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RECEIVED 19 September 2025

REVISED 23 November 2025

ACCEPTED 08 December 2025

PUBLISHED 26 January 2026

## CITATION

Kulunge SR, Mariki S, Roe D, Snyman S(S),  
Dickman A, Sibanda L, Hare D and Mbije N  
(2026) Exploring the acceptability of wildlife  
tourism joint ventures in wildlife management  
areas, Northern Tanzania.  
*Front. Conserv. Sci.* 6:1708398.  
doi: 10.3389/fcosc.2025.1708398

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# Exploring the acceptability of wildlife tourism joint ventures in wildlife management areas, Northern Tanzania

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**Purpose:** This study investigates the acceptability of wildlife tourism joint ventures (JVs) among rural communities in northern Tanzania's Wildlife Management Areas (WMAs). These partnerships between communities and external investors aim to conserve biodiversity and deliver sustainable socioeconomic benefits. Guided by the Cognitive Hierarchy Model (CHM), the research examines how values, beliefs and contextual experiences shape community judgements of JVs.

**Methods:** We employed a mixed-methods approach, including household surveys with 548 respondents across nine villages (three from each of the Burunge, Enduimet and Randilen WMAs) and 20 Key Informant Interviews. The surveys captured respondents' perceptions of JV benefits, conservation-related factors and demographic information, while key informant interviews provided deeper contextual perspectives on wildlife tourism partnerships. We analyzed the quantitative data using an ordinal cumulative link mixed model and applied thematic analysis to the qualitative data to determine the acceptability of JVs in WMAs.

**Results:** We found that community acceptability of JVs is positively influenced by perceived socio-economic benefits, including financial opportunities, support for public infrastructure, access to employment in tourism facilities and support for local microenterprises. However, limited recognition or awareness of investor contributions to wildlife protection can reduce community willingness to accept and support JVs. Education and positive expectations of tourism growth further enhance acceptability, while negative experiences related to conservation foster skepticism. Observed variations across WMAs and among households highlight the need for place-based governance and locally tailored approaches to ensure that JV outcomes align with community priorities.

**Discussion/originality:** This study offers a novel application of CHM to the context of wildlife tourism, moving beyond socioeconomic impact assessments to explore psychological and contextual drivers of community acceptability of JVs. Our findings inform policy, conservation and investment

strategies aimed at fostering household-level engagement strategies that can ensure equitable access to benefits, strengthen trust and sustainable wildlife tourism JVs, with implications for enhancing rural community participation, economic growth and conservation outcomes.

#### KEYWORDS

community involvement, joint ventures, microenterprises, rural communities, wildlife conservation, benefit sharing

## 1 Introduction

Wildlife tourism is increasingly recognized as a mechanism for achieving sustainable conservation and rural development goals, particularly in sub-Saharan Africa (Naidoo et al., 2019; Akayezu et al., 2022; Mmbaga et al., 2024). It includes both non-consumptive activities, such as wildlife viewing, photography and birdwatching and consumptive practices like trophy hunting and recreational fishing (Rizzolo, 2023; United Republic of Tanzania (URT), 2018). In countries like Tanzania, where tourism is predominantly wildlife-based and primarily occurs within Protected and Conserved Areas (PCAs), the industry plays a crucial role in the national economy (Kideghesho et al., 2021). For instance, in 2019, tourism accounted for 10.7% of the national Gross Domestic Product (GDP) and supported more than 1.5 million jobs (Kyara et al., 2021).

Despite its economic significance, wildlife tourism in Tanzania continues to face persistent challenges, particularly regarding equitable, sustainable benefit sharing and community participation (Kideghesho et al., 2021). Many communities living adjacent to PCAs remain marginalized, with limited involvement in tourism governance and restricted access to natural resources (Moyo et al., 2016; Kicheleri et al., 2021). These dynamics not only foster local resentment but also undermine the long-term legitimacy and sustainability of conservation initiatives (Minja et al., 2023).

In response, Joint ventures (JVs) between rural communities and private investors have emerged as a potential solution to address these imbalances (Bricker and Snyman, 2023). JVs are formal partnerships designed to promote long-term local participation in wildlife tourism enterprises and ensure a more equitable distribution of economic and social benefits (Boer and Djik, 2016; Rylance and Spenceley, 2017; Ren et al., 2021). These partnerships may include revenue-sharing agreements, lease agreements or community-owned lodges and are often facilitated within Wildlife Management Areas (WMAs) (Spenceley et al., 2019; Shoo et al., 2021; Mgonja, 2023). WMAs are zones of village land set aside for wildlife conservation and recreational activities involving wildlife (URT, 2023).

In theory, wildlife tourism JVs can offer a dual benefit: enhancing sustainable conservation outcomes while simultaneously supporting

rural livelihoods through employment, income generation, and improved social services (Snyman, 2014; Kegamba et al., 2023). Investors contribute capital, technical expertise and capacity building, thereby strengthening the viability of community-based conservation models (Akayezu et al., 2022; Manda et al., 2023; Snyman et al., 2023). Evidence from Namibia (Torra conservancy), Kenya (Laikipia), Botswana (Okavango Community Trust), Nigeria (Obudu Mountain) and Tanzania (Mwiba Ranch and Kilimanjaro National Park) show that such partnerships can sustainably deliver tangible local benefits (Spenceley and Snyman, 2017; Ngilangwa et al., 2018; Idowu, 2021; Kitole and Sesabo, 2024). Yet, the implementation of JVs in wildlife tourism is not without contention. Issues such as insecure tenure, limited transparency, displacement of people and the erosion of traditional livelihoods raise concerns about power asymmetries and the level of inclusion, ultimately diminishing local support for wildlife tourism initiatives (Bartels, 2016; Minja et al., 2023). For JVs to succeed in the long-term, they must be perceived as fair, legitimate and aligned with community incentives (Ngilangwa et al., 2018).

This illustrates the centrality of acceptability, defined as the level of community support and perceived legitimacy of an initiative, shaped by how well it aligns with local needs, rights and expectations (Engel et al., 2017). Acceptability is not static; it evolves through lived experience, shifting socio-economic conditions and changing perceptions of benefits (Alexandre et al., 2018). Understanding the factors that predict rural communities' acceptability of JVs is therefore vital, as acceptability plays a central role in determining the sustainability of wildlife conservation and partnerships (Manfredo et al., 2021). This is particularly important and challenging for wildlife tourism management, as increasing demand for JVs on communal lands raises concerns about equitable benefit sharing, participation and natural resource use among local communities (Minja et al., 2023; Lugalla et al., 2024). Acceptability is therefore considered a predictor of individuals' willingness to support or engage with wildlife tourism ventures and support conservation initiatives (Brenner and Metcalf, 2020; Heneghan and Morse, 2019; Metcalf et al., 2024). Individuals can engage in informal local microenterprises to provide goods and services to tourists, such as handicrafts, security guards in lodges, local guidance on cultural activities, and perform traditional dances to entertain tourists (Shoo et al., 2021; Kitole and Sesabo, 2024). While

previous studies have examined socioeconomic impacts of wildlife tourism across multiple contexts and demographic groups (Lwankomezi et al., 2021; Mgonja and Uswege, 2022; Mgonja, 2023; Mmbaga et al., 2024), relatively few have explicitly focused on the factors shaping community acceptability of wildlife tourism JVs. This study therefore addresses a specific knowledge gap by investigating how socio-demographic variables (e.g., gender, age, education level, WMA and residence time), wildlife related benefit factors (e.g., employment, financial opportunities, support on public infrastructure) and conservation related factors (e.g., wildlife protection, mitigation of human wildlife conflicts and perceived increase in wildlife tourism activities) may predict acceptability of wildlife tourism JVs among rural communities in northern Tanzania, a region marked by diverse land-uses, complex governance structures and rich biodiversity (Bluwstein et al., 2016; Moyo et al., 2017; Kicheleri et al., 2021; Minja et al., 2023). By assessing community perceptions across multiple WMAs, the study contributes empirical evidence to inform policy and guide more inclusive, equitable and sustainable investment in wildlife tourism. To achieve this, the study is guided by the following questions:

RQ1: How do rural communities' perceptions of wildlife tourism benefits and conservation-related factors influence the acceptability of wildlife tourism JVs?

RQ2: How do demographic characteristics shape rural communities' acceptability of wildlife tourism JVs?

## 2 Theoretical framework

Community support is essential for the success of wildlife tourism JVs, particularly in rural areas where they impact both conservation and livelihoods (Spenceley and Snyman, 2017). This study adopts the Cognitive Hierarchy Model (CHM; Figure 1) adapted from Manfredo et al. (2021) and Straka et al. (2020) to conceptualize acceptability as a cognitive process influenced by individual values, beliefs, perceptions and attitudes. According to CHM, core values such as equity and economic security shape beliefs, which in turn influence perceptions of benefit distributions. These perceptions inform attitudes toward JVs and guiding behavioural responses such as acceptance, participation or resistance. Acceptability thus emerges as a psychological and social outcome of this progression (Metcalf et al., 2024). Demographic factors (e.g., age, gender, education, residency time) and livelihood conditions moderate belief formation, while feedback from lived experiences can reinforce or reshape perceptions and attitudes (Jama et al., 2023; Eriksson et al., 2024).

For instance, individuals may view JV as acceptable if they believe benefits are equitably distributed and contribute to local development (Kegamba et al., 2023; Mgonja, 2023). Perceptions, shaped by personal or community experience, play a key role in forming attitudes toward wildlife tourism initiatives or management action (Heneghan and Morse, 2019; Metcalf et al., 2024). Positive experiences foster favourable attitudes, higher acceptability and long-term commitment (Manfredo et al., 2021), while perception of elite capture or external favouritism can erode

