EXPLORING SUSTAINABLE LIVELIHOODS AND SOCIO-ECONOMIC CONSTRAINTS IN THE CROSS RIVER-NATIONAL PARK, OBAN DIVISION, NIGERIA

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Abstract: This study examines the occupational structure, livelihood strategies, and socio-economic constraints of support-zone communities within Cross River National Park (CRNP), Oban Division, Nigeria. Data was generated using structured surveys and participatory rural appraisal methods. Findings reveal a predominant reliance on agriculture and non-timber forest products (NTFPs) for livelihoods. Findings further show that conservation policies, human-wildlife conflict and limited financial access hinder economic diversification. The research emphasises the need for integrated conservation and livelihood strategies, advocating for multi-stakeholder collaborative efforts to enhance economic resilience while ensuring biodiversity protection. The study contribute to global discussions on sustainable livelihoods in protected areas.

Keywords: Sustainable livelihoods, conservation policy, alternative livelihood strategies, socio-economic resilience, Cross River National Park, forest-dependent communities.

INTRODUCTION

Sustainable livelihoods remain a critical worldwide problem that impacts people from all demographic groups and socio-economic strata regardless of age gender ethnicity religion or nationality. A livelihood represents the skills and assets (both physical and social) together with operational activities needed to sustain daily life (Iqbal et al., 2025; Inah et al., 2022). The concept encompasses essential life well-being factors including food security, income generation, asset ownership and employment. The evolution of livelihood systems began with subsistence activities including hunting fishing farming and bartering but shifted toward specialized technology-enabled approaches that modernization along with globalization made possible (Sadaf et al., 2021; Dao et al., 2023).

Forest-dependent indigenous communities from low-income regions across the globe heavily depend on forest resources for both survival and economic functions. Furthermore, some forest-dependent indigenous communities extract resources through hunting as well as timber harvesting and agroforestry and non-timber forest products (NTFPs) collection of fruits leaves and honey (Sadaf et al., 2021; Inah et al., 2022). Also, forest ecosystems maintain both economic value and environmental importance which supports biodiversity preservation and delivers essential ecosystem functions. However, the increasing pressure of unsustainable exploitation threatens these forest areas. National parks and other Protected Areas (PAs) serve as key biodiversity and ecosystem preservation measures for future generations according to (Dao et al., 2023; Eneyo et al., 2022).

Similarly, national parks create conservation advantages yet these benefits frequently bring adverse effects to local inhabitants who depend on forest resources for their survival. The consequences of these disruptions include limited access to natural resources together with agricultural land displacement and sometimes forced relocation of communities. The primary goal of conservation policies is biodiversity protection yet these policies create social and economic conflicts between local communities and park management authorities. The situation is most severe in tropical areas of Nigeria because forest ecosystems serve as fundamental sources of food and medicinal plants as well as materials for building and sources of income (Ghaderi et al., 2025; Iqbal et al., 2025). Locally dependent community needs consistently remain absent from

most modern conservation policy frameworks. The 1992 World Parks Congress achieved its protection goal of safeguarding more than 10 percent of the Earth's surface but neglected to address the economic impacts on forest-dwelling communities according to Nzeadibe and Mbah (2015). The study on Cross River National Park (CRNP) intnd to shows how resource usage limitations between 2012 and 2020 triggered increasing community conflict. In the same vein, between 2012 and 2020 authorities executed numerous arrests targeting subsistence farmers alongside poachers and NTFPs extractors (Etta et al., 2024; Nyong et al., 2024).

Moreover, the research conducted by (Abukari & Mwalyosi, 2020; Zawilińska et al., 2021; Harker et al., 2021; Mercado et al., 2023; Dehaibi, 2024; Etta et al., 2024; McGinlay et al., 2023; Pamungkas and Jones, 2021) investigated socio-economic challenges in African communities living the failure of alternative livelihood initiatives stems from inadequate institutional backing and improper planning according to (Etta et al., 2024; Eneyo et al., 2022) recognized fundamental flaws in community-based conservation approaches that operate in Nigeria. The research offers essential understanding but lacks a detailed study of the occupational patterns and preferred economic choices along with specific economic hurdles that CRNP host communities' encounter. Okosodo and Ogidi (2023) and Newsome (2012) showed that limited financial services and agricultural support contributes to poverty and forces communities to maintain unsustainable livelihood practices. Research about these matters remains insufficiently studied within the CRNP field.

This research aim to study support-zone communities' occupational arrangements while evaluating their desired economic activities and recognizing economic obstacles. Lack of empirical research about alternative livelihood strategies and community challenges has created a substantial gap between conservation policy-making and implementation in the study area. Due to these circumstances forest-dependent communities experience persistent social tensions with park authorities because they continue to face poverty and have restricted access to essential resources and insufficient institutional support for sustainable livelihoods. The research evaluates the CRNP through evidence-based methods to develop solutions bridging conservation needs with community welfare. The study recommends policy solutions to unite biodiversity preservation with social and economic strength which understands the multifaceted relationship between environmental protection goals and community livelihood security.

