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Socioeconomic Determinants of Community Participation in Sustainable Forest Resource Management: Integrating Participatory Development and CBNRM Perspectives in Cross River State, Nigeria

[1] Omoogun, R. M.

&

[2]Agomobi, Magdalene Dikpen

1. Department of Environmental Education, University of Calabar
2. Department of Education Geography & sustainable Development studies, University of Calabar.

Abstract

This study examined the influence of education level and economic dependence on forest resources on community participation in sustainable forest resource management (SFRM) in the Central Education Zone of Cross River State, Nigeria. A correlational research design was adopted, and data were collected from 521 respondents using a structured questionnaire. Descriptive statistics, one-way analysis of variance (ANOVA), Pearson correlation, and simple linear regression were employed for data analysis. The results revealed a significant effect of education level on participation, F (2, 518) = 103.12, $p < .001$. Post hoc analysis revealed that respondents with intermediate and higher education levels participated more than those with only basic education. No significant difference was observed between intermediate and higher education groups, indicating a threshold effect: participation increases once education rises above the basic level, but further increases in education beyond this point do not notably boost participation. This suggests a plateau, where passing a certain educational threshold is sufficient for maximal participation. Furthermore, a very strong positive relationship was found between economic dependence and participation ($r = .995$, $p < .001$). Economic dependence significantly predicted participation, explaining 99.0% of the variance ($R^2 = .990$). The findings are interpreted through the Health Belief Model (HBM), Community-Based Natural Resource Management (CBNRM), and Participatory Development Theory, suggesting that participation is driven by the interaction of knowledge (education), livelihood incentives (dependence), and risk–benefit perceptions. However, the unusually high explanatory power indicates possible construct overlap or common method bias, warranting cautious interpretation. The study concludes that enhancing functional education and aligning livelihood incentives with conservation goals are critical for

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strengthening community participation in SFRM. It recommends targeted environmental education, strengthened tenure and benefit-sharing systems, and integrated livelihood strategies to promote sustainable forest governance.

Keywords: community participation, forest resource management, education, economic dependence, CBNRM, Health Belief Model, Nigeria

Introduction

Forests are multifaceted socio-ecological systems helping to sustain global environmental balance and human welfare. They feed and fuel, provide timber, fuelwood, food, and medicine; control climate and absorb carbon; and support indigenous identities and livelihoods. The number of individuals relying on forests to make a living is over 1.6 billion, with many people living in the developing regions where the dependence on natural resources is high (Food and Agriculture Organisation [FAO], 2022). Despite these advantages, forests are being subjected to intense degradation due to deforestation, land-use change and unsustainable extraction. Between 2015 and 2020, the world has lost approximately 10 million hectares of forest per year, and it is also clear that the world is in urgent need of the sustainable forest resource management (SFRM) strategies (FAO, 2022). A more recent development in forest governance is the shift to more participatory approaches to forest management, involving the inclusion of the local communities in decision-making processes, and which extends the Participatory Development Theory (Chambers, 1994).

A similar theory, Community-Based Natural Resource Management (CBNRM) theory, which was developed by Ostrom (1990), emphasizes the role of local institutions in the sustainable governance of common-pool resources through rules, trust, and collective action. Empirical studies confirm that participation of this sort enhances stewardship, compliance, and solutions locally customized based on indigenous knowledge (Evans et al., 2019; Reo et al., 2017). Participatory forest management is not always effective in spite of the advances in theory and evidence. Participation is determined by socioeconomic and cultural factors which influence the ability, desire, and access of people to participate. To illustrate, education is correlated to environmental awareness, pro-conservation attitudes, and eco-friendly practices. University education aids individuals to have a clearer perception of ecological interrelations. It can also assist them in getting more actively involved in governance (Joa *et al*., 2018; Bodin *et al*., 2017).

Conversely, low literacy restricts access to information and less participation in conservation systems. Social and Economic reliance on forest resources forms a two-fold dynamic. It has

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the ability to increase local attachment to ecosystems and provide incentives to conserve. Yet, high dependence specifically in the context of poverty and lack of livelihood opportunities, may lead to a reduction in resource extraction and deterioration of sustainability (Walelign, 2016; Angelsen et al., 2018). The dynamics bring to focus the relevance of Community-Based Natural Resource Management (CBNRM) theory. CBNRM assumes that local rewards can be met by conservation goals through balanced institutionalization, which is a key to effective resource governance. These problems are acute in Nigeria and in Cross River State, in particular. It is home to the biggest remaining section of tropical rainforest within the state. It holds over half of all forest reserves in Nigeria and is an international biodiversity hot spot (FAO, 2022). These forests also help the rural community through farming, hunting, harvesting of non-timber forest products, and cultural activities.

