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Evaluating Community Participation in a Wildlife Management Area, Tanzania

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Abstract: Community participation is fundamental to modern conservation practices because local communities serve as essential decision-makers for wildlife governance in sub-Saharan Africa. This research investigates various elements which affect community involvement in wildlife protection within the Makao Wildlife Management Area (WMA) of Tanzania. The research employs mixed-methods analysis to combine survey data and logistic regression modelling to determine how socioeconomic factors, spatial elements, and institutional frameworks affect participation. The research shows that tangible conservation benefits, including revenue sharing, employment opportunities, and development projects, enhance participation rates. Yet, human-wildlife conflicts and distance from the WMA border reduce community involvement. The research demonstrates that household attributes such as education level, income, land ownership, and household size positively affect participation because they enable socio-economic capacity for conservation involvement. Governance elements, specifically perceptions of fairness, transparency levels, and representation in local institutions, have a direct influence on participation outcomes. Participation in conservation depends on multiple factors, including incentives, institutional trust, and structural inequalities. The study promotes a shift in community-based conservation practice by moving past procedural inclusion to focus on equitable distribution of benefits and accountable governance, which requires strengthening institutional legitimacy.

Keywords: *Conservation, Governance, Community Participation, Wildlife.*

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Introduction

Local community participation in managing wildlife resources has gained increasing recognition worldwide, as sustainable resource use has become a crucial aspect of wildlife conservation efforts (Gereta & Røskaft, 2010; Ernest, 2023; Lwankomezi et al., 2023). This has been enhanced by the introduction of community-based conservation (CBC), which has created interconnectedness between the local Community, the natural environment, and Protected Areas (PAs) (Gibbes & Keys, 2010; Roe et al., 2010; Siege, 2001; Stone, 2015). Community-based conservation emerged during the 1980s to empower and foster a sense of ownership and responsibility among local communities towards natural resources in their locality (Gereta & Røskaft, 2010; Siurua, 2006).

Local community participation has sparked more discussions because it has been employed in various contexts, eliciting diverse understandings (Agarwal, 2001; Berkes, 2004; Cleaver, 2001). For example, scholars such as Gore and Kahler (2012) have found that participation varies socio-politically and spatially, and is associated with costs. In contrast, Berkes (2004) considers participation as a process through which various groups in a community influence and share power over development projects, decisions, and resources that affect them. Surprisingly, there has never been a consensus on what constitutes participation in conservation studies (Brockington et al., 2008; Wilfred, 2010; Vimal et al., 2018). For example, Kiwango et al. (2015) suggested that participation has been used to promote more efficient management or increase equity and empowerment. However, critics such as Stone (2015) say that participatory approaches have ignored local power connections and inequities (since they view local communities as homogenous entities) and downplayed the role of more prominent political and economic factors.

Some scholars have argued that local community and development are incompatible (e.g., Brown, 2002; Kideghesho, 2016; Rihoy et al., 2010) because local communities are unwilling to protect natural flora and wildlife unless they receive a proportional share of the costs associated with coexisting with wildlife. Moreover, most participatory approaches to natural resource management have been criticized for falling short of their objectives in devolving decision-making powers to and benefiting local people while supporting conservation (Diamond, 2002; Frank, 2016; Lwankomezi et al., 2021a). Other scholars see local communities as potential collaborators and partners in wildlife protection and development (Brown, 2002; Gereta & Røskaft, 2010; Kajembe et al., 2000). In Tanzania, PA initiatives have constantly involved the local community in managing and conserving natural resources (Kiwango et al., 2018; Mariki, 2013). However, scholars (e.g., Mutanga et al., 2015; Tumusiime & Vedeld, 2012) argue that the success of these participatory projects is contingent on the level of participation, the benefits accrued, and their equitable distribution.

Understanding local community experiences of living adjacent to PAs is imperative in enhancing conservation (Benjamin, 2019; Lwankomezi et al., 2023; Mogomotsi et al., 2020). This is because local communities face different challenges posed by wildlife, adversely affecting their means of subsistence (Lwankomezi et al., 2021b). The challenges include limited access to resources, crop-raiding incidents, wildlife-livestock conflicts, human injuries, and the spread of foot-and-mouth disease (Mariki,

2013; Mogomotsi et al., 2020; Lwankomezi et al., 2021b). According to Frank (2016), wildlife conservation is undermined when the economic well-being of the local community is jeopardized. This has led to the retaliatory killing of wildlife, thereby undermining sustainability principles (Ernest, 2023; Gereta & Røskaft, 2010; Treves & Bruskotter, 2014).

Local community participation in wildlife conservation has varied globally, mostly influenced by local attitudes and spatial heterogeneity (Agarwala & Ginsberg, 2017; Mogomotsi et al., 2020). Studies have suggested that factors like crop damage, livestock predation, distance from PAs, and wildlife conservation benefits determine local communities' attitudes toward wildlife conservation (Brooks et al., 2013). While these factors are universally accepted, McShane et al. (2011) have identified gender, age, education level, and income as local community attitudes influencing factors towards wildlife conservation. In the context of Wildlife management areas, scholarly investigations conducted by researchers (Kicheleri et al., 2018; Lwankomezi et al., 2023; Mgonja, 2023; Nelson & Agrawal, 2008) have provided valuable insight that local community participation and decentralization in wildlife conservation are key, but this has not been the view of the central government. The local community has not fully participated in formulating and governing the Wildlife Management area. Therefore, a void exists in the existing literature that calls for an in-depth assessment of local participation conditions.

The following objectives guide this article: i) Explore factors influencing community participation in wildlife conservation, b) Assess the effectiveness of governance structures and institutional arrangements in promoting community participation, and c) Analyze how perceptions of conservation costs affect willingness to participate. Therefore, understanding factors and household attributes will help formulate mechanisms for human-wildlife interactions and promote sustainable conservation in protected areas.

Literature review

The CBC Agenda

Community-based conservation (CBC) is a management strategy that aims to conserve natural resources, reduce poverty among local communities, and promote decentralisation and good governance (Stone, 2015; Vimal et al., 2018). Community-based conservation is a global approach to natural resource management, but its emergence is attributed to mixed receptions, primarily due to the exclusion of local people from nature (Berkes 2004). Community-based conservation is based on three core assumptions. First, local communities have a greater ability to conserve natural resources efficiently. Secondly, the local community participates in wildlife conservation when the benefits accrued exceed the corresponding costs. Third, it asserts that local communities engage in resource conservation when there is a direct correlation between conservation efforts and their overall quality of life (Songorwa, 1999; Gibbes & Keys, 2010). These assumptions emphasise the win-win situation by combining conservation and development, as suggested by Adams et al. (2004). However, it has been argued that both conservation and development goals, critical in their own right, should not be linked because the mixed aims do not correctly serve either purpose (Redford et al., 2008). This puzzle is part of a larger argument about preservation vs sustainable use and local participation in decisions that affect their lives.

Under Community-based conservation, the custodianship and governance of natural resources are entrusted to the local community living near protected areas, as they possess the knowledge and skills to manage and conserve wildlife. Similarly, a community is a cohesive group inhabiting a legally defined geographical area. The community is united by a shared goal of managing and conserving natural resources despite diverse socioeconomic interests, priorities, and capabilities (Mogomotsi et al., 2020). In this article, participation in wildlife conservation is an active involvement in wildlife conservation initiatives available in a specific area, as defined by Ernest (2023). Therefore, conservation objectives are ensured by incorporating and increasing local participation (Dolica & Teeter, 2007). However, the dangers wildlife causes to property and human life have resulted in negative attitudes toward wildlife (Mbaiwa, 2017). Literature has indicated that local communities are unwilling to protect natural resources and wildlife until they receive a proportional share of the costs paid by coexisting with wildlife (Gereta & Røskaft, 2010; Siurua, 2006). The following section examines community-based conservation in a specific case study of Tanzania's Wildlife Management Areas (WMAs).

