



Marang Forest' Reserve's Social Commitment and its Ripple Effect on Household Livelihoods in Mbulu District, Tanzania

Ponsian Sewando^a and Rehema Magesa^a

^a *Tengeru Institute of Community Development, P.O. Box 1006, Arusha Tanzania*

DOI: <https://doi.org/10.55248/gengpi.5.0324.0743>

ABSTRACT

The Forest Reserve Conservation (FRC) approach seeks to balance sustainable economic development, natural resource use, and environmental protection, aligning with broader goals such as ending hunger, poverty, and gender inequality. The initiatives, like the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE), significantly affect the livelihoods of adjacent communities reliant on forest resources. In Tanzania, where 43.7% of land is protected, challenges arise from human population growth leading to resource degradation, especially in areas like the Marang Forest Reserve (MFR). While the MFR generates social benefits through tourism and aid from conservation organizations, its transition into a reserve under Tanzania National Park has ceased benefits for local communities, sparking concerns about the balance between conservation goals and community needs. A study utilizing the Sustainable Livelihood Approach (SLA) examined the social costs and benefits experienced by households adjacent to the MFR. Results highlighted diverse livelihood assets supported by the reserve, including physical, natural, social, human, and financial assets. However, challenges such as limited resource access, crop raiding, and restricted movement were reported, impacting household livelihoods. Institutional mechanisms for enhancing rural household livelihoods adjacent to the MFR were explored, revealing a lack of awareness and education among households regarding forest management laws and policies. Additionally, limited involvement in decision-making processes and negative impacts of conservation laws on households were noted. Recommendations from the study advocate for comprehensive awareness and education programs targeting local communities, mechanisms for active community involvement in decision-making processes, and livelihood diversification programs. These initiatives aim to address the complex relationship between conservation efforts and rural livelihoods, ensuring the well-being of communities adjacent to protected areas while promoting sustainable resource management practices.

Keywords: Marang Forest Reserve, Cooperate Social Responsibility, household livelihood, assets

1.0 Introduction

The Forest Reserve Conservation (FRC) approach is introduced as a strategy to achieve sustainable economic development, natural resource use, and environmental protection, aligning with goals such as ending hunger, poverty, and gender inequality, hence emphasizing the interconnectedness of human development, climate, and the environment. The global context reveals that approximately 11.5% of the planet's surface is covered by forest reserves (Jenkins et al., 2013; Zafra-Calvo and Moreno-Peñaranda, 2018).

In sub-Saharan Africa, particularly in Southern and Eastern African countries, FRC initiatives like the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE), Community Conservancies, and Administrative Management Design were introduced. The livelihoods of communities adjacent to FRCs are explored, highlighting their vulnerability due to dependence on forest resources (Noe and Kangalawe, 2015; Sakala and Moyo, 2017). The impact of FRCs on local livelihoods is presented as a mix of benefits and costs, influencing attitudes towards conservation.

The focus then shifts to Tanzania, where 43.7% of the total land is protected, with forest reserves covering 15.7% (Jenkins et al., 2013). However, the main challenge has been reported as human population growth leading to resource degradation. Marang Forest Reserve (MFR) is among the well-known reserve areas faced with this challenge. The MFR creates social benefits from natural resource conservation through tourism investment and other sources, including aid from conservation organizations (Mngumi, 2020). Authorities of MFR, like other conservation practitioners, have to contribute to capacity building in local communities by maximizing conservation benefits, such as training, extension services, education, and health facilities provision, ensuring peace and harmony and livelihood welfare of the community around the reserved area.

However, MFR, as a vital source of livelihood for adjacent households, faces a challenge in balancing conservation goals and the needs of rural communities. The transition of MFR into a reserve under Tanzania National Park (TANAPA) has led to a cessation of benefits for the local community, raising concerns about the extent to which the MFR's social responsibility practices have contributed to improving household livelihoods. Despite the intentions behind Forest Reserve Conservation (FRC) initiatives, conflicts persist, leading to hostility among community members and MFRA, indicating deterioration in their relationship. This necessitates a closer examination of the relationship and understanding of the impacts, both positive and negative, of conservation practices on local livelihoods. The study employed the Sustainable Livelihood Approach (SLA) to analyze the social costs and benefits

experienced by households living adjacent to MFR, aiming to contribute valuable insights to the literature on the complex interplay between conservation efforts and rural livelihoods in the context of forest reserves (Landry and Chirwa, 2011; Lambin and Meyfroidt, 2011; Serrat, 2017).