Government understands the value of the region and has come up with conservation programs including community forestry schemes, protected areas and so on. Nevertheless, continued deforestation and degradation demonstrate that current policies have not been effective in managing the socio-institutional forces of resource utilization. One of the biggest gaps in the field of forest management is the lack of integration of socioeconomic realities within participatory frameworks. Community participation is often required under directives, but often it does not take into account how factors like education and economic dependence affect participation. This lack of contact limits the practical use of the Participatory Development Theory. It undermines institutional resilience, which CBNRM frameworks aim to achieve.

Problem Statement

Although policy focus and participatory management efforts have been made, forest degradation in Cross River State is still a cause of concern. This indicates that there is a discrepancy between conservation strategies and the socioeconomic status of the local communities. Interventions presuppose equal participation of the population but participation is not equal and is often superficial. The engagement is constrained by disparities in education and reliance on forest resources. The lack of systematic review of these socioeconomic factors forms a key knowledge gap. Devoid of such understanding, policies might continue to use ineffective models that do not empower the stakeholders or assure sustainable results. This paper touches on the ways in which education and economic dependency can influence community involvement in sustainable forest management in the Central Education Zone of Cross River State.

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Literature Review

Education Level and Community Participation in Sustainable Forest Resource Management

Recent studies consistently show that education drives community participation in sustainable forest resource management (SFRM). Education affects environmental knowledge, attitudes, and choices. Research finds that it helps people understand ecological information, work with governance systems, and use eco-friendly practices (Joa et al., 2018). Education thus operates as both a cognitive asset and a way to empower locals in community governance. Empirical evidence from Sub-Saharan Africa supports this relationship. Jepkosgei (2018) found a statistically significant link between education level and participation in participatory forest management in Kenya, with more educated individuals being more involved in conservation groups and policy-making.

Similarly, Chukwuone et al. (2020) reported that limited education among rural forest users in Nigeria reduced understanding of responsible harvesting, leading to extractive behaviours and weaker conservation outcomes. Together, these findings show that low literacy limits access to conservation information and participation in institutional processes. Outside formal education, environmental education has become an important mediator of participation. Harahap and Uthman (2024) found that such education enhances pro-environmental attitudes and behaviour. This, in turn, strengthens public participation in sustainability initiatives. Gramatakos and Lavau, (2019) showed that higher education institutions help shape environmental awareness and responsible behaviour. They do this through both formal curricula and informal channels such as media and social networks. However, participation remains uneven. It is shaped by intersecting structural and socio-cultural constraints. Ward et al. (2017), using a mixed-method approach in Madagascar, found that limited knowledge, unclear governance processes, and perceived participation costs reduced local involvement in protected area management. These barriers disproportionately affected marginalised groups. This underscores the need for participatory and context-sensitive frameworks.

Gender dynamics further complicate participation patterns. Evidence indicates that education enhances both overall engagement and inclusiveness. In particular, it enables women to contribute meaningfully to decision-making activities (Agarwal, 2015). Overall, the literature shows that while higher education levels encourage informed participation and eco-friendly practices, targeted environmental education and integrative institutional designs are vital. These are especially important to address participation gaps among less-educated and

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marginalised populations. These insights are consistent with Participatory Development Theory, which emphasises capacity building and local empowerment as prerequisites for effective engagement.

Economic Dependence on Forest Resources and Community Participation

The relationship between economic dependence on forest resources and community participation in SFRM is complex. Forest-based livelihoods can incentivise conservation by creating a vested interest in resource sustainability. On the other hand, high dependence, especially under poverty, may drive overexploitation and undermine long-term management goals. Empirical studies stress the positive role of forest-based income in sustaining rural livelihoods and encouraging engagement in resource governance. Barletti et al. (2021), in the Peruvian Amazon, found that forest income substantially contributed to poverty reduction and income equality, notably under communal tenure systems. Similarly, Gbedomon et al. (2016) demonstrated that secure forest property rights in Benin enhanced both ecological and environmental outcomes and household income. This indicates that tenure security can align livelihood needs with conservation objectives. Nevertheless, excessive dependence often introduces sustainability trade-offs. Goswami et al., (2016) argue that in resource-limited settings, immediate livelihood needs frequently override conservation priorities, leading to environmental degradation.

