

Conservation Agreements and Rural Livelihoods: The Case of Communities Around the Wonegizi Protected Area in Lofa County, Liberia

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Abstract: This study investigates the impact of conservation agreements (CAs) on rural livelihoods of rural communities using the Wonegizi Protected Area (WPA) in Lofa County, Liberia as a case study. A semi-structured questionnaire was administered to 238 respondents, to assess community attitudes towards conservation negotiations, the influence of CAs on household income, farming practices, and community participation in conservation activities. Results indicate that most respondents hold positive perceptions of the negotiation process, primarily when facilitated by NGOs, with farmers showing more substantial support than non-farmers. However, household income outcomes were mixed: 65.6% reported no change, while about one-fifth experienced increases and another fifth decreases. Farming remains largely subsistence-based (56.3%), with limited uptake of new techniques (20%) adoption. While some respondents acknowledged reduced farming intensity, others increased it, reflecting uneven livelihood impacts. Community participation in conservation enforcement is present but challenged by continued hunting (60%) and logging (37%). Motivation for conservation is primarily financial (78%), followed by community responsibility (47%) and environmental awareness (41%). The findings suggest that while conservation agreements foster positive attitudes and modest livelihood improvements, their economic benefits remain insufficient and unevenly distributed. The study concludes that strengthening benefit-sharing mechanisms, expanding livelihood alternatives, and enhancing local ownership are essential for sustainable conservation outcomes in Liberia.

Keywords: Conservation Agreements, Livelihoods, Protected Area, Sustainable Conservation.

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I. INTRODUCTION

Conservation agreements (CAs) have emerged as critical tools in the sustainable management of natural resources, particularly in developing countries where rural livelihoods depend heavily on ecosystem services. An inseparable connection exists between rural livelihoods and the conservation of forests in most developing countries, especially those with tropical forest cover, like Liberia (Amadu & Miller, 2024). The environmental goods and services these tropical forests provide are progressively perceived as a significant source of income, food, and resources for local communities (Mulbah, 2021).

Liberia is located in West Africa and contains most of the remaining forest cover in the Upper Guinea rainforest, and the associated rare and endemic fauna and flora species (UNEP, 2020). Studies showed the forest delivers a wide range of services used by Liberia for social, economic, ecological, and cultural purposes (Mulbah, 2021). Besides these services, the forest of Liberia is globally significant for its rich ecosystems that are key to biodiversity conservation and protection, and one of 34 global biodiversity hotspots (EROS, 2023). Research showed that most of Liberia's rural population depends on forests, and their products and ecosystem services play an essential role as safety nets for vulnerable and marginalized forest-dependent communities (Mulbah, 2021). Forest items represent a reliable source of food and income amid anticipated times of regular and

periodic setbacks or peculiar shocks. Forest products have proven to provide guaranteed food security and a place where rural individuals who frequently live in communities with less access to social services depend on income generation. Income earned from the forests has been seen to be equity-promoting and poverty-alleviating for impoverished forest-dependent families (Abdullah, 2021).

In Lofa County, the Wonegizi Protected Area (WPA), which was officially gazetted in 2017 following its identification as a key biodiversity area and conservation priority, serves as a critical habitat for endangered species and supports important ecosystem services (Léonidas, 2023). The interplay between conservation efforts and rural livelihood strategies is increasingly recognized as a significant area of study, especially in contexts where conservation policies directly impact communities (Reyes-García et al., 2019). The implementation of conservation agreements around the Wonegizi Protected Area provides a unique opportunity to examine how these agreements affect rural livelihoods. This region is characterized by a predominantly agrarian economy, where farming practices and income levels are profoundly influenced by environmental governance and resource accessibility (Gayflor, 2021).

➤ *Statement of the Problem*

People living near forest areas in Liberia face tremendous pressure to protect the forest for conservation, while they are left to struggle for alternative incomes for their livelihoods. Many international and local environmental and conservation organizations have employed mechanisms to deliver services and income for rural livelihood improvement to forest communities as motivation for protecting the forest (Mulbah, 2021). The conservation agreement model has been a key method for supporting livelihoods in Liberia for nearly a decade, widely implemented by Conservation International and numerous local organizations (Gjertsen, 2020). The current study investigates the relationship between conservation agreements and their impact on the rural livelihoods of local communities surrounding the Wonegizi Protected Area in Lofa County. Despite the potential benefits of conservation agreements, a significant gap exists in understanding their impact on rural livelihoods. Anecdotal evidence suggests that while some community members have benefited from these agreements, others continue to face challenges related to income stability, agricultural practices, and participation in conservation efforts. There is a pressing need to investigate how these agreements influence attitudes towards conservation, economic outcomes, and community involvement in environmental stewardship.

The government of Liberia is in a quest to deliver social and economic incentives to forest communities through the Forestry Development Authority (FDA). The FDA is contemplating using an existing and workable mechanism (scheme) through which forest communities can receive payment for conservation actions and environmental services during the third phase of the Liberia Forest Sector Project (LFSP). The LFSP is a national forest conservation

initiative intended to increase forest cover and reduce deforestation through a partnership between the government of Liberia and Norway (Nketia, 2016). The third phase of the LFSP is the results-based carbon payment period through which farmers and landowners will receive payment for the emissions reductions and carbon sequestered upon verification. It could make sense for the government to adopt the conservation agreement module currently piloted by Conservation International to deliver social benefits to communities (New Republic Liberia, 2022). However, it is still unclear whether the conservation agreement model could be the right tool for delivering social benefits to communities in return for forest protection without assessing its impact over the years.

➤ *General Objective*

This study aims to investigate the relationship between conservation agreements and their impact on rural livelihoods of local communities using the Wonegizi Protected Area in Lofa County as a case study.

➤ *Specific Objectives*

- To understand attitudes towards the process of negotiation in conservation agreement (CA)
- The impact of CA on income levels.
- The impact of the CA on the type and intensity of farming within the protected area.
- The impact of the CA on community participation and attitudes towards conservation.

➤ *Research Questions*

- How were the conservation agreement (CA) negotiated?
- How have conservation agreements impacted the income levels of communities adjacent to the Wonegizi protected area?
- What effect have conservation agreements had on the rate of farming within the protected area?
- How does participation in conservation agreements influence attitudes towards conservation among local communities?

II. REVIEW OF LITERATURE

➤ *History of Conservation Agreement*

From the mid-20th century onward, international conservation agreements (often termed International Environmental Agreements or IEAs) proliferated as the world confronted habitat destruction, species decline, and global pollution. Network analysis of 546 IEAs signed between 1948 and 2015 shows that while a statistically meaningful cooperation (Seelarbokus, 2015), network only emerged in the early 1970s, since then connectivity and cooperation intensity have steadily increased—shifting from localized efforts like fisheries to broader domains such as hazardous substances and biodiversity governance (Carattini et al., 2021). Early milestones include the 1933 “London Convention on the Preservation of Fauna and Flora in their Natural State”—one of the first pan-continental agreements

addressing wildlife conservation in Africa, obligating signatories to establish reserves, protect species, and limit destructive hunting methods (Hickling, 2025). Post-WWII era brought multilateral treaties under the UN's auspices prominent among them the Convention on Migratory Species (CMS or Bonn Convention), signed in Bonn in 1979 and effective since 1983, uniquely dedicated to migratory species and spawning daughter MOUs on specific taxa such as marine turtles and elephants (Force, 2021). Debt-for-nature swaps emerged in 1987 when Thomas Lovejoy (WWF) proposed converting foreign debt into conservation investments, leading to over US\$1 billion for developing countries (Sommer et al., 2020). More recently, voluntary agreements and private-sector carbon-credit deals form hybrid tools uniting trade, finance, and conservation

In Liberia, conservation agreements have evolved through multiple channels: international treaty ratification, bilateral/multilateral environmental MOUs, national community agreements, and EU-backed trade-linked forest governance. As a Party to the Convention on Biological Diversity since 2001, Liberia later acceded to the Cartagena Protocol in 2003 and the Nagoya Protocol in 2015, embedding global biodiversity frameworks into national law (Secretariat of the Convention on Biological Diversity (SCBD), 2019). Under CMS, Liberia signed onto the Atlantic Coast Marine Turtles MoU in November 2005 and the West African Elephant MoU the same month, committing to regional species conservation cooperation (Convention on the Conservation of Migratory Species of Wild Animals (CMS), 2005). Since has participated in daughter agreements focused on turtles, elephants, and aquatic mammals.

