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Local community participation in wildlife conservation and management in Rungwa Game Reserve, Tanzania

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ABSTRACT

Local community participation in wildlife conservation and management is known to have existed for many years. However, the socio-economic activities regarding community participation remain questionable. Incorporating the views of the local community in the process of decision-making and providing alternative livelihood solutions are important steps towards sustainable conservation. The main aim of this study was to investigate the effects of community participation in sustainable wildlife management in Rungwa Game Reserve. A survey was conducted of the households in Rungwa and Mwamagembe villages with a sample size of 98 respondents. The study used a cross-sectional research design. Data were collected from different respondents at a single point in time. The main research methods used for data collection included: questionnaire surveys, key informant interviews, field observations, focus group discussions and a review of documents. Descriptive data were summarised and presented in frequency tables and charts. Content analysis was also used to determine relationships between the variables measured. The findings revealed both positive and negative effects of wildlife conservation and management. The results revealed that local communities provided confidential information pertaining to illegal activities. The findings further indicated that there was a failure of the game reserve authorities to allow meaningful local participation and equitable sharing of the benefits, which could be attributed to hatred, resentment, and illegal harvesting of natural resources from the game reserve, resulting in poor wildlife conservation. This study recommends the encouragement and a strengthening of the involvement of local communities in wildlife conservation for the sustainable utilisation of natural resources.

KEY WORDS: wildlife conservation, community participation, Rungwa Game Reserve, Tanzania, sustainable conservation

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1. Introduction

Rungwa Game Reserve is regarded as one of the most important wildlife areas that include the Ruaha-Rungwa ecosystem. This ecosystem is the second largest wildlife area in Tanzania after the Selous-Mikumi ecosystem, and its conservation significance is extraordinary (COPPOLILLO, 2004). However, protected areas (PAs) worldwide are considered refuges for wildlife and other forms of biodiversity, most of which are currently threatened by anthropogenic activities and other

factors (KIRIA ET AL., 2014). Management of PAs throughout the world relies on key stakeholders such as PA managers and organisations/agencies who have different roles (BORRINI-FEYERABEND ET AL., 2004). The management of PAs is usually guided by law enforcement, which forms significant portions of the PA management budgets (PLUMPTRE ET AL., 2014). Field managers from either an agency or the community are usually involved in resolving problems and are responsible for ensuring the sustainable utilisation of wildlife resources (BORRINI-FEYERABEND ET AL., 2004).

Wildlife conservation elsewhere is geared to preserve nature through the provision of socio-economic and ecosystem services in a sustainable manner to improve the livelihoods and well-being of people surrounding the PAs (OWUSU-ANSAH, 2016; MUHUMUZA & BALKWILL, 2013). Such PAs vary from having no human settlement to ones that permit settlement and multiple uses of wildlife resources (LINDSEY ET AL., 2014). Historically, the levels of protection, distance from human settlements and reserve boundaries have been considered as important predictors of encroachment and hunting pressure in Africa in general (BRASHARES ET AL., 2004) and Tanzania in particular (MASANJA, 2014). As a result, wildlife resources are threatened by widespread loss of habitats, prey depletion, and human-animal conflicts that are associated with rapid human population growth (KIDEGHESHO ET AL., 2013; GEMEDA & MELES, 2018). These problems are more pronounced in PAs that either permit or tolerate human settlement as reported in parts of Ethiopia, Mozambique, Tanzania and Zambia (NELSON ET AL., 2013; LINDSEY ET AL., 2014). This means that to ensure effective protection of PAs, strict measures that include stringent legislation, regulations, and use of armed guards to keep people out are often used to ensure sustainable conservation (MADULU, 2001). Law enforcement through poaching patrols is crucial to curb unsustainable and illegal exploitation of wildlife resources in Tanzania (HOLMERN ET AL., 2007). However, the benefits to the poachers are significantly greater than the costs associated with the low probability of arrest and punitive fines (GANDIWA, 2011). Therefore, illegal activities become persistent and widespread. As a result, the government is unable to fund PAs hence the increasing threats of poaching and encroachment (LINDSEY ET AL., 2014).