Conceptual framework: Sustainable livelihood framework (SLF)

The research bases its theoretical foundation on the Sustainable Livelihood Framework (SLF) which Ian Scoones introduced in 1998 before the United Kingdom Department for international Development (DfID) refined it in 1999 (Scoones, 1998; Rahman et al., 2024). This analytical tool functions as a sustainability solution and complex poverty relief system by examining individual resource management and vulnerability responses alongside institutional interactions for sustaining livelihoods (Scoones, 1998; Yanuartati, 2023). Through this method scientists study resource-based communities to understand their strategic relationship with assets and survival approaches and environmental conditions (Bebbington, 1999; Pasgaard and Fold,2024). The framework classifies livelihood assets into five core categories: Human capital (knowledge, skills and health) combines with natural capital (water, land and forests resources) through social capital (networks, trust-based interactions and relationships) and physical capital (tools, equipment and infrastructure) to support financial capital (income, credit facilities and savings) (Eneyo et al., 2022; Phan Hai et al., 2020). These assets serve as the foundation for community livelihoods while they interact with outside factors including institutional structures and policies and environmental conditions (Morse and McNamara, 2013; Gharibvand et al., 2015).

The success of the SLF relies entirely on essential preconditions that shape its practical use. According to Eneyo et al., (2022), the framework bases its assumptions on dynamic livelihoods that adapt to internal and external factors including environmental changes and economic transformations and policy shifts. The relationship between different types of capital assets operates as a system where financial access either expands or limits opportunities for physical and natural resource acquisition (Scoones, 2013; Etta et al., 2024). The framework acknowledges that communities maintain decision authority yet their choices develop through interaction with wider socio-economic structures and institutional frameworks (Tabares et al., 2022; Morse and McNamara, 2013). The framework recognises that sustainability requires integrated adaptive approaches

because livelihoods exist inside socio-economic and political environments along with environmental contexts (Tabares et al., 2022; Sultana et al., 2025). Through SLF we can understand how vulnerabilities like restricted resource access and economic poverty push communities to adopt temporary survival practises that undermine sustainability (Morse, 2025; Tabares et al., 2022).

The Systematic Livelihoods Framework has received widespread adoption across different fields which demonstrates its crucial role in addressing environmental and socio-economic challenges. The SLF gained prominence in livelihood system research when Etta et al., (2024) verified its ability to boost adaptability and resilience. (Scoones,1998; Eneyo et al., 2022) stated that the framework to study resource management and rural development alongside sustainability issues. Pamungkas and Jones (2021) together with Abukari and Mwalyosi (2020) investigated through their research the relationship between various livelihood assets and their poverty-reducing capabilities in agricultural systems. (Etta et al., 2024; Yanuartati, 2023) analysed how social and human capital forms livelihood patterns while Morse (2025) studied the SLF's influence on natural resource management. The framework demonstrates its applicability through various use cases which address environmental and socioeconomic challenges affecting marginalised populations (Etta et al., 2024).

This study analyses occupational structures and preferred livelihood strategies and community constraints within the CRNP through SLF analytical framework application. A comprehensive assessment framework analyses local livelihood patterns by evaluating changes in livelihood assets and natural resource accessibility due to conservation policies (Eneyo et al., 2022; Yanuartati, 2023). This study integrates biodiversity conservation programmes with socio-economic resilience methods to build sustainable forest-dependent communities. The SLF provides an organised analytical framework that enables researchers to discover strategic public policy solutions to resolve economic complications and resource accessibility problems and poverty issues so they can support environmental sustainability and social equity.

Hence, by employing the SLF, this research pursues two primary objectives: This research aims to advance biodiversity preservation through sustainable life opportunities for CRNP host residents by creating policies based on evidence which connect conservation measures to social and economic development. This research adds value to academic understanding of sustainable livelihoods and conservation by demonstrating how the SLF helps develop policies which unite environmental protection with economic sustainability. The framework demonstrates how conservation policies intersect with livelihood assets to create a structured system where external constraints direct the choice and execution of livelihood strategies. The regulatory power of conservation policies determines how communities solve their economic and social and environmental issues. The conceptual model serves essential research purposes by showing how the SLF can support policy development which combines conservation targets with sustainable livelihood approaches.

RESEARCH METHODOLOGY

Study area: The study area extends across 4,000 square kilometres in the Southern part of the state bordering the Republic of Cameroon. The Park extends across 4,000 km² territory from 5°05'N to 6°20'N and 8°15'E to 9°30'E. It comprises two distinct divisions: the Okwangwo Division and Oban Division respectively. The two divisions of CRNP face each other across the geographic map with Okwangwo Division located in the northern-central state and Oban Division situated in the southern region. The Oban Division functions as the central research area of this study because it extends from 8°00'E to 8°35'E longitude across Cross River State's Local Government Areas of Etung and Akamkpa. The Oban Division covers about 3,000 km² of land that connects directly to Korup National Park in Cameroon to form a vital transboundary conservation area. Its major communities include among several others *Oban, Mkpot, Ekang, Nsan, Ekuri,and Iko Esai*. These communities play a major role in the park's conservation efforts, as they are situated within the buffer zones surrounding the national park in the area. Also, the parks buffer zone contains these communities because this area shows the most direct relationships between local economic operations and protective measures. Analysing economic activities with resource management practises and social economic indicators will produce vital information to

understand sustainable livelihood development and biodiversity protection possibilities. The forest resources function as the primary survival source for most support-zone communities throughout the Oban Division. This region depends on three main economic activities which are farming together with hunting and the collection of forest products that include NTFPs. Farmer activities in this region focus on growing both cash and subsistence crops including cocoa plantations alongside oil palm and cassava and plantain and banana. Hunting activities use traditional gender roles to determine how work teams are allocated during the entire yearly schedule. Men perform forest clearing and tree felling duties along with perennial cash crops management yet women maintain subsistence farms and gather fuel wood and obtain water from forests. The Oban Division is situated close to the Guineo-Congolian rainforest ecosystem that preserves Nigeria's minimal unspoiled rainforests making conservation a vital issue. The unsustainable nature of current resource management endangers biodiversity and ecological processes thus necessitating conservation methods that integrate social economic development with environmentally sustainable practises. The Oban division is known for its pristine rainforest, biodiversity and some major supporting communities that engage in farming and conservation efforts.

