



## **Community Participation in Resident Hunting in South West Rungwa Game Reserve**

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### **Authors' contributions**

*This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.*

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### **ABSTRACT**

Illegal bush meat utilization is a global wildlife management challenge. Understanding resident hunting as a legal way for bush meat utilization and conservation strategy is a key to addressing this challenge. The study assessed community participation in resident hunting in South West Rungwa Game Reserve. A study involved 150 households selected from four villages. Data were collected using semi-structured questionnaire. Furthermore, in-depth interviews with 10 key informants and four (4) Focus Groups Discussion (FGD) were also carried out to collect qualitative information.

The results revealed that there was the shortfall in implementation of resident hunting regulation, by district Councils to ensure sustainability. Furthermore, results show that local people in the study area were not aware of the presence of resident hunting. Participation of local community members in resident hunting was very low and those who participated were not directly involved in the harvesting of the animals for home use or sale, and very few local people had resident hunting permit. Major factors which hindered participation in resident hunting include lack of awareness

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followed by lack of hunting tools, the prohibition on selling of bush meat, competition from hunting companies, high hunting fees and laxity of laws.

We recommend awareness creation on resident hunting should be emphasized, in order to equip local community with valuable information on how to utilize wild animals sustainably. Furthermore, Wildlife Division should review Resident Hunting Regulation to empower local community to participate in resident hunting for household use and income generation. Lastly, penalties should be increased to discourage illegal hunting.

*Keywords: Community participation; resident hunting; bush meat; illegal hunting; sustainable use.*

## 1. INTRODUCTION

Hunting has been practiced since 2.5 million years ago by the ancient hominids who are believed to have been hunters and gatherers [1], this is proven from varieties of drawings of hunting activities in different parts of Africa such as drawings of Kondoia in Dodoma and Isimila in Iringa (Tanzania), Kenya, Namibia and South Africa proof [2]. Even though hunting of our ancestors were mainly for protein and food security, the very similar notion that made ancestors hunt exists to date [3]. The local people who live around protected areas practice hunting for food and generation of income for livelihoods [4,5,6]. The scale of the African bush meat trade is massive, projected at between 1 and 3.4 million tons per year [7,8]. Central Africa alone may be accountable for harvesting over 2 million tons of bush meat per year [9]. The exploitation of bush meat has increased as a result of growing human populations, greater access to undisturbed forests and changes in hunting technology [10]. Bush meat has been used as food, commodity to trade, and plays a crucial role in rituals [7,11]. The meat plays a fundamental role in local communities as the source of protein and increases the household economy of the local people in Western Africa [12]. In Central Africa bush meat is a source of income for local people who have limited alternative income sources [13]. In some countries such as Gabon, hunting accounts for around 15 - 72% of the average household income [13].

In Tanzania like other African countries which have wild animals, hunting is another source of food from non- agriculture activities mostly in rural areas. Over 70% of the Tanzania populations live in rural areas, which is geographically co-exist with wild animal or protected areas [14]. Despite of abundant of wild animals in the rural areas, local community in Tanzania remain poorest, consequently

acceleration of wildlife crime such as illegal hunting [15]. Illegal hunting in and outside protected areas pursued by local community is the coping strategy against poverty and an employment opportunity for growing population of youth [16,17]. Majority of the local community adjacent protected areas are involved in illegal hunting in and outside protected areas [18]. Most of these are the young men whom hunting is their primary source of income [15]. Illegal hunting has an impact to the population of the wild animals in Africa that has been considered as the threat to the livelihood of the communities that depend on these resources [19,20].

Tanzania has 38 wildlife Management Area (WMA) at a different level of development of which 17 WMA have attained Authorized Association status (AAs) [21]. The Open Areas (OA) adjacent to the protected areas together with WMA offers chance for the local communities to participate in resident hunting. These are the only areas allowed to conduct resident hunting in Tanzania [22]. The revised 2007 Wildlife Policy of 1998, Wildlife Act of 2009 and Resident hunting regulation of 2010 provide an opportunity to minimize the impacts of illegal hunting by emphasizing sustainable utilization of natural resources including bush meat through resident hunting for livelihood support. Furthermore, Tanzania Wildlife Act and Resident Hunting Regulation provide legal resident hunting by local communities in those areas having wildlife, however, majority of these communities fail to make use of this privilege [23]. Participation of local people in resident hunting in Tanzania is not well known or documented. However, many urban elites in country view bush meat as a cultural heritage luxury item and are actually willing to pay a price premium [7].

Manyoni and Chunya districts have large areas which are rich in wildlife because of proximity to Rungwa Game reserve and they have Open

Area (OA) such as Rungwa south, Rungwa Inyonga OA, and WMA (Ipole). These areas link with other protected areas such as Ugalla and Lukwati/Piti Game reserves. These two districts are rich in wildlife resources outside the protected area, hence making resident hunting possible. Villages of Kambikatoto, Kintanula, Mwamagembe and Rungwa are found on the Southwest of Rungwa game reserve. Presence of a large number of wild animals in the areas motivate local people to engage in both legal and illegal hunting activities [24]. Community participation is vital in the implementation of conservation plans and strategies [25]. Participation of community in conservation and sustainable utilization of the natural resources to improve livelihoods, is one of the main purposes of Wildlife Policy 1998 revised 2007, Wildlife Conservation Act 2009 and Resident Hunting Regulation of 2010. Illegal hunting has negatively impacted on the population of the wild animals of Tanzania and the world at large [26]. For example, in Manyoni and Chunya Districts, illegal hunting is among the problems facing conservation of wildlife. In 2016 alone, 25% of local people arrested conducting illegal activities in Rungwa Game Reserve were bush meat hunters. If this problem is left unattended would have a significant impact on the wildlife population which contributes tremendously to the National economy and community livelihood of those areas.