A necessity of the Sustainable Development Goals was to ensure environmental sustainability, a paradigm shift is crucial for the sustainable management of natural resources based on ecosystems. This paradigm encourages the involvement of people who live and work in and around PAs in the decision-making process for the long-term success of these PAs (STELLMACHER ET AL., 2012). This paradigm shift is necessary because of the failure of the exclusion approach to manage the reserve sustainably. Exclusion of local communities, both in terms of accessibility and decision-making, has been reported to have adverse effects on the effectiveness of these PAs (SOWMAN ET AL., 2011; WICANDER, 2015). As a result, the participatory approach is inevitable in order to allow local communities to be involved in the

decision-making processes and to sustainably benefit from wildlife conservation (WILFRED, 2010; BALDUS, 2014). This approach was adopted in Tanzania and implemented to minimise the challenges of a “fences and fines” approach (WILFRED, 2010). There is little information on the effects of community participation in wildlife conservation in most of Tanzania’s PAs following the paradigm shift and adoption of these participatory approaches. This study, therefore, aimed at assessing the effects of community participation in wildlife conservation in Rungwa Game Reserve. The authors had the opinions that involving the local community in the decision-making process and providing alternative livelihood solutions were important steps towards sustainable conservation.

2. Materials and methods

2.1. Study area

The study was conducted in two villages, namely Rungwa and Mwamagembe, which border Rungwa Game Reserve. The game reserve is located in Manyoni district, Singida region in Tanzania. It has a total area of 17,340 km², and is located between latitudes and longitudes S 07°11.53', E 33°57.47' (COPPOLILO, 2004) (Fig. 1). This game reserve is part of the Ruaha–Rungwa ecosystem that includes protected and unprotected areas with a total area of 50,886 km². As per the elephant census results of 2015, this ecosystem is known to have the largest population of African elephants in Tanzania, with an estimated 15,836 elephants (MINISTRY OF NATURAL RESOURCES AND TOURISM, 2015).

The game reserve is also popular for trophy hunting due to plentiful Miombo woodlands, which offer the special habitats for a number of wildlife species including lions, leopards, buffaloes, zebras, elephants, impalas, and different species of birds. Trophy hunting was also known to attract roughly about 100 hunters annually (MINISTRY OF NATURAL RESOURCES AND TOURISM, 2015).

The study villages were selected due to their close proximity and accessibility to the game reserve. The villages were also reported to have diverse socio-economic activities, mainly cultivation, livestock and bee keeping (TARIMO & MGUMIA, 2018). The latter can be considered a popular activity with honey and beeswax being an important source of household income. Livestock keeping is undertaken in the settled areas on a small scale (TARIMO & MGUMIA, 2018). However, there were also cases of crop destruction, livestock attacks,

injury and losses of human lives caused by problematic animals (HARIOHAY & RØSKAFT, 2015). The game reserve falls in a predominantly semi-arid area, which is characterised by a single rainy season with low rainfall from November to

April and a long dry season from June to November. The amount of rainfall ranges from 500 mm to 700 mm, and the mean annual temperature is 28°C (TARIMO & MGUMIA, 2018).

Fig. 1. Map of Ruaha-Rungwa Ecosystem showing the study area (Source: Ministry of Natural Resources and Tourism, 2011)

2.2. Research design and sampling procedures

Field surveys were carried out between February, 2017 and January, 2018 in the selected villages adjacent to Rungwa game reserve. The study used a cross-sectional research design, which is the most appropriate method in a social survey. The method allowed data to be collected from different respondents at a single point in time (ZHENG, 2015). It also helped to collect data from a pool of respondents with varied characteristics and demographics (JARVISTA, 2003).