Study design: The research design employs a descriptive survey method to analyse socio-economic and environmental issues affecting local communities. This study design allows researchers to gather quantitative and qualitative information about how support-zone communities in CRNP, handle economic activities and conservation challenges and their livelihood strategies. Research utilising the descriptive survey approach remains a highly effective method for environmental and social studies because it reveals patterns and relationships between variables (Susilawati et al., 2025; Siloko, 2024).

Methods of data collection: The study used structured questionnaires together with participatory rural appraisal (PRA) methods to gather primary data. The structured questionnaire gathered quantitative data about participants' occupations and incomes and their holdings alongside their challenges to earning a living and their interactions with the national park. The combination of PRA techniques with focus group discussions for key informants consisting of community leaders and youth representatives along with park rangers produced rich qualitative data. Data was collected from the CRNP Office and through journals, books, reports and electronic sources. Using diverse data sources improves the study's findings regarding both validity and reliability.

Population of the study: All households living in Oban, Nsan and Mkpot communities that fall within the support zone of CRNP make up the study population. These communities within the park were chosen because residents depend heavily on forest resources for their survival thus making the research highly applicable to the study. The 2006 National Population Census recorded 151,125 people in Cross River State's Akamkpa Local Government Area. The proportional distribution method estimated 7,376 individuals in Oban Nsan and Mkpot communities for 2006 according to Akamkpa local government area population data. Hence, the estimated population for the year 2023 amounts to 11,234 people based on a 2.6 percent annual growth rate per year (Eneyo et al., 2022; Etta et al., 2024).

Sampling technique: The study used a simple random sampling method to give all households equal chances at selection while reducing potential selection bias. The study selected its communities through deliberate choice because these communities rely economically and ecologically on the national park to ensure accurate assessment of conservation policy effects on local livelihoods. The study employed purposive sampling to select key informants including community leaders, park staff and youths to obtaining qualitative information about livelihood challenges and conservation-related conflicts.

Sample size: A total of 250 households were selected for the study, which provided sufficient representation of male and female heads of household throughout all three communities. The researchers used statistical reliability requirements to decide the proper sample size while keeping data collection and analysis practical. Each survey questionnaire went to the household leader while special interviews with key informants delivered supplementary information regarding livelihood practises and limitations.

Research hypothesis: One null hypothesis was tested during the study to assess the absence of a significant connexion between alternative livelihood strategies adopted by the residents of Oban, Nsan and Mkpot communities. The research tested this hypothesis to determine how livelihood diversification approaches influence both economic conditions and environmental protection measures in the study area.

Techniques of data analysis: The analysis of data obtained from questionnaires and PRA employed both descriptive and inferential statistical methods. The data summary relied on descriptive statistics which utilised percentages along with means and tables combined with charts and graphical illustrations to present key findings. The Contingency Chi-Square test served to determine both the strength and statistical significance of categorical variable relationships during inferential analysis. The social and environmental sciences utilise this test to evaluate the strength and significance of relationships between categorical variables (Peker and Kubat, 2021; Franke et L., 2012). The Chi-Square test model is expressed as follows:

$$\chi^2 = \sum \frac{(f_o - f_e)^2}{f_e}$$

Where $\chi 2$: Chi-Square value; f_o: Observed frequency; f_e: Expected frequency; $\sum$: Summation sign

RESULT AND DISCUSSION

Occupational structure of support-zone communities

Farming and forest-based activities represents the main occupational structure for support-zone communities within the CRNP (Table 1). Findings reveal farming as the dominant income source because 38.8 percent of people rely on farming. NTFPs collection practises constitute the second largest livelihood sector which accounts for 28 percent of the economy since forest resources remain vital for household income. Petty trading shares the same third place ranking as transport services at 9.2 percent and 7.2 percent and craftsmanship and carpentry and civil service employment represent 6 percent and 4.4 percent respectively. Rare livelihood activities supported by the local economy include hunting alongside informal economic activities centred on mat making and food vending and palm wine tapping.