Despite the presence of Law and Regulation which encourage local people to participate in resident hunting which is the sustainable way of harvesting wild animals and reduce illegal hunting, the number of local community engaged in resident hunting is negligible and illegal hunting is still increasing in protected areas [23]. Therefore, the main objective of this study was to assess community participation in resident hunting in the study area since participation of the community in resident hunting as tool of conservation is also crucial for wellbeing of people and wildlife itself [27].

## 2. METHODS

### 2.1 Study Area

The study was conducted in four (4) selected villages surrounding Rungwa Game Reserve on South-West part of the Country. These villages include Mwamagembe, Kintanula and Rungwa in Manyoni District and Kambikatoto in Chunya

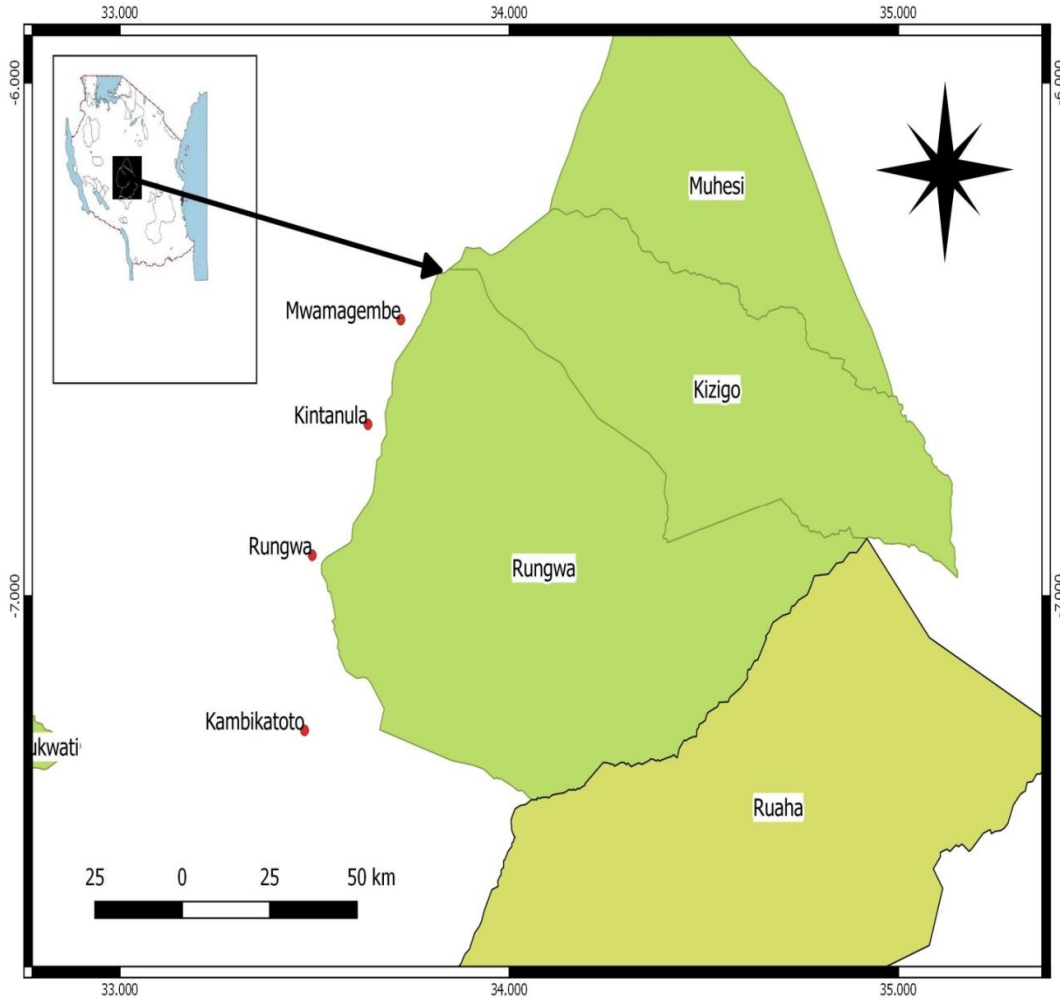
District. The reserve is located between latitude 7° 11' 52.8" S, 33° 57' 46.8" E and it cover an area of 1700 km<sup>2</sup>