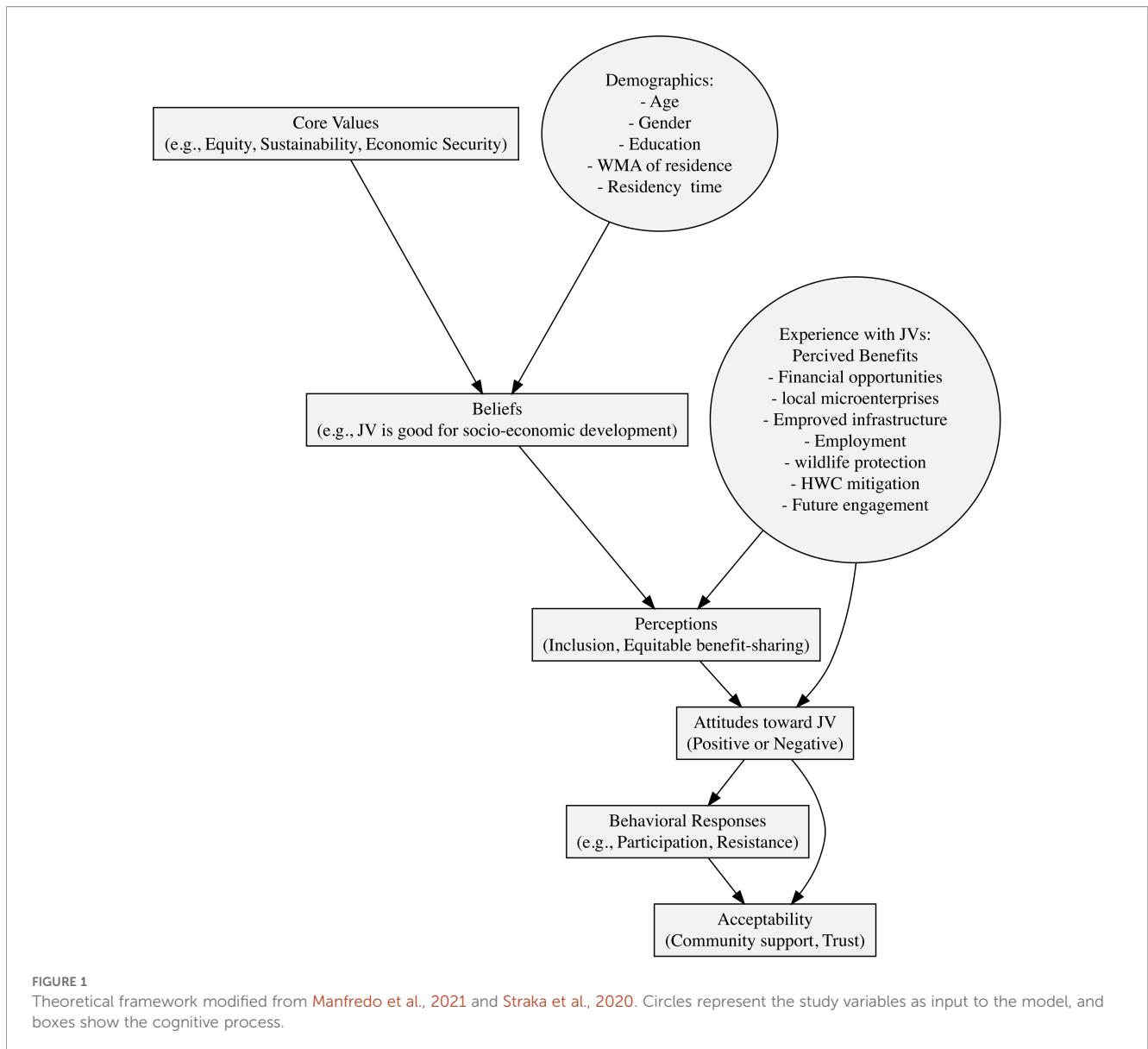
trust and reduce community willingness to participate or support an initiative (Minja et al., 2023; Metcalf et al., 2024). The CHM has been widely applied in conservation contexts (Straka et al., 2020; Metcalf et al., 2024; Martell and Rodewald, 2025), providing insights into how rural communities interpret and respond to wildlife tourism. Demographic factors such as gender, age, education level, length of residency and past or potential engagement with wildlife tourism JVs can shape expectations, for example, more educated individuals may seek transparency and accountability, while long-term residents may be skeptical due to unmet past promises or bad experiences with the investor or effort to deal with dangerous wild animals (Stronza et al., 2019; Eriksson et al., 2024). Ultimately, acceptability is shaped by alignment between community values and perceived JV outcomes, including perceived socio-economic and conservation-related benefits (Straka et al., 2020; Jama et al., 2023).

## 3 Materials and methods

### 3.1 Study area and context

This study was conducted in the semi-arid ecosystem of northern Tanzania, within three WMAs: Burunge (617 km<sup>2</sup>), Randilen (312 km<sup>2</sup>) and Enduimet (751.4 km<sup>2</sup>), all characterized by *Acacia-Commiphora* woodlands and grasslands (Figure 2). Located in Arusha and Manyara regions, these WMAs support both consumptive (e.g., trophy hunting) and non-consumptive (e.g., photographic safaris) forms of wildlife tourism. Burunge WMA, with ten member villages, borders Lake Manyara and Tarangire National Parks. Randilen WMA, consisting of six villages, shares a boundary with Tarangire, while Enduimet WMA, encompassing nine villages, lies adjacent to Kilimanjaro National Park in Tanzania and Amboseli National Park in Kenya. These WMAs form a critical ecological zone for regional tourism and conservation.

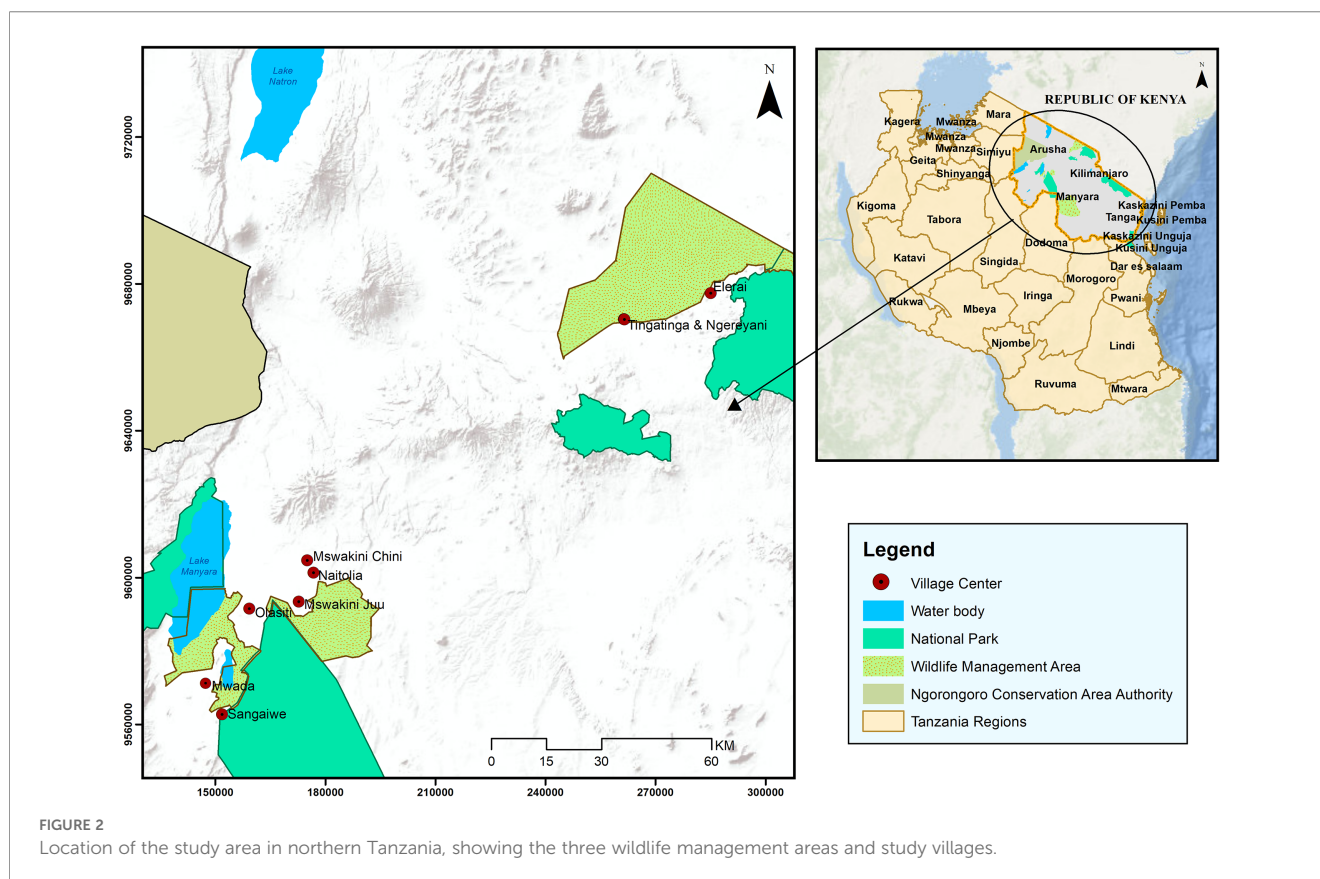
Between 2012 and 2022, population density increased from approximately 32 to 51 people per km<sup>2</sup> in Manyara, and from 42 to 62 people per km<sup>2</sup> in Arusha (National Bureau of Statistics [NBS], 2012; National Bureau of Statistics [NBS], 2022). This demographic growth intensifies pressure on natural resources, particularly land and water, reinforcing the role of wildlife tourism in balancing economic development and conservation (Moyo et al., 2017). In the study area, the Maasai are central to the region's agropastoral lifestyle, enriching wildlife tourism through traditional practices, attire and ceremonies. Although other ethnic groups, such as the Mbugwe, Iraqwi, Chagga, Pare, Barbaig, Nyaturu, Hehe, Rangi, Nyamwezi and Meru are present, they constitute a smaller proportion of the population. Within the study sample, 70% of respondents were Maasai, followed by Mbugwe (16%), Iraqwi (7%), Chagga (5%) and Pare (3%), with the remaining groups collectively representing less than 2% of respondents. Rural communities depend on woodlands for resources like herbs, fruits, game meat, firewood and forage (Mariki, 2016; Moyo et al., 2017). Community involvement through WMAs began in 2003 for Burunge and



Enduimet, and in 2011 for Randilen ([Supplementary Table S1](#)). Ecologically, these WMAs are key wildlife dispersal areas and migratory corridors that maintain landscape connectivity and biodiversity ([Sanare et al., 2022](#)). They facilitate seasonal migrations of elephants, wildebeests and zebras through corridors such as Kwakuchinja and Kitendeni, linking major PCAs such as Arusha, Kilimanjaro, Manyara and Tarangire national parks in Tanzania, and Amboseli national park in Kenya. These WMAs support some of the largest elephant populations in northern Tanzania ([Kiffner et al., 2015, 2020](#)). Northern Tanzania is a well-established wildlife tourism hub, renowned for its biodiversity and scenic landscapes ([Sumba et al., 2021](#)). The success of wildlife tourism within WMAs is influenced by location, accessibility, proximity to national parks and infrastructure such as roads and accommodations ([Mmbaga et al., 2024](#)).

At the Institutional level, WMAs are managed by Authorized Associations (AAs), community-based organizations responsible

for wildlife conservation, tourism management and protecting community interests ([URT, 2018, 2023](#)). These AAs enter into JV agreements with private investors to operate lodges, conduct guided tours and manage hunting blocks, typically under benefit-sharing mechanisms ([Lwankomezi et al., 2021](#)). According to WMA regulations ([URT, 2018](#)), JV agreements must include provisions for: (i) training and employing residents, with at least 60% of staff drawn from WMA member villages; (ii) supporting community infrastructure projects, such as education, healthcare and water services; and (iii) permitting community access for traditional, non-disruptive rites. In return, the AA is obligated to ensure that at least 50% of gross revenue benefits the communities, prevents encroachment into the WMA, and provides investors with stable access and a conducive operating environment. Each WMA also has a JV management committee composed of community representatives. These committees oversee implementation, monitor compliance, and ensure JV operations align with



conservation goals and local governance frameworks (URT, 2018). Community participation in these committees aims to empower local stakeholders to influence decisions and protect their interests.