Evidence from Central Africa further shows that while non-timber forest products (NTFPs) contribute to household resilience, their economic value is often supplementary, with agriculture remaining the dominant livelihood source. This indicates that forest dependence alone does not guarantee sustainable engagement, yet interacts with wider livelihood systems and socio-economic conditions. Policy interventions have attempted to handle these tensions through livelihood diversification approaches. However, systematic reviews of alternative livelihood projects (ALPs) reveal mixed outcomes. Roe et al. (2015) found limited and inconsistent evidence linking such interventions to conservation success, largely due to weak implementation frameworks and insufficient monitoring.

Similarly, Wright et al. (2015) argue that simplistic assumptions underlying ALPs such as direct substitution of livelihoods do not account for the complexity of rural socio-ecological systems. Instead, they support integrated livelihood approaches that strengthen existing economic systems while encouraging sustainability. Importantly, economic dependence is not uniform across households, and this heterogeneity shapes participation dynamics. Studies in Nepal demonstrate that secure access to forest resources, equitable benefit-sharing, and strong local institutions are more influential in driving participation than financial incentives

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alone (Ojha et al., 2025). Structural inequalities, including socio-economic status and power asymmetries, often limit meaningful participation among marginalised groups, even within community-based management systems. Collectively, the literature suggests that economic dependence can either support or impede participation in SFRM depending on institutional arrangements, livelihood diversification opportunities, and equity considerations. These findings correspond with the Community-Based Natural Resource Management (CBNRM) framework, which emphasises the value of aligning local incentives, property rights, and governance structures to achieve sustainable outcomes.

Purpose of the study

The broad purpose of this study was to examine economic and social factors and community participation in sustainable forest resource management in the central education zone of Cross River State. Specifically, the study:

1. Investigated the effect of education level on community participation in sustainable forest resource management.
2. Examined the influence of economic dependence on forest resources on community participation in sustainable forest resource management.

Research Hypotheses

The study tested the following null hypotheses:

1. There is no significant relationship between the level of education and public participation in sustainable forest resource management.
2. Economic dependence on forest resources has no significant influence on community participation in sustainable forest resource management.

Methodology

This study used a correlational research design to examine the relationships between selected socioeconomic variables and community participation in sustainable forest resource management (SFRM) in Cross River State, Nigeria. The design was appropriate because it enabled the investigation of naturally occurring variables such as education level and economic dependence without experimental manipulation, while permitting the estimation of the direction and strength of associations among variables.

The study was conducted in the Central Education Zone of Cross River State, located in the South-South region of Nigeria. The state measures approximately 23,074 km² and is characterised by a humid tropical climate with annual rainfall ranging from 1,300 mm to 3,000 mm. The Central Zone is ecologically significant, hosting major forest landscapes

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including the Okwangwo Division of the Cross River National Park, the Mbe Mountains Community Forest, and the Afi Mountain Wildlife Sanctuary. These areas form a contiguous biodiversity-rich landscape and support forest-dependent communities whose livelihoods are closely linked to farming, hunting, and non-timber forest product (NTFP) extraction.

The target population comprised adult residents of forest-bearing communities across six Local Government Areas (LGAs): Boki, Ikom, Etung, Obubra, Yakurr, and Abi. These communities are directly dependent on forest resources for socioeconomic activities and participate in both official and informal forest governance systems. The estimated population was 76,704 individuals across 25 forest-adjacent communities. A multi-stage sampling procedure was adopted. First, purposive sampling was used to select ecologically relevant forest-dependent communities. Second, stratified proportionate sampling ensured representation among communities and LGAs. Approximately 2% of each community's population was selected, yielding a total sample size of 521 respondents. Finally, accidental sampling was used during fieldwork to select available adult respondents.

Data were collected using a standardised questionnaire titled "Socioeconomic Activities and Community Participation in Sustainable Forest Resource Management Questionnaire". The instrument comprised 39 items organised into three sections: demographic characteristics, socioeconomic variables, and community participation. Responses were measured on a five-point Likert scale ranging from Strongly Agree (5) to Strongly Disagree (1). Content and face validity were established through expert review by specialists in measurement and evaluation. Reliability was assessed using Cronbach's alpha, with coefficients ranging from 0.78 to 0.89 across subscales, indicating acceptable internal consistency.