Wildlife Management Areas in Tanzania

A WMA is an area of village land set aside for wildlife protection and acquiring wildlife-related benefits by member villages (Kaswamila 2012). The number of villages in each Wildlife Management Area (WMA) exhibits considerable variation, ranging from a minimum of two to a maximum of thirty villages. As a CBC project, WMAs were inspired by lessons from other pioneering community-based Natural Resource Management (CBNRM) programs in Africa (Benjaminsen & Svarstad, 2010; Maganga, 1999). In 1998, the Tanzanian government enacted a wildlife policy that delegated local authorities to use and manage wildlife resources outside PAs. Villages within WMAs are granted user rights to wildlife resources, enabling local communities to benefit from them. This encourages more engagement in sustainable natural resource management, and as a result, improves wildlife conservation (Nelson, 2007; Wilfred, 2010).

The Wildlife Policy 1998 (updated in 2007) acknowledges the role of local communities next to PAs in safeguarding wildlife resources and reaping wildlife-related benefits through establishing WMAs on their lands (URT, 1998). In 2002, the Tanzanian government, represented by the Ministry of Natural Resources and Tourism (MNRT), issued the WMA regulations, which offered direction and processes for establishing a WMA. In 2003, the government formally initiated the creation process for the WMA, and 16 pilot WMAs from various regions were selected to undergo the establishment procedure (Nelson, 2007). In 2018, Tanzania had 38 WMAs at different stages of establishment, covering over 23,000 square kilometres of land. Currently, there are 14 operating WMAs at various levels of development, following the conversion of others to game reserves (MNRT, 2022). Many foreign organizations, including USAID, GTZ, DFID, UNDP, GEF, DANIDA, WWF, AWF, WCS, and ADAP, have facilitated the establishment of most Wildlife Management Areas (WMAs). The costs associated with establishing a WMA exceed the community's financial capacity, with projected spending ranging from US$250,000 to $300,000 (Mariki, 2013).

The Wildlife Management Area (WMA) regulations, as outlined by MNRT (2007), are instrumental in achieving the objectives of the Wildlife Policy. The regulation outlines the stages

for WMA formulation, which begins with the Village Assembly's decision in relevant villages to establish a WMA. Subsequently, communities form a Community-Based Organisation (CBO) that is responsible for managing the WMA. The CBO must adhere to specific requirements, including a constitution, membership regulations, qualified office holders, and financial management procedures. Further steps involve developing Land Use Plans (LUPs) and creating management plans for the WMA. Once these prerequisites are met, the CBO requests recognition as an Authorized Association (AA) and the official gazzetment of the WMA. The AA can then apply for a user right, subject to conditions, such as the inability to transfer this right to others, the need for Director of Wildlife approval for investments, and the designation of hunting blocks in the WMA. Despite these regulations and procedures, weaknesses in the formulation and functioning of WMAs have been identified. MNRT (2007) notes a general lack of capacity to drive the WMA implementation process, with difficulties in drafting constitutions and negotiating contracts. Moreover, local communities face challenges in generating resources for establishing WMAs and managing investments effectively, which limits the fulfilment of the WMA's potential goals. Lwankomezi et al. (2023) argue that the formulation of WMA has attracted new institutional arrangements in which changes of wildlife policies have faced obstacles, including central government's recentralizing of wildlife power, low involvement of local communities, a lack of common understanding of wildlife policy, guidelines, laws, and regulations, and inadequate capacity for negotiations. This study, therefore, uses Makao WMA to determine factors influencing local community participation in wildlife management and conservation.

Materials and Methodology

The research was carried out in Makao WMA, Tanzania. Makao WMA was formally gazetted in 2009 and established in 2007 (URT, 2012). The Makao WMA is essential for conservation in Tanzania's protected areas. It is an important wildlife corridor that connects the Serengeti National Park, the Ngorongoro Conservation Area, and the Maswa Game Reserve (URT, 2012). Makao is managed under a Community-Based organisation (CBO) called 'JUHIWAPOMA.' The Sukuma, Datoga, Hadzabe, and Nyaturu tribes predominantly inhabit the WMA areas. Agriculture holds significant economic importance in the villages that are members of the Makao Wildlife Management Area (WMA). Makao WMA is formed by seven (7) villages Jinamo, Sapa, Mbushi, Mangudo, Mwabagimu, Iramba ndogo, and Makao, all participating in this study. The selection of the sample size was determined as suggested by Yamane (1973), with the following formula: n= N/ (1+N (e) 2), where n= sample size, N=population under study, e= margin of error (0.05). A total of 120 household heads were obtained. Respondents were selected using a random number generator and interviewed at a mutually agreed-upon location and time. The study employed a cross-sectional design to assess factors influencing community participation in wildlife conservation. The author collected the data from 2019 to 2021 for his PhD studies.

The logit model proved the most suitable analytical method because the dependent variable of community participation in wildlife conservation activities exists as a binary category. The logit model functions to predict the occurrence of a dichotomous outcome by using one or more predictor variables. The model calculates the probability of community participation in conservation activities by analysing socio-economic factors and spatial elements. The logit model was suitable because it handles both categorical and continuous explanatory variables while providing strong capabilities to model non-linear relationships between independent variables and binary (dependent) outcomes. The model works without the normality of predictors and is suitable for exploratory studies involving behavioural decision-making outcomes, including participation in conservation. The dependent variable was Participation in Wildlife conservation. In this binary variable, 1 indicated that the household participated in conservation-related activities (e.g., supporting anti-poaching efforts, attending conservation meetings, receiving training) and 0 indicated that the household did not participate. The independent variables of the first and second objectives are described in Table 1. The model included eight explanatory variables (Table 1): Education level, Household size, Monthly income, Land ownership, Distance to the Wildlife Management Area (WMA), Human-wildlife conflict, Conservation benefits, and Age of household head. Responses to the third objective were measured using a Likert scale, as suggested by Likert (1932). The logistic regression model was then fitted to determine the factors that affect the likelihood of household participation in conservation. The likelihood ratio chi-square test, Nagelkerke R^2, and classification accuracy were used to evaluate the model's performance. Multicollinearity was checked using variance inflation factors (VIF), and all variables included in the final model were within acceptable limits (VIF < 2.5).

Table 1: Independent variable

Variable	Description	Measurement	Type
Age	Age in years	Continuous	Numerical
Level of education	Years of schooling	Continuous	Numerical
Size of households	Number of household members	Continuous	Numerical
Land ownership	Land owned in hectares	Continuous	numerical
Proximity to WMA boundary	Distance from WMA to households in kilometres	Continuous	Numerical
Income	Average total income per month	Continuous	Numerical
Received conservation benefits	Whether received conservation benefit (e.g., training, employment, revenue sharing)	0= No, 1 = Yes	Binary
Experience of Human-wildlife conflict	Whether experienced livestock predation, crop damage, or human injury, in the past years	0= No, 1 = Yes	Binary

Ethical consideration

Respondents and village leaders were informed about our research objectives and methods, and we sought their consensus. Permission is obtained from the Open University of Tanzania, Tanzania Wildlife Authority (TAWA), Meatu District Council, and Makao WMA to conduct the study. Before the survey, interview and focus group discussion, respondents were briefed on the survey's aim and then asked for permission to participate. We

proceeded with data collection after receiving their verbal consent. Responses were recorded anonymously, and private locations were used during the interview to minimise the potential for biased information. Confidentiality of their information and identities was ensured, and proper acknowledgement of sources was maintained.