At the national and local levels, Liberia has implemented community-based conservation agreements. In February 2019, three Conservation Agreements were signed between CI Liberia, the FDA, and three Grand Cape Mount County clan communities to protect *Zodua* forests in exchange for community livelihood support under the Good Growth Partnership, applying principles of Free, Prior and Informed Consent (FPIC) and rights-based conservation (UNDP, 2019). More recently, CI Liberia facilitated agreements in Grand Bassa County's Barcoline coastal communities to conserve mangroves and sea turtle nesting areas in return for livelihoods, tools, and training a model applied under a Natural Capital Accounting project with the GEF (FDA, 2022). even premature mortality, especially in children. (Balume, 2025) The combined result of such activities has resulted in the loss of forest cover in primary and secondary forests, increased land degradation, and decreased ecosystem services (Shukla, 2024). Forests in Lofa County harbor several endemic and threatened species. Nonetheless, indiscriminate tree cutting for charcoal production disturbs habitats and shifts the balance of the ecosystem. This has contributed to diminishing animal populations and the migration of animals to less disrupted regions. Global Forest Watch (2024) states that forest clearance in north Liberia, including Voinjama, poses a significant threat to biodiversity due to habitat fragmentation and ecological imbalance. Progressive habitat loss due to

commercial logging adds to the issues as the habitats are converted to cash crops cultivation, subsistence agriculture, forest fires, mineral prospecting and mining. These activities leave behind tiny-unconnected patches in which the chimpanzee populations are isolated and thus become vulnerable. Forest removal leaves soils vulnerable to erosion, especially during the rainy season. Charcoal production, when combined with poor land management practices, results in the loss of topsoil, decreased soil fertility, and increased sedimentation in nearby rivers and streams (Veldkamp, 2020). In Voinjama, areas formerly used for agriculture are becoming less productive, directly affecting food security and rural livelihoods. (Wesseh, 2025) Charcoal production is a source of greenhouse gas emissions from both carbonization and deforestation. Wood burning in traditional kilns produces vast amounts of carbon dioxide (CO₂), methane (CH₄), and black carbon released into the atmosphere. While the emissions are localized, they all add up to contribute to global climate change (UNDP Liberia, 2023). The use of charcoal as a source of energy highlights the necessity for a shift to cleaner forms of energy in rural Liberia.

➤ *Forest Governance*

An Essential Element of Natural Resource Management, forest governance encompassed a range of actors, processes, and mechanisms that collectively shaped realities and influenced decision-making related to forests, forest resources, forest-dependent communities, and landowners. Lemos & Agrawal (2006) described forest governance as monitoring interventions that led to changes in incentive structures, access to information, institutional arrangements, decision-making patterns, behaviors, and regulatory procedures. They conceived forest governance as a network of relationships through which political actors influenced environmental actions and outcomes (Lemos & Agrawal, 2006). Several studies indicated that Community-Based Natural Resource Management (CBNRM) had been the most widely utilized governance model in forest-rich nations, including Liberia. According to Störmer et al. (2019), CBNRM provided significant benefits to the Community Forestry program and directly supported livelihoods and forest conservation.

➤ *Direct Payments for Conservation Efforts Effectiveness*

Over the past decade, direct payments to forest-dependent populations and local communities have emerged as a central topic of discussion within conservation circles, particularly in relation to marginalized and impoverished countries and communities. While economic factors influencing income levels were considered more predictable in high-income countries, attention increasingly turned to tropical forest nations, which were urged to maintain their forests through conservation efforts (Milne & Niesten, 2009). Milne and Niesten (2009) observed that the growing trend of incentive-based payments for conservation had become intellectually significant among stakeholders, with a concentrated effort to better understand the costs associated with forgoing business-as-usual activities in favor of conservation. They clarified that the opportunity cost associated with conserving biodiversity in high-income or

developed countries was more easily determined due to structured policies and advanced systems. However, in economically weaker nations, the assessment of actual costs was derived mainly through experiential estimations.

➤ *Effectiveness of Voluntary Conservation Agreements*

An environmentally market-based approach to biodiversity conservation, which promotes sustainable forest management, was described by Niesten and Rice (2004) as an alternative payment system. Ferraro (2009) examined the global drivers behind support for forest conservation efforts in local communities, particularly within tropical, forest-rich developing countries. According to Ferraro (2009), significant progress had been made in directing this support through development-oriented initiatives and interventions designed to promote ecosystem preservation. Ferraro also noted that the economic framework underlying such activities did not offer a balanced or reciprocal exchange system, making implementation more complex than initially appeared. Considering the various trade-offs in reconciling the competing interests of multiple landowners and local communities.

➤ *Influence of Conservation Agreements on Rural Livelihoods*

Extensive research has focused on the connection between conservation agreements (CAs) and the livelihoods of rural populations. Findings consistently showed that when these agreements were implemented correctly, they could improve the economic well-being of local communities. However, the extent and nature of their impact varied significantly depending on the local context. Key factors influencing outcomes included the prevailing socio-economic conditions, the structure and quality of governance, and how the agreements were designed (Wunder, 2005).

Studies have demonstrated that conservation agreements—especially those incorporating direct payments for ecosystem services—offer substantial financial

advantages to the households involved. For instance, Pattanayak et al. (2010) found that such payments increased household income and reduced dependence on environmentally harmful practices, such as deforestation. Often, these payments served as alternative income sources, enabling families to invest in critical needs like education, healthcare, and other basic services (Xiao et al., 2022)

III. MATERIALS AND METHODS

➤ *Research Design*

This study sought to determine the factors of affecting house hold in participating in waste management. In order to accurately analyze and bring solutions to the research problem, a proper research design has to be applied. A research design involves the general assumptions of a study to data collection and analysis methods (Creswell, 2009). Therefore, this study adopted the descriptive survey research design.

➤ *Area of the Study Physical Presentation*

Voinjama, a modest-sized city in northern Liberia, functions as the administrative center of Lofa County. It is situated in a hilly region close to the border with Guinea. According to the 2008 national census, the city had a population of 26,594. The majority of residents traditionally relied on subsistence rice farming as their main source of livelihood. Unlike the paddy rice cultivated in many other regions globally, farmers in Liberia typically grow upland (dryland) rice on plots cleared using the slash-and-burn method, a practice made possible by the area’s dense forest cover. In addition to rice, key crops grown around Voinjama include cassava, collard greens, potato greens, and palm nuts, which are processed to produce the widely used red palm oil. A locally popular beverage, known as palm wine, is also tapped from specific species of palm trees.