### 3.2 Study design and sampling procedure

The study employed a mixed-methods approach to strengthen both the depth and reliability of findings and to establish a robust link between research methods and observed socioeconomic outcomes. From November 2022 to January 2023, a household survey was conducted across nine-member villages, three from each of the selected WMAs. Villages were purposively selected based on their primary livelihood strategies, particularly agropastoralism and proximity to the WMA boundary. The selected villages included: Olasiti, Mwada, and Sangaiwe in Burunge WMA; Mswakini Chini, Mswakini Juu and Naitolia in Randilen WMA; and Tingatinga, Ngerayani and Ilidonoyo in Enduimet WMA.

A systematic sampling technique was applied using the 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> household sequence as recommended by (Kothari, 2019). Sampling began at the household of the village chairperson, a respected community leader whose participation helped build trust and facilitate cooperation. Subsequent households were selected to ensure spatial coverage across the village, capturing diverse perspectives on JV acceptability, benefit-sharing experiences

and the broader socio-economic impacts of wildlife tourism. Each household was assigned a unique identification number, and responses were recorded electronically using Kobo Collect ([www.humanitarianresponse.info](http://www.humanitarianresponse.info)). On average, six adults aged 18 years and above were selected per household, depending on their availability during the visit. This approach helped to capture a wide range of intra-household perspectives on participation in wildlife tourism and the distribution of benefits.

Prior to data collection, research clearance was obtained from the Tanzanian Commission for Science and Technology (COSTECH), under Permit No. 2022-818-NA-2022-344, along with introductory letters from Babati, Monduli and Longido District Councils. The lead researcher, a Tanzanian employee of the Tanzania Wildlife Management Authority (TAWA), trained in natural resources governance and community-based conservation, brought contextual insight into WMAs and local governance. To minimize potential interview bias and enhance cultural sensitivity, six native speakers were recruited and trained as research assistants. Their fluency in local languages and familiarity with cultural norms helped in building rapport and trust, particularly in WMAs where perceptions of wildlife tourism ventures are often varied and contested. Regular reflections and debriefing sessions were used to examine power dynamics, positional advantages and interpretation of respondents' perceptions, thereby strengthening the credibility and ethical integrity of the research process.

### 3.3 Data collection

Data were collected using a structured questionnaire administered to adult household members aged 18 years and above. The questionnaire was initially developed in English and translated into Kiswahili to ensure linguistic clarity and consistency. A forward and back translation process was used to validate content and maintain consistency (Hawkins et al., 2020). Prior to each interview, participants were briefed about the study and asked to provide informed consent. Respondents were assured of the voluntary nature of participation, the right to withdraw at any time, and the anonymity of their responses.

The questionnaire was piloted with 10 participants in Olasiti Village (Burunge WMA) to assess clarity and reliability. Based on the pilot feedback, adjustments were made such as rewording items, changing response options and improving the overall flow of questions. The final version used five-point Likert-type scales, each corresponding to a single statement with standardized response categories, allowing consistent responses across participants and quantitative analysis. As Bernard (2011, p. 245) notes, a Likert-type scale measures a single statement, whereas a true Likert scale combines multiple related items into a composite index. In this study, each perception question was measured with a single scale, capturing attitudes toward specific statements rather than broader multidimensional constructs. Each interview lasted approximately 20 to 30 minutes.

We collected data from 548 respondents, of which 214 (39%) were from Burunge WMA, 159 (32%) from Randilen WMA and 175 (29%) from Enduimet WMA. The questionnaire collected demographic attributes, including gender, age, education level, residence time in the village, income levels and WMA of residence. To examine the acceptability of wildlife tourism JVs participants were asked to respond to items in the following areas; (i) employment opportunities (e.g., jobs in lodges and photographic tourism); (ii) support for public infrastructure (e.g., schools, boreholes, village offices and healthcare facilities); (iii) support for local microenterprises (e.g., income-generating projects); (iv) investors contributions to wildlife protection; (v) investors' effort to support mitigation of human-wildlife conflicts in the villages; and (vi) access to financial opportunities (e.g., sale of crafts and diary or farm products to tourists' lodges or camps). Respondents also rated the overall acceptability of their WMAs to attract more JVs in wildlife tourism, assessed the level of community involvement in tourism activities and their willingness to engage with future investors in the villages.

Ratings for each item were recorded on a five-point Likert-type scale: *Very Unacceptable*, *Unacceptable*, *Neutral*, *Acceptable*, *Very Acceptable*. Responses marked as "I don't know" were treated as missing data. The term "accept" was used to capture respondents' acknowledgement that these contributions or activities occur and provide benefits, rather than simply their willingness to receive them.

In addition to the survey, 20 key informant interviews were conducted with purposively selected individuals knowledgeable in

WMA governance, wildlife tourism and rural development. Key informants included WMA leaders (3), village game scouts (5), village leaders (2), elders (5), district wildlife officers (2), and tour guides (3). The key informant interviews followed a semi-structured checklist aligned with the study objectives but allowed for open-ended discussion. Topics explored included: types of wildlife tourism benefits such as employment, provision of social services and livelihood support, including awareness on the role and responsibility of wildlife tourism investors; community participation in decision-making processes; and distribution of benefits and socioeconomic impacts. Of the 20 key informants, six (30%) were female, reflecting the male-dominated composition of leadership and technical roles in WMAs and WBT, which may influence the representation of women's perspectives. To strengthen validity, WMA financial records were reviewed to track benefit flows and support qualitative findings (see [Supplementary Table S2](#)).

### 3.4 Data analysis

We used an ordinal cumulative link mixed model (CLMM) in R (version 4.2.3) to examine factors influencing the acceptability of JVs within WMAs. We measured JV acceptability using five-point Likert-type scales, with participants rating responses from "Very unacceptable" to "Very acceptable". A full model was initially fitted using a comprehensive set of predictors grouped into three categories: (i) socio-demographic variables: age, gender, education level, WMA of residence and residence time in the village; (ii) wildlife related benefit factors: employment, financial opportunities, public infrastructure, support for local microenterprises; and (iii) perceived conservation-related acceptability factors: community involvement, mitigation of HWC, wildlife protection and perceived increase in tourism activities in the village.

To enhance model parsimony and interpretability, a simplified model was created by removing statistically insignificant variables from the full model. The final model included the following key predictors: WMA of residence, education level, perceived increase in tourism activities in the villages, HWC mitigation, financial opportunities, public infrastructure, support for local microenterprises, and wildlife protection. We incorporated a random household-level intercept to account for intra-household correlation. Household income was excluded as a predictor because income data were incomplete and potentially unreliable, with many respondents unable or unwilling to report exact amounts. Future research might consider alternative methods to obtain a more accurate measure of household economic status.

We also performed Likelihood Ratio Tests (LRTs) to determine whether the excluded predictors significantly improved model fit, which they did not. Models were fitted using the "ordinal" package (Christensen, 2022), and marginal predictions were obtained with the "emmeans" package (Hervé and Hervé, 2020). Descriptive summaries and visualizations were created using "Likert" and "ggplot2" packages.

In addition to quantitative modelling, qualitative data from key informant interviews were analyzed using thematic content analysis. This method organized responses into themes and concepts aligned with the study's objectives. A hybrid coding approach was adopted, combining deductive coding based on predefined themes (benefit sharing, community involvement, and socio-economic outcomes) and inductive coding to identify emerging issues and local perspectives. This approach facilitated a deeper contextual understanding of the survey findings and enabled us to gain deeper insights into both quantitative and qualitative data, enhancing the reliability and richness of the overall analysis through narratives from local leaders and experts.

## 4 Results

The study sample included 59% males and 41% females. The majority were middle-aged, between 30 and 40 years old, with an average age of 40 years (median = 39 years). Most respondents (72.3%) had lived in the area for over ten years, and 61.5% had attained primary level education. Livelihoods were primarily agriculture and livestock keeping. Household sizes ranged from 2 to 17 people, with a mean and median of 6 people per household. Reported monthly household incomes generally ranged between USD \$300 and \$500, with a mean income of \$320 (Table 1). Table 2 provides a summary of the descriptive statistics for all key study variables.

TABLE 1 Socio-demographic characteristics of respondents (n=548).

Characteristic	Burunge	Enduimet	Randilen	Respondents
<b>Sample size = 548</b>				
	214 (39.0%)	159 (29.0%)	175 (32%)	548
<b>Gender</b>				
Male	91 (16.6%)	77 (14.0)	58 (10.6%)	226 (59.1%)
Female	123 (22.4%)	82 (14.9%)	117 (21.3%)	322 (40.8%)
<b>Age category: How older are you?</b>				
18-30	52 (9.4%)	43 (7.8%)	59 (10.7%)	154 (28.1%)
31-40	65 (11.8%)	39 (7.1%)	56 (19.2%)	160 (29.1%)
41-50	62 (11.3%)	46 (8.4%)	36 (6.5%)	144 (26.3%)
51-60	23 (4.2%)	24 (4.4%)	17 (3.1%)	64 (11.7%)
61-70	8 (1.4%)	4 (0.7%)	5 (0.9%)	17 (3.1%)
Over 70	4 (0.7%)	3 (0.5%)	2 (0.4%)	9 (1.6%)
<b>Household size: What is the number of people in your household?</b>				
1-5	67 (12.2%)	27 (4.9%)	42 (7.6%)	136 (24.8%)
6-10	116 (21.2%)	94 (17.1%)	105 (19.2%)	315 (57.5%)
11-15	29 (5.2%)	31 (5.6%)	21 (3.8%)	81 (14.7%)
over 15	2 (0.3%)	7 (1.2%)	7 (1.2%)	16 (2.9%)
<b>Education level: What is the highest level of formal education you have completed?</b>				
No formal education	20 (3.6%)	44 (8.0%)	46 (8.4%)	110 (20.1%)
Primary school	155 (28.3%)	95 (17.3%)	97 (17.7%)	337 (61.5%)
Secondary school	31 (5.6%)	17 (3.1%)	28 (5.1%)	76 (13.8%)
College or University	8 (1.4%)	2 (0.4%)	5 (0.9%)	15 (2.7%)
<b>Residence time: How long have you lived in this village?</b>				
Short stay (less than 5 years)	25 (4.5%)	26 (4.7%)	37 (6.5%)	88 (16.0%)
Medium stay (between 5 and 10years)	16 (2.9%)	41 (7.4%)	7 (1.2%)	64 (11.6%)
Long stay (over 10years)	173 (31.5%)	92 (16.8%)	131 (23.9%)	396 (72.3%)
<b>Livelihood: What is your main source of livelihood?</b>				
Agriculture	58 (10.6%)	11 (2.0%)	5 (0.9%)	74 (13.5%)

(Continued)

TABLE 1 Continued

Characteristic	Burunge	Enduimet	Randilen	Respondents
<b>Livelihood: What is your main source of livelihood?</b>				
Formal employment	9 (1.6%)	5 (0.5%)	2 (0.4%)	16 (2.9%)
Livestock keeping	8 (1.4%)	66 (12.0%)	7 (1.2%)	81 (14.8%)
Livestock keeping and Agriculture	103 (18.7%)	67 (12.2%)	159 (29.0%)	329 (60.0%)
Petty business and artwork	36 (6.5%)	10 (1.8%)	2 (0.4)	48 (8.7%)
<b>Income: What is your approximate annual income?</b>				
Low income (less than \$300 monthly)	77 (14.0%)	62 (11.3%)	57 (10.4%)	196 (35.8%)
Medium income (\$300-500)	130 (23.7%)	54 (9.8%)	116 (21.2%)	300 (54.7%)
High income (over \$500)	7 (1.2%)	43 (7.8%)	2 (0.4%)	52 (9.5%)

TABLE 2 Community responses on the extent to which Wildlife tourism joint venture activities occur or provide local benefits (n=548).

