

Research title:

ENHANCING HUMAN-WILDLIFE COEXISTENCE: A MULTIDISCIPLINARY APPROACH
AROUND PROTECTED AREAS IN TANZANIA

Introduction

Human and wildlife coexistence is a cornerstone of ecological integrity and sustainable conservation development. However, striking a balance has been challenging due to increasing human and wildlife populations. Population growth has amplified the demand for resources, resulting in resource competition, habitat loss, and fragmentation and giving rise to human-wildlife conflicts. These conflicts have far-reaching consequences for human well-being and wildlife conservation. Human-wildlife conflicts have manifested through livestock depredation, crop raiding and damage, human injury, and loss of life. Coexistence and resource use conflicts have attracted several scholars; some have focused on the common struggle as a source of conflict, while others have focused on competition as the outcome of accessing limited resources. Salerno et al. (2016) linked conflict with negative implications, evoking unpleasant emotions and devastation. There have been various forms and levels of conflict, from local to global. The repercussions of conflict between and within groups have varied dramatically, ranging from confusion, frustrations, misunderstanding, hostility, and violence over resource access, ownership, and management (Nyerembe & Bushesha, 2021). Resource-use conflicts have escalated due to individual-centred policies or specific programs favouring definite groups in society.

This research represents a holistic effort to tackle the multifaceted challenges of human-wildlife conflicts in Makao wildlife management areas in Tanzania. This research combines the social and ecological dimensions to create a sustainable coexistence that safeguards wildlife and improves communities' livelihoods. Ecological insight explains that conservation is rooted in understanding wildlife behaviours, ecological dynamics and migratory behaviours. The research will also emphasize community engagement and local education to foster knowledge and understanding of ecosystem coexistence in protected areas. The research seeks to reduce pressure on the environment by proposing alternative income sources to ensure the thriving of local communities and wildlife. The research will establish collaborative partnerships with conservationists, government agencies and non-governmental organizations to ensure that interventions and lessons learned are replicated in different protected areas. The research will contribute invaluable insight into a balance needed to foster coexistence between wildlife and the human population. The research will uncover the root causes of human-wildlife conflicts and develop immediate interventions for sustainable conservation. The training and introduction of alternative sources of income promote a sense of ownership and a sustainable path to conflict mitigation. This research is vital because it links social equitability and ecological effectiveness, which can be replicated in other protected areas worldwide.

Problem statement

The increasing interactions in the shared areas with their implications on human well-being and wildlife conservation raise the question: how do wildlife and humans respond to conflicts and achieve coexistence in protected areas? Less is known about Human wildlife coexistence in Makao WMA. This study therefore, We build on the concept of coexistence to delve into the multifaceted challenges of human-wildlife coexistence in Makao Wildlife Management Area, Tanzania. We combine the social and ecological dimensions to determine the coexistence fashion that safeguards wildlife and improves communities' livelihoods.

Objectives

- I. To understand the challenges and opportunities for human-wildlife coexistence
- II. To determine and propose sustainable alternative options for communities to reduce wildlife resource dependence.
- III. To conduct an ecological survey to determine wildlife movements and suggest possible ways to overcome problem animals.

Methodology and data collection

Makao Wildlife Management Area is located in Meatu District, within the Simiyu Region. This significant conservation area was officially gazette in 2009 and spans an impressive 780 km². It encompasses seven villages: Jinamo, Sapa, Mbushi, Mangudo, Mwabagimu, Iramba ndogo, and Makao. Makao Wildlife Management is a vital wildlife corridor connecting the Ngorongoro Conservation Area, Maswa Game Reserve, and Serengeti National Park. The area experiences human-wildlife conflict due to the establishment of a conservation area on village land. The research will employ both qualitative and quantitative methods of data collection. Heads of households will be interviewed using a semi-structured questionnaire. The respondents will be selected randomly from each village using proportionate stratified sampling. Mwabagimu (65), Jinamo (72), Sapa (60), which will be gathered from the village chairs' household register. Questionnaires will be administered to 197 respondents. The questions will assess the current state of conflict, available livelihood options, local participation in wildlife management, identification of problem animals and routes, and conflict resolution mechanisms. Responses will be measured using Likert scales. The responses will be grouped into four levels: (i) Strongly agree, (ii) agree, (iii) disagree (iv) strongly disagree.

One focus group discussion with a group size of five participants per session in each village. Key informant interviews will also be conducted with village executive officers from the study villages, district game officers, and officials from the Makao Authorized Association and Wildlife Division. Transect walks, together with physical observation, will be used by the researcher to determine wildlife movements during an ecological survey.

Data will be analyzed using SPSS. Descriptive statistics will be performed, and inferential analysis will be undertaken. Chi-square tests will be used, and the statistical significance will be set at p values <0.05. Content analysis will be used to analyze data from

interviews and focus group discussions, as suggested by Bengtsson (2016). All data will be recorded, transcribed, translated and analyzed by grouping 'respondents' answers to each question and developing information by classifying each group of answers. The responses will be ranked by scores and categorized into related themes. The inductive analytic process identifies, explains, clarifies, and interprets linked categories conveying similar meanings (Creswell, 2013).

1. Spending plan –

The total budget for the proposed research is **999.60** £ as shown in the table below.