Table 1. Occupational structure of support-zone communities **(**Source: Authors fieldwork, 2024)

S/No	Occupation	Oban (Frequency)	Nsan (Frequency)	Mkpot (Frequency)	Total	Percentage
1.	Farming	35	22	40	97	38.8
2.	Petty Trading	8	6	9	23	9.2
3.	Civil Service	5	2	4	11	4.4
4.	Hunting	3	2	4	9	3.6
5.	NTFPs Collection	28	16	26	70	28
6.	Craftsmanship and Carpentry	5	4	6	15	6
7.	Transport Services (Drivers and Motorcyclists)	7	5	6	18	7.2
8.	Others (Mat Making, Food vendor, Palm Wine Tapping, among others.)	4	3	3	10	2.8
	Total	97	60	98	250	100

NTFPs and economic dependence on forest resources

PRA investigation shows that the local population depends heavily on NTFPs for both economic activities and nutrition in this region (Table 2). The research findings emerged from data gathered through focus group discussions with key informants. Traditional medicine and local food consumption depend largely on four fundamental NTFPs with Achi leaves at 19.6 percent and Afang leaves at 20.8 percent and Moimoi leaves at 15.2 percent and Hot leaves at 16 percent. Households which lack adequate agricultural land depend on forest-based fruits Native Pear and *Mimosup* seeds and *Achi* seeds and Bitter Kola as their primary economic activities.

The data shows NTFPs collection rates differ between communities due to their distance from protected areas and current conservation regulations.

Table 2. NTFPs commonly collected by communities (Source: Authors fieldwork, 2024)

/No	NTFPs	Frequency	Percentage
1	Achi Leaves	49	19.6
2	Moimoi Leaves	38	15.2
3	Afang Leaves	52	20.8
4	Hot Leaves	40	16
5	Atama Leaves	11	4.4
6	Native Pear	9	3.6
7	Mimosup Seeds	11	4.4
8	Achi Seeds	14	5.6
9	Others (Monkey Kola, Bitter Kola, among others.)	26	10.4
	Total	250	100

Income levels from forest-based livelihoods

The respondents identify the earning potential from forest-based revenue streams. Monthly forest-related income data indicates a substantial number of respondents exhibit economic risk factors (Table 3). A total of 32.8 percent of respondents reported earning less than ₦5,000 per month and 18.4 percent received money between ₦5,000 and ₦10,000. According to results 32 percent of respondents receive between ₦10,001 – ₦20,000 annually while 32.8 percent report earnings above ₦20,000 per year. The research findings indicate households practising multiple livelihoods approaches now have financial stability yet numerous families continue to depend on forest resources for daily survival. Research data from key informant interviews demonstrates that most area households earn their primary income by collecting NTFPs alongside subsistence farming and small-scale trading activities.

Table 3. Monthly sources income from the forest (Source: Authors fieldwork, 2024)

S/No	Income category from forest products (₦)	Frequency	Percentage
1	Below 5,000	42	16.8
2	5,000 – 10,000	46	18.4
3	10,001 – 20,000	80	32
4	Above 20,000	82	32.8
	Total	250	100

Provision of alternative livelihoods and socio-economic impact

The data collected through PRA techniques demonstrates that CRNP's alternative livelihood support programme remains insufficient (Table 4). A small number of livelihood support initiatives emerged during this period. The Park distributed about 11,000 seedlings consisting of oil palm and bush mango and cassava to selected farmers during 2016. The distribution of livestock to promote farming activities had minimal growth from 2017 to 2018 with only limited goat distribution in 2018. The 2019 educational support consisted of bursary awards for fewer than 20 students and dozens of exercise books. Health interventions (2020) delivered medical supplies and infrastructure support (2021) finished seven culvert constructions. The construction of two boreholes occurred in 2022 but alternative livelihood support measures failed to appear in the 2023 records. The installation of streetlights reached only 50 units during 2024 throughout specific locations. Community members expressed their disappointment about unequal provision distribution because multiple families remained outside alternative livelihood initiatives. The absence of ongoing interventions has deepened economic vulnerability until today because residents must maintain forest-dependent activities to survive.

Table 4. Alternative livelihood provisions to host communities (Source: Authors fieldwork, 2024)

/No	Year	Type of Support Provided	Quantity/Details

1	2016	Farm inputs and improved seedlings	About 11,000 bush mango and oil palm seedlings
2	2017	No provision	0
3	2018	Livestock farming	Few goats distributed to farmers
4	2019	Educational support	than 20 bursary awards for secondary/university students and dozens of exercise books
5	2020	Health facilities and medical supplies	Few health kits and drug supplies
6	2021	Road and culvert construction	7 road culverts built
7	2022	Boreholes for water supply	2 boreholes constructed
8	2023	No provision	0
9	2024	Street light	Less than 50 provided

Link between alternative livelihoods and conservation conflicts

The data in Table 5 shows that insufficient implementation of alternative livelihood programmes leads to higher illegal activity and conservation violations inside CRNP. Trespass incidents reported to authorities showed an upward trend from 6 cases in 2016 to reach 64 cases in 2022. Human-wildlife conflicts and resource exploitation continued to both rise in number from 2023 (36 cases) to 2024 when reaching 59 cases. Local inhabitants blame unkept promises about relocations and job opportunities and sustainable economic strategies for the observed conservation rule violations. Economic necessity drives residents throughout the area to practise poaching and collect NTFPs as well as timber logging and bush burning despite ongoing park regulations. The enduring absence of sustainable alternatives remains a major concern for conservation officers and park rangers because it intensifies conservation problems which endanger CRNP's biodiversity.