➤ *Study Area*

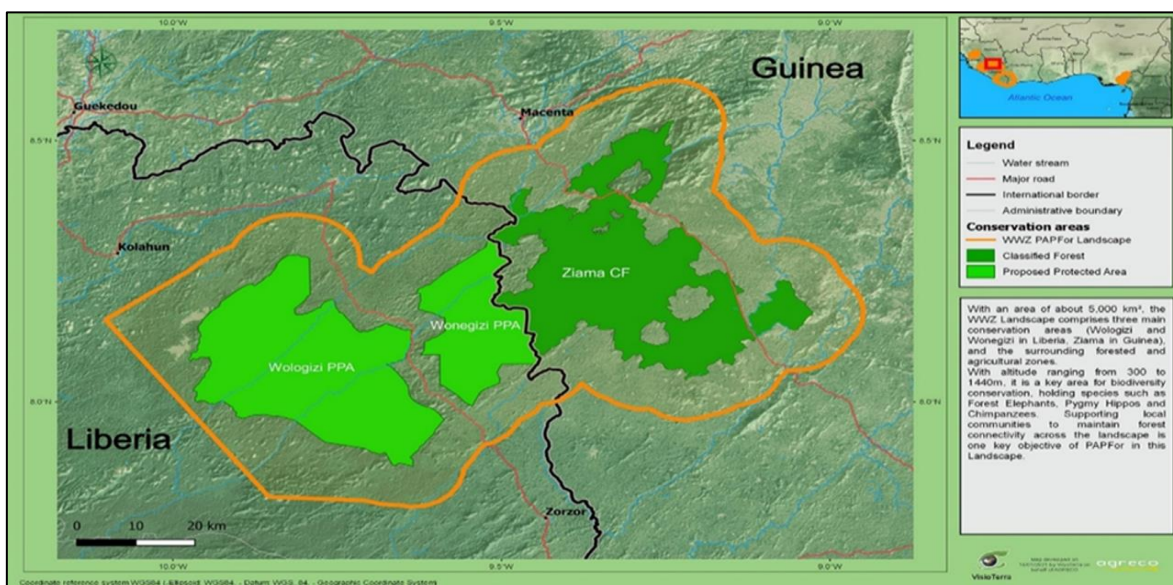


Fig 1 Study Area

➤ *Target Population, Sample Size and Sampling Design*

The population for this study included communities around the Wonegizi protected area in Lofa County, Liberia. The target population of this study included men and women aged 18 years and above who were involved in the implementation of conservation agreements of the Wonegizi protected area in Lofa whether or not they had or expected to directly receive benefits from the CA. In Liberia, individuals younger than 18 do not fall in the consent age group and are considered not economically active and not eligible for labor force participation. Furthermore, 18 is the legal age for political involvement and participation in community-level decision-making (Mulbah, 2021). A survey design is used to derive the sample size for the research. The survey design is a concise scientific procedure for accurately presenting generalizations about a group of people or populations from a sample (Creswell & Creswell, 2017). This study surveyed a targeted population of 240 participants during the field exercise in five sample regions. The research instrument adopted for the study was a structured and pre-coded closed-ended questionnaire. Respondents were interviewed, and their responses were entered into the survey questionnaire. Before administering the questionnaire to the targeted participants, the researcher pretested whether the questions were designed appropriately to suit the local context and generate valid and reliable responses. After the pretesting, the questionnaire proved to apply to the research questions, so there was no need for additional revision or modification. After its collection, the data was entered into data entry software for analysis (Singh, 2009).

➤ *Questionnaire Technique*

The questionnaire includes a series of closed questions about issues that are expected of the respondent information, where these types of questions were distributed by the researcher among respondents to collect the structures questionnaires in form of the Likert scale method by requesting respondents to respond to a series of statements by indicating whether he or they strongly agree (4), agree (3), disagree (2), and strongly disagree (1)

➤ *Documentation Tool*

Robert (2014) highlights that one of the main strengths of document analysis lies in its capacity to examine existing sources thoroughly, allowing researchers to uncover deeper insights into the topic under investigation. This method involves an in-depth assessment of various published materials, including official documents, research reports, academic journals, magazines, and policy papers that are pertinent to the study. Document analysis is particularly useful for synthesizing existing knowledge and integrating international viewpoints, which helps establish a comparative foundation for critical analysis and interpretation. In this study, the researcher adopted this method to collect relevant secondary data.

➤ *Data Analysis Methods*

Data obtained through questionnaires distributed to members of the Voinjama city administration, local community leaders, and farmers were analyzed using the Statistical Package for Social Sciences (SPSS), version 23. The analysis included the use of frequencies, percentages, and tabular presentations to summarize and display the findings. In addition, both correlation analysis and descriptive statistics were applied.

➤ *Procedures for Participation*

After identifying respondents, the researcher presented the consent form as the first visible document for signature by each respondent. Contents of the consent form included a brief study purpose and potential benefits, samples of the survey questionnaires, an assurance of confidentiality, and information about the voluntary nature of the study. The consent form included the contact information of both the researcher and Njala University, in case the participants wanted further clarification on the survey. The survey questionnaire was administered to all participants who selected “yes” as a voluntary willingness to participate, and those who selected “no” were excluded.

➤ *Ethical Considerations*

Ethics play a critical role in conducting research, particularly involving human subjects. This study adhered to established ethical guidelines to ensure the integrity of the research process. Informed consent was obtained from all participants, ensuring they understood the purpose of the study and their rights. Participants were informed that they could withdraw from the survey without facing any negative consequences. Confidentiality was maintained throughout the research process, with data anonymized to protect participants' identities. By prioritizing ethical considerations, we aim to foster trust and transparency within the communities involved in the research.

IV. RESULTS AND DISCUSSIONS OF FINDINGS

➤ Gender Level

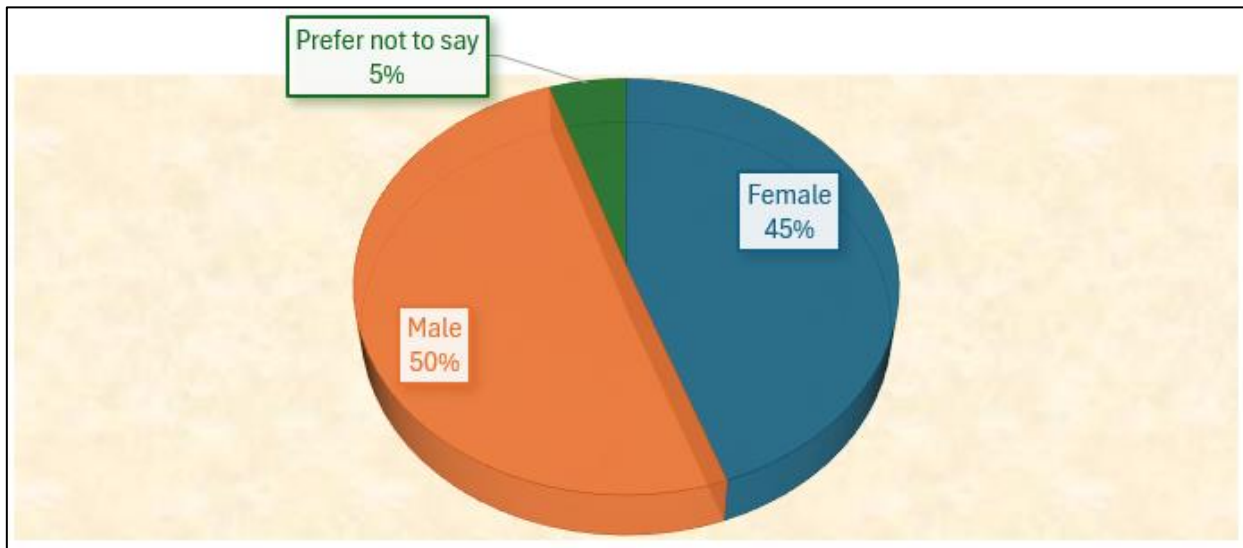


Fig 2 Gender Level

Figure 1 shows that out of 238 respondents, males (50%) slightly outnumbered females (45%), while 5% preferred not to disclose their gender. This near balance shows that both men and women actively engage in

conservation agreements and rural livelihoods around the Wonegizi Protected Area, underscoring the need for gender-sensitive and inclusive conservation and community development approaches

