IMPACT OF TOURIST HUNTING ON THE LIVELIHOODS OF LOCAL COMMUNITIES AROUND SELOUS GAME RESERVE, TANZANIA

BY

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN MANAGEMENT OF NATURAL RESOURCES FOR SUSTAINABLE AGRICULTURE OF SOKOINE UNIVERSITY OF AGRICULTURE. MOROGORO, TANZANIA.

2009

ABSTRACT

The impact of tourist hunting on livelihoods of local communities was conducted in four villages namely, Mwaya, Ketaketa, Gombe and Lukande, adjacent to the Western Sector of Selous Game Reserve (SGR) in Ulanga District, between October 2007 and December 2007. The overall objective was identifying and assessing the socioeconomic impact of tourist hunting on the livelihoods of local communities. Survey data were collected using households questionnaire, focus group discussion and key informants. In addition, participant observation and secondary data sources were used to supplement information. Statistical Package for Social Science (SPSS) was used as a method of analysis. The χ^2-test was used to test variable association and their dependency levels. This study indicated that, despite the benefits provided by tourist companies to support local communities in different aspects, for example, employment, transport, building village government offices and supply of wildlife meat, the local communities expressed strong disapproval of tourist hunting near their area. The majority of respondents perceived tourist hunting as a source of benefit to the nation but not to themselves (61.5%). They perceived the Government, the Wildlife Division and foreign tourists as the principle beneficiaries of wildlife. The study concludes and recommends that, the tourist hunting has impact on local communities first, the distribution of benefits from tourist hunting are too minimal to local communities, and secondly, there are some conflicts due to intensive hunting SGR, which cause wounded animals and others to migrate to adjacent villages where they destroy crops and kill/ injure humans and livestock. It is proposed from this study that, the Government should ensure that benefits reach the affected local people and resolve the existing conflicts.

DECLARATION

I, TWAHA TWAIBU, do hereby declare to the Senate of Sokoine University of Agriculture that, this dissertation is my own original work and that it has neither been nor concurrently submitted for a higher degree award in any other University of academic degree.

23/10/2009.

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The above declaration confirmed.

23/10/2009

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ACKNOWLEDGEMENT

I wish to express my gratitude to all people who contributed to the successful completion of this work. My sincere and special thanks are due to my Supervisor, Professor S.L.S. Maganga of the Faculty of Forestry and Nature Conservation, Sokoine University of Agriculture for his constructive criticisms, suggestions, tireless guidance and invaluable encouragement during preparation and writing of this dissertation. His support during the study is highly appreciated.

I would also like to thank Dr. R. M. Rajabu (District Commissioner of Ulanga), Mr A. C. Luanda (District Executive Director of Ulanga) and Mr. F. Makota (District Game Officer of Ulanga) for their valuable advice. My sincere gratitude should also go to the Ministry of Natural Resources and Tourism particularly the Wildlife Division for financing my studies and granting permission to pursue this study.

Sincere thanks should go to all Selous Game Reserve (SGR) and Wildlife staff in the Western Sector and Head Office – Dar es Salaam, especially the former Project Manager of SGR Mr. B. O. Kibonde, Mr. A. Nziku and Mr. S. Mafole for being helpful in providing the necessary information pertaining the study. I wish to express my heartfelt gratitude to all those who in one way or another assisted me during the whole period of the study. Since it is very difficult to mention all of them individually, I collectively extend my sincere appreciation to them all. Last, but certainly not least, I am indebted to all the people in the villages around SGR who committed much of their time to this study.

DEDICATION

To my parents Dr. T.H. Musoke (Father) and late Afisa A. Musoke (Mother) who brought me up and showed me the value of education; also to my wife Sharmila K. Twaha and children Twaibu, Twazidina and Nasra for all their tireless prayers, love, patience and good encouragement during the whole period of study.