Table 5. Recorded cases of arrest for trespass in CRNP (Source: Authors fieldwork, 2024)

S/No	Year	Number of Arrests
1	2016	6
2	2017	18
3	2018	6
4	2019	29
5	2020	44
6	2021	43
7	2022	64
8	2023	36
9	2024	59
	Total	305

Sustainable livelihood diversification and policy implications in support-zone communities

Results from PRA show that farming inputs and improved seedlings stand as the primary livelihood strategy in the CRNP support-zone communities with a response rate of 58 percent. The demand for capacity-building initiatives increases as skill acquisition and vocational training emerges as a secondary livelihood strategy (18.8 percent) while livestock farming (12.4 percent) produces limited household income alongside the underutilised approaches of market gardening (6 percent) and microfinance and access to credit (4.8 percent) due to financial constraints and inadequate infrastructure and policy barriers (Figure 2). The results demonstrate an immediate need for properly developed and sustainable alternative livelihood programmes that will both reduce economic risks and support conservation-friendly approaches. The implementation of mechanised agriculture combined with expanded vocational education and improved financial assistance systems will powerfully boost community livelihood options. The successful protection of biodiversity depends on sustained collaboration between government agencies, conservation organisations and community leaders to achieve both conservation success and economic resilience.

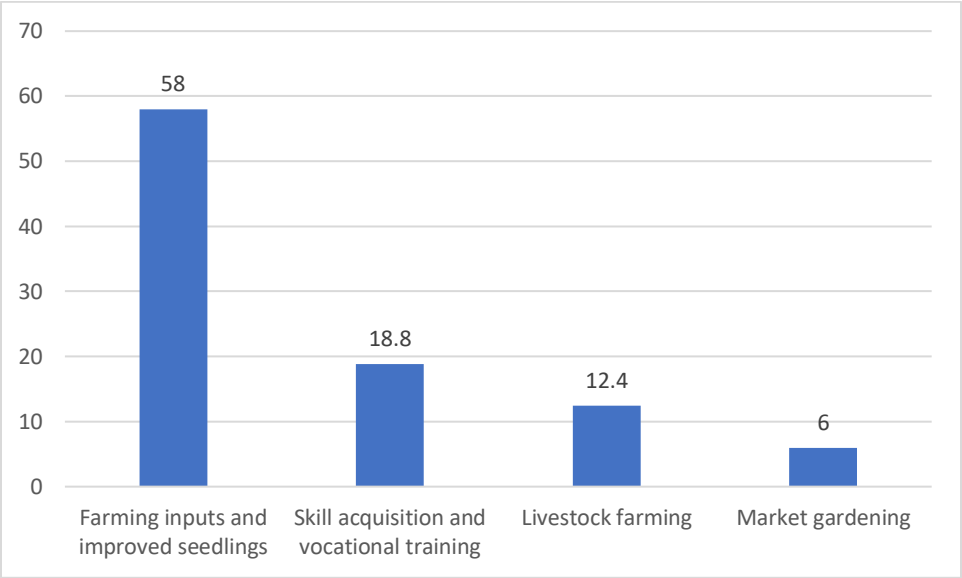

Figure 2. Sustainable livelihood strategies in support-zone communities (Source: Authors fieldwork, 2024)

Adoption of sustainable livelihood strategies for economic resilience in support-zone communities

A study of livelihood preferences within CRNP support zones shows that farming stands out as the preferred choice (Table 6). The combined use of farming inputs and improved seedlings emerges as the leading livelihood choice in Oban, Nsan and Mkpot communities according to 58.0 percent of respondents. The study highlights agriculture's crucial position in sustaining rural livelihoods because community members selected oil palm and cocoa and plantain and bush mango as vital high-yielding crops to enhance food security and income generation. The second most common choice for a preferred strategy (18.8 percent) involved skill acquisition and vocational training because community members wanted to develop skills to reduce their dependence on forest resources. The respondents identified livestock farming as an essential alternative which represented 12.4 percent of their responses due to its dual function as both protein source and economic stabiliser. Market gardening (6.0 percent) and microfinance access (4.8 percent) show limited usage because of resource constraints and institutional hurdles which requires specific interventions to improve financial inclusion and grow agricultural value chains (Table 6).

Participatory Rural Appraisal (PRA) shows that support-zone communities depend moderately on CRNP employment opportunities. Most indigenous labourers work as park rangers at entry-level positions but only six individuals fill senior positions throughout CRNP. Both indigenous and non-indigenous people showed reluctance toward becoming park guards because they perceived security risks from conflicts between displaced residents and conservation authorities. Many perceive these roles as high-risk, akin to conflict-zone assignments, due to occasional attacks from aggrieved community members who feel dispossessed of their ancestral lands. The previous microcredit loan programmes failed because park authorities implemented a complicated application system which stopped community members from accessing funds. The project team distributed improved seedlings alongside bush mango and oil palm trees and goats to farmers while offering educational bursaries and infrastructure improvements.

Table 6. Preferred livelihood strategies (Source: Authors fieldwork, 2024)

/No	referred livelihood strategy	an (frequency)	n (frequency)	ot (frequency)	al (frequency)	ercentage
1	ning Inputs & Improved Seedlings	50	35	60	145	58.0
2	Skill Acquisition & Vocational Training	20	13	14	47	18.8
3	Livestock Farming	12	10	9	31	12.4

4	Market Gardening	8	4	3	15	6.0
5	crofinance & Access to Credit	10	0	2	12	4.8

Hypothesis testing on the relationship between livelihood strategies

Table 7 show the results of the contingency Chi-Square (χ^2) test to determine if alternative livelihood strategies between Oban, Nsan and Mkpot community members show a significant relationship. The analysis shows a Chi-Square Statistic (χ^2) value of 34.52 while using Degrees of Freedom (df) = 8 and Critical Value = 15.507 at a 0.05 significance level (95 percent confidence level). The calculated χ^2 value of 34.52 exceeds the tabulated χ^2 value of 15.507 thereby resulting in the rejection of the null hypothesis (H_0). The statistical data demonstrates a significant connexion between the alternative livelihood strategies used across Oban, Nsan and Mkpot communities. These results show that livelihood choices depend on each other and social-economic and environmental elements thus requiring combined policies and multiple livelihood programmes that boost economic strength while decreasing dependence on forest resources.