### 2.2 Study Design

The field surveys were conducted in February, 2017 in four villages namely Mwamagembe, Kintanula, Rungwa in Manyoni district and Kambikatoto in Chunya district. The villages were selected based on closeness to the Rungwa Game Reserve. Multistage sampling was used to select 150 respondents, in which three stages were involved. The first stage was selection of the wards, the second stage was selection of four (4) villages and the last stage was the selection of household from selected villages. In each stage simple random sampling was used. Furthermore, purposive non probability sampling techniques were used to select key informants such as District Game Officer (DGO), Game Officer (GO), Ward Executive Officer (WEO)/Village Executive Officer (VEO) and Village Chair Person (VCP). Data were collected using a semi-structured questionnaire. The questionnaire for this study consisted of four parts; general characteristics of respondents, how the resident hunting regulation is implemented, the extent of local community members participation in resident hunting and factors hindering local communities participation in resident hunting. Focus group discussions (FGDs) were used to collect information from study respondents, with an influencing methodology that allowed participants to share their understanding in resident hunting. In addition Four (4) Focal Group Discussion (FDG) were carried out in four villages, one from each village, with numbers in group ranging from 7 to 10. This helped to enhance researcher's understanding on the scope of this study. An open ended checklist of questions was prepared and used during focus group discussions where by a single FGD was conducted and 10 influential people (five males and five females) were selected in each village.

### 2.3 Statistical Analysis

Data on questioners were analyzed for descriptive statistical analysis, specifically frequencies and percentages using SPSS software. On other hands, Content Analysis (CA) was used to analyze qualitative data onto FGDs, and in-depth interview with key informants.



**Map of Rungwa Game Reserve showing study areas**

### 3. RESULTS AND DISCUSSION

#### 3.1 Characteristics of Respondents

Age of the respondent range from 18- 60 years, majority of respondents 75% fall in 18-40 year which is active group in production while 15% were age between 41-60 years. 90% of respondent were males, while 10% were females. Furthermore, Results in Table 1 indicate that 83% were married and 17% were single. With regard to education level results show that 71% of the respondents attended primary level of education, 24% had no formal education while very few respondents 5% had secondary education. While, most of the respondents 98% of this study were farmers growing different type crops such, maize, sunflower and groundnuts.

#### 3.2 Initiatives Used by the District Council to Involve Local Community and Awareness of People in Resident Hunting

Making communities aware of resident hunting as well as methods used to disseminate information may influence community participation in resident hunting. Results in Table 2 indicate that only 27% of respondents were aware of the existence of resident hunting. When respondents further asked source of information on resident hunting, overwhelming majority 99% indicated that, they were not formally informed on existence of resident hunting through forum such as village assembly, seminar and posters, but they got information from other sources such as urban hunters, friends and casual laborers from

Rungwa Game Reserve, a situation reflecting minimum effects by District Councils to make resident hunting known to residents.

**Table 1. Characteristics of respondent (n = 150)**

Variable	Frequency	Percent (100%)
<b>Sex of respondent</b>		
Male	135	90
Female	15	10
<b>Age of Respondent</b>		
18-40	102	75.3
41-60	42	14.7
<b>Marital Status of respondent</b>		
Single	25	16.7
Married	125	83.3
<b>Education level</b>		
Primary	107	71.3
Secondary	7	4.7
No education	36	24
<b>Occupation of respondent</b>		
Farmer	148	98.7
Businessman	14	9.3
Carpenter	5	3.3
Civil servant	2	1.3
Bus agent	4	2.7
Politician	1	.7

Results in Table 2 show that 40% of respondents had obtained information from urban people who come in the village to hunt, 28% from local people who participated in resident hunting, and 31% said friends who work as casual laborers in the game reserves.

In line with this observation, it was revealed during FGD that local people are informed to protect the environment and to stop illegal activities during general assembly but no information on resident hunting.

It was also revealed during FGD that most local people got information on resident hunting through informal ways. For example one participant of FGD from Kinatanula village had the following to say;

*"We haven't seen any official from District to tell us about resident hunting and give us detailed information about it, we only get information from urban people who come to hunt and most of them are of Arab origin".* (FGD participant from Kintanula Village)

Getting information from informal source can lead people receiving distorted information about resident hunting and hence threatening sustainability of the practice.

To confirm with the results from the local people in the study areas, District Game Officer and other key informants from game reserve were interviewed to know if they conducted any initiative to involve local people in resident hunting by giving them appropriate information concerning resident hunting. During in-depth interview with key informants, it was noted that little has been done by the District Councils to involve local people in implementation of resident hunting as required by wildlife policy through creating awareness education and other programmes in order to increase local people participation in resident hunting.

During interview, one of the District Game officers surprisingly said;

*"To be honest I have been here for ten years working as District Game Officer, but I can't remember when we have conducted any programme to involve people in resident hunting."*

**Table 2. Awareness to resident hunting and source of information**

Variable	Frequency	Percent (%)
<b>If aware of existence of RH in area</b>		
<b>(n= 150)</b>		
Aware	40	26.6
Not aware	110	73.3
<b>Source of information on resident hunting *</b>		
<b>(n=40)</b>		
General assembly	3	1.2
Urban hunters	14	40.0
Local participants in resident hunting	11	28.0
Friends	12	30.8

*\*Data based on multiple responses*

### 3.3 Monitoring of Activities in Resident Hunting

In this regard, respondents who were aware of resident hunting, as well as key informants, were asked if there is any monitoring activity on resident hunting by responsible authorities. Results in Table 3 reveal that, only 27% of the interviewed local people indicated the existence of monitoring activities for resident hunting, with main activities being ant-poaching patrol, supervision during conducting resident hunting, checking if animals hunted are indicated in a permit.

