Department of Statistics Malaysia, Tourism Malaysia, the Economic Planning Unit, the Forestry Department of Peninsular Malaysia, the Kelantan State Forestry Department, and reports from other relevant agencies. This information provided context and background for the study and informed the development of research instruments.

Primary Data

Primary data collection employed rapid rural appraisal, group and individual discussions, and household surveys. Prior to data collection, respondents were informed about the purpose of the study and assured of confidentiality and voluntary participation.

Rapid Rural Appraisal (RRA)

The RRA was conducted in November 2025 as an initial assessment of ecotourism areas and surrounding protected and settlement zones. The RRA aimed to collect baseline information, including population size, household economic activities, household dependence on natural resources in ecotourism and protected areas, total number of households, verification of community participation in ecotourism and conservation activities, and the observed impacts following these activities. The insights gained from the RRA were instrumental in designing and refining the household survey questionnaire.

Sample Size Determination

Determining an appropriate sample size is important to ensuring the precision and reliability of the study's estimates. Although larger sample sizes generally enhance statistical accuracy, they also require increased enumerator involvement and higher operational costs. Therefore, the selection of an optimal sample size must balance statistical robustness with practical and logistical considerations.

Currently, no specific guideline exists regarding the ideal sample size for studies employing participation assessment scales. For this study, the sample size estimation was based on the total number of household heads in the selected settlements, as the unit of analysis is the head of household. The most recent household data were obtained from the Jeli Land and District Office for the designated study areas.

Based on the population size identified, the required sample size was calculated using Yamane's (1967) formula, which provides a simplified and widely applied approach for determining sample size. Sample size determination followed the formula proposed by Yamane (1967):

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = required sample size

N = population size (households)

e = level of precision (sampling error)

Assuming a population of 738 households and a precision level of 95% ($e = 0.05$), the calculated sample size is:

$$= \frac{738}{1 + 738(0.05)^2}$$

$$= 259 \text{ respondents/households}$$

Thus, a minimum of 259 household heads was considered statistically sufficient to produce reliable estimates for the study population.

Selection of Survey Locations

The survey was conducted through face-to-face interviews between 4 and 6 November 2025. Data collection was carried out at the household level within selected settlements.

The study sites comprised community settlements in the Jeli District identified from the listing provided by the United Nations Development Programme (UNDP). The selection of these localities was aligned with the study objectives, particularly the assessment of community participation in conservation and ecotourism-related initiatives.

The complete list of selected survey localities is provided below.

Table 1

Sampling Distribution of Household Heads Across Selected Settlements in Jeli, Kelantan

No.	Settlement	Total Households	No of Household Heads (Respondents)
1	Kg Renyok	244	73
2	Kg Lawar	128	38
3	Kg Gunong	366	108
		Total Households	219
		Heads (N)	

While the sample size calculated using Yamane's formula (1967) at a 95% precision level, which suggested 259 respondents for a population of 738 households, the number of respondents surveyed was 219 household heads due to field access constraints and respondent availability during the data collection period. It represents a high response rate of 84.6%. As Baruch and Holtom (2008) discussed, response rate has levelled out at about 50 and one of the elements in evaluating the quality of empirical studies is that higher response rates will lead to a higher probability of a sample being representative of a population.

Data Analysis

Quantitative data collected from the household surveys were analyzed using descriptive and statistical techniques. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize demographic characteristics and participation levels across the four dimensions.

To examine determinants of participation, multiple linear regression analysis was conducted. The dependent variable was the Engagement Index (IP). Independent variables included years of education, knowledge exposure (measured by reading frequency related to conservation and ecotourism), and association membership.

Qualitative data from key informant discussions were analyzed using thematic analysis and were used to interpret quantitative findings.

RESULTS

Demographic Profile of Respondents

The demographic characteristics of the household heads are presented in Table 2. A total of 219 respondents participated in this study.

As shown in Table 2, the majority of respondents were male (80.8%), while 19.2% were female. In terms of educational attainment, most respondents had completed upper secondary education (SPM/STPM/MCE) (41.1%), followed by lower secondary education (PMR/SRP) at 24.2%. A smaller proportion had no formal education (6.8%) or possessed tertiary qualifications such as a diploma (11.9%), bachelor's degree (2.3%), and postgraduate degree (0.5%).