Table 7. Summary of chi-square (χ^2) test for hypothesis one (Source: Statistical output, 2024)

Square Statistic (χ^2)	Calculated Value	Tabulated Value (Critical Value)	rees of Freedom (df)	Confidence Level
χ^2	34.52	15.507	8	95 percent (0.05 ignificance Level)

Primary occupations and economic constraints in the study communities

The PRA discussions show that farming maintains its position as the main occupation in support-zone communities where residents primarily generate income through cassava, plantain, cocoyam, rubber, palm, and cocoa production (Table 8). The results in Table 6 support the data showing farming inputs and improved seedlings as the preferred alternative livelihood choice because it maintains its position as the communities' economic foundation. The study further reveals that NTFPs collection ranks as the second most significant occupation (rating: The study results show forest resources remain essential for sustaining both household survival needs and market-oriented activities (Rating: 2). Households within protected areas continue participating in forest-based resource exploitation of wild fruits and medicinal plants and timber products to boost their family income. Petty trading along with civil/public service employment secured the least favourable ratings (1 each) because formal employment opportunities are scarce in this study area. The PRA discussions show economic diversification remains limited because of three main structural obstacles which are restricted credit access and insufficient skills training programmes and weak market connexions. The research participants stressed that strategic policy measures should focus on employment generation and financial access and vocational skill development to preserve economic stability and minimise forest resource extraction.

Table 8. Scoring of major occupations by the study communities (Source: Authors fieldwork, 2024)

S/No	Occupation	Rating
1	Farming	6
2	Petty trading	1
3	Civil/public service jobs	1
4	NTFPs collection	2
	Total	

Stakeholder perceptions on sustainable livelihood diversification and economic resilience

The results obtained from oral interviews with key respondents including community leaders, park rangers, and youth representatives demonstrate that 58.2 percent of respondents stress the immediate requirement

for structured alternative livelihood programmes to combat economic vulnerability while reducing dependence on forest-based unsustainable practices (Figure 3). The respondents indicated that long-term sustainability would benefit from capacity-building initiatives which focus on developing conservation-friendly economic strategies and vocational training alongside small-scale entrepreneurship programmes (22.5 percent). Sustainable agricultural practises combined with improved mechanisation and enhanced market access create 13.6% potential increase in food security alongside income generation. The research shows that 5.7 percent of participants believe microfinance accessibility improvements alongside local entrepreneur-friendly credit scheme reforms would supply vital financial support for economic diversification. The implementation of these initiatives needs collaboration between government agencies and conservation organisations and community leaders to achieve successful long-term conservation outcomes and economic resilience in the study area.

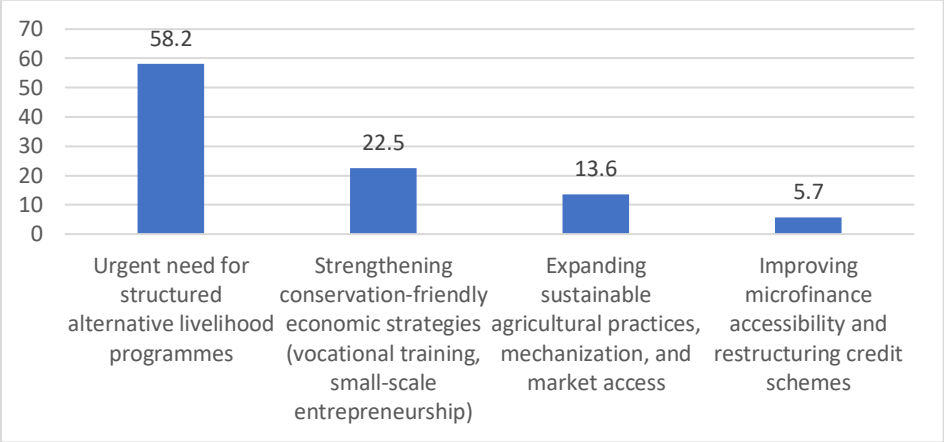

Figure 3. Stakeholder perceptions on sustainable livelihood diversification and economic resilience (Source: Authors fieldwork, 2024)

Constraints Affecting Livelihood Activities in Support-Zone Communities

The Participatory Rural Appraisal (PRA) survey revealed various socio-economic and environmental barriers that block livelihood opportunities in CRNP support zones (Table 9). The primary barrier which limits investments for alternative income sources and agricultural expansion is the restricted access to credit and financial support according to 16.8 percent of respondents. Economic survival becomes more difficult because of forest resource dependence coupled with national park restrictions on access (15.2 percent). A combination of low productivity in agriculture and limited mechanisation tools (12.4 percent) creates obstacles to food security and farm revenue growth and inadequate market access infrastructure (11.6 percent) restrains commercial opportunities for agricultural and forest products. The failure to deliver on alternative livelihood programmes (10.0 percent) has intensified economic dissatisfaction because it shows previous development initiatives were insufficient. The absence of employment options together with inadequate vocational training leads to restricted economic development capabilities and self-reliance (8.8 percent and 8.0 percent respectively). The ongoing problem of human-wildlife conflict affects 7.2 percent of the population most notably through wildlife-caused crop damage experienced by farmers. Widespread implementation issues alongside insufficient stakeholder participation (6.0 percent) makes conservation economic strategies less effective while environmental and climate factors (4.0 percent) create new threats to agricultural outputs and resource quantities.