In support of the above observation, some participants of FGD complained of lack of monitoring activities on resident hunting as they witnessed urban people hunting without game scout. Some hunters come in the village and take people who know the place and pay them for the escort to hunting areas.

The following quote from one participant clarifies that;

*“We only see few ant poaching activities and sometimes we see game scout escort people to hunt. However, most of the time urban people come here without game scout, hunt and leave without even reporting to VEO”* (FGD participant from Kambikatoto Village)

Furthermore, District Game Officer was also interviewed to confirm if there is any monitoring activity in resident hunting. In this interview, it was learnt that, there are monitoring activities on, checkup during hunting season, verifying number of animal species killed as per quota in a specific license provided, conducting inspections to license holder, checking their authorized weapon used during hunting activities and conducting patrol during hunting season in observing hunters adhering with hunting regulations. However, all these monitoring activities were been done to those having hunting permits and

most of them were from urban areas contrary to the observations by community.

In addition it was also noted that, monitoring activities were not done regularly and on required level. This was attributed to a number of factors, which include lack of proper weapon to fight with poachers, lack of transportation to remote areas, insufficient skilled staff, few numbers of staff and inadequate budget located for conducting conservation activities. [17,28] argue that, wildlife sector generates substantial revenues for treasury and is considered as one of the giant economic sector. However, only mere financial resources are ploughed back for protection of species and management which make the monitoring and sustainability in resident hunting to be difficult.

### 3.4 The Extent of Local Community Participation in Resident Hunting

In order to know the extent of the community participation in resident hunting, the study examined various factors such as participation of the family members in resident hunting, how often the members of the family participate in resident hunting and nature of participation.

Respondents were asked if there was a member of family that participate in resident hunting. It can be seen from Table 4 that, 91% of respondents indicate no any family member that participate in resident hunting.

Furthermore, explaining participation for those participated in resident hunting, it was observed that, participation is not on regular basis as most of them, 88% replied that, they participate for “sometimes.” In additional FGD revealed that many respondents who participated in resident hunting were directly involved in harvesting the animals for home use or sale, but rather involved as casual laborers or escorts in that activity by people from urban areas, and very few residents have resident hunting permit.

**Table 3. Prevalence of monitoring activities on resident hunting as perceived by local people**

Variable	Frequency	Percent (%)
<b>Presence of monitoring activities</b>	<b>(n = 40)</b>	
Present	11	27.5
No present	29	72.5
<b>Types of monitoring *</b>	<b>(n = 11)</b>	
Ant poaching patrol	6	54.5
Supervision during hunting	4	36.4
Checking animal hunted present in permit	5	45.5

\* Data based on multiple response

The following quote from one participant illustrates;

*“I don’t have resident hunting permit to hunt but because I knew the place well and I understand the geography of the areas, people from town hired me to escort them to those place”* (FGD participant from Kambikatoto village)

This trend on nature of participation is also confirmed by the Results in Table 4 in which most of households participated are just casual laborers or escorts of other people in that activity.

Moreover, reports from Chunya and Manyoni districts for year between 2009-2013 indicate that, few people participated in resident hunting (Fig. 1), in which 105 and 30 people from Chunya and Manyoni District respectively

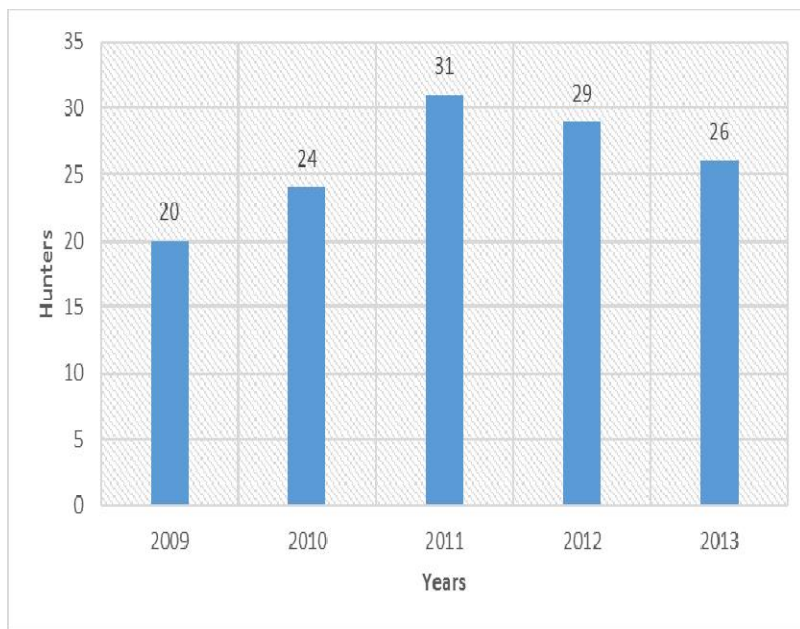
participated in resident hunting. Types of animals harvested were mostly Hartebeests and Buffaloes (Fig. 2). Interestingly, 11 people out of 135 people (8.1%) who participated were residents (indigenous) from adjacent villages. This data further give evidence to indicate that, majority of local people do not participate in resident.