Study variable	Burunge	Enduimet	Randilen	Respondents
<b>Sample size (n=548)</b>				
	214 (39.0%)	159 (29.0%)	175 (32%)	548 (100%)
<b>Joint ventures: To what extent do you accept that WMAs that already have JVs with WT investors attract more JVs?</b>				
Very unacceptable	15 (2.7%)	5 (0.9%)	26 (4.7%)	46 (8.4%)
Un acceptable	23 (4.2%)	10 (1.8%)	26 (4.7%)	59 (10.8%)
Neutral	3 (0.5%)	0 (0%)	3 (0.5%)	6 (1.1%)
Acceptable	124 (22.6%)	85 (15.5%)	79 (14.4%)	288 (52.5%)
Very acceptable	41 (11.1%)	59 (10.8%)	41 (7.5%)	141 (25.7%)
I don't know	8 (1.4%)	0 (0%)	0 (0%)	8 (1.4%)
<b>Community involvement: To what extent do you accept that local communities participate in decision-making processes related to WT investments?</b>				
Very unacceptable	12 (2.2%)	1 (0.2%)	14 (2.5%)	27 (4.9%)
Un acceptable	6 (1.1%)	5 (0.9%)	3 (0.5%)	14 (2.5%)
Neutral	7 (1.3%)	9 (0%)	6 (1.1%)	22 (4.0%)
Acceptable	96 (17.5%)	75 (13.0%)	89 (16.2%)	260 (47.4%)
Very acceptable	93 (16.9%)	42 (7.7%)	62 (11.3%)	197 (35.9%)
I don't know	0 (0%)	27 (4.9%)	1 (0.2%)	28 (5.1%)
<b>Tourism in the villages: To what extent do you accept seeing more tourism activities happening in your villages?</b>				
Very unacceptable	13 (2.4%)	1 (0.2%)	16 (2.9%)	30 (5.5%)
Un acceptable	17 (3.1%)	6 (1.1%)	11 (2.0%)	34 (6.2%)
Neutral	1 (0.2%)	0 (0%)	7 (1.3%)	8 (1.5%)
Acceptable	91 (16.6%)	65 (11.9%)	82 (14.9%)	238 (43.4%)
Very acceptable	92 (16.8%)	56 (10.2%)	53 (9.7%)	201 (36.7%)
I don't know	0 (0%)	31 (5.6%)	6 (1.1%)	37 (6.7%)
<b>Financial opportunities: To what extent do you accept that WT provides access to financial opportunities?</b>				
Very unacceptable	27 (4.9%)	14 (2.5%)	32 (5.8%)	73 (13.3%)

(Continued)

TABLE 2 Continued

Study variable	Burunge	Enduimet	Randilen	Respondents
<b>Financial opportunities: To what extent do you accept that WT provides access to financial opportunities?</b>				
Un acceptable	24 (4.4%)	19 (3.5%)	29 (5.3%)	72 (13.1%)
Neutral	1 (0.2%)	3 (0.5%)	7 (1.3%)	11 (2.0%)
Acceptable	122 (22.3%)	55 (10.0%)	84 (15.3%)	261 (47.6%)
Very acceptable	33 (6.0%)	46 (8.4%)	22 (4.0%)	101 (18.4%)
I don't know	7 (1.3%)	22 (4.0%)	1 (0.2%)	30 (5.5%)
<b>Support microenterprises: To what extent do you accept that WT supports local microenterprises, like curio shops and women's groups?</b>				
Very unacceptable	8 (1.4%)	7 (1.3%)	19 (3.5%)	34 (6.2%)
Un acceptable	14 (2.5%)	29 (5.3%)	13 (2.4%)	56 (10.2%)
Neutral	0 (0%)	2 (0.4%)	8 (1.5%)	10 (1.8%)
Acceptable	135 (24.6%)	69 (12.6%)	91 (16.6%)	295 (53.8%)
Very acceptable	57 (10.4%)	49 (8.9%)	44 (8.0%)	150 (27.4%)
I don't know	0 (0%)	3 (0.5%)	0 (0%)	3 (0.5%)
<b>Public infrastructure: To what extent do you accept that WT JVs support public infrastructure development projects like schools or roads?</b>				
Very unacceptable	20 (3.6%)	4 (0.7%)	19 (3.5%)	43 (7.8%)
Un acceptable	34 (6.2%)	29 (5.3%)	13 (2.4%)	76 (13.9%)
Neutral	0 (0%)	7 (1.3%)	8 (1.4%)	15 (2.7%)
Acceptable	113 (20.6%)	71 (12.9%)	91 (16.6%)	275 (50.2%)
Very acceptable	47 (8.6%)	48 (8.7%)	44 (8.0%)	139 (25.4%)
I don't know	0 (0%)	0 (0%)	0 (0%)	0 (0%)
<b>Lodges buying local products: To what extent do you accept that tourist lodges purchase local products from nearby villages.</b>				
Very unacceptable	19 (3.5%)	8 (1.4%)	12 (2.2%)	39 (7.1%)
Un acceptable	65 (11.8%)	40 (7.2%)	60 (10.9%)	165 (30.1%)
Neutral	94 (17.2%)	23 (4.2%)	64 (11.7%)	181 (33.0%)
Acceptable	30 (5.5%)	53 (9.7%)	22 (4.0%)	105 (19.2%)
Very acceptable	6 (1.1%)	35 (6.40%)	16 (2.9%)	57 (10.4%)
I don't know	0 (0%)	0 (0%)	65 (11.8%)	65 (11.8%)
<b>Mitigating HWC: To what extent do you accept that WT investors contribute to mitigating human-wildlife conflicts in your village?</b>				
Very unacceptable	24 (4.4%)	9 (1.6%)	13 (2.4%)	46 (8.4%)
Unacceptable	11 (2.0%)	43 (7.8%)	75 (13.7%)	229 (23.5%)
Neutral	109 (19.9%)	27 (4.9)	30 (5.5%)	166 (30.3%)
Acceptable	38 (6.9%)	15 (2.7%)	36 (6.6%)	89 (16.2%)
Very acceptable	17 (3.1%)	14 (2.5%)	20 (3.6%)	51 (34.6%)
I don't know	15 (2.7%)	9 (1.6%)	0 (0%)	24 (4.4%)
<b>Employment opportunities: To what extent do you accept that photo tourism contributes to local employment o opportunities?</b>				
Very unacceptable	3 (0.5%)	2 (0.4%)	0 (0.0%)	5 (0.9%)
Unacceptable	28 (5.1%)	21 (3.6%)	48 (8.7%)	97 (17.7%)

(Continued)

TABLE 2 Continued

Study variable	Burunge	Enduimet	Randilen	Respondents
<b>Employment opportunities: To what extent do you accept that photo tourism contributes to local employment o opportunities?</b>				
Neutral	26 (4.7%)	28 (4.4%)	37 (6.7%)	91 (16.6%)
Acceptable	150 (27.4%)	65 (11.9%)	85 (15.5%)	300 (54.7%)
Very acceptable	7 (0.9%)	32 (5.8%)	5 (0.9%)	44 (8.0%)
I don't know	0 (0%)	11 (2.0%)	0 (0%)	0 (0%)

The majority of the respondents, Randilen (79%), Burunge (80%) and Enduimet (93%) agreed on the acceptability of JVs in increasing future wildlife tourism activities within the villages. Over two-thirds of respondents: Enduimet (69%), Randilen (77%) and Burunge (80%) accepted the support for public infrastructure projects in the villages from JVs. The least acceptable was Burunge (20%), Enduimet (23%) and Randilen (32%) on JVs' support for efforts to mitigate human wildlife conflicts caused by dangerous and problematic wild animals (Figure 3). At the other end of the scale, however, Randilen (45%), Burunge (51%) and Enduimet (69%) communities were somewhat divided on the acceptability of JVs in enhancing wildlife protection in the areas.

The ordinal Cumulative Link Mixed Model (CLMM; Table 3) revealed that the acceptability of JVs was significantly predicted by the effects of perceived financial opportunities, contributions to public infrastructure, support for local microenterprises, and mitigation of human-wildlife conflicts. Respondents' WMA of residence and education level also significantly predicted JV acceptability. Specifically, respondents who rated JVs as *unacceptable* (estimate = 1.52;  $p < 0.001$ ); *neutral* (estimate 2.27;  $p < 0.004$ ), or *acceptable* (estimate =1.98;  $p < 0.001$ ) associated their ratings with perceived financial opportunities. Respondents rated JVs as *very acceptable* for increasing future tourism activities in the villages (estimate = 2.88,  $p < 0.001$ ) and as *neutral* for support to mitigate human-wildlife conflicts (estimate = 1.12,  $p < 0.001$ ). Also, respondents evaluated JVs positively for contributions to public infrastructure, rating JVs as *acceptable* (estimate = 1.44,  $p < 0.033$ ) or *very acceptable* (estimate 2.43,  $p < 0.001$ ) and for support to local microenterprises as *neutral* (estimate =2.52,  $p < 0.046$ ) or *very acceptable* (estimate = 2.13,  $p < 0.003$ ). Although respondents who perceived investors' contribution to wildlife protection as *neutral* (estimate = -1.27,  $p < 0.005$ ) were associated with reduced acceptability of JVs, those who rated it *very acceptable* (estimate = 0.71,  $p < 0.001$ ) showed a strong positive association (see Table 4 & Figure 4). Regionally, respondents from Burunge WMA rated JVs lower (estimate = -0.68,  $p < 0.015$ ) than those in Enduimet and Randilen. Finally, respondents with primary education rated JVs higher (estimate 0.49,  $p < 0.048$ ) than those with no formal education (Figure 5). The LRT revealed that the reduced model provided a significantly better fit compared to the full model ( $\chi^2 = 38.91$ ,  $df = 20$ ,  $p < 0.003$ ). The random intercept showed that household-level factors strongly shaped respondents' perceptions of JVs ( $\sigma^2 = 2.35$ , Intraclass Correlation Coefficient (ICC) = 0.41). Variables such as gender, residence time, employment

opportunities, and community involvement did not significantly predict JV acceptability (Table 1).

The key informant interviews revealed mixed acceptability of benefit sharing, insufficient community involvement and persistent human-wildlife conflicts. While wildlife tourism is broadly accepted as a potential driver of socioeconomic development, many key informants emphasized that the uneven distribution of benefits, limited transparency could undermine the acceptability of JVs (Table 4).

## 5 Discussion

Community acceptability of JVs in WMAs can be understood through their perceived alignment with local development priorities that influence both livelihoods and conservation outcomes. Consistent with the Cognitive Hierarch Model (CHM), acceptability is generally higher when JVs are perceived as delivering socioeconomic benefits, such as increased wildlife tourism activities in the villages, enhanced financial opportunities, improved public infrastructure and support for local microenterprises. However, limited recognition or awareness of investors' contributions to wildlife protection and efforts to mitigate human-wildlife conflicts may undermine community willingness to accept and support JVs. These findings align with previous research emphasizing that the provision of tangible and equitable benefits is essential for gaining and maintaining local support for conservation-oriented wildlife tourism initiatives (Lwankomezi et al., 2021; Kegamba et al., 2023; Snyman et al., 2023).