Results

Factors Influencing Community Participation in Wildlife Conservation

The logistic regression model was statistically significant, as indicated by the likelihood ratio chi-square test ($\chi^2 = 51.42$, df = 8, $p < 0.001$), suggesting that the model provides a better fit to the data than a null model with no predictors. The Nagelkerke R^2 value was 0.52, which means that approximately 52% of the variance in participation in conservation activities could be explained by the independent variables included in the model (Table 2). The accuracy of the model's classification was 81.7%, indicating that the model performed well in predicting households' participation in conservation. The results suggested that the receipt of conservation benefits was the most significant and statistically relevant predictor of participation ($\beta = 1.814$, $p = 0.001$). Households that received tangible benefits, including revenue sharing, development projects, or employment opportunities, were found to be more likely to engage in conservation activities by a factor of 6.14. This finding shows that perceived fairness and direct community benefit influence the willingness to engage in conservation initiatives. Previous studies have demonstrated that material incentives increase actual participation rates. The Serengeti Regional Conservation Project in Tanzania's western Serengeti achieved higher compliance from its beneficiaries through local benefit delivery (Kegamba et al., 2024), although the effect size remains unreported. The Maasailand compensation scheme in Kenya paid Lion Guardians to work, resulting in an 87-99% reduction in lion killings due to tangible benefits (Hazzah et al., 2014). The randomised controlled payments for ecosystem services program in Uganda demonstrated that direct household payments led to more effective conservation behaviour compared to control areas (Jayachandran et al., 2017). Bitariho et al. (2022) demonstrate that long-term community project funding in Bwindi, Uganda, led to a decrease in illegal park activities, although they do not provide effect size information.

Table 2: Factors Influencing Community Participation

Variable	β Coefficient	Standard error	Odds Ratio (Exp(β))	p-value	Significance
Constant	-2.113	0.795	--	0.006	**
Age	0.014	0.018	1.014	0.440	
Education level	0.162	0.059	1.176	0.007	**
Size of households	0.098	0.045	1.103	0.031	*
Monthly income	0.0038	0.0019	1.004	0.048	*
Land ownership	0.084	0.032	1.088	0.008	**
Proximity to WMA boundary	-0.271	0.095	0.762	0.004	**
Experience of Human-wildlife conflict	-1.217	0.503	0.296	0.017	**
Received conservation benefits	1.814	0.562	6.135	0.001	***

Tangible conservation benefits, including revenue sharing, employment, and infrastructure development, proved to be among the most significant statistical indicators influencing participation rates. This finding is consistent with existing research conducted by Kegamba et al., (2024). In many African community-based conservation (CBC) contexts, community participation is not just a normative ideal. Still, it is deeply rooted in cost-benefit calculations, where individuals evaluate the perceived gains against opportunity costs such as restricted land access or wildlife-induced crop damage (Mfunda & Røskaft, 2011). While the value of benefits is well recognised, relying on material incentives alone risks fostering conditional participation. If benefits are delayed, mismanaged, or perceived as unfairly distributed, support for conservation can quickly erode. Moreover, benefit-sharing schemes that fail to address underlying inequalities may perpetuate elite capture, with wealthier or politically connected households dominating access. This underscores the need for transparent, accountable, and inclusive benefit-sharing frameworks, designed in partnership with local communities rather than imposed by external actors.

The experience of human-wildlife conflict was negatively correlated with participation ($\beta = -1.217$, $p = 0.017$) (Table 2). Households that experienced crop damage, livestock predation, or personal safety concerns due to wildlife were found to be significantly less likely to participate (odds ratio = 0.30), indicating that conflict is a significant deterrent to conservation participation. These two findings are inconsistent and highlight the complexity of local people's interaction with wildlife and conservation authorities. The 30% lower odds of participation among households facing human-wildlife conflict necessitate conservation policies that establish verifiable conflict-risk reduction measures, including swift compensation for losses and proven prevention methods such as early warning systems and crop protection measures, before expanding co-management duties and incentives. The study supports Western Serengeti findings, which indicate that high levels of livestock predation and restricted access to resources lead to unfavourable conservation attitudes (Kideghesho et al., 2007). The research by Mkonyi et al. (2017) showed that Tarangire households that experienced carnivore attacks developed unfavourable opinions about conservation efforts. Blair & Meredith (2018) in Kenya's Laikipia region demonstrated that wildlife damage to property led to decreased community support for conservation efforts on both community and ranch lands. Harrison et al. (2015) in Bwindi, Uganda, found that crop raiding activities directly influenced non-compliance through unauthorised resource usage. The research supports our results by showing that uncontrolled repeated losses decrease willingness to participate, which requires establishing a sequence of participation targets with reliable and prompt HWC mitigation measures. Households that experienced livestock predation, crop loss, and threats to human safety were less likely to participate in conservation activities. This finding is consistent with recent studies, which have shown that unresolved wildlife conflicts generate resentment and undermine

the legitimacy of conservation authorities (Madden, 2014). They further argue that these outcomes are not driven by hostility toward wildlife per se, but by institutional failure to mitigate conflict or compensate losses.

Another significant factor influencing participation was proximity to the WMA boundary, which had a negative effect (β = -0.271, p = 0.004) (Table 2). The odds of participation were found to decrease with proximity to the WMA, possibly due to increased contact with wildlife movements and perceived risks associated with living near protected areas. The odds of participation decrease as households move closer to the WMA boundary; therefore, conservation programs should apply proximity-weighted budgets and conditional incentives by providing conflict mitigation, employment, and revenue-sharing benefits to bordering villages before expanding standard outreach to other areas. The study by Nyahongo et al. (2009) in Tanzania's western Serengeti region demonstrated that meat consumption levels reached their peak in villages situated near the park border, following the pattern of increasing herbivore migration within 30 km of the boundary, which matches our negative proximity coefficient (β = −0.271). Mgawe et al. (2012) in Tanzania's Katavi–Rukwa system demonstrated that both wildlife carcass reports and bushmeat consumption rates decreased as the distance from protected areas increased (model-averaged distance coefficients of −0.14 for indigenous and −0.07 for Sukuma samples). Our findings confirm these narratives because they show that people living near protected areas engage in illegal activities more frequently and follow conservation rules less often. Harrison et al. (2015) in Bwindi, Uganda, demonstrated that unauthorised resource use occurred most frequently among poor residents living near the park boundary, necessitating targeted conservation efforts for these communities. Bitariho et al. (2022) demonstrated that illegal activities in Bwindi Park decreased with increasing distance from the park boundary, which supports our finding that boundaries create barriers to participation and compliance. The study refutes traditional assumptions in CBC theory regarding the natural connection between environmental stewardship and the proximity of conservation areas (Adams & Sandbrook, 2013). The data validate the "proximity paradox" where people living near wildlife experience most conservation externalities without receiving sufficient institutional backing or decision-making authority. These findings align with those of Lwankomezi et al. (2021b).