Findings in Table 5 from this study show that although majority of households were not participating in resident hunting and had no resident hunting permit, however, more than 60% of the surveyed households indicated to have consumed bush meat recently (within the past six month), with main source of meat being black market shown by 79.2%. This implies that there is still substantial illegal hunting practiced in the area and hence threatening sustainability of wildlife resource in the area.

**Table 4. Participation of local people in resident hunting**

Variable	Frequency	Percent(%)
<b>If member of household participate in resident hunting (n=150)</b>		
Yes	13	8.7
No	137	91.3
<b>Types of participation (n= 13)*</b>		
Possess Resident Hunting Permit	3	23
Casual labor	8	62
Escort to hunting area	2	15

*\* Data based on multiple response*



**Fig. 1. Number of people participated in resident hunting between 2009-2013**

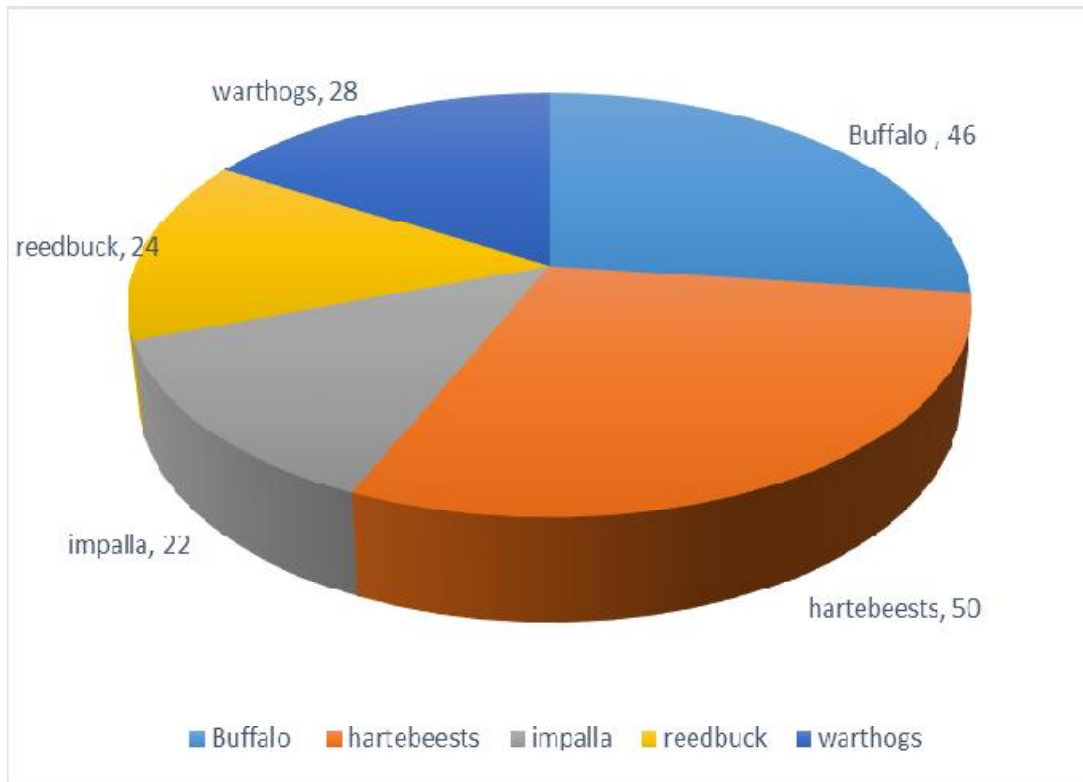


Fig. 2. Number of wild animals hunted in resident hunting between 2009-2013

Table 5. Local people ate bush meat for past 6 months

Variable	Frequency	Percentage (%)
<b>If ever ate bush meat in the past six months (n=150)</b>		
Eaten bush meat	101	67.3
Not eat bush meat	49	32.7
<b>Means of obtaining bush meat* (n= 101)</b>		
Buying from black market	80	79.2
Buying from illegal hunters	32	31.7
Buying from hunting companies	46	45.6
Resident hunting	4	4.0

\* Data based on multiple response

### 3.5 Factors Hindering Local Community Participation in Resident Hunting

Results in Table 6 show that 75%, a substantial proportion of respondents attributed, lack of awareness on resident hunting to be the main factor for them not to engage on resident hunting, followed by lack of tools (36%), prohibition on selling bush meat 27%, competition from hunting companies (20%), high hunting fees (15%) and laxity of laws (13%).