2.0 Research Methodology

2.1 Research Design

The research was conducted in the Mbulu District in the northern part of Tanzania. Mbulu District is subdivided into two councils, namely Mbulu District Council (MDC) and Mbulu Town Council (MTC). This study focused specifically on Mbulu Town Council where the MFR is located. The study is strictly based on six villages' from four wards in Mbulu Town Council where Marang Forest Reserve is located. These villages are Marang, Aicho, Titiwi, Qatesh, Moringa and Lagandamurr. The cross-sectional research design was used in this study. The design was most appropriate for descriptive purposes as well as for the determination of the relationship between variables. This method was considered to be useful because of time limitations and resources.

The study population was households in Mbulu District Council while the unit of analysis was the households living adjacent to Marang Forest Reserve. The sample size for this study was 390 obtained from households of adult males and females adjacent to Marang Forest Reserve drawn from the total population of 15371 in the selected villages (MDC, 2021). The sample was determined using the Yamane formula (1967). Moreover, a simple random sampling procedure was used to select households. This study employed household surveys, focus group discussions, in-depth interviews, and participant observation to collect primary data; while documentary reviews were employed to collect secondary data.

The data were analyzed per objective as follows: Household livelihood assets supported by Marang Forest Reserve were analyzed by content analysis while quantitative data were analyzed with descriptive analysis. The socio-economic benefits of Forest Reserve Management on the livelihood of households adjacent to MFR were analyzed descriptive statistics were used where percentage and frequency were used. Institutional mechanisms in enhancing rural household livelihood adjacent to Marang Forest Reserve were analyzed using content analysis. The costs implicated to the community by the existence of Marang Forest Reserve were analyzed using descriptive statistics. Content Analysis was applied to analyze the qualitative data from key informants, respondents, and documentary review. Quantitative data was applied for quantitative data.

3.0 Results and Discussions

3.1 Demographic characteristics

In this study, the study examined the respondents' profiles based on their gender distribution, the age distribution of the respondents, and education level of the respondents as summarized in Table 1.

Table 1: Distribution of respondents by their demographic characteristics

Variable	Category	Frequency	Percent
Age	18-35	45	11.6
	36-45	70	18.0
	46-60	158	40.7
	60+	115	29.6
Occupation	Farmer	210	54.1
	Civil servant	3	0.8
	Business	81	20.9
	Animal rearing	94	24.2
Sex	Male	217	55.9
	Female	171	44.1

3.2 The household livelihood assets supported by Marang Forest Reserve

This part of the study seeks to gain an accurate and realistic understanding of households adjacent to Marang Forest Reserve's strengths in terms of assets or capital endowments and how they endeavour to convert these into positive livelihood outcomes. The approach is founded on the belief that people require a range of assets to achieve positive livelihood outcomes; no single category of assets on its own is sufficient to yield all the many and varied

livelihood outcomes that people seek. The results of five livelihood assets of Sustainable Livelihood Framework namely social, human, financial, physical, and natural assets as well as a list of the needed assets are presented below as per data collected through household survey.

3.2.1 Physical assets

Physical assets form an integral part of rural community's livelihoods and are as important as other assets. Physical assets determined include access to better housing, Water, cooking energy, and Transport facilities.

i) Drinking Water and availability of Toilet facilities

Findings show that 98.6% of the respondents indicated that they use unprotected wells as a source of drinking water while 1.4% of respondents used protected wells as a source of drinking water. Close to 71% of the respondents used pit toilets and 19% used improved toilets while the rest (10%) had no toilet facility and used the nearby bush as their toilet (Table 1).

ii) Source of domestic energy for cooking

The data revealed that 97.2% of the respondents used firewood as a source of energy, 1.4% of respondents used charcoal and those who used kerosene were 1.4% respondents. On the other hand, 84.7% of respondents conformed to use solar as a source of light energy while 9.7% used electricity, 4.2% used kerosene and about 1.4% used candles as indicated in Table 1.