However, some of the household level characteristics that were found to influence participation positively included years of formal education (β = 0.162, p = 0.007), household size (β = 0.098, p = 0.031), monthly income (β = 0.0038, p = 0.048), and land ownership (β = 0.084, p = 0.008) (Table 2). Households with more educated heads are more likely to engage in conservation due to higher environmental awareness, literacy, and an understanding of the benefits of conservation. Larger households may also be more likely to be involved in community activities because they have more workforce or need to ensure long-term access to resources. The wealthy and those with more land ownership may view conservation as a way to secure their property and future income. However, the age of the household head was not a significant predictor of participation (β = 0.014, p = 0.440), indicating that generational differences did not significantly influence conservation behaviour in this context. Findings suggest that conservation investments should prioritise adult education, land ownership security, household economic stability, and early co-management participation among large landholding families to achieve maximum participation rates. The budgeting process should treat these enabling factors as primary investments because their small effects on individual households will result in substantial overall participation growth when applied to numerous households. Loibooki et al. (2002) in Tanzania demonstrated that higher livestock ownership among households led to reduced participation in illegal hunting activities because wealthier families were more likely to follow the rules. The unmatched-count technique used by Nuno et al. (2013) in the same ecosystem revealed that illegal hunting activities occurred more frequently in smaller households, while larger households showed lower involvement in rule-breaking activities. Harrison et al. (2015) found that poverty-stricken families living near boundaries exhibited the highest rates of non-compliance, but wealthier households demonstrated better rule adherence. The research by Bedelian and his team (2024) in Kenya's Maasai Mara conservancies found that land ownership is the primary factor in determining who can join conservancy land-lease programs, thereby establishing a direct link between land ownership and conservation involvement.

Furthermore, respondents who are educated demonstrate a better comprehension of conservation policies and improved skills to connect with institutional systems and collectively defend environmental interests. Households that own land and have higher incomes tend to experience economic stability, which leads them to support long-term ecosystem preservation. The study results further indicated that the age of the household head failed to demonstrate any significant relationship with participation levels. The results contradict two prevailing assumptions: older people possess better conservation awareness due to their traditional knowledge, or resist changes because of their established land-use methods. The findings support the theory that environmental participation depends more on institutional and structural elements than individual demographic characteristics (Bello et al., 2016). The results support conservation programs that aim to eliminate age-related stereotypes, as they should focus on individual abilities and community and household needs across different age groups.

Effectiveness of Governance Structures and Institutional Arrangements in Promoting Community Participation

The logistic regression results demonstrate that governance perceptions have a statistically significant impact on conservation participation (Table 4). Perceived participation in conservation decision-making was the most significant variable. Households that felt their interests were represented in conservation decisions demonstrated three times higher participation rates than those without representation (odds ratio = 3.03, p = 0.001). The research confirms the necessity of governance systems that include diverse voices, particularly from underrepresented groups, during conservation planning. The findings suggest that WMA should establish representation through community seats with voting power on WMA/conservancy boards and implement participatory budgeting, incorporating social audits, rotation rules, and binding grievance systems. The Maasai Mara conservancy land-lease schemes in Kenya show that right-holding landowners who participate in governance activities achieve higher enrollment rates (Bedelian et al. 2024). Ayambire et al. (2025) examine 42 co-management systems in Kenya and Tanzania to show that formal user participation in rule-making leads to successful social goal achievement, including compliance. The research by Nunan et al. (2018) demonstrates that co-management institutions in inland fisheries of Kenya, Tanzania, and Uganda achieve better

compliance through accountability measures and reduced corruption, which suggests that voice and answerability are more effective than rules for behavioural adherence. Bluwstein (2016) demonstrates through empirical research that Tanzania's WMAs experience lower community participation because they restrict popular decision-making involvement, which supports the OR = 3.03 finding about representation and participation.

Table 4: Effectiveness of Governance Structures and Institutional Arrangements

Variable	β Coefficient	Odds Ratio (Exp(β))	p-value	Interpretation
Perceived governance transparency	0.921	2.51	0.002	Significant positive influence
Accountability of WMA leadership	0.684	1.98	0.013	Positive and significant
Perceived fair representation	1.107	3.03	0.001	Strong predictor of participation
Trust in conservation institutions	0.736	2.09	0.009	Statistically significant

Findings show that legal frameworks for community-based conservation (CBC) exist; however, their effectiveness remains limited by insufficient representation, weak accountability, transparency, and a lack of trust. The research results align with the findings of other scholars on the impact of governance quality on conservation outcomes (Ayambire et al., 2025; Kicheleri et al., 2018; Lwankomezi et al., 2023). Findings indicate that community members who felt their voices were represented in decision-making processes were three times more likely to participate in conservation activities. Households that believed their views were expressed in WMA governance decisions showed increased conservation involvement. This supports longstanding arguments that legitimacy and voice are critical for participatory natural resource management (Ribot, 2004). When community members perceive that their views are excluded or marginalized—especially in planning, revenue use, and benefit distribution—they are less likely to view conservation institutions as legitimate and worthy of their cooperation. Achieving representation demands institutional transformations that establish governance systems which include all stakeholder groups in conservation decision-making processes. The improvement of representation demands the implementation of quota-based representation systems, rotating leadership positions, and mandatory consultation procedures that benefit historically excluded groups.

The level of participation by the local community depended heavily on how transparent decision-making was, as well as how accountable the WMA leadership appeared. People who trusted JUHIWAPOMA and its partners' financial reports, planning methods, and project execution procedures were more likely to support conservation activities. The findings from recent research confirm that institutions need to demonstrate procedural justice through open communication and responsive actions to establish enduring community backing for conservation (Roe et al, 2010). Findings indicate that transparency remained restricted in actual operational practices. Many community members expressed their lack of knowledge about the revenue generation and distribution process within conservation activities. Similar governance problems exist in WMAs conservancies because their management systems remain unclear to local people, thus decreasing their involvement (Agrawal 2001; Kicheleri et al., 2018; Kimario et al., 2020; Lwankomezi et al., 2023; Robinson & Makupa, 2015)

Households that experienced better governance transparency in conservation displayed more than double the likelihood of participating in conservation activities (odds ratio = 2.51, p = 0.002). In this context, transparency means clearly explaining decisions while disclosing how conservation funds are managed and ensuring village residents understand resource use and benefit-sharing mechanisms. Lack of transparency results in collective action withdrawal by community members; thus, this outcome demonstrates how open governance practices build local trust and increase community involvement. Findings imply that conservation needs to implement transparency safeguards as mandatory conditions for funding distribution. This could be achieved by publishing audited financial reports, beneficiary lists, requiring attendance verification at village assemblies, and implementing third-party monitoring and grievance redress systems that enforce these measures. The transparency → procedural justice → trust → participation pathway becomes operational through these measures. The research by Robinson and Makupa (2015) in Ikona WMA demonstrates that weak downward accountability and restricted decision powers create barriers to authentic community participation. The financial transparency and centralised management of Tanzanian WMAs, according to Bluwstein et al. (2016), create governance disputes that reduce community participation. The study by Kicheleri et al. (2018) examines Burunge WMA to show that inadequate consultation and insufficient information sharing between stakeholders leads to decreased WMA activity participation, while Sundström (2016) demonstrates that perceived corruption levels directly affect poaching reporting

WMA leadership accountability was a substantial predictor influencing participation rates (odds ratio = 1.98, p = 0.013). Residents who believed that Makao leadership and other local leaders faced consequences for their actions displayed higher levels of conservation participation. The responsiveness of governance institutions to community oversight leads to increased community trust and participation. Conservation actors at Makao WMA created confusion because local communities struggled to understand their responsibilities alongside their roles. The combination of fragmented institutions with overlapping areas creates unclear policies, leading to duplication of work and community disengagement. The research findings from wildlife governance studies support this interpretation, as Ikona WMA demonstrates how elected committees and feedback meetings fostered actual WMA participant engagement through leader accountability (Robinson & Makupa, 2015). The Tanzanian WMAs demonstrate that poor decision-making, transparency, and weak enforcement systems reduce community participation in rule enforcement; however, better accountability systems would enhance involvement (Bluwstein et al., 2016). The Burunge WMA experienced decreased WMA task collaboration due to weak oversight mechanisms and non-functional grievance procedures, which support the requirement for enforceable leader

accountability (Kicheleri et al., 2018). The Great Limpopo Transfrontier Conservation Area demonstrates that when citizens perceive rangers as honest and responsible, they are more likely to report poaching activities (Sjöstedt et al., 2022).