Data collection was conducted through direct administration of questionnaires with the support of trained research assistants. Community entry was facilitated through local leaders, and participants were briefed on the study objectives prior to data collection. Of the 600 questionnaires distributed, 521 were successfully retrieved and deemed usable, representing a high response rate. Data were coded and analysed using inferential statistics. Hypotheses were tested using appropriate techniques, including one-way analysis of variance (ANOVA) and simple linear regression, depending on the nature of the independent variables. Statistical analyses focused on determining the extent to which education level and economic dependence predicted community participation in SFRM.

Ethical approval was obtained from the appropriate institutional review body, and permission was secured from community leaders and relevant authorities. Participation was voluntary,

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with informed consent obtained from all respondents. Confidentiality and anonymity were ensured by excluding personal identifiers from the dataset. The study adhered to established ethical standards for social science research, including respect for participants, non-maleficence, and responsible data administration.

Results

HO_1

There is no significant relationship between the level of education and community participation in sustainable forest resource management.

A one-way analysis of variance (ANOVA) was conducted to examine the effect of education level on community participation in sustainable forest resource management. The results on table 1 revealed a statistically significant difference in participation across education levels, $F(2, 518) = 103.12$, $p < .001$. Therefore, the null hypothesis stating that there is no significant relationship between education level and community participation is rejected. The effect size, estimated using eta squared (η^2), was .285 (45.066 / 158.254), indicating a large effect, suggesting that education level explains a substantial proportion of variance in participation. Post hoc comparisons using the Tukey HSD test in table 2 indicated that: Participants with basic education ($M = 3.88$) had significantly lower participation than those with intermediate education ($M = 4.47$), $p < .001$. Participants with basic education also had significantly lower participation than those with higher education ($M = 4.47$), $p < .001$. There was no significant difference between intermediate and higher education levels ($p = 1.000$).

The homogeneous subsets further confirm that: Basic education forms a distinct group with lower participation, while intermediate and higher education levels form a statistically similar group with higher participation. Education level significantly influences community participation in sustainable forest resource management. Individuals with at least intermediate education demonstrate substantially higher levels of participation compared to those with basic education, while no meaningful difference exists between intermediate and higher education groups. This suggests a threshold effect, where participation improves once a moderate level of education is attained, rather than increasing progressively across all levels. Although group sizes were unequal, Tukey HSD with harmonic mean adjustment was used; however, results should be interpreted with caution

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Table 1: One-Way ANOVA Showing the Effect of Education Level on Community Participation

Education Level	***N***		**Mean Participation**		
Basic	276		3.88		
Intermediate	187		4.47		
Higher	58		4.47		
Source	***SS***	***df***	***MS***	***F***	***p***
Between Groups	45.066	2	22.533	103.121	< .001
Within Groups	113.188	518	0.219		
Total	158.254	520			

Table 2: Post Hoc Comparisons (Tukey HSD) for Education Level and Participation

Comparison	**Mean Difference**	**SE**	**p**	**95% CI Lower**	**95% CI Upper**
Basic vs Intermediate	-0.590	0.044	< .001	-0.694	-0.486
Basic vs Higher	-0.588	0.068	< .001	-0.747	-0.430
Intermediate vs Higher	0.001	0.070	1.000	-0.164	0.166

HO_2

A simple linear regression analysis was conducted to examine the extent to which economic dependence on forest resources predicts community participation in sustainable forest resource management. The results indicated a very strong, positive, and statistically significant relationship between economic dependence and participation, $r = .995$, $p < .001$. Economic dependence significantly predicted participation, $F(1, 519) = 53{,}739.17$, $p < .001$. The model explained 99.0% of the variance in community participation ($R^2 = .990$, Adjusted $R^2 = .990$), indicating an extremely high explanatory power. Economic dependence emerged as a significant predictor of participation ($\beta = .995$, $t = 231.82$, $p < .001$). This implies that for every one-unit increase in economic dependence, participation increases by approximately 0.915 units. The exceptionally high correlation suggests possible conceptual overlap between economic dependence and participation constructs, warranting cautious interpretation.