Table 1: Available physical assets

Resources	Type of resources	Percent
Number of houses	1house	26.4
	2 houses	55.6
	3 houses	16.7
	4 houses	1.4
Source of drinking water	Unprotected well	98.6
	Protected wells	1.4
Type of toilet used	Communal pit	19.4
	None-bush	9.7
	Private pit	70.8
Source of domestic energy for cooking	Charcoal	1.4
	Kerosene	1.4
	Firewood	97.2
Sources of light	Wood /solar	84.7
	Candles	1.4
	Electricity	9.7
	Gas/ kerosene	4.2
Access to roads (means of transport used)	Minibus	2.3
	On foot	70.8
	Motorcycles/bicycles	26.4
	Pack animals/ chart	0.5

iii) Number of houses

Findings indicated that 55.6% owned two houses, followed by 26.4% who owned 1 house. The results further indicated that 16.7% owned three houses and the rest (1.4%) owned four houses. The results imply that respondents owned few houses which might affect their livelihood. This can be explained by the fact that respondents in the study area did not have big land which could limit them from constructing a lot of houses.

iv) Access to roads and transport facilities

About 70.8% of the respondents walked on foot as their means of transport, 26.4% used motorcycles and bicycles as means of transport, 2.3% used minibus and 0.5% respondents used domestic animals and karts (Table 1). In addition, key informant data revealed that the villages adjacent MFR are connected to neighbouring villages by feeder roads. The roads connect the community members to health facilities, schools and market places.

3.2.2 Natural assets

Natural assets were measured by land ownership, land size, and number of houses. Findings indicated that 69.8% of the respondents had below 1 acre of land, 26.1% owned 1-3 acres while the rest 4.1% owned 4-9 acres. Findings further indicate that 60.3% owned their land while 39.7% had lands on lease. The results also indicate that 83.5% of respondents owned one house followed by 12.1% who owned 2 houses and 4.4% who owned 3 houses as indicated in Table 2. The findings imply that having their land is important because it helps generate other benefits for instance through the increase of financial assets.

Table 2: Distribution of respondents by physical assets

Items	Category	Frequency	Percent
Land ownership	Own	234	60.3
	Lease	154	39.7
Land size in acreage	Below 1 acre	271	69.8
	1-3 acres	101	26.1
	4-9 acres	16	4.1
Number of houses	1	324	83.5
	2	47	12.1
	3	17	4.4

Natural assets, including the forest ecosystem and water resources, hold paramount importance for the residents living in the vicinity of the Marang Forest Reserve. This significance arises from the fact that the forest ecosystem serves as the foundational resource for the livelihoods of local inhabitants, primarily centered on agricultural activities. Forests act as invaluable natural resources, offering a multitude of benefits to the local population. While some respondents sporadically gather vegetables and fruits from the forest, a substantial number of households primarily rely on cultivation, particularly from their home gardens, as the primary source of sustenance. In this context, the contribution of forest products, such as fruits and timber, to local livelihoods may not be deemed highly substantial. The key role of forests is to provide resources for agriculture, underlining their critical importance in supporting the agricultural aspects of the community.

3.2.3 Social assets

People around Marang Forest Reserve had relatively good access to social assets at least in the form of participation in village-based organizations and community activities. Nearly all of the respondents were members of one or several different community organizations around Marang Forest Reserve. The organizations that people mentioned were related to farming, funerals, sports, traditional dance groups, and women and youth economic groups.

Regarding healthcare facilities, both households and key informants interviewed express the urgent need for a clinic in the area. The existing mobile clinic, which operates only once a month and is primarily available during vaccination campaigns, is deemed unreliable. Consequently, community members either have to traverse on foot or incur expenses to hire transportation to reach Mbulu Town Hospital for essential health services. However, this hospital is situated far from their village, making it both inconvenient and costly.