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LIST OF ABBREVIATIONS

BINP	Bwindi Impenetrable National Park
BOT	Bank of Tanzania
CAMPFIRE	Communal Areas Management Program for Indigenous Resources
CBC	Community Based Conservation
CBO	Community Based Organization
CITES	Conventional on International Trade of Endangered Species of Flora and Fauna
GCAs	Game Controlled Areas
GDP	Gross Domestic Product
GNPPC	Gross National Product Per Capita
GRE	Great Ruaha Ecosystem
GRs	Game Reserves
IUCN	International Union for Conservation of Nature and Natural Resources (The World Conservation Union)
MGNP	Mgahinga Gorilla National Park
MNRT	Ministry of Natural Resources and Tourism
NCA	Ngorongoro Conservation Area
NGOs	Non-Governmental Organizations
NPs	National Parks
PAs	Protected Areas
PAWM	Planning Assessment for Wildlife Management
SGR	Selous Game Reserve
SPSS	Statistical Package for Social Sciences
SUA	Sokoine University of Agriculture

STR	Sariska Tiger Reserve
SGRMP	Selous Game Reserve Management Project
TAWIRI	Tanzania Wildlife Research Institute
TZS	Tanzania Shillings
TWPF	Tanzania Wildlife Protection Fund
UDSM	University of Dar es Salaam
UNEP	United Nations Environmental Programme
URT	United Republic of Tanzania
VGS	Village Game Scout
VNRC	Village Natural Resources Committee
WCAs	Wildlife Conservation Areas
WD	Wildlife Division
WPWT	Wildlife and Wetland Policy of Tanzania
WMAs	Wildlife Management Areas
X^2	Chi-square

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

1.1.1 Historical aspects of tourist hunting

Experiences of humans as hunters go a long way in history because wildlife was the only source of protein, and hunting during those early days was not for economic needs (Buetzler, 1990). The weapons used did not allow them to kill larger animals that could suffice the group's needs at all. Hunting was therefore a way of survival (Ndolanga, 1993). Hunting is the practice of pursuing animals for food, recreation, trade or for their products (Schulma, 2006). In modern use, the term refers to regulated and legal hunting, as distinguished from poaching, which is the killing, trapping or capture of animals contrary to law (Schulma, 2006). Tourist hunting is defined as means of hunting animals within a given hunting block for leisure and or obtaining trophies thereof (URT, 2000). Tourist hunting also known as trophy or sport hunting has had a long development history in Tanzania. In the 1800s many, if not most of the foreign tourists to Africa were tourist hunters (Buetzler, 1990). About 10 000 tourist hunters still come to Africa annually, but the situation has changed recently, with most tourists hunting generally viewed with disfavor and emotional distaste (Makombe, 1994, cited by Songorwa, 2005).

In pre-independence periods of Tanzania, the 1954 Fauna Conservation Ordinance, prohibited hunting in the Game Reserves (GRs) but permission was granted in the Game Controlled Areas (GCAs) under special license (MNRT, 2002). After independence in 1961, the Wildlife Division opened up the GCAs to regular hunting to increase earnings from wildlife. In 1965, for the first time, tourist hunting was permitted in the GRs (WD,1990) starting with the vast SGR, which was divided into 47 hunting blocks in a

system designated by Nicholson, the first Chief Game Warden in the SGR. However, the institutional changes that took place in Tanzania in the early 1970s led to complete ban of tourist hunting through the Government Notice No. 210 of 1973 (Majamba, 2001).

The underlying reasons for this drastic action were also to nationalize the industry. Tourist hunting was reopened in 1978 under the control of the Tanzania Wildlife Corporation (TAWICO) (MNRT, 2002), which was a Government parastatal organization, granted a monopoly over the industry, receiving sole authority to allocate quotas and blocks to various outfitters. The Director of Wildlife's powers to allocate hunting blocks were suspended. In 1984, TAWICO's monopoly was revoked, as the Government began to embrace economic liberalization. In that year, nine private companies were allocated to hunt in addition to TAWICO and, finally, in 1988, the Government relegated TAWICO to the role of an outfitter, competing for hunting blocks with other companies (Ndolanga, 1993). The power to allocate hunting blocks and determine quotas was returned to the Director of Wildlife. Section 84 of the Wildlife Conservation Act No.12 of 1974 requires the Minister responsible for wildlife to establish the rules by which licenses, permits, certificates, and other documents are to be granted.