Regarding marital status, 70.3% of respondents were married, 16.5% were widowed/divorced, and 13.2% were single. In terms of age distribution, the largest group was aged 60 years and above (34.2%), followed by those aged 50–59 years (24.2%) and 40–49 years (19.2%), indicating that the majority of respondents were within the older age categories.

Meanwhile, as for involvement in ecotourism activities, only 21.0% of respondents reported being involved in ecotourism, while a majority (79.0%) were not involved.

In terms of primary occupation, the largest category fell under other occupations (22.3%), followed by employment in the private sector not related to ecotourism (15.5%), non-ecotourism-related businesses (10.9%), and rubber tapping (8.2%). A notable proportion were retirees (8.2%) and unemployed (12.3%). Only a small percentage were directly involved in ecotourism-related employment or businesses.

Finally, the majority of respondents (71.7%) had resided in the area for more than 21 years, while 16.4% had lived there for less than 10 years, and 11.9% between 11 and 20 years. This suggests a strong level of long-term settlement and attachment to the local community.

Table 2

Demographic Profile of Household Heads in Jeli, Kelantan (N = 219)

Socio-Demographic Heads	Characteristics of Household	Frequency (n)	Percentage (%)
Gender	Male	177	80.8
	Female	42	19.2
	Total	219	100
Educational Attainment	No Formal Education	15	6.8
	Primary School	27	12.3
	Lower Secondary Education (PMR/SRP)	53	24.2
	Upper Secondary Education (SPM/STPM/MCE)	90	41.1
	Professional Certificate/ Diploma/ College	26	11.9
	Bachelor's Degree	5	2.3
	Master's/PhD	1	0.5
	Others	2	0.9
	Total	219	100
Marital Status	Single	29	13.2
	Married	154	70.3
	Widowed/ Divorced	36	16.5
	Total	219	100
Age (Years)	17 - 29 years	15	6.9
	30 - 39 years	34	15.5
	40 - 49 years	42	19.2
	50 - 59 years	53	24.2
	60 years and above	75	34.2
	Total	219	100
Involvement in Ecotourism	Involved in Ecotourism	46	21.0
	Not Involved in Ecotourism	173	79.0
	Total	219	100
Primary Occupation	Unemployed	27	12.3
	Forest Product Collector	1	0.5
	Orchard Farmer	4	1.8
	Rubber Tapper	18	8.2
	Oil Palm Smallholder	1	0.5
	Cash Crop Farmer	1	0.5
	River Fisherman	1	0.5
	Outdoor Activity Operator	1	0.5
	Contract Worker	6	2.7
	Ecotourism-Related Business	15	6.9
	Non-Ecotourism-Related Business	24	10.9

	Government Sector	15	6.9
	Private Sector (Ecotourism-Related)	2	0.9
	Private Sector (Non-Ecotourism-Related)	34	15.5
	Retiree	18	8.2
	Housewife	2	0.9
	Others	49	22.3
	Total	219	100
Length of Residence (Years)	Less than 10 years	36	16.4
	11 to 20 years	26	11.9
	More than 21 years	157	71.7
	Total	219	100

Local Community Involvement in Conservation Activities

Local communities play a critical role in the management of ecotourism and protected areas. Collaboration between community institutions, such as the Village Development and Security Committee (JKK), and government and private agencies enhances the planning, implementation, monitoring, and benefit-sharing of conservation programs. Community leaders are key in motivating participation, while local knowledge and skills support effective monitoring. Recognizing communities as part of management and enforcement mechanisms can further strengthen conservation outcomes.

Table 3 presents the engagement index of local communities within the ecotourism and protected areas in Kg Renyok, Kg Lawar, and Kg Gunong. This index measures the level of community participation across four stages, which are planning, implementation, monitoring, and benefit-sharing. The engagement index (IP) ranges from 0 to 1, with values interpreted as follows: 1 = Very Frequent, 0.8 = Frequent, 0.6 = Occasionally, 0.4 = Rarely, and 0.2 = Never. Overall, the engagement level is relatively low (IP = 0.33), falling between “Never” and “Rarely” on the participation scale, with the highest engagement observed in benefit-sharing activities (IP = 0.53), while participation in planning (IP = 0.26), implementation (IP = 0.30), and monitoring (IP = 0.24) remains low. The overall engagement index, calculated across the four stages, is 0.33, suggesting that local communities are more active in receiving benefits than in other stages of ecotourism and conservation management.