The relationship between trust in conservation institutions and participation demonstrated a positive pattern with statistical significance at p = 0.009 (odds ratio = 2.09). The evidence supports that community-based conservation requires effective governance institutions which maintain credibility through participatory processes. Findings indicate that a lack of clear decision-making authority and responsibility distribution creates a complex institutional environment that undermines community trust and operational efficiency. The analysis revealed that institutional trust serves as a critical intermediary element linking governance quality to conservation participation. The research suggests that trust develops from good governance, yet it is a fundamental requirement for collaborative efforts among communities that have experienced discrimination or bear the costs of conservation initiatives (Calfucura, 2018; Seifert, 2020). Trust enables communities to make informed trade-offs and engage in meaningful discussions while dedicating their resources and time to long-term conservation goals. Therefore, procedural governance indicators, such as community meetings and bylaws, represent ineffective governance measures because political empowerment is the authentic indicator of effectiveness. The essence of participation extends beyond attending meetings, as it entails having absolute decision-making authority and full access to information, as well as the capability to enforce accountability among leaders (Galley et al., 2024). The research on wildlife governance in WMAs achieved better participation through its formal downward accountability system, which included elected committees and feedback meetings that revealed who performed WMA tasks (Kicheleri et al., 2018). The Burunge WMA in Tanzania demonstrated that insufficient consultation and inadequate information sharing resulted in decreased participation in WMA activities, as trust and legitimacy are key factors influencing active participation (Kicheleri et al., 2018).

Perceptions of Conservation Costs Affect Willingness to Participate

Findings indicate that respondents who experienced more frequent conflicts were less willing to participate in conservation activities (OR = 0.65). The current study found that repeated wildlife attacks on human settlements lead to reduced cooperation. It has also been found that wildlife-related losses result in decreased local support for conservation programs due to repeated incidents. Similarly, studies by Mbise et al. (2024) and Mmbaga et al. (2024) demonstrate that repeated animal attacks on crops and livestock lead to decreased community involvement, as people lose trust in the fairness of conservation programs and the institutions that manage them. (Mkonyi, 2022) shows that uncontrolled and ongoing conflicts lead to "participation fatigue" which causes people to leave their committees and collective work groups. The current study acknowledges that unresolved frequent incidents damage trust between humans and wildlife and require systematic prevention and compensation programs in specific conflict zones. This implies that high conflict rates create logical reasons for people to avoid participation, causing them to consider the cost distribution and institutional response rather than their conservation attitudes.

Table 5. Logistic regression on willingness to participate

Variable	β	SE	OR (Expβ)	p-value	Sig.
Intercept	−1.935	0.622	—	0.002	**
Conflict frequency (index)	−0.431	0.128	0.65	0.001	***
Crop-damage severity (1–5)	−0.286	0.112	0.75	0.012	**
Livestock predation (count)	−0.172	0.067	0.84	0.010	**
Resource-use restriction index	−0.355	0.121	0.70	0.004	**
Compensation available (1=yes)	0.871	0.257	2.39	0.001	***
Procedural fairness (1–5)	0.463	0.154	1.59	0.003	**
Distance to WMA (km)	−0.083	0.033	0.92	0.012	**
Receipt of benefits (1=yes)	1.201	0.331	3.32	<0.001	***

The perception of severe crop damage leads people to refuse conservation participation because they see external costs (OR = 0.75). The externalisation of costs to farmers, rather than conservation institutions, leads to a distributive justice failure that damages institutional trust and social permission to conserve. Studies confirm that rising crop raiding incidents decrease both participation rates and compliance levels, resulting in damaged perceptions of state accountability and fairness. Farmers develop “participation fatigue” because they experience repeated losses and delayed compensation. The current study reveals that households experiencing significant crop damage tend to withdraw from reporting schemes and committee work, as they perceive the decision-making process as unclear and the responses as ineffective. Similar studies conducted in Namibia's conservancies demonstrate that stable benefit distribution systems, combined with operational compensation mechanisms, enable continued participation from farmers who experience high levels of damage. The implementation of beehive fences as long-term deterrents in the Kenya-Tanzania border areas has proven successful in reducing wildlife damage and enhancing community attitudes, while minimising the negative impact on participation rates (Dreescher et al., 2017). The current research supports the idea that Tanzania and similar sub-Saharan regions should view crop loss as an institutional responsibility, which requires proactive prevention and insurance measures through compensation systems, transparent budgeting, and frontline deterrent programs to establish risk-sharing participation rather than resignation to ongoing damage.

Perceived high livestock predation rates lead to low conservation participation (OR = 0.84) because repeated uninsured stock losses damage institutional trust and create rational behavior that leads pastoral and agropastoral households to reduce their cooperation. Research in the Mkomazi National Park area shows that individuals who experienced more hyena attacks became less involved in conservation activities, while demanding better

compensation systems (Mbise, 2024). Gereta & Rostaft (2010) argue that protected-area governance will lose its support from local communities unless better mitigation strategies and response systems are implemented (Mmbaga, 2024). This supports our findings that hyena attacks create immediate financial damage to people's livelihoods, resulting in social consequences that reduce their tolerance levels. Similar to Mkonyi et al. (2017), who have shown that local communities develop negative attitudes toward carnivores and authorities when they experience high predation pressure and an unequal distribution of benefits.

The perception of restricted resource access leads to decreased participation (OR 0.70). This implies that conservation creates a "livelihoods penalty" that makes participation less likely for households that lack insurance coverage for their expenses. The effectiveness of institutional responses in resolving human-wildlife conflicts has been confirmed by multiple studies in East and Southern Africa (Moreto et al., 2021). The availability of compensation increases participation odds by 139% (OR 2.39), and households become more likely to participate when they experience fair procedures and obtain mitigation resources through training and equipment (ORs 1.59 and 1.71). The results show that households support conservation efforts, but they base their cooperation levels on how well institutions handle conservation-related risks. The findings support distributive and procedural justice theories because fair cost distribution and transparent procedures transform unwilling observers into environmental guardians (Friedman et al., 2022). The rule system earns legitimacy by internalising externalities, rather than forcing vulnerable producers to bear these costs. Research conducted in Rungwa–Muhesi–Kizigo demonstrates that proper administration of compensation programs leads to decreased retaliatory actions and more positive community relations (Liendekiye et al., 2022). Ravenelle and Nyhus (2017) argue that compensation programs that combine prevention measures and benefits are more effective than cash-based compensation systems.