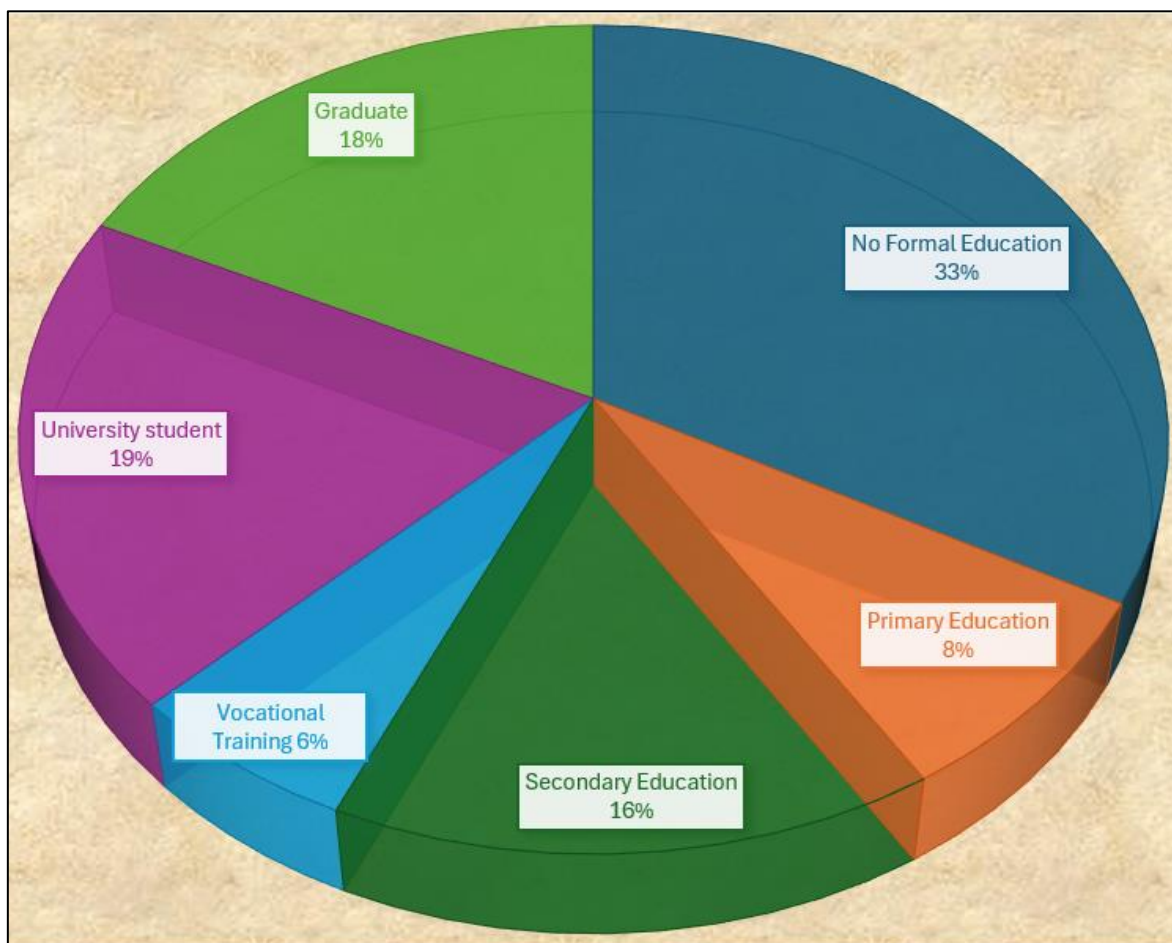


Fig 3 Education Level

Figure 3 shows that the largest group reported having no formal education (76; 33%), followed by university students (45; 19%) and graduates (41; 18%). Respondents with secondary education (36; 15.6%), primary education (19; 8.2%), and vocational training (14; 6%) made up smaller proportions. This distribution shows that while a significant portion of the community lacks formal education, there is also a considerable presence of individuals with higher education (students and graduates). For conservation agreements and rural livelihoods around the

➤ *Attitudes Towards the Negotiation Process in the Conservation*

• *Objective 1: To Understand Attitudes Towards the Negotiation Process in the Conservation Agreement (CA)*

Overall, participants expressed a generally positive attitude toward the negotiation process of the Conservation

Agreement (CA), as reflected in responses to the question, “What is your attitude towards the negotiation process of the conservation agreement?” Notably, farmers, particularly those who actively participated in the negotiations and individuals who received information primarily from non-governmental organizations (NGOs), demonstrated more favorable attitudes than non-farmers and those relying on alternative information sources. Chi-squared tests revealed no statistically significant differences in attitudes based on age or educational background. While women, on average, reported more positive views on the negotiation process than men, the observed difference was not statistically significant at the conventional 5% level. However, it approached significance with a p-value of less than 0.1, suggesting a potential gender-based difference that may warrant further exploration.

Table 1 Negotiations for Conservation Agreement

Sources of Information							
	2	1	0	-1	-2		
	very positive	positive	Neutral	negative	very negative	total	weighted average score
From Others	29	89	32	9	1	160	0.850
From NGO	26	28	10	4	1	69	1.072

	2	1	0	-1	-2	total	Weighted score
	Very pos	pos	nut	neg	very neg		
Farmer	48	65	33	8	2	156	0.955
Non-farmer	8	54	9	5	0	76	0.855

Table 2 Occupation + Attitude

	2	1	0	-1	-2	total	Weighted score
	Very pos	pos	nut	neg	very neg		
Farmer	48	65	33	8	2	156	0.955
Non-farmer	8	54	9	5	0	76	0.855

Table 3 presents the relationship between occupation and attitude, specifically comparing farmers and non-farmers. Attitudes were measured on a five-point scale ranging from +2 (very positive) to -2 (very negative), and the responses were used to calculate a weighted score for each group. Farmers exhibit an overall more favorable attitude, with a weighted score of 0.955 compared to 0.855 for non-farmers. Among the 156 farmers surveyed, the majority expressed positive sentiments, with 48 respondents being very positive and 65 being positive. Only a small

portion—10 individuals—reported negative or very negative attitudes. This indicates a strong level of support or approval among farmers. Non-farmers, while also showing a predominantly positive attitude, were slightly less enthusiastic overall. Of the 76 non-farmers, 54 held a positive view, and only 8 were very positive. Notably, there were no respondents in this group who expressed a very negative opinion, which may suggest a more moderate or cautious stance.

Table 3 Occupation

Occupation	Very Positive (+2)	Positive (+1)	Neutral (0)	Negative (-1)	Very Negative (-2)	Total (100%)	Weighted Average
Farmers (156)	48 (30.8%)	65 (41.7%)	33 (21.2%)	8 (5.1%)	2 (1.3%)	156 (100%)	0.955
Non-Farmers (76)	8 (10.5%)	54 (71.1%)	9 (11.8%)	5 (6.6%)	0 (0.0%)	76 (100%)	0.855

The table presents the distribution of attitudes toward a specific subject based on respondents’ occupations, distinguishing between farmers and non-farmers. Attitudes

are measured on a five-point scale ranging from +2 (very positive) to -2 (very negative), and a weighted average score is provided for each group to summarize the overall

sentiment. Farmers display a strong overall positive attitude, with a weighted average of 0.955. Approximately 72.5% of farmers (48 very positive and 65 positive) expressed favorable views, while only 6.4% (8 negative and 2 very negative) expressed unfavorable opinions. A significant minority (21.2%) remained neutral. This suggests that farmers are highly supportive of the issue or intervention in question, possibly due to its direct relevance or perceived benefits to their livelihoods. Non-farmers also demonstrate a

positive orientation, though slightly less enthusiastic, with a weighted average of 0.855. A large majority (81.6%) expressed positive attitudes, dominated by the 71.1% who selected “positive.” However, only 10.5% chose “very positive,” indicating a more moderate level of enthusiasm compared to farmers. A small portion (6.6%) expressed negative views, and none indicated a very negative response. The share of neutral responses (11.8%) is notably lower than that of farmers.