Table 3

Community Engagement Index in Ecotourism and Natural Conservation (Kg Renyok, Kg Lawar, Kg Gunong)

Type of Involvement	Engagement Index (IP)
General Involvement	0.27
Involvement in Planning	0.26
Involvement in Implementation	0.30
Involvement in Monitoring	0.24
Involvement in Benefit-Sharing	0.53
Overall Engagement Index	0.33**

Note: The overall engagement index considers only the four stages of planning, implementation, monitoring, and benefit-sharing. IP ranges from 0 to 1 and is based on a five-point Likert scale (0.2 = Never, 0.4 = Rarely, 0.6 = Occasionally, 0.8 = Frequent, 1.0 = Very Frequent).

Community Participation in the Planning, Implementation, Monitoring, and Benefit-Sharing of Natural Conservation and Ecotourism Activities

Community participation in natural conservation and ecotourism activities was examined across four stages: planning, implementation, monitoring, and benefit-sharing (n = 219). The findings indicate varying levels of engagement across stages, with the highest participation reported in benefit-sharing outcomes and implementation activities.

Planning Stage Participation

As presented in Table 4, community participation during the planning stage was moderate and primarily discussion-oriented. The most frequently reported involvement was attending meetings and discussions with State Park management or local authorities (29.77%), followed by asking questions during meetings (26.66%) and providing opinions on program implementation and physical development (26.21%).

Participation in decision-making roles was comparatively lower, including involvement in decision-making regarding implementing program activities (24.93%) and determining task allocation (24.47%). Similarly, representing the community in discussions with implementing agencies recorded 24.38%.

These findings suggest that community engagement at the planning stage was large rather than decisional, indicating that participation may have been limited to information-sharing and feedback rather than shared authority in governance processes.

Table 4

Community Members' Involvement at the Planning Stage in Natural Conservation and Ecotourism Activities

Role of the Local Community	Aggregate Score	Percentage (%) (n = 219)
Attending meetings and discussions with State Park management or local authorities regarding ecotourism areas and protected areas	326	29.77
Asking questions during meetings and discussions	292	26.66
Providing opinions in discussions on program/activity implementation and physical area development	287	26.21
Assessing potential problems in program/activity implementation and development	275	25.11
Household members providing ideas to solve identified problems	281	25.66

Involvement in decision-making regarding program activities and development to be implemented	273	24.93
Involvement in planning program activities and physical area development	281	25.66
Involvement in determining task allocation	268	24.47
Representing the community in discussions with implementing agencies regarding program/activity implementation and physical development	267	24.38
Involvement in decision-making on benefit distribution	263	24.01

Note. Aggregate scores are derived from five-point Likert responses (1 = Never to 5 = Very Frequent). The maximum possible score per item is 1,095 (219 respondents × 5).

Implementation Stage Participation

As shown in Table 5, participation increased during the implementation stage. The highest involvement was observed in assisting with the promotion and dissemination of program information (38.63%). Other prominent roles included contributing physical labour (33.42%), applying skills (32.05%), and applying knowledge (30.96%).

Material contributions such as financial resources (25.82%), equipment (27.57%), and facilities (27.39%) were comparatively lower. Conflict management during program implementation also recorded moderate participation (25.18%).

Overall, these results indicate that community members were more actively engaged in operational and supportive roles during implementation. Participation at this stage reflects functional involvement, where community members contributed tangible resources, labour, and expertise.

Table 5

Community Members' Involvement at the Implementation Stage in Natural Conservation and Ecotourism Activities

Role of the Local Community	Aggregate Score	Percentage (%) (n = 219)
Assisting in promoting and disseminating information to the wider public about programs/activities	423	38.63
Serving as committee members in the implementation of activities	301	27.48
Applying knowledge during the implementation of activities	339	30.96
Applying skills during the implementation of activities	351	32.05
Assisting ecotourism area management in conducting activities or programs	320	29.22
Contributing physical labour in implementing activities	366	33.42
Contributing financial resources in implementing activities	282	25.82
Contributing equipment resources in implementing activities	302	27.57

Contributing facility resources in implementing activities	300	27.39
Managing conflicts during program implementation	275	25.18

Note. Aggregate scores are derived from five-point Likert responses (1 = Never to 5 = Very Frequent). The maximum possible score per item is 1,095 (219 respondents × 5).