The findings from PRA show that local communities experience heightened tensions with conservation authorities because three factors - official conflicts, declining forest stock and restricted farming land - create major obstacles to their livelihood systems. Forest product depletion emerged as a primary challenge faced by 30 percent of study participants who depended on natural resources for both survival and profit. The survey showed that restricted agricultural land served as a vital concern mainly for families who depended on farming. The minority of respondents indicated they had conflicts with park officials because of disagreements regarding land-use rights and conservation limitations. Research findings stress that the region requires immediate

combined actions from stakeholders to implement financial services, infrastructure buildup and vocational education and policy coordination for developing sustainable economic stability.

Table 9. Constraints affecting livelihood activities (Source: Authors fieldwork, 2024)

/No	Constraints affecting livelihood activities	Frequency	Percentage
1	imited access to credit and financial support	42	16.8
2	pendence on forest resources and conservation restrictions	38	15.2
3	Poor agricultural productivity and lack of mechanization	31	12.4
4	nadequate market access and infrastructure	29	11.6
5	nfulfilled promises of alternative livelihood programs	25	10.0
6	Low employment opportunities	22	8.8
7	Skill gaps and lack of vocational training	20	8.0
8	Human-wildlife conflict	18	7.2
9	oor policy implementation and stakeholder engagement	15	6.0
10	mate variability and environmental challenges	10	4.0
	Total	250	**100**

Incidences of Trespass and Contributing Factors in Support-Zone Communities

The study results demonstrate that CRNP continues to face persistent trespassing due to various livelihood pressures (Table 10). Farming activities represent the primary cause of trespass incidents in the forest territory (38 percent) because forest areas serve as essential agricultural land. Poaching and medicinal herb collection together contributed 42.2 percent to the total encroachment incidents in the study area with their impact stemming from community dependence on wildlife and forest resources. Three additional sources of unauthorised park access emerged from bush burning (12.8 percent), timber logging (4 percent) and boundary disputes (3 percent). Respondents stated that confusing territorial boundaries and usage limitations create mounting tensions between park authorities and area residents which sometimes leads to arrests. The research shows the importance of complete boundary definition along with inclusive conservation practises and structured economic development programmes to create lasting alliances between communities and protected areas.

Table 10. Incidences of trespass and contributing factors (Source: Authors fieldwork, 2024)

/No	Contributing factors to trespass	Frequency	ercentage
1	Farming activities	95	38
2	Poaching	63	25.2
3	Medicinal herb collection	43	17
4	Bush burning	32	12.8
5	Timber logging	10	4
6	Boundary disputes	7	3
	Total	250	100

Cases of Arrest for Trespass in Support-Zone Communities (2015-2024)

The research data demonstrates that trespass arrest rates within CRNP have experienced variable changes throughout the last ten years (Figure 4). Arrest data showed arrest rates started low at 7.6% in 2015 before achieving their peak at 15.1% in 2024. The enforcement measures and forest resource demands grew most strongly during 2018 (9.9 percent), 2020 (9.8 percent), and 2023 (12.9 percent). Trespass-related arrests show an ongoing upward trend which demonstrates ongoing social and economic factors that push people toward unauthorised park resource access. Alternative livelihood initiatives alongside community engagement strategies

must become urgent priorities because they can prevent illegal park encroachment and enable economic activities that support conservation goals.

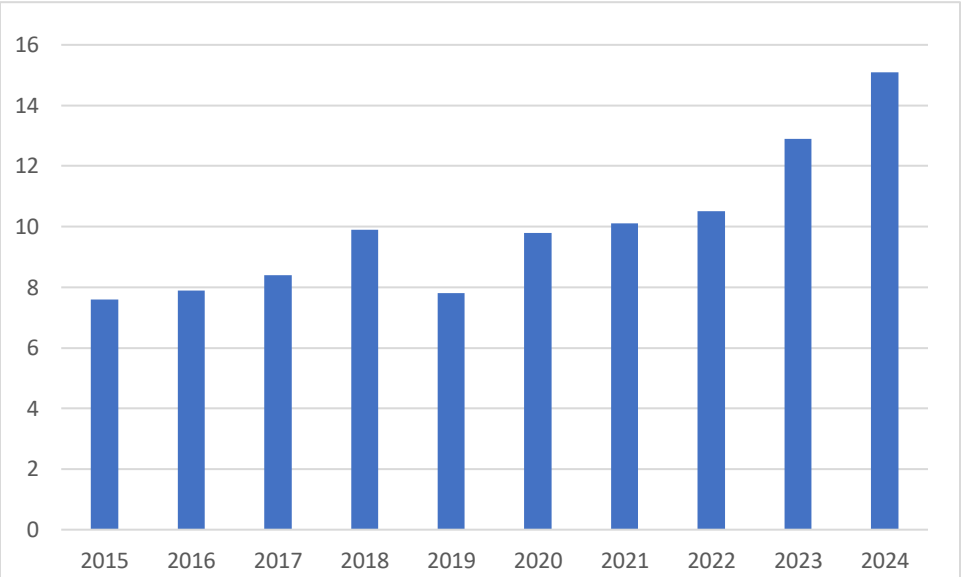

Figure 4. Cases of arrest for trespass (2015-2024) (Source: Authors fieldwork, 2024)