### 3.6 Lack of Awareness on Resident Hunting

Lack of awareness is the leading factor hindering community participation in resident hunting. Results in Table 7, Show further support lack of awareness on resident hunting to be significant factor hindering community participation in resident hunting. It is evident from the results that, most of the study participants were not aware on existing of resident hunting (73%), did not know if there is resident hunting



**Table 6. Perception of local people on factors hindering participation of local people in resident hunting (n=150)**

Challenges	Frequency	Percentages (%)
Lack of awareness	113	75.0
Lack of tools	54	35.7
Prohibition selling of bush meat	41	27.0
Competition from hunting companies	30	20.0
High fees	23	15.0
Laxity of law	20	13.0

\* Data based on multiple response

**Table 7. Awareness of the local people on resident hunting**

Variable	Frequency	Percent (%)
<b>Awareness on existence of resident hunting</b>	(n=150)	
Yes	40	26.6
No	110	73.3
<b>Awareness on Present of resident hunting regulations</b>	(n=40)	
Yes	4	10.0
No	36	90.0
<b>Awareness on procedure to obtain hunting Permit</b>	(n=40)	
Yes	6	15.0
No	34	85.0

regulations (90%), as well as procedures for obtaining resident hunting permit (85%).

During interview, one of the District Game Officer said that.

### 3.7 Lack of Tools

Lack of tools was the second important factor hindering community participation in resident hunting in the study area.

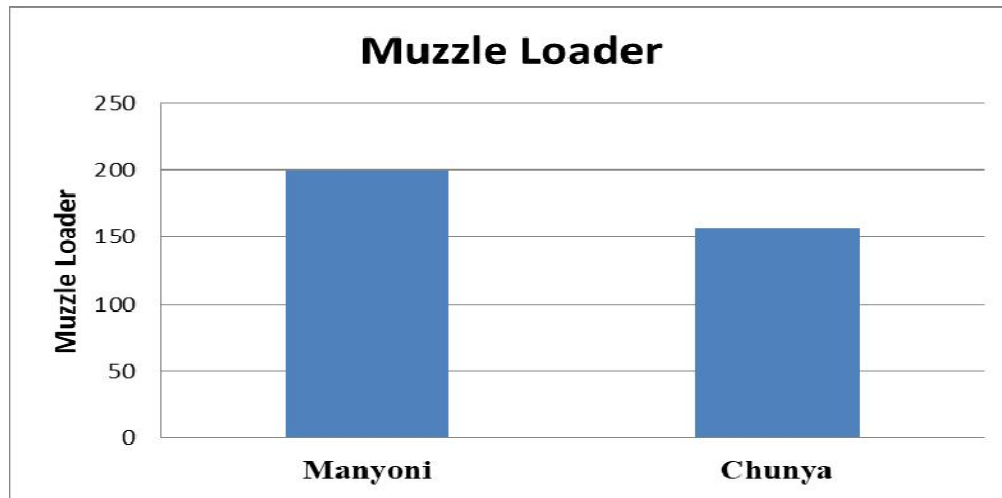
*“Locally made weapons especially muzzle loader, is the major challenge we are facing than other types of weapons in resident hunting.”*

Wildlife Act and Resident Hunting Regulation require those who want to hunt should have a modern gun [22,29] Modern guns are expensive to the local people compared to locally made weapons which are affordable [4,15,23,30]. However, locally made weapons are strictly prohibited. Data from district records indicate that more than 300 muzzle loaders (locally made guns) were seized over past five years from local people conducting illegal hunting (Fig. 3).

In addition, study examined those people who were aware of the existence of resident hunting if they know types guns required by the law in order to conduct resident hunting. Results in Table 8 indicate that few respondents 36%, said they know the types of guns required by law, with majority of them 65% mentioning locally made guns, something which is wrong. These findings imply that, knowledge on the type of gun required for resident hunting among local people in the area is still low.

**Table 8. Knowledge on types of guns required by the law**

Variable	Frequency	Percent (%)
<b>Knowing types of guns required by law</b>	(n=40)	
Yes	16	36
No	24	64
<b>Types of guns</b>	(n=40)	
Rifle	14	34.7
Local made guns	26	65.3



**Fig. 3. Muzzle loaders seized in Chunya and Manyoni Districts between 2012-2016**  
 Source; Chunya and Manyoni districts (2017)

### 3.8 Prohibition on Selling of Bush Meat

Prohibition on selling of bush meat ranked third as important factor hindering local people participation in resident hunting in the study area mentioned by nearly one third (27%) of total respondents.

During FGD with local people it was revealed that, it is not economical to hunt Buffalo or Eland which weighs more than 500 kg to be used by a single household only, but such huge amount meat need to be sold to generate income. Therefore in this regard, to attract more people to participate in resident hunting, selling of bush meat is inevitable. [31] Points out that for families living in poverty, selling of bush meats are far more important than subsistence use. [32] in Katavi National Park observed that, 75% of respondents in Mpimbwe and 42% in Katumba claimed to hunt wild animals mainly for selling of bush meat to others rather than obtaining food for themselves. Furthermore, [33] revealed that local people adjacent to Ruaha National Park harvested bush meat primarily for selling. Therefore, allowing local people to sell bush meat can be an incentive for the local people participation in resident hunting.

### 3.9 Competition from Hunting Companies

The study also examined the presence of the hunting companies in those areas if hinder participation of local community in resident hunting. Findings in Table 6 show that one fifth (20%) of respondents claimed that hunting

companies hinder local people participation in resident hunting.