Moreover, it is important to recognize the highly politicized nature of aligning JV models with local community development and conservation outcomes (Shoo et al., 2021; Sumba et al., 2021). To address these challenges, future policies should focus on strengthening contractual frameworks and ensuring equitable and transparent benefit-sharing mechanisms to enhance and sustain community engagement in wildlife tourism.

The growing perceived acceptability of WMAs as attractive sites for JVs in wildlife tourism reflects rural communities' increasing demand for tourism activities that enhance the economic viability of partnerships. The basic premise is that rural communities are actively seeking to participate in tourism-related enterprises and capitalize on the economic opportunities provided by the wildlife tourism value chain. This is consistent with previous research highlighting how

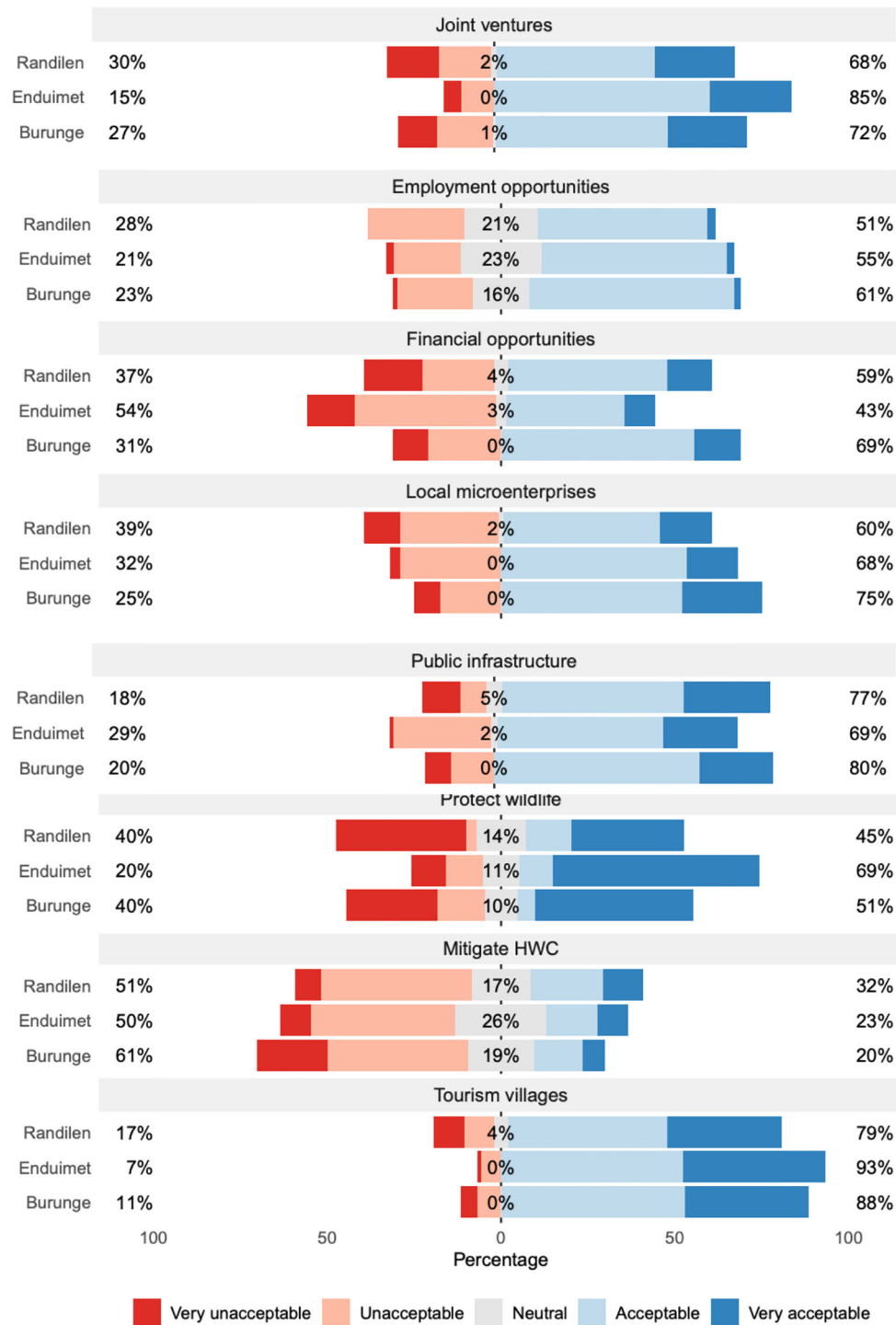


FIGURE 3 Distribution of factors affecting the acceptability of joint ventures. Bars represent the respondents' acceptability of the factors, and colours represent responses. Percentages represent the combined proportion of respondents.

wildlife tourism positively influences rural livelihoods and shapes communities' perceptions of JVs (Spenceley et al., 2019; Akayezu et al., 2022; Mgonja, 2023). Wildlife tourism JVs provide entry points for rural economic development by creating employment opportunities and supporting income-generating microenterprises (Jani, 2018; Shoo et al., 2021; Kitole and Sesabo, 2024). However,

community members engaged in wildlife tourism, either as employees or micro-entrepreneurs, continue to face persistent challenges such as inadequate skills, limited access to markets and low-income potentials (Lugalla et al., 2024). These challenges can be mitigated through the formal, contractual structure of JVs, which may ensure transparent, predictable and enforceable benefit-sharing

TABLE 3 Ordinal cumulative link mixed model results for factors predicting acceptability of joint ventures (n=548; p&lt;0.05).

Variable	Estimate	Std. error	Z value	Pr (> z )
WMA (Randilen)	-0.299	0.292	-1.022	0.307
WMA (Burunge)	-0.679	0.280	-2.427	0.015*
Education level (Primary school)	0.498	0.251	1.979	0.048*
Education level (Secondary school)	0.329	0.312	1.054	0.292
Education level (College or university)	0.273	0.613	0.446	0.655
Tourism in the villages (Unacceptable)	0.120	0.743	0.162	0.872
Tourism in the villages (Neutral)	-0.231	1.065	-0.217	0.828
Tourism in the villages (Acceptable)	0.946	0.686	1.378	0.168
Tourism in the villages (Very acceptable)	2.881	0.719	4.010	0.001*
Mitigate HWC (Unacceptable)	0.314	0.342	0.919	0.358
Mitigate HWC (Neutral)	1.122	0.410	2.736	0.001*
Mitigate HWC Acceptable	0.523	0.392	1.332	0.183
Mitigate HWC (Very Acceptable)	0.935	0.501	1.867	0.062
Financial opportunities (Unacceptable)	1.518	0.416	3.645	0.001*
Financial opportunities (Neutral)	2.268	0.798	2.843	0.004*
Financial opportunities (Acceptable)	1.981	0.417	4.752	0.001*
Financial opportunities (Very acceptable)	0.965	0.538	1.794	0.073
Public infrastructure (Unacceptable)	0.886	0.701	1.263	0.207
Public infrastructure (Neutral)	1.733	1.017	1.705	0.088
Public infrastructure (Acceptable)	1.444	0.678	2.129	0.033*
Public infrastructure (Very acceptable)	2.427	0.747	3.249	0.001*
Local microenterprises (Unacceptable)	1.095	0.648	1.689	0.091
Local microenterprises (Neutral)	2.516	1.261	1.995	0.046*
Local microenterprises (Acceptable)	1.090	0.661	1.648	0.099
Local microenterprises (Very acceptable)	2.134	0.709	3.007	0.003*
Protect wildlife (Unacceptable)	0.687	0.440	1.561	0.118
Protect wildlife (Neutral)	-1.268	0.451	-2.814	0.005*
Protect wildlife (Acceptable)	-0.231	0.375	-0.618	0.537
Protect wildlife (Very acceptable)	0.718	0.256	2.807	0.001*

mechanisms for rural communities (URT, 2018). This formalization distinguishes JVs from less structured tourism models by providing stability and accountability in benefit distribution. The structured nature of JVs can further guarantee reliable income streams in WMAs through concession fees and wildlife tourism activity fees. Such financial predictability enhances community trust and reinforces long-term conservation commitments (Spenceley and Snyman, 2017; Kideghesho et al., 2021). This is consistent with findings by Shoo et al. (2021), who note that wildlife tourism contributes to local employment in lodges, supports the sale of agricultural products and promotes wildlife protection in WMAs. Revenue generated through WMAs is often reinvested in public

infrastructure, including roads, schools, water and dispensaries, thereby improving community welfare. To sustain these positive outcomes, it is essential to promote fair benefit-sharing, transparent decision-making and inclusive planning processes (Sumba et al., 2021). Strengthening these governance mechanisms will not only maintain community support for wildlife tourism ventures but also enhance the overall effectiveness and sustainability of community-based conservation initiatives.

Beyond the socio-economic benefits, JVs have also assisted in wildlife protection. Although only a small proportion of respondents expressed low acceptability of JVs, this group remains important, as even a small number of people opposing

TABLE 4 Key informant insights on the acceptability of JVs in wildlife tourism.

Theme	Summary of insights	Illustrative quote	Implication for acceptability of JVs
Perceived benefits of wildlife tourism such as income generation, improved infrastructure like schools, water facilities, clinics, village offices	Wildlife tourism is seen as potential source of income and infrastructure development such as construction of village offices, but benefits are unevenly distributed, with some areas benefiting more than others	“The tourism money helps build schools and village government offices, but not everyone sees the benefits.” WMA leader, Burunge WMA	Perceived inequities in benefit-sharing such as infrastructure development in the villages can reduce trust and the overall acceptability of JVs.
Benefit sharing	Fairness is a key concern; many informants expressed dissatisfaction with current distribution of benefits, particularly regarding villages annual income share from the WMA	“Our leaders are the ones who know about the distribution of benefits.” - Elder, Enduimet WMA	Lack of perceived fairness diminishes support for JVs and can hinder long-term community cooperation
Community engagement and decision-making	Many felt that local communities are excluded from decision-making process regarding the allocation of JVs	“We have no voice in decisions; it’s the government and WMA leaders who make the choices.” - Village Leader, Randilen WM	Exclusion from decision-making fosters resistance and weakens the sense of ownership.
Vulnerability to wildlife damages	Most informants confirmed that human-wildlife conflicts, particularly with elephants and hyenas, damage crops and livestock	“We lose our crops to elephants every year, and yet we never receive any compensation. It feels like no one cares about what we go through.”- Elder, Randilen	Unmet expectations regarding compensation for wildlife damages contribute to poverty, frustration and opposition to JVs.
Inclusion and transparency	Transparency in how revenues are used and who benefits is seen as essential. The informants highlighted the need for clearer, more inclusive communication through village meetings or representatives about financial benefits.	“Tourism gives us some jobs, but we still depend on farming and pastoralism.” -Village Leader, Enduimet	Inclusion and transparency could help to address economic concerns and continued community support for JVs.
Economic security and livelihoods	Despite the potential for increased income through wildlife tourism, many informants expressed concerns about the long-term sustainability of tourism driven economy.	“Tourism brings only short-term jobs to a few of us, and even those come and go. In the end, we’re still left struggling with farming and livestock to make a living.”- Village Leader, Burunge WMA	Long-term economic concerns must be addressed to ensure continued community support for JVs.
Support for wildlife protection (provision of patrol gear and awareness)	Communities and wildlife rangers emphasized that effective protection of wildlife depends on access to adequate patrol gear and sustained awareness programs. Participant felt that without proper equipment and education, conservation efforts remain limited and unsafe.	We want to protect the animals, but our rangers lack basic gear like boots and radios. If we had the right tools and more training, we could do so much more _ WMA leader Enduimet WMA	JVs that include tangible support such as providing petrol equipment and community awareness initiatives are likely to gain higher acceptance, as they demonstrate real commitment to local needs and shared responsibility to wildlife conservation.
Support for local enterprises	Informants generally are supportive of local microenterprises and tourism related business (e.g handcrafts and curio shops) but expressed concern over lack of capital and market access.	“We put effort into making crafts, but tourists barely buy them. Honestly, even the hotels here hardly support us; they buy so little, it feels like we’re just left out.”- Village Leader, Burunge WMA	Support for local enterprises could strengthen community buy-in, but market access and support structures need improvement.
Sustainability and long-term outcomes	Stressed the importance of sustainable tourism practices, worried about the depletion of natural resources including pastureland Community support wildlife conservation efforts in the WMA	“Tourism shouldn’t just take from us or damage our environment, our wildlife, or pasture lands, our livestock depend on. These are the very resources we rely on to survive, to raise our animals, send our children to school, and provide for our families.”- Elder, Randilen WMA	Sustainable wildlife tourism practices are necessary for maintaining community support and biodiversity. Depletion of natural resources like pastureland affect livestock productivity in the area