Table 4 Occupation and Attitude

	2	1	0	-1	-2		
	Very pos	pos	nut	neg	very neg		
Farmer	48	65	33	8	2	156	0.955
Not	8	54	9	5	0	76	0.855
	56	119	42	13	2	232	
	37.7	80.0	28.2	8.7	1.3		
	18.3	39.0	13.8	4.3	0.7		
chi test	0.000333	significant					

The results show in table 6, that both farmers and non-farmers express predominantly positive attitudes toward conservation agreements, with farmers recording a weighted average score of 0.955 and non-farmers 0.855. Among farmers, nearly three-quarters expressed very positive or positive views, while non-farmers also showed strong approval, with more than 80% falling into these categories. The chi-square test result ($p = 0.000333$) indicates a statistically significant relationship between occupation (farmer vs. non-farmer) and attitude. This suggests that while conservation agreements are widely supported in the Wonegizi area, farmers tend to demonstrate a stronger intensity of support compared to non-farmers. This difference may stem from the fact that farmers rely more

directly on land and natural resources, and thus perceive greater livelihood benefits from conservation initiatives. The implication is that conservation agreements resonate strongly across the community, but particularly with farmers, making them critical stakeholders in the design and implementation of rural livelihood and conservation strategies.

➤ *Conservation Agreement (CA) on Income Levels*

- *Objective Two: The Impact of the Conservation Agreement (CA) on Income Levels*

Table 5 Gender and Perceived Changes

Row Labels	Increased Significantly	Increased Moderately	No Change	Decreased Moderately	Decreased Significantly	total	wtd avg
Female	3	13	74	12	1	103	0.049
Male	11	14	73	18	1	117	0.137
	increase	decrease					
Female	16	13	29				
Male	25	19	44				
	41	32	73				
	16.3	12.7					
	24.7	19.3					
chi test	0.890						

The data show that both female and male respondents reported similar perceptions of change linked to conservation agreements. Among females (103 respondents), most indicated no change (74), with only a small share perceiving significant or moderate increases (16 combined) or decreases (13 combined). Among males (117 respondents), the pattern is nearly identical, with 73 reporting no change, 25 perceiving increases, and 19 perceiving decreases. The weighted average scores (Female

= 0.049, Male = 0.137) suggest very small differences between the two groups. The chi-square test result ($p = 0.890$) is not significant, meaning there is no statistically significant relationship between gender and perception of change. This implies that men and women in the Wonegizi area share broadly similar views on the impact of conservation agreements on rural livelihoods, with the majority perceiving little to no change

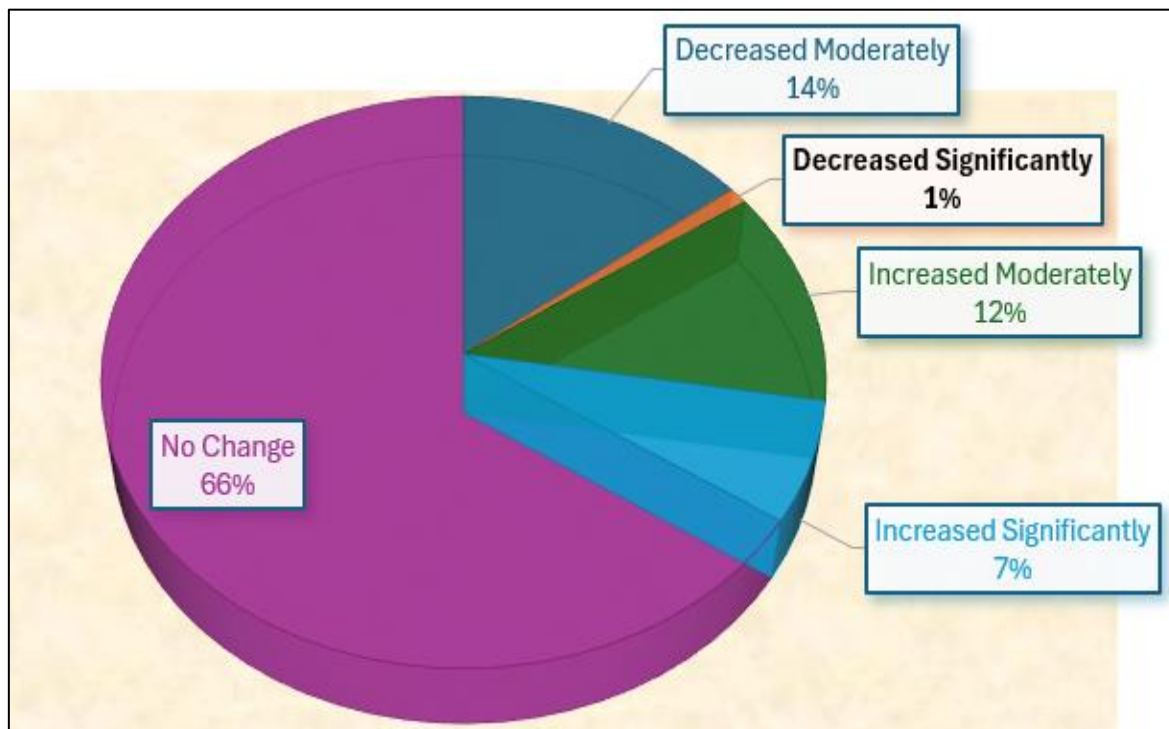


Fig 4 Household Income Changed

The majority of respondents (66%) reported no change in household income since the conservation agreement was introduced. A smaller share experienced income increases, with 12% reporting moderate increases and 7% significant

increases, together accounting for about one in five households. Conversely, 14% reported moderate decreases and 1% significant decreases, showing that some households perceive negative economic effects.

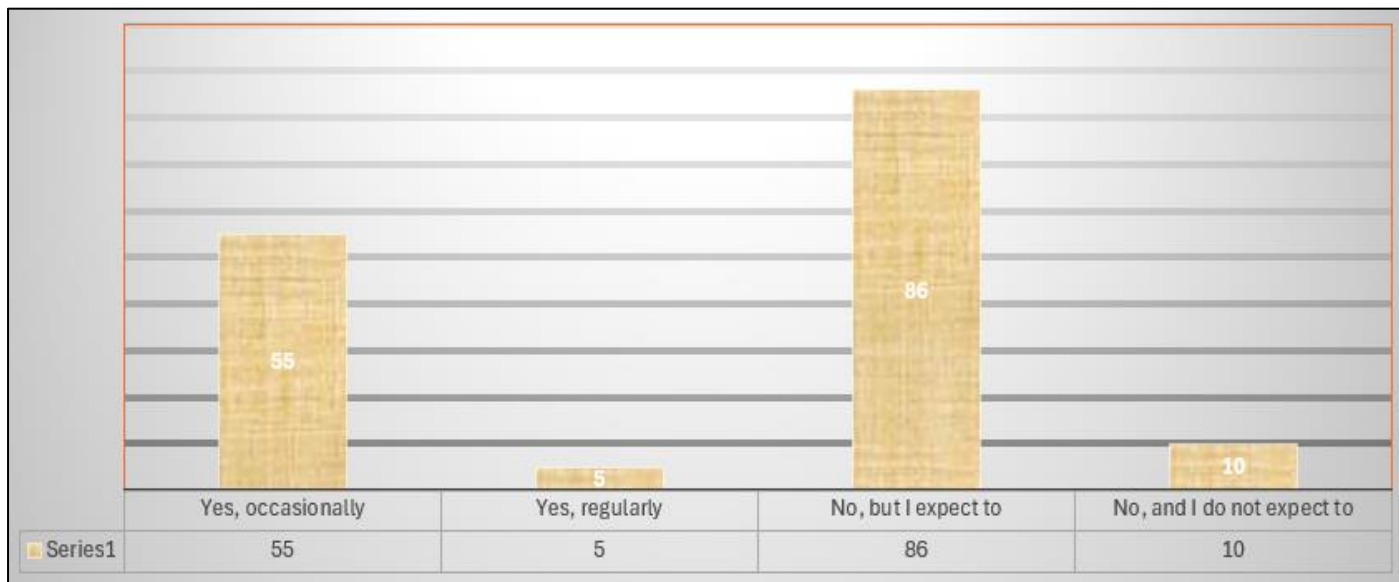


Fig 5 Financial Benefits from the Conservation Agreement

The majority 86 respondents (55.1%), reported that they have not yet received direct financial benefits from the conservation agreement but expect to in the future, reflecting optimism about potential livelihood support. A further, 55 respondents (35.3%) stated that they occasionally receive financial benefits, while only 5 respondents (3.2%)

reported receiving such benefits regularly. Meanwhile, a small share 10 respondents (6.4%) indicated that they have not received benefits and do not expect to. This suggests that while some households have started experiencing financial gains.