During FGD, hunting companies also appear to be among the factors that hinder participation of local community in resident hunting. The following quote from one participant illustrates that;

*“Both resident hunting and tourist hunting start at same time, therefore it is hunting companies who are given priorities to hunt because they invest large amount of money and also provide more benefit to the District in term of revenues”* (FGD participant from Rungwa Village)

Furthermore to confirm with results from respondents and FGD, District Game Officers were interviewed and revealed that, hunting companies are given priorities to hunt in those open areas where also local people are allowed to hunt. Because they pay large amount of money and contribute much in development activities in the District. Districts records in Table 9 show that, hunting companies contributed total amount of Tsh 54,175,000 /= between 2013-2017 to villages around protected areas namely, Mwamagembe, Kintanula and Rungwa. Moreover, data in Table 10 show that, Wildlife Department (WD) ploughed back Tsh 933,668,082.67/= in six years to District Councils as 25% of total amount of the money generated by the districts due to conducting tourist hunting in 2013/2017.

During in-depth interview, one of the District Game Officer said that;

*“Hunting companies pay block fees of \$ 40,000 per years and also required to contribute \$ 5,000 every year to the village close to hunting area for development and sponsor different activities in the village. Therefore we tend to give priorities to them than local people adjacent to those areas.”*

This finding implies that, local people in the study area are not given proprieties to conduct resident hunting rather are considered as degrader of wildlife in the area.

### 3.10 High Resident Hunting Fees

In order to conduct resident hunting, local people are required to pay hunting fee for animals they tend to hunt. The amount of money paid for hunting fees and other expenses appear to be obstacle which hinders local people participation in resident hunting. Results in Table 6 show that 15% of the respondents argued that high fees is the factor hindering them in participation in resident hunting. According to [34] 28% of the Tanzanian population lives in poverty and most of them are from rural areas. Therefore, it is more likely that most local people would not afford hunting fees due to poverty.

High fee as the factor hindering local people participation in resident hunting also featured during FGD. For example a participant from Kambikatoto village had the following to say;

*“You know majority of villagers are poor, we can’t afford resident hunting fees, and the costs of resident hunting process is very expensive. Sometimes you have to pay Game Scout to escort you to hunting areas.”* (FGD participant from Kambikatoto village).

When District Game Offices (DGOs) interviewed about the affordability of resident hunting fees for the local people, one DGO replied that, cost of hunting process also seemed to be a problem for rural poor.

The following quote clarify;

*“Sometimes local people are required to pay night out allowances (NOA) to the Game Scout escorting them to the hunting areas, the payment which is higher than hunting fees itself.”*

Furthermore, for those respondents who engaged in resident hunting when asked if they are satisfied with the resident hunting fees. Results in Table 11 show that, few respondents 17% were satisfied with resident hunting fees while majorities 82% were not satisfied. This finding implies that resident fees may be a problem facing local people in the study area.

### 3.11 Laxity of Laws

Laxity of laws also seemed to be another important factor that causes local people not to engage in resident hunting mentioned by 13% of respondents (Table 6). People felt that penalties given to local people participating in illegal

**Table 9. Amount of money contributed to villages adjacent to hunting block 2013/2017**

S/N	Name of the hunting company	Village that received the fund	Amount in Tsh	Date the fund deposited
1	Palahala Safaris & Hunting Ltd	Rungwa	8,000,000	2013
2	Northern Hunting Enterprises Ltd	Rungwa	8,000,000	2013
3	Mwanauta & Co. Ltd	Kintanula	3,900,000	2013
		Mwamagembe	3,900,000	
4	Marera Safaris and Lodge	Rungwa	4,000,000	2014/15
5	RGS	Mwamagembe	8,000,000	2014/15
6	TBG	Rungwa	2,000,000	2014/15
7	Northern Hunting Safaris	Rungwa	5,375,000	2014/15
8	RGS	Rungwa	5,500,000	2017/18
9	RGS	Mwamagembe	5,500,000	2017/18
<b>Total</b>			<b>54,175,000</b>	

Source; Rungwa Game Reserve (2017)

hunting is to light and hence encourage them to participate in that illegal activity repeatedly instead of doing resident hunting. Findings from Table 12 indicate that, 55% of respondents argued that those who commit offense were fined, 27% of respondents said they are imprisoned, and few respondents 11% said both fine and imprisonment. Results which indicate that, more severe punishment that is imprisonment is not very common, and hence encourage illegal hunting. Illegal hunting is more prevalent in Manyoni District compared to Chunya District (Fig. 4).

**Table 10. Revenues ploughed back from Wildlife Division to District Council**

Manyoni District		
S/N	YEAR	Tourist Hunting
1	2011	98,151,903.80
2	2012	125,320,267.08
3	2013	101,490,241.00
4	2014	151,150,818.42
5	2015	127,269,095.60
6	2016	128,135,182.61
Chunya District		
1	2010	16,426,905.51
2	2011	11,885,639.23
3	2012	73,106,328.14
4	2013	44,779,347.03
5	2015	55,952,354.25

Source; Manyoni and Chunya Districts Council (2017)

According to [5] local people adjacent protected areas practiced illegal hunting because it pays

more hence ignore what would happen when caught by game scout because they can afford fines. This implies that black market of bush meat provide more profits to local people compared to punishment given to them when caught breaking the law. Therefore, local people tend to opt for illegal hunting.