The study also deployed both probability and non-probability sampling procedures. In the former, each individual had an equal chance of being included in the sample and, therefore, was selected by chance. In the latter, purposive sampling was used to select well-informed stakeholders on wildlife conservation activities (KOTHARI, 2012). The stakeholders included were management

personnel of the game reserve, Community Based Conservation (CBC) personnel, companies dealing with hunting and tourism, Ward Executive Officers (WEOs) and Village Executive Officers (VEOs).

The heads of household in the two villages were the basic sample unit. Household sample sizes were calculated using the Yamane (1967) formula. Yamane provides a simplified formula to calculate sample sizes (ISRAEL, 2015). The formula is expressed as:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n – Sample size

N – Population size/ sampling frame

e – Error of prediction which was 0.1 (90%)

The two villages had a total of 3996 households (N). Using the formula, the sample size was

calculated as $3996/(1 + 3996 \times 0.01) = 98$. The distribution of the sample size from the selected villages was based on their proportional number of households. This means, 36 and 62 respondents were selected from Rungwa and Mwamagembe villages, respectively.

2.3. Research instruments

The choice and development of research instruments depended on the aims, questions of the study and the type of data required. Questionnaires, key informant interviews, observations, focus group discussions and document reviews were used to collect data.

2.3.1. Questionnaire survey

A questionnaire is a data generation technique in which respondents provide written responses to questions or statements that require factual information (BEST & KHAN, 2006). Structured interviews using the questionnaire as a tool consisted of open and closed questions. The open-ended questions were intended to give respondents an opportunity to express their views. It was also intended to increase the level of interaction between researcher and respondents. A total of 98 heads of household selected from two villages were asked the same questions in the same order. A household survey is one of the most appropriate research methods as it allows for a better representation of the community. It is designed to provide information on the whole community. Generally, it represents a complete geographical area (POLIT, 2001). Data collected included the demographic characteristics and various aspects of community participation in wildlife conservation.

2.3.2. Key informant interviews

Key informants were people with long-term experience about the area as well as expert knowledge. The method provided information that helped in counter-checking the credibility of data from other sources. The key informants included the management of the game reserve, specifically the heads of different departments, tourist hunting as well as WEOs and VEOs from the selected villages. Data collected from key informants were various records related to finance, and support (aids) received from Manyoni District Council and tourism hunting companies.

2.3.3. Observations

Observation involved the process of watching, taking notes, recording, and analysing behavioural activities of respondents in the field by the researcher (CRESWELL, 2009; KOTHARI, 2012). It is a powerful method for gaining insights into a situation (KOTHARI, 2012). Special attention was on the observation of the effects of community participation in wildlife conservation, feasible community development projects supported by the government or tourism agents, and signposts and beacons. A checklist and photographs were the tools used to facilitate data collection by this method.

2.3.4. Document reviews

The review of documents was used to collect secondary data (KOTHARI, 2012). It involved searching available compendia, reports, books, research articles and other written sources. In this study, documents reviewed from the game reserve's offices were reports, manuscripts, and other documents found in office files related to the game reserve. A checklist was used as a tool in this method. In addition several documents related to community participation were reviewed. Such documents included records of approaches used for community participation in wildlife conservation and records of the effects of community participation in wildlife conservation.

2.3.5. Focus group discussions

Focus group discussions (FGDs) were also used in data collection. FGD is a form of group interview that is structured to foster talk among the respondents about the object of the study (BOGDAN & BIKLEN, 2007). The FGDs were employed in order to crosscheck the information provided through questionnaires. Each FGD consisted of five to six respondents. FGDs should consist of a few members because a large number of respondents in a group are difficult to manage. Three FGD sessions were conducted in each sampled village, making a total of six FGDs. Each FGD session took about one and a half to two hours. The age limit of FGD members was 18 years.

The FGD technique is very useful to enrich gathered data (MCLAFFERTY, 2004). However, it was associated with a number of drawbacks. For example, participants were not willing to share important experiences they have had because they might be too embarrassed (BOGDAN & BIKLEN, 2007; KASWAMILA, 2009). In this study, the researchers had to probe respondents for more information

in the case of unclear points. Data collected were related to awareness of the laws and by-laws for community participation in wildlife conservation, effects of community participation in wildlife conservation and constraints facing communities participating in wildlife conservation.