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Table 1: Descriptive Statistics and Correlation Matrix

Variable	***M***	***SD***	***r***
1. Participation	4.16	0.55	.995***
2. Economic Dependence	4.11	0.60	

Table 2: Model Summary for Regression Analysis

Model	***R***	***R²***	***Adj. R²***	***SE Estimate***
1	.995	.990	.990	0.054

Source	***SS***	***df***	***MS***	***F***	***p***
Regression	156.741	1	156.741	53739.17	< .001
Residual	1.514	519	0.003		
Total	158.254	520			

Predictor	***B***	***SE***	***β***	***t***	***p***
Constant	0.394	0.016	—	23.98	< .001
Economic Dependence	0.915	0.004	.995	231.82	< .001

Economic dependence on forest resources is a strong and significant predictor of community participation in sustainable forest resource management. However, the extremely high explanatory power suggests substantial conceptual overlap between the constructs, indicating that both variables may be capturing similar underlying dimensions of forest reliance and engagement.

Discussion

The current study presents strong empirical data that the level of education, as well as economic reliance on forest resources, plays a significant role in influencing the community to participate in sustainable forest resource management (SFRM). Nevertheless, the intensity and trend of these relationships shows that there are significant theoretical and practical nuances to be interpreted through the prism of the Health Belief Model (HBM), Community-Based Natural Resource Management (CBNRM), and Participatory Development Theory.

Education and Participation:

A Threshold Effect in Line with Participatory Theory. The fact that those with intermediate and higher education levels show significantly higher participation levels than those with basic education, but no significant difference in intermediate and higher education levels,

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would indicate a threshold effect and not a linear progression. This means that as soon as people have reached a certain minimum level of education, they develop enough mental and social capacities to participate in the processes of forest governance in a constructive way. In the light of Participatory Development Theory (Chambers, 1994), this observation supports the point that meaningful participation is based on capacity building. Through education, one can be made to have a critical awareness, communication skills and the ability to interpret environmental information thus enabling one to move beyond passive beneficiary to active stakeholder.

This finding is highly congruent with the available empirical data. Research has revealed that education enhances environmental literacy and enables participation in the process of making conservation decisions (Joa et al., 2018). On the same note, Chukwuone et al. (2020) discovered that a lack of education limits involvement by decreasing awareness and access to institutional processes. The present research builds up on this literature by showing that beyond a certain point, further education is of diminishing benefit, and that interventions should focus on providing access to basic and intermediate education rather than to elite education. Economic Dependence and Participation: Strong Alignment with CBNRM The study indicates the existence of a very strong positive relationship between the economic dependence on forest resources and participation (R^2 =.990).

This observation is very much in line with the tenets of CBNRM (Ostrom, 1990), which argues that when local users are dependent on the resources, they are likely to sustainably manage the resources. Economic dependence will bring a vested interest in long-term resource sustainability, which will reinforced stewardship and collective action. This stance is supported in empirical literature. The studies by Gbedomon et al. (2016) show that forest-based livelihoods have the potential to improve both participation and conservation outcomes, especially in those cases when institutional arrangements are conducive. Likewise, Ojha et al. (2025) emphasize that access rights and benefit-sharing systems inspire people to participate in the community. The strength of the relationship, however, that has been observed in this study is unusually high and does not conform to a large portion of the literature, which tends to report moderate and context dependent relationships. According to the previous researches, the excessive reliance may result in overexploitation of the resources, in particular, in the conditions of poverty (Roe, 2015).

Thus, although the present results are consistent with CBNRM in principle, they can also be due to construct overlap or measurement convergence, where participation and dependence are empirically interwoven. This implies that the economic activity involving the use of forest

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resources is not only likely to lead to participation but it is also enshrined in its conceptualization. Another explanatory approach is the Health Belief Model (HBM), which elucidates participation as a factor of perceived risks, benefits, and self-efficacy. Those who are economically dependent on forest resources will be more likely to perceive:

1. High susceptibility: loss of forest resources is a direct threat to their livelihood.
2. High severity: environmental degradation is translated into the direct economic suffering.
3. High perceived benefits: participation guarantees sustainability of resources.
4. High self-efficacy: knowledge of forest use leads to increased confidence in the activity.

This juxtaposition of perceptions forms a high behavioural motivation to participate. On the contrary, the less dependent ones might feel that there are fewer immediate effects of the forest degradation, which leads to less intensive involvement. The education results also conform to HBM: educated people have better chances to grasp environmental hazards and advantages, thus, having higher probabilities of engaging in conservation actions. This confirms the evidence that environmental education improves pro-environmental behaviour and involvement (Handayani & Widodo, 2024).