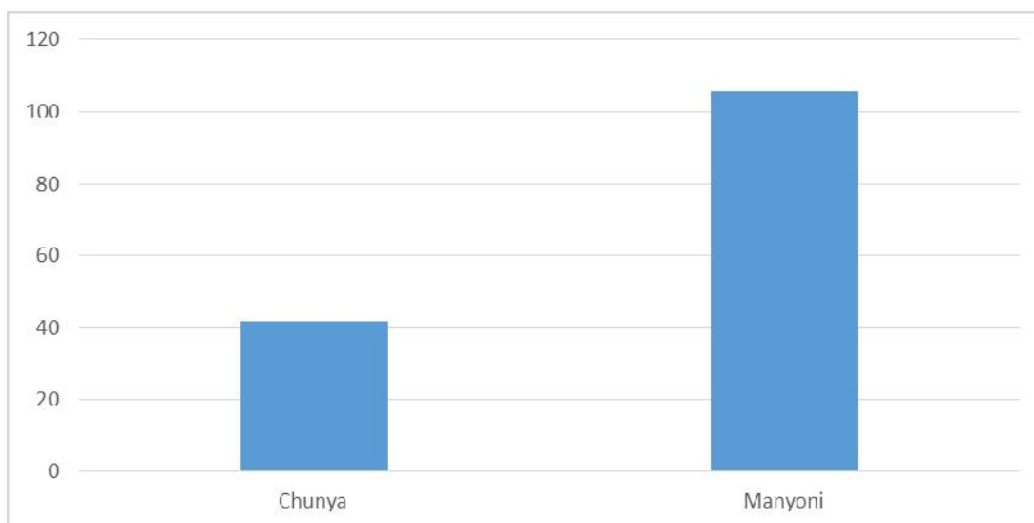
**Table 11. Resident hunting fees satisfaction (n=13)**

Variable	Frequency	Percent (%)
Satisfied with Fees	2	16.7
Not satisfied with fees	11	82

**Table 12. Measure taken to local people when breaking resident hunting regulations**

Variables	Frequency	Percent (%)
Fine	83	55.3
Imprisonment	41	27.3
Fines and imprisonment	17	11.3
Don't know	9	6.0

Dissemination of appropriate information to local community regarding wildlife resources would increase local people participation and hence make them realize benefits of the resources [35]. In this study it was noted that despite the Wildlife Act and its Regulations providing the opportunity to local community to use bush meat to the improve their livelihoods, rural communities have never been able to use this privilege mainly



**Fig. 4. Local people arrested for illegal hunting between 2009-2013**

Source; Chunya and Manyoni districts (2017)

because of ignorance on their existence [23]. [36] suggested that, creating awareness among communities through conservation education is important for sustainable use of wild animals.

Monitoring is very important in conservation of the natural resources to ensure sustainability of conservation interventions [37]. It was also noted that, monitoring activities were not done regularly and on required level. This was attributed to a number of factors, which include lack of proper weapon to fight with poachers, lack of transportation to remote areas, insufficient skilled staff, few numbers of staff and inadequate budget located for conducting conservation activities. [17,28] argue that, wildlife sector generates substantial revenues for treasury and is considered as one of the giant economic sector. However, only mere financial resources are ploughed back for protection of species and management which make the monitoring and sustainability in resident hunting to be difficult.

The Extent of Local Community Participation in Resident Hunting was observed to be low among the local people in the study areas. The findings also support observations by [23] in other part of the country on which he noted that wealthy people living in urban areas earn more benefits than rural people bordering the wildlife protected area. Local communities depend much on natural resources to sustain their livelihood [38]. In many areas in Africa, hunting for bush meat is the only cheap source of animal protein because it is an open access resource, open to everybody willing to hunt [39]. Thus, making it attractive to the poor people living in rural areas where wild animals are found. Therefore, it is important to understand the factors which obstruct local community to participate in the resident hunting to improve their livelihood. According to [5] local people adjacent protected areas practiced illegal hunting because it pays more hence ignore what would happen when caught by game scout because they can afford fines. This implies that black market of bush meat provide more profits to local people compared to punishment given to them when caught breaking the law. Therefore, local people tend to opt for illegal hunting.

#### **4. CONCLUSION AND RECOMMENDATIONS**

Findings from the study revealed that, there were deficiencies in the implementation of Resident Hunting Regulation, by district Councils to insure sustainability. Furthermore, most of local people

in study area were not aware of presence of resident hunting. Participation of local community members in resident hunting was very low and those who participated in resident hunting were mostly casual laborers' of the people from urban areas, hence local people do not own permits in harvesting of the animals for home use or sale. The results indicate that, major factors which hinder participation in resident hunting include lack of awareness followed by lack of hunting tools, prohibition on selling of bush meat, competition from hunting companies, high hunting fees and laxity of laws.

We recommended that, awareness creation on resident hunting should be emphasized, in order to equip local community with valuable information on how to utilize wild animals sustainably. Furthermore, Wildlife Division should review Resident Hunting Regulation to empower local community to participate in resident hunting for household use and income generation. Lastly, penalties should be increased to discourage illegal hunting.

#### **COMPETING INTERESTS**

Authors have declared that no competing interests exist.

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