2.4. Data analysis

Descriptive statistics were used to summarise and present data into frequency tables and charts. Socio-economic characteristics of respondents were also interpreted and presented as distributions, percentages and mean scores. The data were analysed in line with the objectives using Statistical Package for Social Sciences version 20 (SPSS 20) and subjected to content analysis. Content analysis is a “research method for the subjective interpretation of content of text data through systematic classification process of coding and identifying themes or patterns” (HSIEH & SHANNON, 2005).

2.5. Limitations of the study

There were no clear financial records related to funds received as 25% of the revenues from Manyoni District and financial support from hunting companies for the two villages. Leaders of the villages excessively complicated administrative procedures and were not transparent regarding the financial information. However, the researchers obtained the financial records allocated to the two villages directly from Manyoni District Council and the game reserve offices. Furthermore, the study was qualitative in nature, and hence, the findings can be transferred to other protected areas only if they have characteristics similar to those of the sampled game reserve.

3. Results and discussion

3.1. Socio-economic characteristics of respondents

Generally, this study aimed to examine the modalities for enhancing community participation in wildlife conservation in Rungwa Game Reserve. Different categories of socio-economic activities were investigated as presented and discussed here.

3.1.1. Age and sex of respondents

The majority of respondents in this study were males (78.6%) compared to females (21.4%). This could be attributed to a patriarchal social system as the study focused on heads of household who

traditionally predominate, hold primary power and possibly moral authority on wildlife conservation. However, it has been postulated that males and females have differences in their understanding of conservation issues (MACHARIA, 2014). Arguably, women play a significant role in agricultural production and daily livelihood chores (BITANYI ET AL., 2012).

It was observed that age of the heads of household ranged between 22 and 75 years, with an average age of about 41 years (Table 1). Findings also indicated that the majority of respondents (25.50%) were aged between 45 and 54, and a few (6.1%) were between 18 and 24 years old (Table 1). The results indicated further that age of adult and youth respondents could probably be useful in the decision-making process and other conservation activities. These results concur with those of MNGUMI ET AL. (2013) who reported the usefulness of similar age groups in decision-making and actively engaged in different conservation activities in Pugu and Kazimzumbwi Forest Reserve.

Table 1. General characteristics of respondents

Variable	Frequency (n)	Percent (%)
Sex of respondents		
Male	77	78.6
Female	21	21.4
Age of respondents		
18-24	6	6.1
25-34	21	21.4
35-44	23	23.5
45-54	25	25.5
55 and above	23	23.5
Occupation of respondents		
Formal employment	6	6.1
Informal employment	92	93.9

3.1.2. Education level of respondents

Findings revealed that 73.3% of the respondents had a primary education, followed by secondary education (9.3%), and the lowest education level was college/vocational (7.2%). About 10.3% of the respondents did not attend any formal education (Table 2). Primary level was the main education because it is compulsory for every citizen of any socio-economic background in Tanzania. For example, children between 7 and 13 years of age are compulsorily required to

register for primary education in Tanzania (GOULD & HUBER, 2008; KATUNDU ET AL., 2013). Education is believed to play significant roles in building self-awareness and enhancing a positive attitude towards the conservation of wildlife resources. For example, in Kenya, it was found to be difficult to create awareness about wildlife conservation

through formal education in a local community with a low level of education (MACHARIA, 2014). Similarly, a high level of illiteracy in the communities could lead to impatience and conflicts, especially when the youths are not fully engaged in wildlife conservation (RAO & PAWAR, 2013).