wildlife tourism initiatives can substantially undermine conservation efforts by engaging in illegal activities that threaten wildlife species. Key informants’ interviews revealed that JVs actively participate in anti-poaching operations, provide patrol equipment for village game scouts and promote environmental conservation awareness in the surrounding communities. However, research in these areas indicates that illegal activities, including

poaching and habitat destruction, remain prevalent, posing a major challenge to many species, including those targeted by wildlife tourism for trophy hunting and photographic tourism (Rija, 2022). These ongoing threats can negatively impact wildlife populations central to tourism ventures. Therefore, the effectiveness of JVs in contributing to wildlife protection ultimately depends on the extent to which they represent and

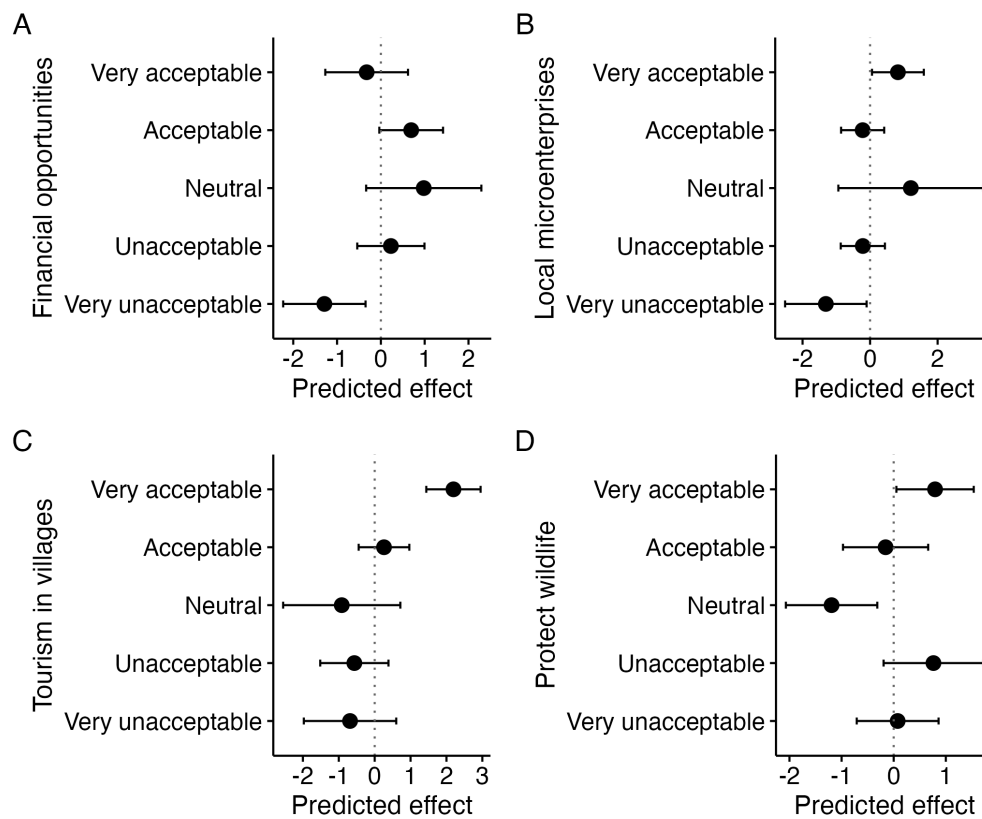


FIGURE 4

Perceived acceptability of joint ventures, panelled by specific perceived benefits. (A) Employment, (B) Microenterprises, (C) Infrastructure, and (D) Financial opportunities. Points represent model-predicted effects with 95% Confidence Intervals.

balance the interests of all stakeholders involved in wildlife tourism enterprises.

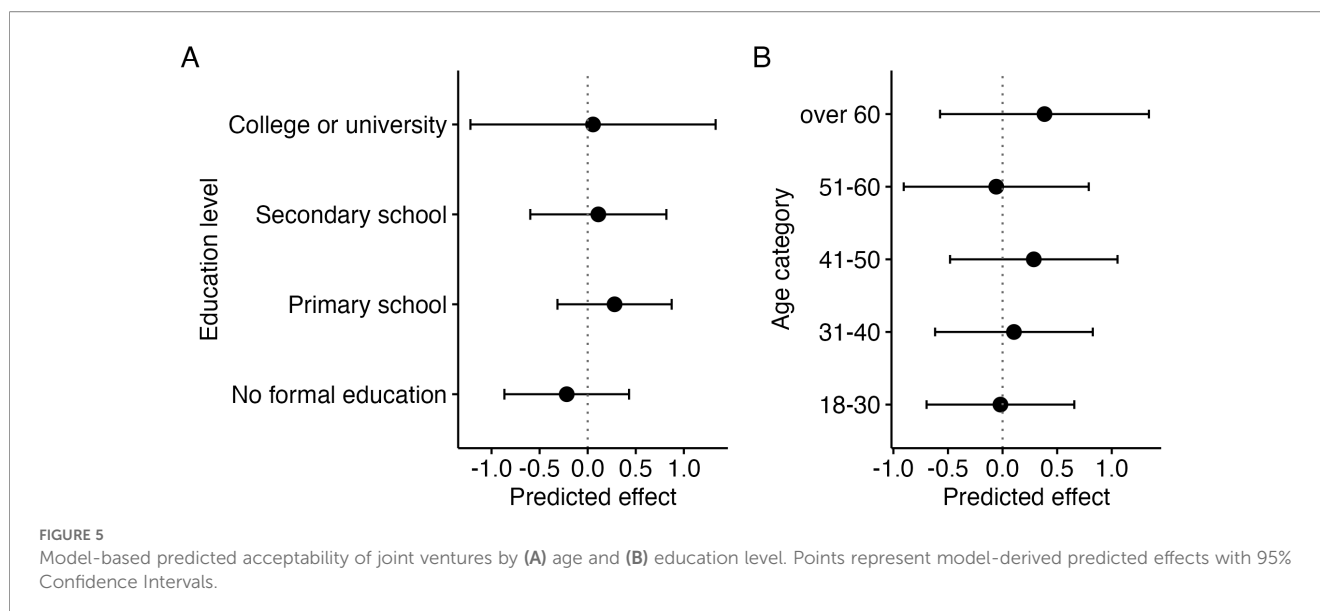
Persistent Human-wildlife conflicts in the villages continue to reduce community acceptability of JVs. Rural communities often suffer from wildlife damage such as livestock predation and crop destruction (Sanare et al., 2022; Hariohay et al., 2024). Past experiences with ineffective HWC interventions have further fueled community skepticism toward wildlife conservation initiatives. In many cases, the incentives provided through JVs fail to compensate for the actual costs of coexisting with wildlife (Hariohay et al., 2024; Mbise and Røskaft, 2021). These challenges underscore the need for integrated approaches that simultaneously address conservation and livelihood concerns.

Variations in community acceptability of JVs across WMAs illustrate the importance of local context in shaping perceptions. Respondents from Burunge WMA expressed lower acceptability of JVs compared to those in Enduimet and Randilen, which may reflect limited community involvement in benefit-sharing and decision-making processes (Bluwstein et al., 2016; Kicheleri et al., 2019). Research suggests that even modest benefits are more likely to be perceived as fair when distributed transparently and equitably (Kegamba et al., 2022, 2023). Furthermore, communities tend to view benefit-sharing arrangements as just when they recognize that investors also receive relatively low returns. These findings indicate the need for WMA governance models that are context-specific and

designed to enhance transparency, accountability and community participation (Moyo et al., 2017; Kicheleri et al., 2019).

In addition to regional differences, household-level factors also play a key role in shaping the perceived acceptability of JVs. Variations in household priorities, exposure to wildlife tourism opportunities and social networks can influence how community members evaluate the costs and benefits of participating in JVs or other conservation initiatives within WMAs (Bluwstein et al., 2016; Kicheleri et al., 2019). While engagement in local microenterprises, such as handicraft production or the sale of farm-based products to tourists, may not provide the same stability and protection at the household level, these activities remain vital for supporting rural livelihoods. Recognizing intra-household differences highlights the need for engagement strategies that are sensitive to household circumstances, ensuring equitable access to benefits and fostering inclusive participation in decision-making processes (Kegamba et al., 2022, 2023).

Education can shape how communities engage with JVs in wildlife tourism by supporting understanding of benefit sharing, access to information, and participation in local governance (Biru et al., 2017; Mgonja and Uswege, 2022; Pascual et al., 2025). However, our analysis found limited evidence for higher levels of formal education (Figure 5), suggesting that local knowledge, experience, and direct involvement may be equally or more important in shaping perceptions and engagement.



## 6 Conclusions

This study advances the understanding of JV acceptability in wildlife tourism by examining the interplay between perceived benefits, socio-economic conditions and local context, using the Cognitive Hierarchy Model (CHM) as its theoretical foundation. The model conceptualizes acceptability as a dynamic cognitive process shaped by perception of benefits, community experiences with JVs and the local realities of human wildlife interactions. The findings reveal that the success of JVs in WMAs depends not only on the delivery of benefits, such as financial opportunities, improved infrastructure and stimulation of microenterprises or small-scale businesses that enhance community participation in the wildlife tourism value chain, but also on how these benefits are perceived and aligned with rural community priorities.