Beyond the natural, physical, and social assets crucial for sustaining livelihoods, traditional knowledge concerning local nature and plants is recognized as a vital human asset. It was emphasized that the Marang Forest Reserve (MFR) serves as a significant source of traditional medicines for the villagers. Consequently, the restriction on villagers' access to the forest has adverse effects on their livelihoods. Those residing in close proximity to the MFR can no longer depend on forest products for traditional medicines, leading them to seek treatment at the nearest health facility. This not only incurs additional expenses but also diminishes their economic capacity. For instance, in cases of injuries where traditional medicines would have been used, the prohibition of access to the forest forces individuals to seek medical assistance at the health center, resulting in both financial implications and reduced economic resilience.

3.2.4 Human Capital

Human capital includes the skills, knowledge, health, and capacities of individuals. Human assets are crucial for people to engage in economic activities, access opportunities, and respond to changes in their environment. Education and health are often considered key components of human assets.

In terms of knowledge, the paper examined the diverse educational backgrounds of the respondents, as outlined in Table 3. Approximately 48.3% of respondents had completed primary school, 29.8% had received secondary education, and 11.3% had not undergone formal education. Notably, the illiteracy rate in the study area is 10.7% lower than the national average of 19.6% (URT, 2007), indicating a higher level of understanding in this community. Formal education is recognized for its capacity to enhance individuals' comprehension, facilitating the adoption of valuable skills and conservation technologies originating from external sources.

Education plays a pivotal role in promoting the sustainable utilization of resources for improved nutritional and health outcomes. As the level of education increases, awareness is heightened, fostering positive attitudes crucial for enhanced stakeholder participation at all levels. Informed farmers are more likely to swiftly adopt new techniques compared to those with limited knowledge (Nyadzi et al., 2013).

Table 3: Distribution of respondents by the level of Education

Level of Education	Frequency	Percent
Illiterate	42	11.3
Primary	180	48.3
Secondary	111	29.8
Tertiary	40	10.7

The community had anticipated significant changes in their lives with the establishment of the forest reserve. These changes were expected to include job creation, income generation, development, reintroduction and translocation of game, as well as the maintenance of farm boundaries and fences. However, the survey results revealed that half of the respondents (50%) reported that the anticipated job opportunities were not realized, 31% had some expectations met, and the remaining 19% found their expectations only minimally fulfilled.

The FGDs conducted in the study area acknowledged a slight improvement in employment creation and skills development. Respondents also highlighted a deficiency in training in various developmental aspects, particularly in the maintenance of boreholes by the Rural Water Supply. This is crucial, as communities often face water shortages when boreholes are in disrepair. Furthermore, respondents expressed concerns that the forest reserve authority did not contribute to household employment or improvements in education. The authority was found lacking in providing essential learning materials and school fees for students hailing from families residing near the forest reserve.

3.2.5 Financial Capital

Financial assets are tangible or intangible assets that hold a monetary value and represent a claim to future financial benefits. These assets are owned by individuals, businesses, or governments and can be traded or sold. This study considered income, access to credits, saving and remittances.

i) Income

The respondents reported that cash crops (raw) and products selling are the main sources of income for the majority of the households (73%), livestock selling (13%), casual labour (13%), and firewood and charcoal selling (1%) were sources of income (Figure 1).

ii) Access to and Use of Credit, Savings and Remittances

From the FGDs, it was noted that the culture of saving and accessing to credit was generally poor in the communities. However, they indicated that there was Village Community Banks (VICOBA) in which 15-30 members had to join together and put saving which helped them because there were no collaterals as guarantee to access loan from Commercial Banks.