Table 2. Main economic activities of the respondents in relation to their education level

Main economic activities	Education levels				
	Non formal	Primary education	Secondary education	College or vocational	Total
Farming	10	65	9	5	89
Business	0	4	0	0	4
Teacher	0	0	0	2	2
Carpenter	0	2	0	0	2
Total	10	71	9	7	97

3.1.3. Occupation of respondents

The results revealed that the majority (93.9%) of respondents had informal employment. Only a few (6.1%) had formal employment. This could possibly be due to the low level of formal education among most respondents. This implies that low education level provides low payment employment opportunities (informal employment) to conserve wildlife resources and tourism activities. Such results tally with those of MACHARIA (2014) who reported a direct relationship between education levels and attitude towards conservation of wildlife resources in Kenya.

3.2. Main economic activities of respondents

Findings revealed that farming activities had the highest frequency of responses (91.8%), followed by business (4.1%), and livestock keeping (2.1%) as shown in Table 2. The reason for the majority of people in the studied villages being engaged in farming activities might be due to the availability of suitable land and inadequate alternative economic activities. A similar finding was reported on livestock keeping and crop production as the main economic activities for the local communities surrounding the game reserve (MINISTRY OF NATURAL RESOURCES AND TOURISM, 2011). Some of these socio-economic activities were also reported elsewhere in Africa, for example, in Kenya (KIPKEU, 2014) and Cameroon (NANA & TCHAMADEU, 2014).

3.3. Involvement of local communities in wildlife conservation

The involvement of local communities in wildlife conservation (i.e. level of contribution in decision-making) was totally restricted by the Rungwa game authorities. However, the findings revealed that involvement of local communities in wildlife conservation resulted in two major activities, including building and construction of social services as well as education and seminars. The former involved the local communities for more than 59.3% while the latter accounted for 40.7%. The government and hunting companies supported, *inter alia*, building of classrooms, teacher's houses, village offices, pit latrines and provision of desks to primary and secondary schools.

Low involvement of local communities in education and seminars was due to the fact that education and seminars were not given enough weight by the game reserve management. The involvement of local communities in the planning process usually helps to promote understanding of PA management rationale and increase support for management initiatives (RAO & PAWAR, 2013). Local communities can also be involved in afforestation programmes, gaining environmental education and social services, *inter alia*, education, health, water and transportation to nearby villages (KIDEGHESHO, 2006). The involvement of local communities in natural resources management depends on the approach used by conservation institutions. This is determined by the extent of power sharing between the two parties (MARIKI, 2015). Nevertheless, the Rungwa Game Reserve

recorded three conservation educational programmes to the local communities between 2013 and 2017 (TARIMO, 2017).

The results revealed that a sensitisation towards conservation education for local communities is significant for wildlife conservation. It may also impact local community participation and enhance their sense of ownership and become more responsible for protection and its associated benefits. Similarly, awareness about wildlife conservation and management has been raised through continuous sensitisation that assisted community members to be more conversant with wildlife law and its provisions (AKUMSI, 2003).

3.4. Community participation in wildlife conservation

Perception of respondents was assessed to determine the effects of local communities in wildlife conservation participation (i.e. actual conservation activities performed by the local communities) over the previous five years. A Five Point Likert Scale was used to measure perception of the local communities involved in wildlife conservation in terms of highly decreased, decreased, no change, increased and highly increased. The participation of local communities was only limited to provision of information related to illegal hunting in the game reserve.

3.4.1. Poaching and wildlife status

The results revealed a direct relationship between poaching activities and numbers of wildlife. For example, when poaching activities were low (10.2%), the status of wildlife in terms of numbers had improved by 76.5%. The increase in wildlife numbers was due to participation of local communities in wildlife conservation. The reasons for the decreased responses against the extent of poaching activities could be due to decreased incidences of arrest of poachers and the collapse of the market for wildlife products including meat and elephant ivory. Similarly, increased intelligence information gathering and pro-active regular patrols, popularly known as eliminate poaching 'TOKOMEZA', could also contribute to the improved wildlife conservation.