However, there was a lack of policies, plans, and research information to guide the management of the tourist hunting industry, which led to the initiation of the Planning and Assessment for Wildlife Management Project (PAWM) in 1990. This programme (sponsored by USAID), was established to tackle key planning issues at a national scale with the overall aim of promoting the sustainable development of the wildlife sector. The programme undertook a comprehensive analysis of the tourist hunting industry and compiled a database for computerization. The Wildlife Division, with support from PAWM, compiled a policy and a management plan for tourist hunting.

Commercial tourist hunting is now the primary form of utilization in the GRs, GCAs, and Open Areas. The total area of land allocated in Tanzania to tourist hunting in 1992 was approximately 180 000 km^2 which was subdivided into 131 hunting blocks (MNRT, 2002). Tanzania has over 70 species of game among the most sought after being the African buffalo (*Syncerus caffer*), hartebeest (*Alcelaphus buselaphus)*, white-bearded wildebeest (*Connochaetes taurinus)*, impala (*Aepyceros melampus)*, Burchell's zebra (*Equus burchelli)*, waterbuck (*Kobus ellipsiprymnus)*, leopard (*Panthera pardus)*, eland (*Tragelaphus oryx),* lion (*Panthera leo)*, sable antelope (*Hippotragus niger)*, greater kudu (*Tragelaphus strepsiceros)* and lesser kudu *(Tragelaphus imberbis)*. Hunting of black rhinoceros (*Diceros bicornis)*, hunting dog (*Lycaon pictus)*, and giraffe (*Giraffa camelopardalis)* is not permitted, because the giraffe is a national animal in Tanzania whereas the rhino and hunting dog are endangered species. The hunting of elephant (*Loxodonta africana)* and leopard is restricted to a quota given to Tanzania by the Convention on International Trade of Endangered Species of Flora and Fauna (CITES).

The Wildlife Division sets various fees and annual hunting quotas, i.e. the number of animals per species to be hunted in each hunting block. The latter are apparently set on the basis of aerial censuses (MNRT, 2002), percentage success rates, trophy measurement records, hunting effort records and field reports from wildlife officers and professional hunters (MNRT, 2002). Tourist hunting has been one important form of wildlife utilization in terms of source of income, protein and inspiration to the aesthetic nature and self pleasure (Kibebe, 2005).

1.1.2 Background to the Selous Game Reserve

Selous Game Reserve is one of the largest protected areas in the world and by far one of the global outstanding ecological entities (WD, 1996). Due to its unique wildlife and

habitats, the SGR was declared a World Heritage Site in March 1982 (WD, 1996). The SGR founded in 1896 (Baldus *et al.*, 2003), is the largest uninhabited protected area in Africa, covering an area of 50 000 km², representing more than 5% of Tanzania's land surface. The SGR contains the largest area of Miombo woodland in the World (WD, 1996). The Reserve was established primarily as an elephant sanctuary, but currently it is an important area for the preservation of biodiversity and conservation through sustainable utilization. The Reserve is divided into eight administrative sectors, which are subdivided into 47 hunting blocks out of which 45 blocks have for a long time been leased to hunting companies and two blocks have been reserved for non-consumptive photographic tourism. Most of the blocks (90%) are utilized for tourist hunting and the remainders (10%) for photographic tourism (Baldus, 2001).

1.2 Problem Statement and Justification

The Wildlife Policy of Tanzania formulated in 1998 and revised in 2007 as the Wildlife and Wetlands Policy the describes the development of Wildlife Management Areas (WMAs) that are managed by local communities (MNRT, 2003). Tourist hunting is the land use option that provides the major source of revenues for WMAs. Tourist hunting companies are required to contribute towards protection and support local communities. There is a general hesitation among outfitters to accept the WMA concept and effectively empower local communities (Baldus *et al.*, 2003). Moreover, it is possible that much of the delay in developing of WMA benefit sharing system is the result of negative high-level influence by some hunting outfitters. Many of the outfitters leasing concessions are opposed to the concept of WMAs being introduced in Tanzania. The outfitters who have secured leases for concessions are afraid of change. They fear they may lose what they have and that costs will rise. Hence, the outfitters are protecting themselves from competing against other forms of wildlife tourism.