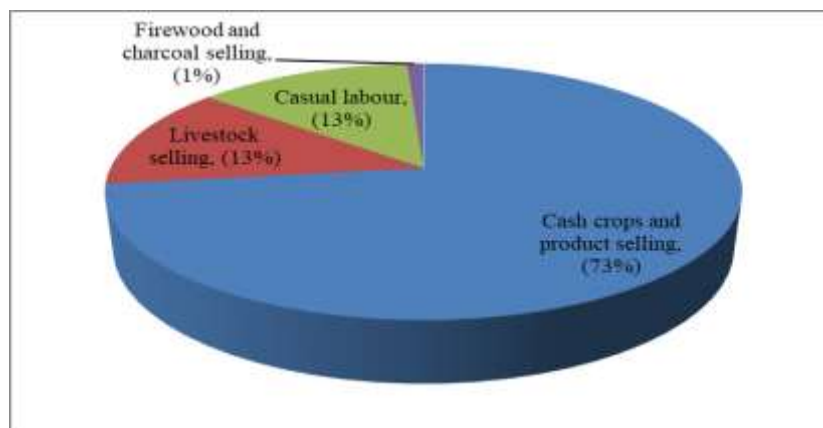


Figure 1: Sources of income

3.3 Trends of Household Food Security and Livelihoods

In the FGDs we discussed the trend of household food security and livelihood over time in the study areas, and we noted improvements in the peoples' life style because of improvements in basic services including: access to agricultural extension services, health extension programs, drinking water, access to schools, mobile telephone services and access to electric power in some households.

3.4 Vulnerability, Shocks and Seasonality

During the Focus Group Discussions (FGDs) addressing vulnerability, seasonality of activities, and shocks in the area, a key observation emerged: poverty emerged as the primary factor rendering households vulnerable. Furthermore, seasonality was identified as an additional factor influencing vulnerability, particularly affecting households dependent on agricultural activities. The study highlighted recurrent droughts and irregular rainfalls as predominant shocks in the area. Notably, the fluctuation in the prices of livestock and staple foods also contributed significantly to the shocks experienced by households.

Given the heavy reliance of households in the study area on agricultural products, an intriguing pattern unfolded. As time progresses, the income generated from agricultural activities decreases, subsequently impacting the purchasing power of households, particularly those classified as economically disadvantaged. This economic strain translates into a three-month period of food shortage from April to June, exacerbating the vulnerability of these households. Compounding this issue is the paradoxical scenario during harvest time. Despite the market being flooded with staple foods, creating a surplus, households are compelled to sell their produce at lower prices to meet their basic needs. This economic necessity occurs despite the decrease in market prices due to the high supply.

Dietary diversity, a crucial indicator of households' food consumption patterns, was found to be fairly diverse in the study area. Most households included cereals, legumes, milk and milk products, meat, and bananas in their diets. This aligns with findings from a similar study conducted in the neighboring Boricha district (Tesfaye, 2011). However, it's worth noting that the quantity of food consumed varied among households, revealing that economically disadvantaged households tended to consume smaller amounts of animal products. This nuance underscores the complex interplay between economic status and dietary diversity within the studied communities.

3.5 Institutional mechanisms in enhancing rural household livelihood

The findings reveal a significant lack of awareness and education regarding the laws and policies governing the management of the Marang Forest among the surveyed households. A majority of respondents, comprising 59.8%, were unaware of any laws or policies related to the forest, suggesting a notable gap in knowledge and empowerment concerning the importance of the forest. Conversely, 40.2% of respondents claimed awareness of such laws, indicating a partial understanding among a minority of the surveyed households.

Furthermore, a substantial portion of respondents, accounting for 52.1%, reported a lack of education on the laws governing the Marang Forest. Additionally, the study found that 58.2% of respondents expressed that households were not actively involved in the formulation of these laws. This lack of participation suggests a limited role for the community in shaping regulations related to the forest.

Regarding the perceived impacts of the enacted laws, approximately 62.4% of respondents believed that the laws governing the management of the Marang Forest had negative consequences for their households. This sentiment underscores a potential disconnect between the intentions behind these regulations and their actual effects on the local communities.

In terms of institutional mechanisms, the study found that respondents were not actively engaged in decision-making processes related to the management of the forest reserve. This lack of involvement in decision-making, as highlighted in Table 4, suggests a potential need for increased community participation and empowerment in matters concerning the Marang Forest Reserve.