Monitoring Stage Participation

Table 6 indicates comparatively lower levels of participation during the monitoring stage. The highest reported activity was reporting wildlife disturbances (30.96%), followed by reporting damage to facilities or infrastructure (26.02%). Other monitoring roles, including reporting unauthorized entry (23.28%), encroachment (22.92%), pollution (22.74%), forest fires (21.92%), and resource theft (22.65%), were reported at modest levels. Participation in patrol activities (24.56%) and providing feedback on implemented programs (24.20%) also remained moderate. These findings suggest that participation in monitoring is limited to an informant-based role (i.e., reporting issues) rather than taking an active lead (e.g., structured oversight or governance involvement). Community members appear to be utilized as informants rather than as formal co-managers in monitoring systems.

Table 6

Community Members' Involvement in the Monitoring Stage in Natural Conservation and Ecotourism Activities

Role of the Local Community	Aggregate Score	Percentage (%) (n = 219)
Participating in patrol activities along the boundary of the ecotourism area	269	24.56
Reporting unauthorized entry into the ecotourism area	255	23.28
Reporting encroachment by external parties	251	22.92
Reporting damage to facilities or infrastructure	285	26.02
Reporting theft of resources (physical & biodiversity – flora and fauna)	248	22.65
Reporting wildlife disturbances	339	30.96
Reporting waste disposal and pollution activities	249	22.74
Reporting uncontrolled dumping of garbage in the local ecotourism environment	249	22.74
Reporting forest fire activities / open burning	240	21.92
Providing feedback on implemented programs	265	24.20

Note. Aggregate scores are derived from five-point Likert responses (1 = Never to 5 = Very Frequent). The maximum possible score per item is 1,095 (219 respondents × 5).

Benefit-Sharing Participation

As shown in Table 7, the highest levels of community involvement were reported in the benefit-sharing stage. Environmental and social benefits were particularly standout. A large proportion of respondents reported enjoying a green environment rich in flora and fauna (73.24%), improved health levels (71.78%), and clean, high-quality air (71.14%). Additionally, 63.38% indicated increased household awareness of environmental conservation.

Acquiring knowledge related to the natural environment and ecology (48.40%) and knowledge related to ecotourism area management (46.57%). Economic benefits were comparatively lower, including improved socio-economic status (36.80%), supplementary income (36.16%), and employment opportunities in tourism (34.34%). They conclude that despite the strong value of the environmental and social benefits, more direct economic benefits were not apparent. The benefit-sharing pattern indicates that conservation efforts could improve the environmental quality and environmental consciousness. However, such campaigns had yet to result in broad-based economic empowerment.

Table 7

Community Members' Involvement in the Benefit-Sharing Stage in Natural Conservation and Ecotourism Activities

Role of the Local Community	Aggregate Score	Percentage (%) (n = 219)
Acquiring knowledge related to ecotourism area management	510	46.57
Gaining knowledge in the development and management of recreational activities	500	45.66
Household members gaining awareness of conserving the natural environment	694	63.38
Enjoying clean and high-quality air through the conservation of ecotourism and protected areas	779	71.14
Household members enjoying a green environment rich in flora and fauna	802	73.24
Achieving improved health levels	786	71.78
Gaining employment opportunities in the tourism sector	376	34.34
Improving the standard of living and socio-economic status	403	36.80
Increasing supplementary income	396	36.16
Acquiring knowledge related to the natural environment and ecology	530	48.40

Note. Aggregate scores are derived from five-point Likert responses (1 = Never to 5 = Very Frequent). The maximum possible score per item is 1,095 (219 respondents × 5).

Multiple Regression Predicting Community Participation (N = 219)

A multiple linear regression analysis was conducted to examine whether years of education, reading frequency and association membership predict community participation in conservation and ecotourism activities and the results are shown in Table 8. Community participation was operationalized as the composite participation index derived from planning, implementation, monitoring, and benefit-sharing stages.

The overall regression model was statistically significant, $F(3, 215) = 21.19$, $p < .001$, explaining 23% of the variance in community participation ($R^2 = .23$; Adjusted $R^2 = .22$). The model demonstrated a moderate correlation between predictors and participation ($R = .48$).

Among the predictors, knowledge exposure was the strongest and most statistically significant predictor ($B = 0.28$, $SE = 0.04$, $t = 7.22$, $p < .001$). This suggests that higher reading frequency is associated with higher levels of participation.