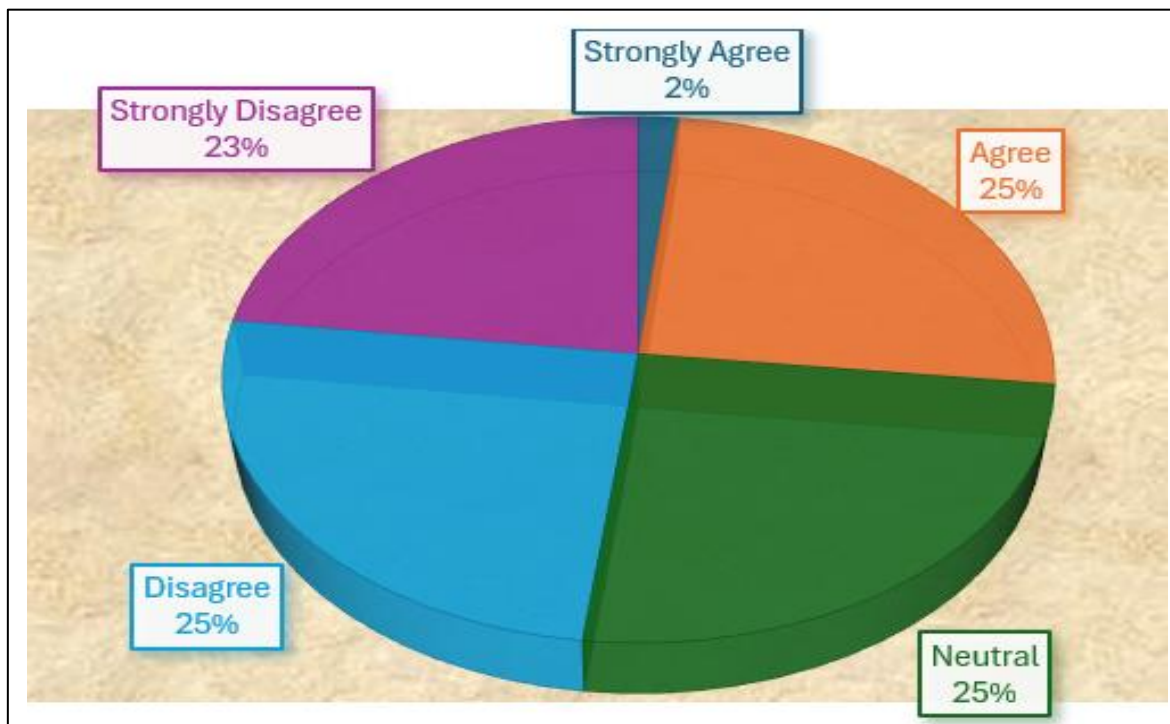


Fig 6 The Financial Benefits are Adequate

Figure 6 shows that the responses reveal mixed but generally critical perceptions of financial adequacy. Only a small fraction of respondents (2% strongly agree and 25% agree) considered the financial benefits to be adequate. By contrast, a combined 48% (25% disagree and 23% strongly disagree) felt the benefits are inadequate. Another 25% remained neutral, indicating uncertainty or ambivalence. This distribution suggests that while a minority of participants are satisfied, nearly half of the community perceives the financial benefits as insufficient, which could undermine long-term support for the conservation agreement. The high level of neutrality also points to either limited awareness of benefit distribution or inconsistent

experiences across households. To strengthen community, buy-in, conservation programs will need to increase the scale, consistency, and fairness of financial benefits while also improving communication about how benefits are allocated.

- *Conservation Agreement and Intensity of Farming within the Protected Area*
- *Objective Three: The Impact of the Conservation Agreement (CA) on the Type and Intensity of Farming within the Protected Area*

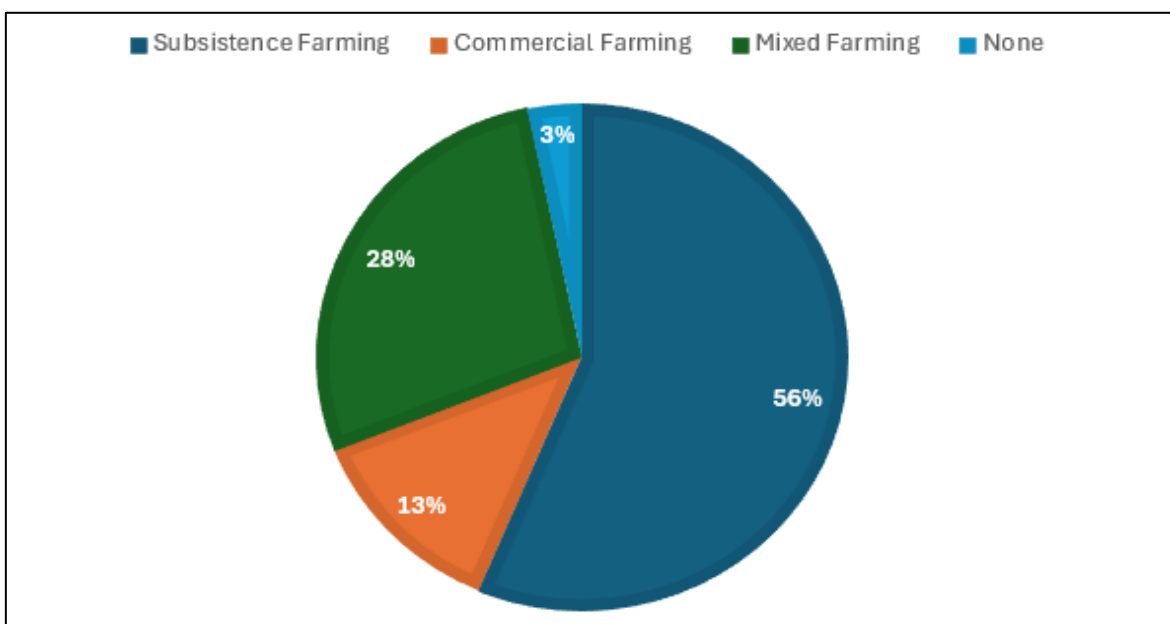


Fig 7 Type of Farming

The findings show in table 8, that the majority of households around the Wonegizi Protected Area rely on subsistence farming (56%), reflecting the community's dependence on agriculture primarily for household consumption rather than income generation. A smaller proportion engage in commercial farming (13%), while about 28% practice mixed farming, combining subsistence with some commercial activities, which suggests gradual diversification toward market-oriented production. Only 3% of respondents reported not engaging in farming at all. This

distribution highlights that agriculture remains the backbone of rural livelihoods in the area, with subsistence farming dominating. However, the presence of commercial and mixed farming points to opportunities for scaling up livelihood programs under conservation agreements by promoting market access, improved farming techniques, and sustainable practices. Strengthening support for farmers to transition from subsistence to more commercial or diversified farming could enhance incomes while aligning with conservation objectives.