Table 4: Institutional mechanisms in enhancing rural household livelihood

Mechanisms	Response	
	Yes	No
Law/Policy governing the management of Marang Forest –not aware	232 (59.8%)	156 (40.2%)
The household is not educated about the use of these laws	202 (52.1%)	186 (47.9%)
The household is not involved on decision making	226 (58.2%)	162 (41.8%)
The laws have negative impacts to the households adjacent to the forest	242 (62.4%)	146 (37.6%)

The survey findings unveiled three distinct institutional mechanisms for the management of the Marang Forest, namely the Joint Forest Management system, Central Government Management, and Community-based Forest Management system. As depicted in Figure 6, the majority of respondents, accounting for 71%, indicated a preference for the Joint Forest Management system. Meanwhile, 25% reported practicing both Community and Joint Forest Management systems, and a minority of 4% stated that the forest was managed by the government.

In 1998, Tanzania approved a National Forestry Policy, marking a significant shift from the previous policy established in 1963. The updated policy aimed to revolutionize forest management, emphasizing community participation through initiatives such as the establishment of Village Land Forest Reserves (VLFs). In these reserves, local communities serve as both managers and owners of forests. Additionally, the policy promotes Joint Forest Management (JFM), where communities collaborate with central and local government authorities to co-manage Natural Forest Reserves (NFRs) or Local Authority Forest Reserves (LAFR). This participatory approach not only fosters sustainable forest product flow but also enhances the livelihoods of communities surrounding the forest through increased awareness.

However, the study highlighted certain challenges. Approximately 28% of respondents indicated that the issue of benefit-sharing between the government and the community was unclear (Figure 1). This lack of clarity arises from the absence of explicit provisions in the law regarding equitable benefit-sharing from forest reserves. In many instances, benefit-sharing arrangements remain ambiguous, leading to de facto local-level management without concrete promises about future benefits. This situation is unsustainable, as the long-term viability of Forest Management depends on benefits exceeding the costs incurred at the local level.

Furthermore, the study noted that 22% of respondents mentioned poor law enforcement techniques (Figure 2). The presence of weak forest management systems and the absence of a formal mandate to control the use of forest products within the village were reported as constraints to effective forest resource management. Key Informants (KIs) from the Village Natural Resource Committee (VNRC) reported challenges in obtaining clear information from TANAPA officers regarding the legal aspects of benefit sharing and the rate of payment in the event of crop damage caused by forest animals. This lack of clarity hampers efforts aimed at sustainable forest management, particularly in controlling deforestation caused by the cutting of trees for building materials and timber.

Additionally, 10% of the respondents indicated a limited awareness of forest conservation practices. It is imperative to enhance community engagement in forest management by promoting awareness, education, and empowerment. Recognizing the significance of awareness regarding land degradation and the perceived benefits arising from forest management practices, these elements play a pivotal role in encouraging investment and the adoption of conservation measures, ensuring the active involvement of stakeholders at all levels (Placas, 2012). Furthermore, 4% of the participants expressed a lack of understanding about forest policy and legislation (Figure 2), contributing to suboptimal forest management. The National Forest Programme (NFP) of Tanzania underscores the necessity for creating awareness about forest management among all stakeholders to foster effective participation in the implementation of the National Policy and Forest Act (URT, 1998).