The work shows a high level of convergence with the existing literature in the following aspects: Education enhances participation through knowledge and capacity (Joa et al., 2018). Economic dependence is a motivating factor to engage in resource management (Ojha et al., 2025). There are two remarkable dissimilarities: There is a very strong predictive power of economic dependence (R^2 =.990). This is higher than the normal results and indicates a possible construct overlap or contextual intensification. The majority of the studies show fewer extreme relationships because of the conflicting livelihood pressures. There was no significant difference between intermediate and higher education. This questions the idea of the continuous improvement with the increase of education. Postulates that there is a minimum competency level, instead of cumulative advantage.

Theory and Practice implications

The results imply that effective SFRM plans must include: Basic and intermediate education to increase the level of participation. Enhance livelihood-conservation nexus to create economic incentives that are consistent with sustainability objectives. It should not over-rely on alternative livelihood substitution models which have not proven to be very effective.

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Encourage non-discriminatory systems of governance that consider the differences in education, and dependence.

Theoretically, the study reveals that: Participatory Development Theory explicates who is capable of participation (capacity dimension). CBNRM is the reason why people participate (incentive dimension). The HBM explains the motivation of participation behaviour (perception dimension) These two frameworks are complementary and integrative in explaining community participation in forest management. The aspect of involvement in the sustainable forest resource management is not necessitated by a single factor but rather appears as a result of the intersection of knowledge, livelihood dependence and behavioural motivation. The current research highlights the fact that participation is not only probable but also almost inevitable when communities not only know about forest resources but also rely on them.

Conclusion

This study examined how education level and economic dependence on forest resources shape community participation in sustainable forest resource management (SFRM) in Cross River State. Two clear patterns emerged. First, education exerts a significant, non-linear (threshold) effect on participation. Individuals with at least intermediate education participate substantially more than those with only basic education, while gains beyond the intermediate level are marginal. This indicates that a minimum level of functional literacy and environmental understanding is sufficient to unlock meaningful engagement in forest governance.

Second, economic dependence is a dominant predictor of participation, with a very strong positive association. Communities that rely on forest resources for livelihoods are more likely to engage in conservation, monitoring, and decision-making. Interpreted through CBNRM, this reflects alignment of local incentives with conservation outcomes; through HBM, it reflects heightened perceived risk (loss of livelihood) and perceived benefits (resource sustainability), which jointly motivate action.

However, the exceptionally high correlation and R^2 values suggest potential construct overlap or common method bias, indicating that 'dependence' and 'participation' may partially capture the same behavioural domain in this context. Consequently, while the direction of effects is robust, the magnitude should be interpreted with caution. The strong predictive power of economic dependence may reflect conceptual overlap; therefore, these findings should be validated through multi-method approaches. Participation in SFRM in the study area appears

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to be driven by the intersection of capacity (education), incentives (livelihood dependence), and perceptions (risk/benefit appraisal). Policies that ignore any one of these dimensions are unlikely to achieve sustained community engagement.

Recommendations

1. Strengthen Functional and Environmental Education (Government & NGOs)

Government agencies and development partners should prioritise basic and intermediate education by integrating context-specific environmental education into adult learning and community training programmes. Delivery should utilise accessible communication channels (e.g., radio, extension services, community facilitators) to effectively reach low-literacy populations.

2. Align Livelihood Incentives with Conservation Goals (Government & Forestry Authorities)

State authorities and forestry institutions should strengthen community tenure security and implement benefit-sharing mechanisms (e.g., non-timber forest product value chains, eco-tourism, payment for ecosystem services) that directly link household income to sustainable forest management outcomes.

3. Implement Integrated Livelihood Support Strategies (Development Partners & Financial Institutions)

Development agencies should design complementary livelihood programmes that combine skills training, access to microfinance, and market linkages, rather than isolated interventions. Pilot projects should be rigorously evaluated before scaling to ensure effectiveness in reducing forest pressure.

4. Institutionalise Inclusive and Accountable Participatory Governance (Local Governments & Community Leaders)

Local governments and community leadership structures should establish formal participatory platforms (e.g., co-management committees, regular community forums) with clear mandates and accountability mechanisms. Special attention should be given to ensuring active inclusion of women and youth in decision-making processes.

5. Enhance Behavioural Motivation for Participation (NGOs & Extension Services)

Environmental programmes should adopt behaviourally informed strategies by emphasising locally relevant risks (e.g., livelihood loss) and tangible benefits of conservation. Interventions should build self-efficacy through practical engagement (e.g., monitoring, patrols) and leverage community champions to reinforce positive participation norms.

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