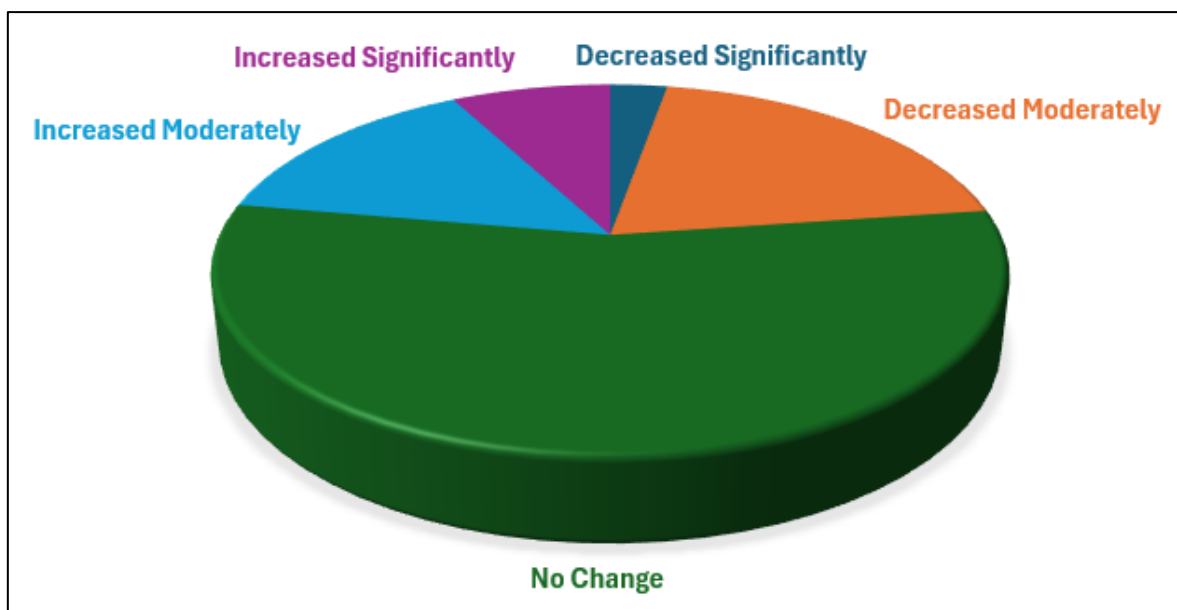


Fig 8 Intensity of Farming Practices

The findings shown in Figure 9 indicate that the conservation agreement has had a mixed effect on farming practices around the Wonegizi Protected Area. More than half of the respondents (55%) reported no change in farming intensity, suggesting that agriculture remains central to their livelihoods and that the agreement has not significantly altered their practices. A smaller portion (22.8%) indicated a decrease in farming intensity, showing some compliance with conservation goals, while a similar share (22.2%) reported an increase, reflecting either growing household

needs or limited livelihood alternatives.

Further qualitative insights revealed that the conservation agreement introduced several improved farming techniques, including contour farming, agroforestry practices (such as integrating fruit trees and nitrogen-fixing species), composting, and the use of climate-smart crops. However, adoption of these practices remains low, primarily due to inadequate technical support, limited access to farm inputs, and the short-term nature of livelihood incentives.

Table 6 Have you Adopted any New Farming Techniques due to the Conservation Agreement?

Have you adopted any new farming techniques due to the conservation agreement?	Frequency	Percentages
No new techniques adopted	143	68%
Yes, a few new techniques	43	20%
Yes, many new techniques	13	6%
Not applicable	11	5%
Total	210	100%

The results indicate that the conservation agreement has had only a limited effect on the adoption of new farming techniques among communities around the Wonegizi Protected Area. A large majority of respondents (68%) reported that they have not adopted any new techniques, suggesting that traditional practices remain dominant and that the agreement has not yet significantly transformed farming methods. About one-fifth (20%) of the respondents acknowledged adopting a few new techniques, while only a

small proportion (6%) reported adopting many. Additionally, 5% indicated that the question was not applicable to them, likely reflecting households not engaged in active farming. This pattern implies that while the conservation agreement is influencing some farmers toward improved or alternative methods, overall uptake remains low. The limited adoption may reflect barriers such as lack of access to training, insufficient resources to implement new methods, or skepticism about their effectiveness

- *Objective Four: The Impact of the Conservation Agreement (CA) on Community Participation and Attitudes Towards Conservation*

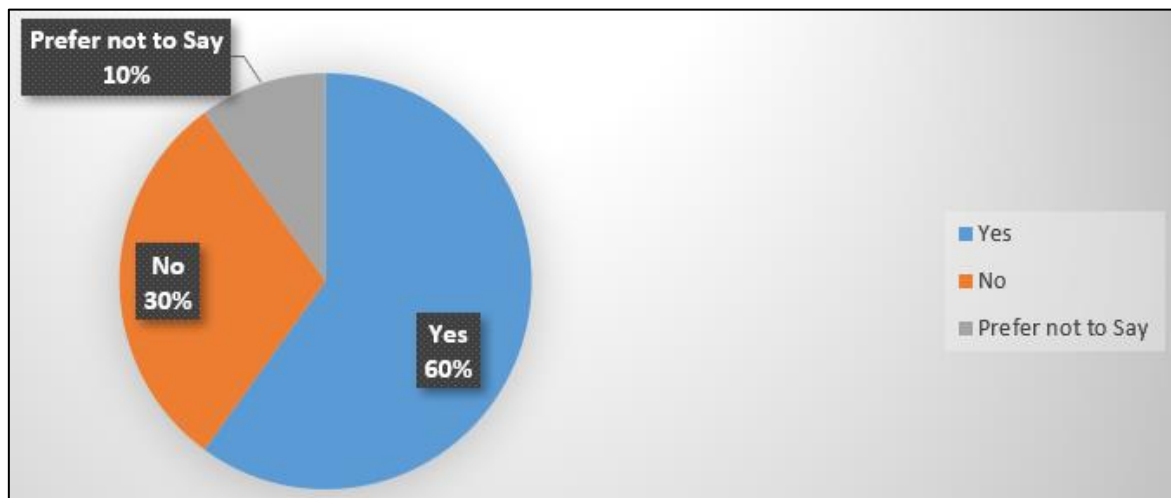


Fig 9 Anyone Entering the Forest to Hunt Bushmeat or make Animal Traps

The findings reveal that forest use for hunting and trapping remains a significant issue around the Wonegizi Protected Area despite the conservation agreement. A majority of respondents (60%) reported observing people entering the forest to hunt bushmeat or set traps, indicating that such activities are still relatively common. About 30% stated they had not observed this practice, while 10%

preferred not to answer, which may reflect sensitivity around the illegality or social disapproval of hunting in a protected area. This suggests that enforcement of conservation rules is challenging, and community dependence on bushmeat as a source of protein and income continues to drive forest entry.