Conclusion

This research provides essential empirical and theoretical knowledge about the factors influencing wildlife conservation participation, using data from the Makao Wildlife Management Area (WMA) in Tanzania. The research suggests that negotiations among various household socio-economic characteristics, risk exposure levels, governance quality, and perceived costs and benefits influence participation in conservation. Community participation grows stronger when households receive direct advantages, yet decreases when wildlife conflicts become prominent and residents face more barriers to accessing resource areas. The level of community participation increases when decision-making processes remain transparent, leaders demonstrate accountability, and members feel represented and trust the institutions. Additionally, households with educated members, larger families, modest incomes, and land ownership show increased support. Therefore, local communities were willing to join conservation efforts only when institutions demonstrated trustworthiness, benefits were distributed fairly, and governance structures maintained transparency and responsiveness. The findings refute traditional beliefs about community participation by showing that environmental awareness and geographic location do not guarantee involvement. Participation functions as a political process within local power dynamics and historical patterns of access and legitimacy. Conservation goals suffer from weak institutional accountability, elite capture, and unclear governance mandates, which lead to erosion of trust and marginalisation of vulnerable groups. Local ownership and conservation outcomes improve substantially when institutions establish equitable benefit-sharing systems, inclusive representation methods, and clear governance roles.

Therefore, community-based conservation requires an immediate policy shift from consultative approaches to co-governance models that respect local rights. The approach requires legal support for local institutions, alongside specific measures to include marginalised households and ensure the fair distribution of conservation costs and benefits across different areas. The sustainability of community participation requires more than incentives because it needs to establish foundations based on equity, justice, and shared decision-making authority. Conservation initiatives will achieve ecological integrity and socio-political legitimacy when they place these principles at their centre.

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Authorship Contribution Statement

Emmanuel Lwankomezi: Conceptualization, writing – original draft, Methodology, Writing- Reviewing and Editing, Writing and checking references.

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References

1. Adams, W.M., Aveling, R., Brockington, D., Dickson, B., Elliott, J., Hutton, J., Roe, D., Vira, B. & Wolmer, W. (2004). Biodiversity conservation and the eradication of poverty. Science, 306: 1146-1149.
2. Adams, W. M., & Sandbrook, C., (2013). Conservation, evidence and policy. *Oryx*, 47(3), 329–335. https://doi.org/10.1017/S0030605312001470
3. Agarwala, M., & Ginsberg, J. R. (2017). Untangling outcomes of de jure and de facto community-based management of natural resources. Conservation Biology, 31, 1232–1246.
4. Agrawal A., (2001). The regulatory community: decentralization and the environment in the Van

Panchayats (forest councils) of Kumaon. Mountain research and development. 21:208–11

5. Ayambire, R. A., Rytwinski, T., Taylor, J. J., Luizza, M. W., Muir, M. J., Cadet, C., Armitage, D., Bennett, N. J., Brooks, J., Cheng, S. H., Martinez, J., Nagendran, M., Öckerman, S., Rivera, S. N., Savage, A., Wilkie, D. S., Cooke, S. J., & Bennett, J. R. (2025). Challenges in assessing the effects of environmental governance systems on conservation outcomes. *Conservation Biology*, *39*(1), e14392. https://doi.org/10.1111/cobi.14392
6. Bedelian, C., Ogutu, J., Homewood, K., & Keane, A. (2024). *Evaluating the determinants of participation in conservancy land leases and its impacts on household wealth in the Maasai Mara, Kenya: Equity and gender implications*. *World Development, 174*, 106442. https://doi.org/10.1016/j.worlddev.2023.106442
7. Bello, F. G., Lovelock, B., & Carr, N. (2016). Constraints of community participation in protected area-based tourism planning: the case of Malawi. *Journal of Ecotourism*, *16*(2), 131–151. https://doi.org/10.1080/14724049.2016.1251444
8. Benjamin-Fink, N. (2019). An assessment of the human-wildlife conflict across Africa. In M. Ferretti (Ed.), Wildlife population monitoring (pp. 1–9). IntechOpen Limited.
9. Benjaminsen, Tor A. Svarstad, Hanne (2010). The death of an elephant: conservation discourses versus practices in Africa. Forum for Development Studies. Vol. 37.
10. Berkes, F., (2004) Rethinking Community-Based Conservation Conservation Biology. Vol 18, No. 3. P 621-630
11. Bitariho, R., Akampurira, E., & Mugerwa, B. (2022). Long-term funding of community projects has contributed to mitigation of illegal activities within a premier African protected area, Bwindi Impenetrable National Park, Uganda. *Conservation Science and Practice, 4*(3), e12761. https://doi.org/10.1111/csp2.12761
12. Blair, A. G., & Meredith, T. C. (2018). *Community perception of the real impacts of human–wildlife conflict in Laikipia, Kenya: capturing the relative significance of high-frequency, low-severity events.* **Oryx, 52**(3), 497–507. https://doi.org/10.1017/S0030605316001216
13. Brockington, D., Duffy, R. & Igoe, J. (2008). Nature Unbound: Conservation, capitalism, and the future of protected areas. London: Earthscan.
14. Brooks, J., Waylen, K. A., & Mulder, M. B. (2013). Assessing community-based conservation projects: A systematic review and multilevel analysis of attitudinal, behavioral, ecological, and economic outcomes. Environmental Evidence, 2, 2.
15. Brown, K. (2002). Innovations for conservation and development. The Geographical Journal, 1(1), 6–17. https://doi.org/10.1111/1475-4959.00034
16. Cleaver, F., 2001, Institutions, Agency and the Limitations of Participatory Approaches to Development. Development and Project Planning Centre (United Kingdom: Zed Books).
17. Diamond, N., (2002), Participatory Conservation for protected areas. An annotated Bibliography of selected sources (1996–2001). Available online at: https://web.worldbank. org/archive/website00675/WEB/PDF/ANNOTA-4.PDF.
18. Dolica, F. M., M. J., & Teeter, L. D. (2007). Farmers' perceptions towards forests: A case study from Haiti. Forest Policy and Economics, 9(6), 707–712. https://doi.org/10.1016/j.forpol.2006.07. 001.
19. Drescher, M., G. Keith Warriner, J. R. Farmer, and B. Larson, M.H., (2017). Private landowners and environmental conservation: a case study of social-psychological determinants of conservation program participation in Ontario. Ecology and Society 22(1):44. https:// doi.org/10.5751/ES-09118-220144
20. Ernest N., (2023). Lessons learned from community engagement and participation in fostering coexistence and minimizing human-wildlife conflict in Ghana. Trees, Forests and People 14, pages 100430.
21. Frank, B. (2016). Human-wildlife conflict and the need to include tolerance and coexistence: An introductory comment. Society & Nature Resources, 29(6), 738–743. https://doi.org/10.1080/08941920.2015.1103388
22. Friedman, K., Bridgewater, P., Agostini, V., Agardy, T., Arico, S., Biermann, F., Brown, K., Cresswell, I. D., Ellis, E. C., Failler, P., Kim, R. E., Pratt, C., Rice, J., Rivera, V. S., & Teneva, L. (2022). *The CBD Post-2020 biodiversity framework: People's place within the rest of nature*. *People and Nature, 4*(6), 1477–1488. https://doi.org/10.1002/pan3.10403
23. Galley, W., Anthony, B.P., (2024). Beyond Crop-Raiding: Unravelling the Broader Impacts of Human-Wildlife Conflict on Rural Communities. *Environmental Management* **74**, 590–608. https://doi.org/10.1007/s00267-024-02018-9
24. Gereta, Emmanuel J, and Eivin Roskaft (2010). Conservation of Natural Resources, some Africa and Asia Examples. Tapir Academic Press. No-7005 Trondheim, Norway
25. Gibbes, C., and Keys, E. (2010). The illusion of equity: An examination of community-based natural resource management and inequality in Africa. Geography Compass, 4(9): 1324-1338
26. Gore, M. L., & Kahler, J. S. (2012). Gendered risk perceptions associated with human-wildlife Conflict: Implication for participatory conservation. PloS One, 7(3), e32901. https://doi.org/10. 1371/journal.pone.0032901.
27. Harrison, M. E., Adams, W. M., & Millam, R. (2015). *Profiling unauthorized natural resource users for better targeting of conservation interventions: a case from Bwindi Impenetrable National Park, Uganda. Oryx, 49*(1), 131–142. https://doi.org/10.1017/S0030605313001294
28. Hazzah, L., *et al.* (2014). Efficacy of two lion conservation programs in Maasailand**.** *Conservation Biology*, *28*(3), 851-860. https://doi.org/10.1111/cobi.12244 Heller, F. A. (Ed.). (2018). *Managing democratic organizations*. Routledge.
29. Jayachandran, S., de Laat, J., Lambin, E. F., & Stanton, C. (2017). *Cash for carbon: A randomized trial of payments for ecosystem services to reduce deforestation. Science, 357*(6348), 267–273. https://doi.org/10.1126/science.aan0568