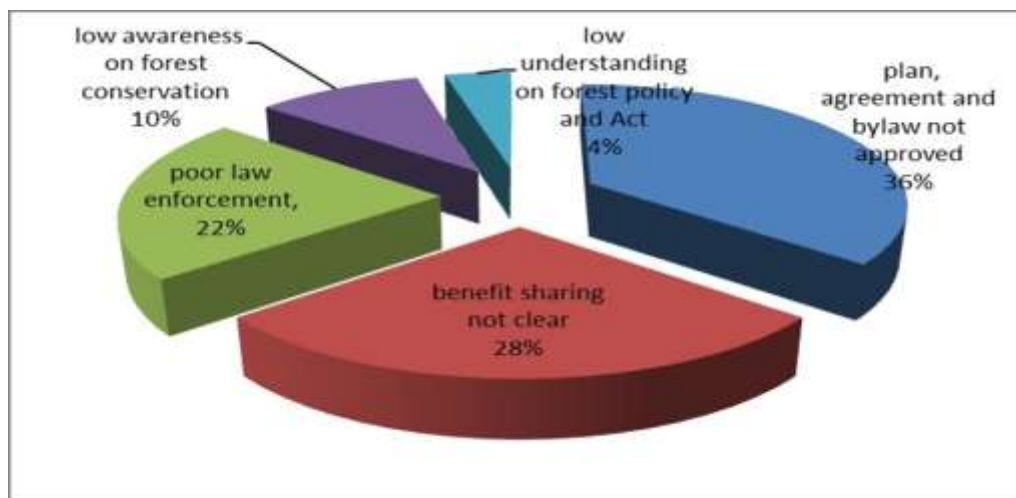


Figure 2: Forest Management Challenges

3.6 Cost implications to households' livelihoods by the existence of MFR

Identified issues and associated costs encompass crop raiding, livestock loss, limited access to certain resources, boundary conflicts, and human injuries. A significant concern highlighted by the majority of respondents (74%, n = 388) in the study area was human injuries. The crops affected were maize and beans, while the domestic animals facing depredation included goats, chickens, and ducks. The animals identified as problematic included baboons (*Papio spp.*) at 75.8%, warthogs at 73.7%, African elephants at 73.2%, and lions (*Panthera leo*) at 62.1% (Table 5).

Among the interviewed households, 24.5% reported challenges in accessing resources such as forest, land, firewood, and water. Additionally, concerns were raised about the lack of space for collecting firewood, limited or no freedom of movement, and restrictions on certain activities like agriculture. Given the absence of a physical boundary between the forest and the village, boundary conflicts were reported.

The most prevalent issues in this study were crop loss, livestock depredation, and restricted access to vital resources without viable alternatives. Local communities incurred costs associated with their proximity to or adjacency with Protected Areas (PAs), significantly impacting their livelihoods. Respondents acknowledged facing food scarcity throughout the year, and a considerable portion of them lacked knowledge on how to mitigate these challenges. The villages, situated along the park boundary without a physical demarcation allowed animals to freely roam within the villages.

Table 5. Different types of problems encountered

Problem encountered	Frequency (Yes)	Percentage
Domestic animals lost, killed, injured	287	74
Destructive animal _Baboon	294	75.8
Destructive animals –warthog	286	73.7
Destructive animals _ elephant	284	73.2
Destructive animals _ Lion	241	62.1
Loss of livestock	319	82.2
Imprisonment of household members	343	88.4
Destruction of crops	304	78.4

The findings indicated that local residents reported a scarcity of areas for collecting firewood, insufficient grazing land, and restricted free movement due to limited access to resources resulting from conservation laws and regulations. This observation aligns with a study by Tumusiime and Vedeld (2015) on the costs and benefits of strict Protected Areas (PAs) in Uganda, which highlighted that local communities faced challenges in accessing resources, resulting in lower income.

Various studies have consistently shown that support for conservation hinges on whether the livelihood needs of local communities are met. The willingness of local people to endorse conservation efforts is contingent upon the sustainability of both local community needs and conservation goals (Karanth & Nepal, 2012). Abukari and Mwalyosi (2018) conducted a study comparing conservation attitudes of park-adjacent communities, analyzing factors influencing conservation attitudes in Mole National Park in Ghana and Tarangire National Park in Tanzania.

In this current study, factors such as perceived benefits, costs experienced by local people due to the park, access to resources (particularly land), and the involvement of local communities in conservation decision-making significantly influence the attitudes of local people towards conservation. The findings in Table 5 highlight that positive relationships and support from adjacent villages are influenced by benefits, participation, and involvement of local people, thereby increasing acceptance of the formation and establishment of Protected Areas. The challenge remains in determining the threshold of benefits required to alter negative perceptions towards conservation, underscoring the importance of involving key stakeholders in decision-making processes to formulate effective conservation strategies.