Association membership was also a significant predictor ($B = 0.18$, $SE = 0.07$, $t = 2.67$, $p = .01$), suggesting that individuals involved in associations demonstrate higher levels of participation. In contrast, years of education was not a significant predictor ($B = 0.00$, $p = .70$), indicating that formal schooling does not significantly influence participation in conservation and ecotourism activities.

Table 8

Multiple Linear Regression Analysis Predicting Community Participation in Conservation and Ecotourism Activities (N = 219)

Predictor	B	SE	t	p	95% CI
Years of Education	0.00	0.00	0.38	.70	[0.00, 0.01]
Knowledge (Reading Frequency)	0.28	0.04	7.22	< .001	[0.20, 0.36]
Environmental Association Membership	0.18	0.07	2.67	.01	[0.05, 0.31]

Note. B = unstandardized coefficient; SE = standard error; CI = confidence interval. $R^2 = .23$; Adjusted $R^2 = .22$. $F(3, 215) = 21.19$, $p < .001$.

DISCUSSION

The findings show that participation is higher in implementation and benefit sharing rather than in planning and monitoring activities in Jeli. This implies that residents mainly take part in operational roles rather than in strategic decision-making. This is consistent with findings by Rachmawati et al. (2021) showing that individuals involved in the tourism industry are more active than those involved in decision-making or planning activities in tourism development. Comparable patterns have been observed by Somarriba-Chang and Gunnarsdóttir (2012), who found that communities located near tourism destinations tend to play a role in planning mechanisms. The comparatively lower participation in planning and monitoring in Jeli, therefore, indicates that participatory processes

remain largely consultative rather than empowering. As argued by Stem et al. (2010), ecotourism initiatives that fail to integrate communities meaningfully into decision-making structures may weaken long-term conservation commitment. Strengthening participatory governance is therefore essential to enable communities to move beyond operational involvement toward active engagement in planning, monitoring, and evaluation.

The strong level of participation in benefit-sharing dimensions, especially in environmental and social, further reflects patterns identified in community-based ecotourism. Consistent with Harris (2009), the conservation approach in Jeli appears to have generated visible environmental improvements and enhanced environmental awareness, even though direct economic transformation remains limited. The high perception of environmental benefits, such as improved ecological conditions and health, suggests that conservation programs have successfully fostered nature appreciation and social cohesion. However, the comparatively modest economic gains indicate that livelihood diversification and income generation through ecotourism remain underdeveloped. This imbalance highlights the importance of aligning environmental objectives with inclusive economic strategies to ensure long-term sustainability and local support.

The regression results further reinforce the role of knowledge and social capital in shaping community participation. Knowledge exposure emerged as the strongest predictor of participation, indicating that individuals who frequently access conservation-related information are significantly more likely to engage in ecotourism and conservation activities. This finding aligns with Rasoolimanesh et al. (2016), who point out that awareness and perceived capacity substantially influence participation intensity. Association membership was also a significant predictor, underscoring the importance of social capital in facilitating action and community engagement. Organized networks enhance communication, trust, and shared responsibility, as emphasized by Sobhani et al. (2022). Interestingly, formal education was not significantly predict participation, suggesting that local experience, informal knowledge and social integration are the true drivers of the engagement in this region. These findings highlight the strategic importance of information dissemination, environmental education programs, and strengthening local associations as mechanisms to deepen participatory sustainability.

CONCLUSION

This study shows that community participation in ecotourism and conservation activities in Jeli is stronger in implementation and benefit-sharing than in planning and monitoring. Local residents are actively involved in carrying out activities and receiving environmental and social benefits. However, their involvement in decision-making and monitoring remains limited. This indicates that participation is still largely operational rather than fully empowering. The findings also show that knowledge exposure and association membership are important factors influencing participation. Individuals who frequently access conservation-related information are more likely to participate actively. Similarly, those who are members of associations tend to show higher involvement. In contrast, formal years of education do not significantly influence participation. This suggests that informal learning, information access, and social networks may play a more important role than formal schooling in encouraging community engagement in rural conservation contexts. Overall, the study highlights the need to strengthen participatory governance by increasing community involvement in planning and monitoring processes. Improving access to information, expanding

environmental awareness programs, and supporting local associations can help enhance community ownership of conservation initiatives. Future research should examine how participation evolves and explores institutional strategies that promote more inclusive and meaningful community involvement.