While previous studies have acknowledged the role of wildlife tourism in generating income and employment opportunities for marginalized groups such as women and youth (Mariki, 2016; Kitole and Sesabo, 2024; Lugalla et al., 2024), this study offers a more nuanced understanding of how the acceptability of wildlife tourism JVs can contribute to both socioeconomic development and conservation in rural areas. Furthermore, the study suggests a need for a more holistic and inclusive approach to wildlife tourism planning, one that is responsive to local household needs and recognizes the contribution of JVs to both livelihoods and conservation initiatives. Such an approach can foster a stronger sense of ownership and local stewardship. Empowering rural communities to participate in wildlife tourism microenterprises is crucial for enhancing perceived benefits (Kaaya and Chapman, 2017; Shoo et al., 2021). Providing education in entrepreneurship, hospitality and small-business management, together with the necessary facilities and resources to support microenterprise development, constitutes a critical condition for achieving this goal.

This study offers a novel examination of rural communities' acceptability of wildlife tourism JVs in WMAs in northern

Tanzania. However, as with any research, it is subject to certain limitations. First, the study did not include Focus Group Discussions to capture collective or group-based perspectives on JVs; instead, it relied on individual experiences and perceptions at the household level. Second, the study did not assess potential negative impacts of JVs, such as land-use restrictions or costs associated with JV implementation in rural areas. Third, the use of a single-item five-point Likert-type scale to assess JV acceptability may limit the depth and reliability of understanding, as it does not capture multiple dimensions of respondents' attitudes and perceptions. This omission may limit the ability to fully understand the spectrum of JV acceptability and the mitigation measures that have been applied. Therefore, caution should be exercised when generalizing the findings to other regions, as geographical variations and differing social contexts may influence outcomes. Future research should consider multi-item scales and additional qualitative approaches to provide a more comprehensive understanding of community trade-offs and the multifaceted implications of wildlife tourism initiatives.

## 7 Policy and empirical implications

The findings of this study provide valuable insights for policymakers and practitioners aiming to leverage wildlife tourism JVs as a means of enhancing rural livelihoods and promoting conservation. The results indicate that socioeconomic benefits such as support for local microenterprises, financial opportunities, public infrastructure development and the perceived growth of wildlife tourism activities within the villages are key determinants of individuals' acceptability of JVs. The study further suggests that JVs play a vital role in enabling rural communities to engage in microenterprises and small businesses, allowing them to benefit from wildlife tourism, even in the absence of formal support or substantial resources. Therefore, policymakers

should design and implement policies and programs that provide targeted incentives and support for local microenterprises, including entrepreneurial training, capacity building initiatives, access to credit and the establishment of market linkages. Moreover, policy efforts should aim to reduce regulatory barriers and reinforce local governance structures to enhance community participation in small-scale enterprises. This includes improving access to legal services, enforcing minimum wage standards and expanding social protection schemes that safeguard the well-being of those engaged in wildlife tourism-related activities.

Furthermore, policymakers should prioritize investments in rural infrastructure and basic services to create an enabling environment for long-term wildlife tourism development and improved livelihoods in rural areas. Evidence suggests that inadequate infrastructure and low education levels hinder rural communities' engagement in wildlife tourism activities and their ability to benefit from JVs (URT, 2023). Therefore, establishing a secure and supportive environment that encourages private-sector investment and business growth within WMAs is essential for ensuring that both rural communities and wildlife conservation efforts derive sustainable benefits.

This study emphasizes that the variations in the acceptability of JVs among rural communities across WMAs, and even between households, can provide substantial evidence that local context matters. Recognizing socio-spatial diversity is therefore essential for tailoring JVs' benefits to community needs, enhancing local support and sustaining conservation efforts. For instance, WMA authorities could organize regular conservation education programs and workshops to equip rural communities with the skills and knowledge necessary to participate effectively in wildlife tourism, as well as to share their experiences, challenges and solutions. Through these initiatives, WMA managers should also promote collaboration among communities, local entrepreneurs and investors to foster a sense of collective identity and shared purpose. This can be further strengthened by encouraging rural communities to initiate or engage in cooperative projects such as village savings and loan groups, which enhance social cohesion and financial resilience.

## Data availability statement

The original contributions presented in the study are included in the article/[Supplementary Material](#). Further inquiries can be directed to the corresponding authors.

## Ethics statement

The Tanzanian Commission for Science and Technology (COSTECH) granted permission to conduct research (Ref: A.B.235/325/01/96). Permit number 2022-818-NA-2022-344. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

## Author contributions

SK: Conceptualization, Writing – review & editing, Software, Investigation, Methodology, Formal analysis, Project administration, Writing – original draft, Resources, Funding acquisition, Data curation, Visualization, Validation. SM: Writing – review & editing, Supervision, Methodology, Conceptualization. DR: Writing – review & editing, Supervision, Validation, Methodology. SS: Writing – review & editing, Methodology, Investigation. AD: Writing – review & editing, Conceptualization, Investigation, Validation. LS: Conceptualization, Investigation, Methodology, Writing – review & editing. DH: Methodology, Supervision, Conceptualization, Investigation, Writing – review & editing, Validation, Formal analysis. NM: Validation, Methodology, Writing – review & editing, Investigation, Conceptualization, Supervision.

## Funding

The author(s) declared that financial support was received for this work and/or its publication. SK received support from the Weatherby Foundation International (USA). DH received support from Jamma Conservation & Communities, Oppenheimer Generations Research and Conservation, and the BAND Foundation. DR acknowledges support from Jamma Conservation & Communities. AD acknowledges support from the Recanati Kaplan Foundation and Panthera. The remaining authors (SM, SS, LS, and NM) declare that they received no specific funding for this work.

## Acknowledgments

We are grateful to all our participants, especially the local communities of Burunge, Randilen, and Enduimet WMAs. This includes research assistants who helped with questionnaire translation and data collection, and community members who generously devoted their time to questionnaires and Key informant Interviews (KII).

## Conflict of interest

The author(s) declared that this work was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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## Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fcosc.2025.1708398/full#supplementary-material>

## References

- Akayezu, P., Ndagijimana, I., Dushimumukiza, M. C., Bernhard, K. P., and Groen, T. A. (2022). Community livelihoods and forest dependency: Tourism contribution in Nyungwe National Park, Rwanda. *Front. Conserv. Sci.* 3. doi: 10.3389/fcosc.2022.1034144
- Alexandre, B., Reynaud, E., Osiurak, F., and Navarro, J. (2018). Acceptance and acceptability criteria: A literature review. *Cognition Technol. Work* 20, 165–177. doi: 10.1007/s10111-018-0459-1
- Bartels, L. (2016). "Contested land in loliondo: the eastern border of the serengeti national park between conservation, hunting tourism, and pastorism," in *Land Use Competition. Ecological, Economic and social perspectives*, vol. 6. Eds. J. Niewohner, A. Bruns, P. Hostert, T. Krueger, J. O. Nielsen, J. Lutz and D. Muller (Springer, Cham). doi: 10.1007/978-3-319-33628-2\_9
- Bernard, H. R. (2011). *Research methods in anthropology: Qualitative and quantitative approaches*. 5. ed (Plymouth, UK: ROWMAN & LITTLEFIELD PUBLISHERS, INC.).
- Biru, Y., Tessema, Z. K., and Urge, M. (2017). Perception and attitude of pastoralists on livestock-wildlife interactions around Awash National Park, Ethiopia: Implication for biodiversity conservation. *Ecol. Processes* 6, 13. doi: 10.1186/s13717-017-0081-9
- Bluwstein, J., Moyo, F., and Kicheleri, R. (2016). Austere conservation: understanding conflicts over resource governance in Tanzanian wildlife management areas. *Conserv. Soc.* 14, 218. doi: 10.4103/0972-4923.191156
- Boer, D., and Djik, D. (2016). Can Sustainable Tourism Achieve Conservations and Local Economic Development? The experience with nine business – community wildlife-tourism agreements in Northern Tanzania. *Afr. J. Hosp. Tour. Leis.* 5, 1–19.
- Brenner, L. J., and Metcalf, E. C. (2020). Beyond the tolerance/intolerance dichotomy: Incorporating attitudes and acceptability into a robust definition of social tolerance of wildlife. *Hum. Dimensions Wildlife* 25, 259–267. doi: 10.1080/10871209.2019.1702741
- Bricker, K. S., and Snyman, S. S. (2023). Editorial: Ecotourism models: identifying contributions to conservation and community. *Front. Sustain. Tour.* 2, 1232666. doi: 10.3389/frsut.2023.1232666
- Christensen, R. H. (2022). Ordinal-regression Models for Ordinal Data. R package version 2022.11-16. *Computer Software*. <https://CRAN.R-Project.Org/Package=Ordinal>.
- Engel, M. T., Vaske, J. J., Marchini, S., and Bath, A. J. (2017). Knowledge about big cats matters: Insights for conservationists and managers. *Wildlife Soc. Bull.* 41, 398–404. doi: 10.1002/wsb.798
- Eriksson, L., Johansson, M., Månsson, J., Sandström, C., Liljebäck, N., and Elmsberg, J. (2024). Novel insights into the cognitive, emotional, and experiential dimensions of stakeholder acceptance of wildlife management. *Sci. Rep.* 14, 29479. doi: 10.1038/s41598-024-80661-2
- Hariohay, K. M., Machaninga, A. C., Lyimo, E. H., Hunninc, L., Kideghesho, J. R., and Roskaft, E. (2024). Can conservation-based incentives promote willingness of local communities to coexist with wildlife? A case of Burunge Wildlife Management Area, Northern Tanzania. *Hum. Dimensions Wildlife* 30, 149–162. doi: 10.1080/10871209.2024.2333550
- Hawkins, M. C., Cheng, C., Elsworth, G. R., and Osborne, R. H. (2020). Translation method is validity evidence for construct equivalence: Analysis of secondary data routinely collected during translations of the HLQ. 20.
- Heneghan, M. D., and Morse, W. C. (2019). Acceptability of management actions and the potential for conflict following human-black bear encounters. *Soc. Natural Resour.* 32, 434–451. doi: 10.1080/08941920.2018.1556756
- Hervé, M., and Hervé, M. M. (2020). *Package 'RVAideMemoire'*. <https://CRAN.R-project.org/package=RVAideMemoire>
- Iidowu, O. (2021). The socio-economic importance of an ecolodge as a tool for sustainable tourism: A study of Obudu Mountain and resort, becheve community, cross river state, Nigeria. *Int. J. Sustain. Dev. Res.* 7, 41. doi: 10.11648/j.ijdsr.20210702.12
- Jama, O. M., Diriye, A. W., and Abdi, A. M. (2023). Understanding young people's perception toward forestation as a strategy to mitigate climate change in a post-conflict developing country. *Environment Dev. Sustainability* 25, 4787–4811. doi: 10.1007/s10668-022-02242-5
- Jani, D. (2018). Residents' perception of tourism impacts in Kilimanjaro: An integration of the Social Exchange Theory 66.
- Kaaya, E., and Chapman, M. (2017). Micro-credit and community wildlife management: complementary strategies to improve conservation outcomes in Serengeti National Park, Tanzania. *Environ. Manage.* 60, 464–475. doi: 10.1007/s00267-017-0856-x
- Kegamba, J. J., Sangha, K. K., Wurm, P., and Garnett, S. T. (2022). A review of conservation-related benefit-sharing mechanisms in Tanzania. *Global Ecol. Conserv.* 33, e01955. doi: 10.1016/j.gecco.2021.e01955
- Kegamba, J. J., Sangha, K. K., Wurm, P. A. S., and Garnett, S. T. (2023). Conservation benefit-sharing mechanisms and their effectiveness in the Greater Serengeti Ecosystem: Local communities' perspectives. *Biodiversity Conserv.* 32, 1901–1930. doi: 10.1007/s10531-023-02583-1
- Kicheleri, R. P., Mangewa, L. J., Nielsen, M. R., Kajembe, G. C., and Treue, T. (2021). Designed for accumulation by dispossession: An analysis of Tanzania's Wildlife Management Areas through the case of Burunge. *Conserv. Sci. Pract.* 3, e360. doi: 10.1111/csp2.360
- Kicheleri, R., Treue, T., Kajembe, C. G., Mombo, M. F., and Nielsen, R. M. (2019). "Power struggles in the management of wildlife resources: the case of burunge wildlife management area, Tanzania," in *Wildlife Management—Failures, Successes and Prospects*. Eds. J. R. Kideghesho and A. A. Rija (IntechOpen). doi: 10.5772/intechopen.79521
- Kideghesho, J. R., Kimaro, H. S., Mayengo, G., and Kisingo, A. W. (2021). Will Tanzania's wildlife sector survive the COVID-19 pandemic? *Trop. Conserv. Sci.* 14, 19400829211012682. doi: 10.1177/19400829211012682
- Kiffner, C., Thomas, S., Speaker, T., O'Connor, V., Schwarz, P., Kioko, J., et al. (2020). Community-based wildlife management area supports similar mammal species richness and densities compared to a national park. *Ecol. Evol.* 10, 480–492. doi: 10.1002/ece3.5916
- Kiffner, C., Wenner, C., LaViolet, A., Yeh, K., and Kioko, J. (2015). From savannah to farmland: Effects of land-use on mammal communities in the T arangire – M anyara ecosystem, T anzania. *Afr. J. Ecol.* 53, 156–166. doi: 10.1111/aje.12160
- Kitole, F. A., and Sesabo, J. K. (2024). Tourism-driven livelihood dynamics: A comprehensive empirical study of Mount Kilimanjaro National Park communities in Tanzania. *Int. J. Geoheritage Parks* 12, 416–433. doi: 10.1016/j.ijgeop.2024.07.001
- Kothari, C. R. (2019). *Research methodology: Methods and Techniques. 4th Edition* (New Delhi: New Age International Publishers), 414.
- Kyara, V. C., Rahman, M. M., and Khanam, R. (2021). Tourism expansion and economic growth in Tanzania: A causality analysis. *Heliyon* 7, e06966. doi: 10.1016/j.heliyon.2021.e06966
- Lugalla, M. I., Jacobs, J. P. A. M., and Westerman, W. (2024). What drives women entrepreneurs in tourism in Tanzania? *J. Afr. Business* 25, 205–223. doi: 10.1080/15228916.2023.2168970
- Lwankomezi, E. B., Kisoza, J., and Patrobas Mhache, E. (2021). Benefit sharing in community based conservation programs: the case of Makao wildlife management area, Tanzania. *East Afr. J. Educ. Soc. Sci.* 2, 41–50. doi: 10.46606/eajess2021v02i02.0074