Description		Phases (amount in Pounds “£”)		
		Phase 1	Phase 2	Total
A	Research Materials			
A1.1	Printer instrument 1pc	90.00		90.00
A1.2	Internet bundle (3 months * 10.00£)	30.00		30.00
A1.3	Inc. toner (1pc * 15.00£)	15.00		15.00
	Sub-total for Research Materials	135.00		135.00
B	Field expenses			
B2.1	Researcher- food & accommodation (30 man-days, 30 * 10.00£)	300.00		300.00
B2.2	Payment research assistants (30 man-days, 30 * 5.00£)	150.00		150.00
B2.3	Writing pads (3 pcs @ 1.00 £)	3.00		3.00
B2.4	Rim-paper (2pc* 5.00£)	10.00		10.00
B2.5	Pens (10pc* 0.08£)	0.80		0.80
B2.6	Notebook (1pc * 2.00£)	2.00		2.00
	Sub-total for Field expenses	465.80		465.80
C	Transport			
C3.1	Mwanza to Makao (Bus)	14.00		14.00
C3.2	Makao to Mwanza (Bus)	14.00		14.00
C3.3	Local transport in Makao (30 man-days, 30*6.00 £)	180.00		180.00
	Sub-total for Transport	208.00		208.00
D	Data analysis & Report writing			
D4.1	Researcher meals and accommodation (30 man-days, 30*6.36£)		190.80	190.80

Sub-total for Report Writing	190.80	190.80
TOTAL COST (A + B + C + D)		
(135.00 + 465.80 + 208.00 + 190.80)		999.60

Appendix 1: Head structured household questionnaire

I am Dr Emmanuel Lwankomezi, Researcher and Lecturer at St. Augustine university of Tanzania. This instrument is designed to collect data on the **“Enhancing Human-Wildlife Coexistence: A Multidisciplinary Approach around Protected Areas in Tanzania”** You are invited to complete the questionnaire to make this study successful. This work is strictly for academic purposes, and all information provided will be treated with high confidentiality.

A. PERSONAL INFORMATION

1. Village of study

1. Mwabagimu ()
2. Jinamo ()
3. Sapa ()

2. Age

1. 25-35 ()
2. 36-46 ()
3. 47-57 ()
4. above 57

3. Sex:

1. Male ()
2. Female ()

4. Education Level

1. Informal education ()
2. Primary education ()
3. Secondary education ()
4. College / technical education ()
5. University education ()

5. If yes how long have lived in this village

1. 1-5 ()
2. 6-10 ()
3. 11-15 ()

4. iv) Above 15
6. What are the main sources of your income? (Preferences)
 1. Employed ()
 2. Business ()
 3. Livestock keeping ()
 4. Crops cultivation ()
 5. Engage in petty trade ()
 6. Making charcoal for sale ()

B. CONFLICTS OCCURRENCES

1. Have your household members ever experienced any disputes or conflicts related to wildlife management in this village?

1. No
2. Yes

2. What are problem animals in your area?

1. Elephant
2. Lion
3. Hayne

Other (Specify).....

3. How often do they visit?

1. Daily Once a week ()
2. Twice a week ()
3. Any time ()

4. Which time of the day?

1. Day time ()
2. At night ()
3. Any time ()

5. What season of the year?

1. Wet ()
2. Dry ()
3. Always

6. What are the causes conflict related to wildlife management in your village? (Rate 1-5)

s/ n	Statement	(1)Very serious	(2)Serious	(3) Moderate problem	(4) Minor problem	(5)Not at all a problem
1	Conflict in Village					

	boundaries					
2	Dispute on Wild animal attack					
3	Destruction of crops by wild animals					
4	Misunderstanding between Villagers and investors					
5	Disagreement on benefit-sharing mechanism					
6	Misunderstanding between Villagers and Villagers					
7	Conflict on land plan and usage					
8	Conflict on land ownerships					

7. What are the conflict solving mechanisms available in your village? (Rate 1-5)

s/ n	Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	Engage local communities in conservation efforts					
2	Educate communities about wildlife behavior					
3	Implement compensation programs for crop and livestock					

	losses					
4	Create buffer zones between human settlements and wildlife habitats.					
5	Establish wildlife corridors to facilitate safe animal movement.					
6	Implement land-use planning to minimize human-wildlife interactions.					
7	Develop and enforce policies that support sustainable wildlife management.					
8	Set up early warning systems to alert communities of wildlife presence.					
9	Monitor conflict incidents and effectiveness of mitigation measures.					

Appendix 2: A Checklist for key informants

1. What are the wildlife conservation changes after the establishment of Makao WMA?
2. What problems were encountered by communities after the establishment of Makao WMA?
3. What should be done to improve conservation in the study area
4. What is the level of human-wildlife conflict in the study area?

5. Are there any incidences of poaching in your village/WMA?
6. What is the condition and trend of poaching in the area?
7. Are there any incidences of fire outbreaks in your village/WMA?
8. Which are the main resource-use conflicts in the area?
9. When the conflicts first occurred in the area?
10. What are the leading causes of the conflicts and who are the main parties involved?
11. At which period of the year are resource conflicts likely to occur?
12. What is the local mechanism that can resolve resource conflicts?
13. What is the level of human-wildlife conflict in the study area?