30. Kajembe, G.C., Kimasa S.F., Monela, G.C. and Zahabu, E., (2000). The local institutions in the management of forest resources in Tanzania: A case study of Kahama district. Tanzania Journal of Faculty of Forestry and Nature Conservation 73: 9-16.
31. Kaswamila, A.L., (2012). An analysis of the contribution of community wildlife management areas on livelihood in Tanzania. http://cdn.intechopen.com/pdfs/25746/InTechAn_analysis_of_the_contribution_of_community_wildlife_management_areas_on_livelihood_in_tanzania.pdf
32. Kegamba, J. J., Sangha, K. K., Wurm, P. A. S., Meitamei, J. L., Tiotem, L. G., & Garnett, S. T. (2024). The human and financial costs of conservation for local communities living around the Greater Serengeti Ecosystem, Tanzania. *Global Ecology and Conservation*, *52*, e02974. https://doi.org/10.1016/j.gecco.2024.e02974
33. Kicheleri, R.P., Thorsten, T. Martin, R.N., et al., (2018), Institutional rhetoric versus local reality: A case study of burunge wildlife management area, Tanzania. Journal of Environment & Development 8(2), 1–15. doi: 10.1177/2158244018774382.
34. Kideghesho, J. R., Røskaft, E., & Kaltenborn, B. P. (2007). *Factors influencing conservation attitudes of local people in Western Serengeti, Tanzania*. Biodiversity and Conservation, 16(7), 2213–2230. https://doi.org/10.1007/s10531-006-9132-8
35. Kideghesho J. R., (2016). Reversing the trend of wildlife crime in Tanzania: challenges and opportunities. Biodivers Conserv (2016) 25:427–449 DOI 10.1007/s10531-016-1069-y.
36. Kimario, F. F., Botha, N., Kisingo, A., & Job, H. (2020). Theory and practice of conservancies: evidence from wildlife management areas in Tanzania. *ERDKUNDE*, *74*(2), 117–141. https://doi.org/10.3112/erdkunde.2020.02.03
37. Kiwango, W.A., Komakech, H.C., Tarimo, T. and Martz, L., et al., (2015), Decentralized environmental governance: A reflection on its role in shaping wildlife management areas in Tanzania. Tropical Conservation Science 8(4), 1080–1097. doi: 10.1177/ 194008291500800415.
38. Liendekiye, A. I., Mahenge, F. Y., & Makupa, E. E. (2022). *Implication of consolation scheme in reducing human-wildlife conflict near the Rungwa-Muhesi-Kizigo Game Reserve in Singida, Tanzania*. Journal of Research in Forestry, Wildlife & Environment, 14(3), 56-64.
39. Likert, R., (1932) A technique for the measurement of attitudes. Archives of Psychology, v. 22, n. 140, p. 44-53.
40. Loibooki, M., Hofer, H., Campbell, K. L. I., & East, M. (2002). *Bushmeat hunting by communities adjacent to the Serengeti National Park, Tanzania: The importance of livestock ownership and alternative sources of protein and income*. *Environmental Conservation*, 29(3), 391-398. https://doi.org/10.1017/S0376892902000279
41. Lwankomezi, B.E., Kisoza, J. and Mhache, P.E., (2021a), Benefit Sharing in Community Based Conservation Programs: The Case of Makao Wildlife Management Area, Tanzania. East African Journal of Education and Social Sciences EAJESS. Vol. 2, No. 2, pp. 41-50. Available online at: https://www.journals.udsm.ac.tz/index.php/jgat/article/view/4653.
42. Lwankomezi, B.E., Kisoza, J. and Mhache, P.E., (2021b), Community access to livelihood sustenance resources in protected areas: A case study of the Makao WMA, Tanzania. Journal of the Geographical Association of Tanzania 41(2), 112–12. Available online at: https://www.journals.udsm.ac.tz/index.php/jgat/article/view/4653.
43. Lwankomezi, B. E., Kisoza, J., & Mhache, P. E., (2023). Institutional reform to conserve wildlife in Makao, Tanzania, International Journal of Environmental Studies, DOI: 10.1080/00207233.2023.2228617
44. Madden, F. (2014). The case for conflict transformation in wildlife conservation. Biological Conservation, 178, *155–163. https://doi.org/10.1016/j.biocon.2014.07.007*
45. Maganga, S.L.S. (1999). Community based wildlife management policy. Kakakuona. 16: 21-27.
46. Mmbaga, N. E. (2024). Community perspectives on existence of human wildlife conflicts and underlying mitigation measures adjacent to protected areas in Northern Tanzania. *Discover Sustainability*, *5*(1), 370. https://doi.org/10.1007/s43621-024-00555-1
47. Mariki, S. B. (2013). Conservation with a human face? Comparing local participation and benefit sharing From a national park and a state forest plantation in Tanzania. SAGE Open, 3(4), 1-16. https://doi.org/10.1177/2158244013512665
48. Mbise, F. P., & others. (2024). Human-Hyena (Crocuta crocuta) conflict in the Tarangire Ecosystem, Tanzania. *Conservation, 4(1), 99–114. https://doi.org/10.1007/s43621-024-00345-9*
49. Mbaiwa J. E., (2017). Poverty or riches: Who benefits from the booming tourism industry in Botswana? Journal of Contemporary African Studies, 35(1), 93–112.
50. McShane, T. O., Hirsch, P. D., Trung, T. C., Songorwa, A. N., Kinzig, A., Monteferri, B., Mutekanga, D., Thang, H. V., Dammert, J. L., Pulgar-Vidal, M., Welch-Devine, M., Peter Brosius, J., Coppolillo, P., & O'Connor, S. (2011). Hard choices: Making trade-offs between biodiversity conservation and human well-being. Biological Conservation, 144, 966–972.
51. Mkonyi, F. J., Estes, A. B., Msuha, M. J., Lichtenfeld, L. L., & Durant, S. M. (2017). *Socio-economic correlates and management implications of livestock depredation by large carnivores in the Tarangire ecosystem* — report that increased carnivore attacks lead to negative sentiments about wildlife and conservation interventions. https://doi.org/10.1080/21513732.2017.1339734
52. Mfunda, I. M., & Røskaft, E. (2011). Participatory wildlife management in Serengeti, Tanzania: Lessons and challenges from community-based conservation outreach project. *International Journal of Biodiversity and Conservation, 3*(12), 706–714. https://doi.org/10.5897/IJBC11.106
53. Mgawe, P., Borgerhoff Mulder, M., Caro, T., Martin, A., & Kiffner, C. (2012). *Factors affecting bushmeat consumption in the Katavi-Rukwa ecosystem of Tanzania. Tropical Conservation Science, 5*(4), 446-462. https://doi.org/10.1177/194008291200500404
54. Mgonja J.T., (2023). Assessing Community Perceptions about the Contributions and Impacts of Wildlife Tourism

to Rural Livelihoods: Wildlife Management Areas Perspective. Tanzania Journal of Forestry and Nature Conservation, Vol 92, No. 1 pp 64-81