The study also observed the role of local communities in sharing confidential information enabled the game reserve management to confiscate many weapons as an anti-poaching strategy. The game reserve management also received a lot of information about the damages caused by problematic and dangerous animals

(for example, elephants and lions) to local communities. The local indicators developed by the local communities and results from data analysis of wildlife monitoring were used as indicators for the increase in wildlife populations in Mount Cameroon (AKUMSI, 2003; NANA & TCHAMADEU, 2014).

3.4.2. Involvement of the community in wildlife conservation and encroachment

The findings revealed that there was no change in the extent of encroachment (52%) despite the participation of the community in wildlife conservation. This could be due to lack of awareness and inadequate conservation education given to the local communities. In addition, land scarcity, shortage of pasture and water forced most of the livestock keepers to invade the adjacent PAs for pasture and water supply especially during the dry season (NJAU, 2013).

The findings further revealed that the level of local community involvement in wildlife conservation has decreased by 54.1%. The decrease in community involvement could be associated with the low level of education and insufficient knowledge of planning and implementation of various natural resource management activities. Little stakeholder involvement and low community support usually increases the chances of conflicts over illegal harvesting of the resources, *inter alia*, 'uncontrolled' illegal hunting, fishing and timber harvesting (WICANDER, 2015).

3.4.3. Standard of local community livelihood

The results revealed that the local community livelihood had generally increased while there was no change in willingness to give land. About 39.8% of the respondents reported that the standard of local community livelihood had increased (Table 3). The improvement of livelihood was due to the multiplier effects of tourism activities, which had led to the growth of business, agricultural and livestock keeping practices. Similarly, a large number of respondents (29.6%) showed that community participation in wildlife conservation has brought no change in the community willingness to give land. This could be due to inadequate conservation education provided by the government and tourism agents. In addition, a shortage of pasture and the expansion of agricultural activities may have increased the competition for available land resources (WICANDER, 2015).

It was observed that information sharing in conservation education had decreased (45.9%). This implies that the community fears for the lack of confidentiality and motivation from the game reserve management. It was also noted that local communities were partially willing to conserve wildlife resources due to inadequate

compensation for damages caused by dangerous and problematic animals. According to [SPRINGER ET AL. \(2011\)](#) indigenous people gain from compensation and equal benefit sharing, which are crucial for the conservation and sustainable use of natural resources.

Table 3. Community participation in wildlife conservation (%)

Variable	Highly decreased	Decreased	No change	Increased	Highly increased
Extent of poaching activities	26.5	57.1	6.1	10.2	
Number or status of wildlife		4.1	13.3	76.5	6.1
Extent of encroachment to protected area		3.1	52.0	28.6	16.3
Level of local community involvement	9.2	54.1	24.5	12.2	
Standard of local community livelihood	11.2	25.5	23.5	39.8	
Community willingness to give land	6.1	41.8	29.6	22.4	
Information sharing and conservation awareness	6.1	45.9	14.3	33.7	
Human and wildlife conflicts		25.5	45.9	24.5	4.1

3.5. Benefits of community participation in wildlife conservation

Results revealed that employment was the most mentioned benefit (25%), followed by revenue (22%) and water catchment areas (18.6%). Hunting companies recruited local communities from the two villages as tent attendants, skimmers, gun bearers and cooks just to mention a few. Other benefits, which have resulted from

local community participation in wildlife conservation are presented in Figure 2. With regard to other studies of a similar nature, employment was also reported as a community benefit of wildlife conservation in the Amboseli National Park, Kenya ([KIPKEU ET AL., 2014](#)). Investors in PAs such as hoteliers, tour operators and professional hunters were also reported to benefit compared with local communities ([KIDEGHESHO, 2006](#)).

Fig. 2. Benefits of community participation in wildlife conservation

Researchers also noted a need to increase transparency in the amount of funds received from key stakeholders and to prioritise job opportunities for local communities. Respondents argued that the local communities should be given opportunities to plan and prioritise development projects in their villages. This would help to

increase their sense of ownership and share protection responsibilities.