Many studies (Kanyangemu, 2005; Songorwa, 2004; Baldus *et al.*, 2003; Gillingham *et al.*, 1999) seeking to understand the economic benefits of tourist hunting have been conducted in other sectors around SGR. However, little is known on the socioeconomic benefits of tourist hunting to local communities in the Western Sector of the SGR. This study was intended to explore the benefits of tourist hunting to the local communities living near SGR and also to provide information about the perception and altitudes of local communities towards the tourist hunting. The results from this study could be useful and hence be applicable to other areas located near protected areas in Tanzania.

1.3 Objectives of the Study

1.3.1 General objective

The overall objective of this study was to assess the socioeconomic impacts of tourist hunting on the livelihoods of local communities living adjacent the Western Sector of Selous Game Reserve in Ulanga District.

1.3.2 Specific objectives

- To identify the role of tourist hunting on local communities.
- To assess both beneficial and adverse socioeconomic impact of tourist hunting on local communities.
- To examine local communities' perceptions/ attitudes to tourist hunting in their area.

1.3.3 Research questions

- To what extent are the communities participating in tourist hunting activities and management in the study area?

- Are the local people benefiting from tourist hunting?
- Is the local community happy with tourist hunting activities near their area?
- What are the perceptions/ attitudes of local communities towards tourist hunting?
- What are the conflicts/ constraints between tourist hunting and local communities?

1.4 Conceptual Framework

Scarborough and Kiddy (1992) argued that a conceptual framework should help to indicate the most areas in which to focus limited resources and ensure that data collected and information bind facts together. Research performed without a conceptual framework is usually sterile for a reason that the researcher does not know quite well what data to collect, and when he/she has collected them, he/she cannot put them to use. In this study the impact of tourist hunting on the livelihoods of local communities living adjacent to PAs is considered being influenced by the social and economic factors being the perceptions/attitudes of local people towards tourist hunting, social services, and earnings from tourist hunting, social-cultural living, conflicts, benefits, and conflicts. The interaction between communities and tourist hunting is linked by peoples' participation which is in turn motivated by socio-economic incentives. Figure 1 presents the framework that reflects the generalization of the issues under study.