CONFLICT OF INTEREST

The authors declare there is no conflict of interest.

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AUTHOR CONTRIBUTION STATEMENT

Mohamad Muslim, H. F., Zainal, N. F., Adnan, N., and Mahadi, M. A. conceptualized the study and designed the methodology. Mohamad Muslim, H. F., Zainal, N. F., and Mahadi, M. A. conducted the field surveys and research. Shafie, N. and Horsali, N. A. I. secured the project funding and managed the project administration. Muslim, H. F. M. wrote the first draft of the manuscript. Zainal, N. F., Adnan, N., Mahadi, M. A., Shafie, N., and Horsali, N. A. I. contributed to the review and editing of the manuscript. All authors contributed to manuscript revision, read, and approved the submitted version.

REFERENCES

- Ali, A. K., & Mansor, A. E. (2006). Social capital and rural community development in Malaysia. In S. Yokoyama & T. Sakurai (Eds.), *Potential of social capital for community development: Report of the APO survey and symposium on redesigning integrated community development 2003–2005* (pp. 141–171). Asian Productivity Organization.
- Baruch, Y., & Holtom, B. C. (2008). Survey response rate levels and trends in organizational research. *Human relations*, 61(8), 1139-1160.
- Harris, R. W. (2009). Tourism in Bario, Sarawak, Malaysia: A case study of pro-poor community-based tourism integrated into community development. *Asia Pacific Journal of Tourism Research*, 14(2), 125–135. <https://doi.org/10.1080/10941660902847179>
- Karunanithi, K., Tsuge, T., Mohamad Muslim, H. F., Akin, W., Hassan, N., Yudono, P., Numata, S., Takahashi, S., Voon, M., & Onuma, A. (2026). Perceptions of national parks among adjacent communities: A case study of Kubah National Park using best–worst scaling. *Journal for Nature Conservation*, 91, 127228. <https://doi.org/10.1016/j.jnc.2026.127228>

- Nizamiev, A., Momosheva, G., Abdisatarov, K., Borombaev, A., Sergeyeva, A., & Kamchiev, U. (2025). Sustainable Development of Ecotourism as a Driver of Local Development in the "Kulun-Ata" Nature Reserve, Kyrgyzstan: Perceptions of Local Communities. *Geojournal of Tourism and Geosites*, 63, 2764-2773.
- Rachmawati, E., Hidayati, S., & Rahayuningsih, T. (2021). Community involvement and social empowerment in tourism development. *Media Konservasi*, 26(3), 193–201. <https://doi.org/10.29244/medkon.26.3.193-201>
- Rasoolimanesh, S. M., Jaafar, M., Ahmad, A. G., & Barghi, R. (2016). Community participation in World Heritage Site conservation and tourism development. *Tourism Management*, 58, 142–153. <https://doi.org/10.1016/j.tourman.2016.10.016>
- Shakarmamadova, F., van Beynen, P. E., & Akiwumi, F. A. (2020). Assessing the contribution of ecotourism and community-based ecotourism to community resilience in the Pamirs. *Sustainability*, 12(11), 4574. <https://doi.org/10.3390/su12114574>
- Sobhani, P., Esmacilzadeh, H., Sadeghi, S. M. M., Wolf, I. D., & Deljouei, A. (2022). Relationship analysis of local community participation in sustainable ecotourism development in protected areas, Iran. *Land*, 11(10), 1871. <https://doi.org/10.3390/land11101871>
- Somarriba-Chang, M. de los A., & Gunnarsdóttir, Y. (2012). Local community participation in ecotourism and conservation issues in two nature reserves in Nicaragua. *Journal of Sustainable Tourism*, 20(8), 1025–1043. <https://doi.org/10.1080/09669582.2012.681786>
- Stem, C. J., Lassoie, J. P., Lee, D. R., Deshler, D. D., & Schelhas, J. W. (2010). Community participation in ecotourism benefits: The link to conservation practices and perspectives. *Society & Natural Resources*, 23(6), 541–556. <https://doi.org/10.1080/0894192090309177>
- Tosun, C., & Timothy, D. J. (2003). Community participation in the tourism development process. *Journal of Tourism Studies*, 14(2), 2–15.
- Yamane, Taro, (1967). *Statistics, An Introductory Analysis*, 2nd ed., New York: Harper and Row.