DISCUSSION OF FINDINGS

The research demonstrates the multifaceted economic and social conditions that support-zone residents of CRNP use forest resources for survival and monetary gains. These communities follow an agricultural occupational pattern where farming functions as their main economic activity. Previous studies show that agriculture functions as the primary economic activity in rural areas near conservation zones (Iqbal et al., 2025; Inah et al., 2022). The steady use of NTFPs demonstrates that forest-based livelihoods remain essential so sustainable resource management must strike a balance between economic stability and conservation needs. Additionally, livelihood sustainability through NTFPs becomes evident because local communities collect economically important forest products at a high frequency including *Achi* leaves, *Afang* leaves and Bitter Kola. The results support Eneyo et al., (2022) studies that demonstrates NTFPs play a vital economic role in rural tropical regions. Research data shows that protected areas' proximity determines how local people collect resources while showing differences in resource availability across communities. Restrictive conservation measures seem to create economic hardship for forest-dependent households according to researchers who study conservation-development relations (Nzeadibe and Mbah. 2015; Ghaderi et al., 2025; Harker et al.,2021).

In furtherance from the above, forest-based economic activities demonstrate that the studied communities contain substantial economic inequalities among their residents. Households utilising multiple income streams have attained moderate stability yet numerous families maintain economic exposure. The research findings support (Oweibia et al., 2024; McGinlay et al., 2023) studies which shows how conservation limitations typically increase rural poverty. The research confirms that conservation areas become economic barriers that limit access for local communities when alternative development programmes do not reach everyone fairly (Inah et al., 2022; Dao et al., 2023). The study reveals substantial shortcomings in alternative livelihood strategies because data shows that intervention initiatives lack consistency. The initial provision of agricultural inputs combined with educational support and infrastructure development during conservation-linked initiatives showed documentation yet the lack of ongoing livelihood diversification programmes maintained economic difficulty. Research in comparable conservation areas confirms that when conservation programmes fail to meet livelihood needs it leads to conflicts and illegal resource extraction (Dehaibi, 2024; Ghaderi et al., 2025). CRNP shows a direct link between insufficient economic options for residents and increasing numbers of illegal activities which demands immediate solutions to combat trespassing, poaching and unauthorised logging.

Further, the ongoing human-wildlife conflict poses a major challenge which worsens the economic risks facing smallholder farmers. Wildlife-caused crop damage alongside limited access to pastureland create ongoing economic challenges which researchers have tracked in studies about conservation-induced displacement (Okosodo and Ogidi, 2023; Pamungkas and Jones, 2021; Newsome, 2012). The study shows substantial skill deficiencies and scarce vocational training programmes which block economic advancement and individual economic independence. The research data supports existing studies that investigate human capital development's importance for conservation-linked communities (Dehaibi, 2024; McGinlay et al., 2023; Pamungkas and Jones, 2021). Also, economic limitations drive park trespassing at high rates since locals engage in farming activities and wildlife hunting while harvesting medicinal plants. The results validate the argument that successful conservation requires specific socio-economic measures to address illegal park entry (Pasgaard and Fold, 2024; Scoones, 1998). Protected areas require improved boundary definition and stakeholder-centric conservation planning and specific alternative livelihood initiatives to reduce human-environment conflicts. The study demonstrates that successful conservation depends on integrated strategies which connect ecological preservation with economic strengthening. Research results demonstrate the requirement for policy structures which establish conservation-friendly livelihoods alongside equal access to different income sources. Future studies must examine participatory governance approaches which unite conservation targets with development needs so rural populations gain advantages from conservation activities instead of facing marginalisation.

CONCLUSION

A critical analysis of occupational structures and livelihood options with associated socio-economic limitations was conducted for support-zone communities in CRNP, Nigeria. The research data showed that most communities depended primarily on agricultural practises including farming alongside NTFPs collection as their principal economic activities. Sustainable livelihood diversification faces ongoing limitations because of restricted credit access together with poor infrastructure and conservation restrictions and human-wildlife conflicts. These findings demonstrated that alternative livelihood strategies bear a strong connexion to socio-economic resilience so well-structured conservation-compatible economic interventions become essential. Existing conservation policies fail to prevent repetitive park trespass and rising poaching rates and boundary disputes because they do not address persistent livelihood uncertainty and insufficient economic opportunities. This research supports worldwide discussions about economic marginalisation from conservation efforts thus demonstrating that efficient biodiversity protection requires development approaches centred on communities. Integrated policies need to be developed immediately to connect conservation efforts with sustainable livelihoods by implementing better agricultural backing and vocational training along with expanded access to microfinance and participatory community governance. A sustainable resource management system requires coordinated action between government agencies and conservation organisations and local communities to build economic resilience. Future research must develop new conservation-livelihood approaches which provide equal economic growth along with environmental sustainability.

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