- Manda, L., Salako, K. V., Kataya, A., Affossogbe, S. A. T., Njera, D., Mgoola, W. O., et al. (2023). Co-management brings hope for effective biodiversity conservation and socio-economic development in Vwaza Marsh Wildlife Reserve in Malawi. *Front. Conserv. Sci.* 4. doi: 10.3389/fcosc.2023.1124142
- Manfredo, M. J., Berl, R. E., Teel, T. L., and Bruskotter, J. T. (2021). Bringing social values to wildlife conservation decisions. *Front. Ecol. Environ.* 19, 355–362. doi: 10.1002/fee.2356
- Mariki, S. B. (2016). Social impacts of protected areas on gender in West Kilimanjaro, Tanzania. *Open J. Soc. Sci.* 04, 220–235. doi: 10.4236/jss.2016.43028
- Martell, J. E. M., and Rodewald, A. D. (2025). Wildlife values can inform strategic conservation communication efforts. *Hum. Dimensions Wildlife* 30, 182–200. doi: 10.1080/10871209.2024.2346100
- Mbise, P. F., and Røskaft, E. (2021). Can conservation incentives promote willingness to coexist with large carnivores in the eastern Serengeti ecosystem? *Int. J. Biodiversity Conserv.* 13, 77–85. doi: 10.5897/ijbc2021.1490
- Metcalf, A. L., Metcalf, E. C., Brenner, L. J., Nesbitt, H. K., Phelan, C. N., Lewis, M. S., et al. (2024). The wildlife attitude-acceptability framework's potential to inform human dimensions of wildlife science and practice. *Hum. Dimensions Wildlife* 30, 1–15. doi: 10.1080/10871209.2024.2318330
- Mgonja, J. T. (2023). Assessing Community Perceptions about the contributions and Impacts of Wildlife Tourism to Rural Livelihoods: WMAs Perspective. *Tanz. J. For. Nat. Conserv.* 92, 64–81.
- Mgonja, J., and Uswege, D. (2022). Assessment of factors moderating community attitudes towards wildlife tourism and conservation: A case of Ikona and Makao wildlife management area. *Tanz. J. For. Nat. Conserv.* 91, 214–233.
- Minja, G. S., Suh, J., and Tan, Y. (2023). Joint venture wildlife management of the Loliondo Game Controlled Area in Tanzania: A multi-criteria analysis. *South Afr. Geographical J.* 105, 346–364. doi: 10.1080/03736245.2022.2129767
- Mmbaga, N., Tarimo, J., and Modest, J. (2024). Contribution of wildlife tourism in improving local communities' livelihood in Burunge Wildlife Management Area in Tarangire Manyara Ecosystem, Tanzania. *Discover Global Soc.* 2, 85. doi: 10.1007/s44282-024-00109-w
- Moyo, F., Funk, S., and Pretzsch, J. (2017). Between policy intent and practice: negotiating access to land and other resources in Tanzania's wildlife management areas. *Trop. Conserv. Sci.* 10, 1940082917744167. doi: 10.1177/1940082917744167
- Moyo, F., Ijumba, J., and Lund, J. (2016). Failure by design? Revisiting Tanzania's flagship wildlife management area burunge. *Conserv. Soc.* 14, 232. doi: 10.4103/0972-4923.191160
- Naidoo, R., Gerkey, D., Hole, D., Pfaff, A., Ellis, A. M., Golden, C. D., et al. (2019). Evaluating the impacts of protected areas on human well-being across the developing world. *Sci. Adv.* 5, eaav3006. doi: 10.1126/sciadv.aav3006
- National Bureau of Statistics. (2012). *Basic demographic and socio-economic profile: Tanzania*. <https://www.nbs.go.tz/>.
- National Bureau of Statistics. (2022). *The 2022 Population and Housing Census*. <https://sensa.nbs.go.tz/>.
- Ngilangwa, B., Meney, R., and Msafiri, C. (2018). Exploration of A future scene for community based tourism in the southern part of serengeti ecosystem: A case study of Mwiba wildlife ranch, Meatu, Tanzania. *Int. J. Conserv. Sci.* 9, 733–748.
- Pascual, R., Liu, P., Baldonado, J., Pascual, A. G., and Mina, G. (2025). The Role of Education in Promoting Sustainability and Social Responsibility. *Int. J. Environ. Sci.* 11.
- Ren, L., Li, J., Li, C., and Dang, P. (2021). Can ecotourism contribute to ecosystem? Evidence from local residents' ecological behaviors. *Sci. Total Environ.* 757, 143814. doi: 10.1016/j.scitotenv.2020.143814
- Rija, A. A. (2022). Assessing population performance of hunted impala and wildebeest in Simanjiro Plains, Northern Tanzania. *J. Forestry Nat. Conserv.* 91, 154–168.
- Rizzolo, J. B. (2023). Wildlife tourism and consumption. *J. Sustain. Tourism* 31, 1181–1194. doi: 10.1080/09669582.2021.1957903
- Rylance, A., and Spenceley, A. (2017). Reducing economic leakages from tourism: A value chain assessment of the tourism industry in Kasane, Botswana. *Dev. South. Afr.* 34, 295–313. doi: 10.1080/0376835X.2017.1308855
- Sanare, J. E., Valli, D., Leweri, C., Glatzer, G., Fishlock, V., and Treydte, A. C. (2022). A socio-ecological approach to understanding how land use challenges human-elephant coexistence in Northern Tanzania. *Diversity* 14, 513. doi: 10.3390/d14070513
- Shoo, A., R., Kamili Mtui, E., Modest Kimaro, J., Robert Kinabo, N., Joseph Lendii, G., and Kideghesho, J. R. (2021). "Wildlife management areas in Tanzania: vulnerability and survival amidst COVID-19," in *Managing Wildlife in a Changing World*. Ed. J. R. Kideghesho (Mwaka, Moshi, Tanzania: IntechOpen). doi: 10.5772/intechopen.97396
- Snyman, S. (2014). Partnership between a private sector ecotourism operator and a local community in the Okavango Delta, Botswana: The case of the Okavango Community Trust and Wilderness Safaris. *J. Ecotourism* 13, 110–127. doi: 10.1080/14724049.2014.980744
- Snyman, S., Fitzgerald, K., Bakteeva, A., Ngoga, T., and Mugabukomeye, B. (2023). Benefit-sharing from protected area tourism: A 15-year review of the Rwanda tourism revenue sharing programme. *Front. Sustain. Tour.* 1, 1052052. doi: 10.3389/frsut.2022.1052052
- Spenceley, A., and Snyman, S. (2017). Can a wildlife tourism company influence conservation and the development of tourism in a specific destination? *Tourism Hospitality Res.* 17, 52–67. doi: 10.1177/1467358416634158
- Spenceley, A., Snyman, S., and Rylance, A. (2019). Revenue sharing from tourism in terrestrial African protected areas. *J. Sustain. Tourism* 27, 720–734. doi: 10.1080/09669582.2017.1401632
- Straka, T. M., Miller, K. K., and Jacobs, M. H. (2020). Understanding the acceptability of wolf management actions: Roles of cognition and emotion. *Hum. Dimensions Wildlife* 25, 33–46. doi: 10.1080/10871209.2019.1680774
- Stronza, A. L., Hunt, C. A., and Fitzgerald, L. A. (2019). Ecotourism for conservation. *Annu. Rev. Environ. Resour.* doi: 10.1146/annurevenviron-101718-033046
- Sumba, D., Snyman, S., and Masiloniyane, T. (2021). *The State of the Wildlife Economy in Tanzania* (Kigali, Rwanda: African Leadership University, School of Wildlife Conservation).
- United Republic of Tanzania (URT) (2018). *Wildlife Conservation (Wildlife Management Areas) Regulations* (Dares salaam, Tanzania: Government Printer).
- URT (2023). *National Wildlife management areas strategy, (2023-2033)* (Dares salaam, Tanzania: Ministry of Natural Resources and Tourism), 62.