55. MNRT, (2007). Assessment and Evaluation of the Wildlife Management Areas in Tanzania; institute of resource assessment.
56. MNRT (2022). Ministry of Natural Resources and Tourism (MNRT). Statistical bulleting
57. Moreto, W. D. (2021). Rangers can't be with every elephant: assessing rangers' perceptions of a community problem-solving policing model for protected areas. Oryx**,** 55(5), 798–806. https://doi.org/10.1017/S0030605320001460
58. Nuno, A., Bunnefeld, N., & Milner-Gulland, E. J. (2013). Matching observations and reality: using simulation models to improve monitoring under uncertainty in the Serengeti. *Journal of Applied Ecology, 50*(2), 488–498. https://doi.org/10.1111/1365-2664.12051
59. Mogomotsi, P. K., Stone, L. S., Mogomotsi, G. E. J., & Dube, N., (2020). Factors influencing community participation in wildlife conservation, Human Dimensions of Wildlife, 25:4, 372-386, DOI: 10.1080/10871209.2020.1748769
60. Musyoki, J. K., Mugwe, J., Mutundu, K., & Muchiri, M. (2016), Factors influencing level of participation of community forest associations in management forests in Kenya. *Journal of Sustainable Forestry*, *35*(3), 205–216. https://doi.org/10.1080/10549811.2016.1142454
61. Mutanga, C. N., Vengesayi, S., Muboko, N., & Gandiwa, E. (2015). Towards harmonious conservation relationships: A framework for understanding protected area staff-local community relationships in developing countries. Journal of Nature Conservation, 25, 8–16. https://doi.org/10.1016/j.jnc.2015.02.006
62. Nelson, F. (2007), Emergent or illusory? Community wildlife management in Tanzania. IIED, Issue paper no. 146. Nottingham, UK: Russell Press.
63. Nelson, F. and Agrawal, A., (2008), Patronage or participation? Community-based natural resource management reform in Sub-Saharan Africa. Development and Change 39(4), 557–585. doi: 10.1111/j.1467-7660.2008.00496.x
64. Nyahongo, J. W., Holmern, T., Kaltenborn, B. P., & Røskaft, E. (2009). Spatial and temporal variation in meat and fish consumption among people in the western Serengeti, Tanzania: the importance of migratory herbivores. Oryx, 43(2), 258-266. https://doi.org/10.1017/S003060530900016X
65. Paudyal, R., Thapa, B., Neupane, S. S., & Kc, B. (2018). Factors Associated with Conservation Participation by Local Communities in Gaurishankar Conservation Area Project, Nepal. *Sustainability*, *10*(10), 3488. https://doi.org/10.3390/su10103488
66. Ravenelle, J., & Nyhus, P. J. (2017). Global patterns and trends in human-wildlife conflict: compensation, prevention, and policy effectiveness.
67. Redford, K.H., Levy, M.A., Sanderson, E.W. & de Sherbinin, A. (2008). What is the role for conservation organizations in poverty alleviation in the world's wild places? Oryx, 42:516-528.
68. Ribot J. (2004) Waiting for Democracy: The Politics of Choice in Natural Resource Decentralization. Washington DC: World Resource Institute
69. Rihoy, L., Chirozwa, C., & Anstey, S. (2010). People are not happy: Criss, adaptation and resilience in Zimbabwe's CAMPFIRE programme. In F. Nelson (ed.), Community rights, conservation & contested Land: The politics of natural resource governance in Africa. Washington, DC: Earthscan Publications.
70. Robinson, L.W., & Makupa, E. (2015) Using Analysis of Governance to Unpack Community-Based Conservation: A Case Study from Tanzania. *Environmental Management* **56**, 1214–1227 (2015). https://doi.org/10.1007/s00267-015-0573-2
71. Roe, D., Nelson, F. & Sandbrook, C. (2010). Community management of natural resources in Africa: impacts, experiences and future directions. IIED Natural Resource Issues. (18), +154.
72. Siege, L. (2001). Experiences with Community Based Wildlife Conservation in Tanzania. Tanzania Wildlife Discussion Paper No. 29. Wildlife Division and GTZ, Dar es Salaam, Tanzania
73. Siurua, H., (2006). Nature above people: Rolston and "fortress" conservation in the south. Ethics and the Environment, 11(1), 71–96. https://doi.org/10.1353/een.2006.0006.
74. Songorwa, A.T. (1999). Community-based wildlife management (CWM) in Tanzania: Are the communities interested? World Development, 27(12): 2061-2079.
75. Sjöstedt, M., Sundström, A., Jagers, S. C., & Ntuli, H. (2022). Governance through community policing: What makes citizens report poaching of wildlife to state officials? World Development, 160, 106065. https://doi.org/10.1016/j.worlddev.2022.106065
76. Stone, M. T. (2015). Community-based ecotourism: A collaborative partnerships perspective. Journal of Ecotourism, 14(2–3), 166–184. https://doi.org/10.1080/14724049.2015.1023309, (Accessed on 7/6/2020).
77. Sundström, A. (2016). *Corruption and Violations of Conservation Rules: A Survey Experiment with Resource Users.* Ecological Economics, 130, 330–337.
78. Treves, A., & Bruskotter, J. (2014). Tolerance for predatory wildlife. Science, 344(6183), 476–477. https://doi.org/10.1126/science.1252690
79. Tumusiime, D. M., & Vedeld, P. (2012). False promise or false premise? Using tourism revenue sharing to promote conservation and poverty reduction in Uganda.
80. Conservation & Society, 10, 15-28. doi:10.4103/0972-4923.92189.
81. United Republic of Tanzania (1998). United Republic of Tanzania: Ministry of Natural Resources and Tourism. The wildlife policy of Tanzania. Government printer, Dar es Salaam.
82. United Republic of Tanzania (2012). Ministry of Natural Resources and Tourism: Wildlife Conservation (Wildlife Management Areas) Regulations of 2012.
83. Vimal, R., Khalil-Lortie, M., & Gatiso, T. (2018). What does community participation in nature protection mean? The case of tropical national parks in Africa.

Environmental Conservation, 45 (4), 333–341. https://doi.org/10.1017/S0376892917000583.

84. Williams, S. T., Collier, B. A., Balmford, A., Garnett, S. T., & Lindenmayer, D. B. (2021). Low-intensity environmental education can enhance conservation attitudes. *Ecosphere, 12*(11), e03582. https://doi.org/10.1002/ecs2.3482
85. Wilfred P, (2010). Towards Sustainable Wildlife Management Areas in Tanzania. https://doi.org/10.1177/194008291000300.
86. Yamane, T., (1973), Statistics: An Introductory Analysis.London: John Weather Hill, Inc.