Local communities with larger landholdings exhibited more positive attitudes towards the park and were more inclined to engage in alternative livelihood strategies, reducing their dependence on the park. Protected Areas should actively encourage local communities through various means, including compensation, to address the costs experienced from conservation and improve community relations. Positive interactions between management and local communities contribute to increased local acceptance of Protected Areas, while negative attitudes and interactions can lead to opposition

This study revealed that perceptions and attitudes towards conservation are directly influenced by the impacts local people experience from Protected Areas. In line with the findings of various studies on the impacts of Protected Areas on local communities, the results of this study may be representative of situations in all communities adjacent to Protected Areas. Recognizing that excluding local communities from conservation efforts poses challenges in achieving conservation goals, it is crucial to consider the needs and interests of local people to garner support for conservation efforts (Ban et al., 2013).

4.0 Conclusion and Recommendation

The comprehensive analysis of the study's findings illuminates several key aspects related to the livelihoods of households adjacent to the Marang Forest Reserve (MFR). The findings underscore the intricate relationship between the Marang Forest Reserve and the livelihoods of adjacent communities. The study emphasizes the need for a holistic and community-centric approach to forest management, considering the diverse assets, vulnerabilities, and perceptions of the local population. Addressing the identified challenges requires a multifaceted strategy involving education, community participation, and sustainable resource management practices.

The paper recommends to the development partners to provide comprehensive awareness and education programs targeting local communities to enhance their understanding of forest management laws, policies, and the importance of conservation. Develop initiatives that promote environmental education in schools to ensure a long-term impact. Secondly there is a need to establish mechanisms for active involvement of local communities in decision-making processes related to forest management and ensure that these mechanisms are transparent, equitable, and directly contribute to the well-being of households adjacent to protected areas. Moreover, the MFR and other stakeholders should develop and support programs that encourage livelihood diversification among local communities. This can include training programs, access to credit facilities, and initiatives that promote alternative income-generating activities.

References

- Abukari, A. H., & Mwalyosi, R. B. (2018). Comparing conservation attitudes of park-adjacent communities, analyzing factors influencing conservation attitudes in Mole National Park in Ghana and Tarangire National Park in Tanzania. Unpublished raw data
- Ban, N.C., Mills, M., Tam, J., Hicks, C.C., Klain, S., Stoeckl, N., Bottrill, M.C., Levine, J., Pressey, R.L., Satterfield, T., et al. (2013). "A social-ecological approach to conservation planning: embedding social considerations." *Frontiers in Ecology and the Environment*, 11(4), 194-202.
- Brooks, J. S., Waylen, K. A., Borgerhoff Mulder, M., Howe, C., Koziell, I., & Puri, R. K. (2013). Positive interactions between management and local communities contribute to increased local acceptance of Protected Areas, while negative attitudes and interactions can lead to opposition. *Conservation Biology*, 27(6), 1341-1350.
- Jenkins, M., Pimm, S. L., & Joppa, L. (2013). Global patterns of terrestrial vertebrate diversity and conservation. *Proceedings of the National Academy of Sciences*, 110(28), E2602-E2610. doi:10.1073/pnas.1302251110.
- Karanth, K. U., & Nepal, S. K. (2012). The willingness of local people to endorse conservation efforts is contingent upon the sustainability of both local community needs and conservation goals.
- Lambin, E. F., & Meyfroidt, P. (2011). Global land use change, economic globalization, and the looming land scarcity. *Proceedings of the National Academy of Sciences*, 108(9), 3465-3472. doi:10.1073/pnas.1100480108.
- Landry, N., & Chirwa, P. W. (2011). The effects of protected areas on surrounding environment: Evidence from human displacement in Zambia. *Ecological Economics*, 70(12), 2495-2505. doi:10.1016/j.ecolecon.2011.07.010.
- Mngumi, E. B. (2020). Integrating Tourism Investment and Conservation in Marang Forest Reserve: A Case Study from Tanzania. *Journal of Sustainable Tourism*, 28(5), 689-707. doi:10.1080/09669582.2020.1723089.
- Noe, C., & Kangalawe, R. Y. M. (2015). Community conservation in Uvinje, Tanzania: Does it work? *Land Use Policy*, 42, 726-736. doi:10.1016/j.landusepol.2014.10.007.
- Tumusiime, D. M., & Vedeld, P. (2015). The costs and benefits of strict Protected Areas (PAs) in Uganda. Unpublished raw data.