It was also observed that the local communities through Manyoni District Council receive 25% of the revenue obtained from hunting tourism in the form of game fees collected from hunted animals. This implies that very little revenue was

allocated to the local communities to enhance wildlife conservation. Similarly, it was reported that fund allocation was based on the priority of the district council and not to the affected local communities; this created negative impacts toward wildlife conservation (KIDEGHESHO, 2006).

Among other benefits, water catchment and recreational areas were also observed as important and potential for the needs of local communities. This could be due to the availability of major rivers viz., Rungwa and Miungu. The rivers originate and drain water from the game reserve and the community uses water for domestic purposes. There was also a water pump machine installed inside the game reserve (Fig. 3).

Similarly, the game reserve was acknowledged by 15.9% of respondents as an important recreational area. This implies that the game reserve has the greatest variety and abundance

of wildlife species. Some of the wildlife such as elephants, lions, zebras, sable and roan antelopes were easily seen by local communities and visitors.

Furthermore, the community receives support for different projects from the benefits of the game reserve. This was supported by about 16.4% of the respondents who declared that they get financial support for different community projects from the government and hunting tourism companies in accordance with the Tourist Hunting Regulations of 2010. In addition, outfitters are required to contribute an amount of not less than US\$ 5,000.00 for each hunting block annually to implement community development projects (MINISTRY OF NATURAL RESOURCES AND TOURISM, 2011). This has also been implemented, and hunting companies have contributed as per regulations (Table 4).

Fig. 3. A pool of river Miungu (left) and water pump machine house in Rungwa Game Reserve (right)

Table 4. Support provided by hunting companies (US\$ 5000 per hunting block) for community initiated projects from the year 2013 to 2017 (Source: Ministry of Natural Resources and Tourism, 2017)

Name of hunting block	Name of the hunting company	Village that received the fund	Amount in TZS	Year the fund received
Kizigo Central	Palahala Safaris & Hunting Ltd	Rungwa	8,000,000	2013
Rungwa Inyonga	Northern Hunting Enterprises Ltd	Rungwa	8,000,000	2013
Rungwa/Mwamagembe	Mwanauta & Co. Ltd	Kintanula	3,900,000	2013
		Mwamagembe	3,900,000	2013
Muhesi West	Marera Safaris and Lodge	Rungwa	4,000,000	2014
Rungwa Mpera	RGS	Mwamagembe	8,000,000	2014
Rungwa Ikili	TBG	Rungwa	2,000,000	2014
Rungwa Inyonga	Northern Hunting Safaris	Rungwa	5,375,000	2014
Rungwa Mpera	RGS	Rungwa	5,500,000	2017
Rungwa Mpera	RGS	Mwamagembe	5,500,000	2017
		Total	54,175,000	

Additionally, the local communities were occasionally provided with transport services due to their participation in wildlife conservation. This implies that the game management provided transport support in emergencies, mainly illnesses. However, it was also noted that the studied villages are accessible to transport facilities. The local communities can easily travel to Manyoni district for their daily needs.

4. Conclusions

The local communities around PAs seek to experience a sense of benefit sharing through their involvement in conservation activities. This may help to ensure that they receive rational returns for putting their efforts and resources into sustainable wildlife conservation. This study revealed both the positive and negative effects of local community participation in wildlife conservation. For example, the poaching activities generally decreased while the status of wildlife in terms of numbers increased. The local communities were considered to be important bridges to provide confidential information pertaining to illegal offenders in and around the game reserve.

This study recommends the need to encourage and strengthen local communities to engage in wildlife conservation in different PAs in Tanzania for the sustainable utilisation of natural resources. The key stakeholders like Wildlife Division, District Councils and hunting companies should ensure that the positive effects of community participation in wildlife conservation are well maintained and allowed to prosper. Local communities should be given the priority in jobs and casual work opportunities from tourism agencies.

The game reserve management should also solicit funds from donors and tourism agents to support alternative socio-economic activities that are environmentally friendly. These activities include: modern beekeeping projects and fast growing and early maturing tree planting projects to improve local community earnings in nearby villages.

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