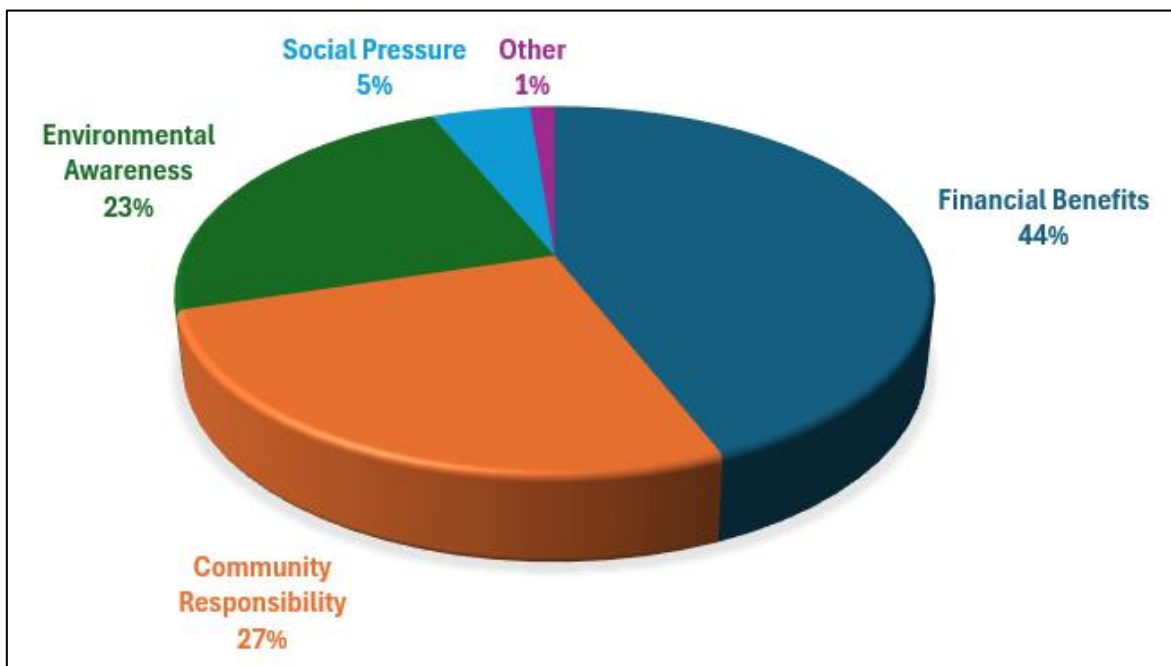


Fig 10 Motivation of Participation in Conservation Activities

The results show that financial benefits are the most significant motivation for community participation in conservation activities, with 44% (173 respondents) citing it as their primary driver. This indicates that economic incentives remain the strongest factor influencing engagement in conservation. Beyond financial gains, 27% (104 respondents) emphasized community responsibility, suggesting that nearly half of the participants also recognize

conservation as a collective duty to protect shared resources. Environmental awareness was mentioned by 23% (92 respondents), showing that many participants are also motivated by ecological concerns and an understanding of the importance of protecting biodiversity. A smaller proportion (5% or 20 respondents) participate due to social pressure, reflecting the influence of community norms and expectations. Only 1% (5 respondents) indicated “other”

motivations, which could include personal interest, cultural values, or religious beliefs.

V. SUMMARY OF MAJOR FINDINGS

Attitudes toward the negotiation process were generally positive, with the majority of respondents describing the Conservation Agreement (CA) negotiations as fair and inclusive. The involvement of non-governmental organizations (NGOs) significantly improved perceptions of transparency and trust, and farmers expressed stronger positive attitudes than non-farmers. In terms of income, 65.6% of households reported no change since the CA was implemented, about 19% experienced increases, and 15% reported decreases. Only 26% of households derived part of their income from conservation-related activities, while the majority (67%) reported none. Nearly half of respondents considered the financial benefits inadequate. With respect to farming practices, subsistence farming dominated at 56.3%, with 27.7% practicing mixed farming. Farming intensity produced mixed results, with 23% decreasing, 22% increasing, and 55% reporting no change. The adoption of improved farming techniques remained limited, with only 20% of households using such methods. In relation to community participation and conservation behavior, 60% observed hunting and trapping despite the CA, 37% witnessed illegal logging or board sawing, and nearly half (49%) reported farming in protected areas. This indicates partial but not universal compliance. Motivations for participation were primarily financial (78%), followed by community responsibility and environmental awareness. Farmers, particularly those who actively participated in negotiations, and individuals who received information primarily from NGOs, demonstrated more favorable attitudes than non-farmers and those relying on other sources. Chi-squared tests revealed no statistically significant differences in attitudes based on age or educational background. While women, on average, reported more positive views of the negotiation process than men, the difference was not statistically significant at the 5% level, though it approached significance with a p-value of less than 0.1, suggesting a potential gender-based difference that may warrant further exploration. Assessment of the responses regarding the negotiation process of the Conservation Agreement (CA) indicates that all major stakeholder groups generally held a positive view of the process. This suggests that the negotiation was broadly perceived as fair, inclusive, and constructive.

RECOMMENDATIONS

- Ensure more regular, transparent, and equitable financial and material benefits for participating households.
- Expand direct payments or livelihood incentives to reach a larger proportion of the community.
- Support transitions from subsistence to commercial and mixed farming through training, inputs, and market access.
- Promote sustainable alternatives such as agroforestry, eco-tourism, and value-chain development for cash crops.

- Foster inclusive participation in CA design and monitoring, particularly for women, youth, and marginalized groups.
- Strengthen local reporting systems with safe, transparent mechanisms to address illegal activities.
- Align CA implementation with REDD+, PES, and broader forest governance frameworks to ensure long-term sustainability.

REFERENCES

- [1]. Abdullah, M. (2021). The contribution of forests on food security and rural poverty: A current status in Johor. *IOP Conference Series Earth and Environmental Science*. doi:10.1088/1755-1315/756/1/012090
- [2]. Amadu, F., & Miller, D. (2024). Food security effects of forest sector participation in rural Liberia. *Food Security*, 16(5), 1099–1124. doi:<https://doi.org/10.1007/s12571-024-01468-7>
- [3]. Ebeler, L. (2025). Local-scale impacts of mangrove restoration and conservation on coastal communities in two Vietnamese deltas: Socio-economic and institutional dynamics. doi:10.1016/j.ocecoaman.2025.107812
- [4]. EROS. (2023). The Deforestation of the Upper Guinean Forest. doi:<https://www.usgs.gov/centers/eros>
- [5]. Force, M.-S. E. T. (2021). Convention on the Conservation of Migratory Species of Wild Animals. https://test-d9.cms.int/sites/default/files/document/cms_ETF6_Inf_4_better-utilisation-transparency-bird-data-collected-by-powerline-companies_e.pdf
- [6]. Gayflor, M. P. (2021). 2021 Impact of Conservation Agr ation Agreements on Liv eements on Livelihoods and F elihoods and Forest Protection in Rural Liberia. Retrieved from <https://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=11715&context=dissertations>
- [7]. Hickling, J. (2025). The role of science and historiography in the development of transnational environmental law: A new history of the 1900 London Convention for the preservation of African wildlife. *Transnational Environmental Law*, 14(1), 171–197.
- [8]. Gjertsen, H. (2020). Conservation Agreements: Relational Contracts with Endogenous Monitoring. Retrieved from <https://www.researchgate.net/scientific-contributions/Eduard-Nielsen-2002966921>
- [9]. Léonidas, N. (2023). Wonegizi Proposed Protected Area IMET ASSESSMENT 2023.
- [10]. Lemos, M. C., & Agrawal, A. (2006). Environmental governance. *Annual Review of Environment and Resources*, 31(2006), 297–325.
- [11]. Liberia Forest Sector Project – Environmental and Social Management Framework (ESMF): Final Draft Report (Environmental and Social Management Framework (ESMF) – Final Draft No. (2016). doi:SFG1820). <https://doc>

- [12]. Mitchell, R. (2023). International environmental agreements: A survey of their features, formation, and effects.
- [13]. Milne, S., & Niesten, E. (2009). Direct payments for biodiversity conservation in developing countries: Practical insights for design and implementation. *Oryx*, 43(4), 530–541.
- [14]. Mulbah, P. G. (2021). Impact of Conservation Agreements on Livelihoods and Forest Protection in Rural Liberia. .
- [15]. Nketia, S. K. (2016). Liberia Forest Sector Project – Environmental and Social Management Framework (ESMF): Final Draft Report (Environmental and Social Management Framework (ESMF) – Final Draft No. SFG1820). <https://doc>.
- [16]. Seelarbokus, C. (2015). International Environmental Agreements (IEAs): An Integrated Perspective on the Concept of Effectiveness. *International Journal of Environmental Protection and Policy*.
- [17]. Sommer, J. M., Restivo, M., & Shandra, J. M. (2020). The United States, Bilateral Debt-for-Nature Swaps, and Forest Loss: A Cross-National Analysis. *The Journal of Development Studies*, 56(4), 748–764. <https://doi.org/10.1080/00220388.2018.1563683>
- [18]. UNDP. (2019). Conservation Agreements Signed with Concession Communities in Liberia to Protect the Forests. United Nations Development Programme (UNDP) Liberia. <https://www.undp.org/foodsystems/blog/conservation-agreements-signed-concession-communities-liberia-protect-forests>