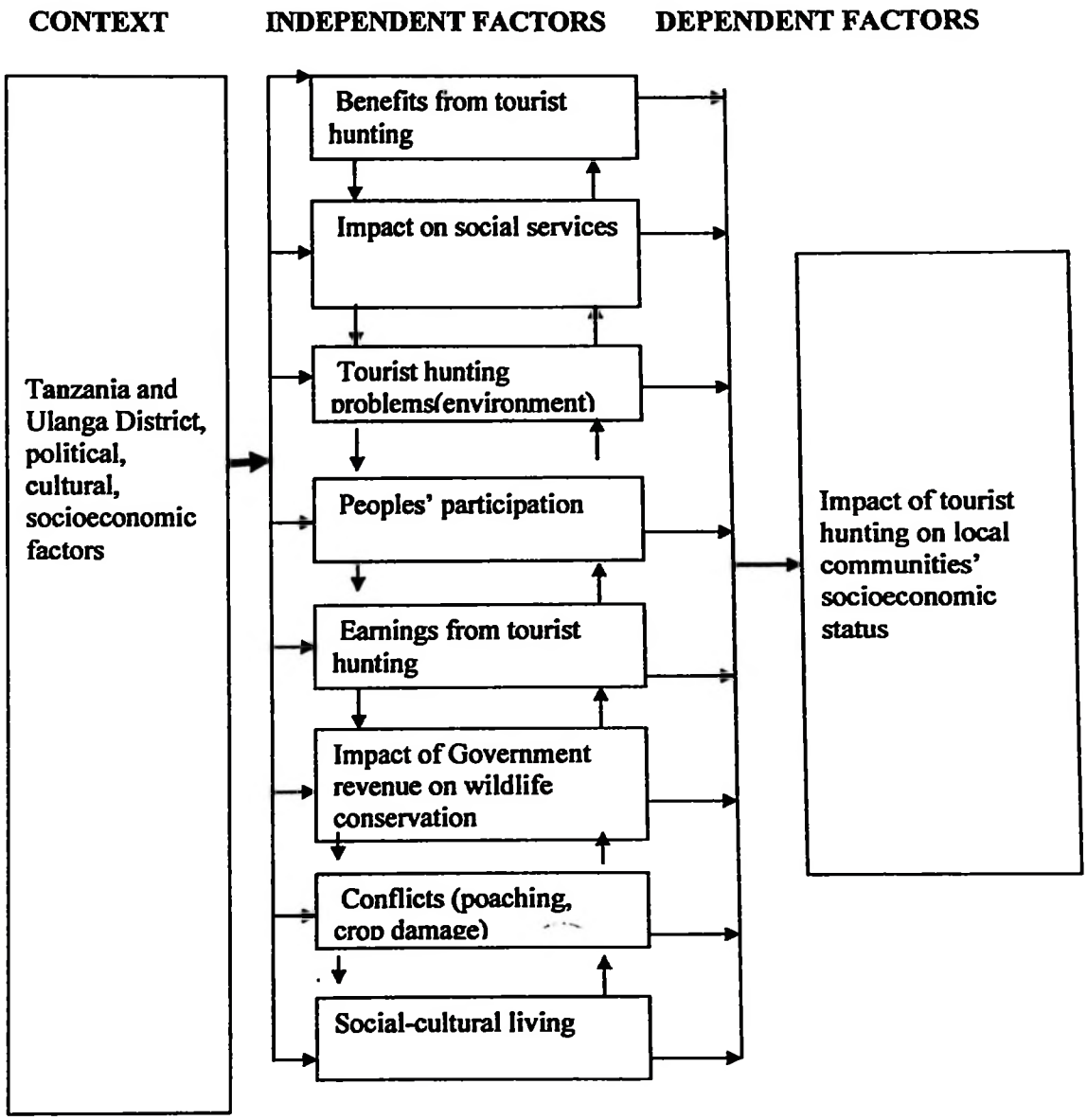

Figure 1: Conceptual framework of tourist hunting on local communities

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 The Wildlife Policy of Tanzania

The Wildlife and Wetland Policy of Tanzania (WWPT) recognizes the need to empower local communities by giving them wildlife user rights and management opportunities and responsibilities. However, to effectively capitalize on opportunities and successfully carry out responsibilities, communities need normative authority and access rights to both wildlife and benefits derived from their use. The policy also states that the Government has set clear, transparent and simple procedures for participation in the wildlife-based tourist industry, and investment in other wildlife-related activities (MNRT, 2007).

The policy recognizes that wildlife conservation and management can no longer disregard interests of rural communities, especially adjacent to protected areas. There is also a realization that communities must obtain benefits if they continue to bear significant costs of living with wildlife and managing them well. The policy addresses the human and wildlife conflicts by calling for the establishment of WMAs which can provide communities with hunting rights, thereby enabling them to benefit economically from the land. The assumption of the Government is that wildlife conservation requires, at least to some extent, community involvement, the theory being that if wildlife gains sufficient local economic value it can compete with other sectors like agriculture and pastoralism. However, the implementations of WMAs have so far been slow. At present, tourist hunting is widely practised across many remote areas of Tanzania in GRs, GCAs, Open Areas and Forest Reserves.

2.2 Overview of Tourist Hunting

The expansion of tourist hunting in developing countries promotes not only substantial foreign exchange incomes to the states, but also internal improvement of rural livelihoods through employment and/or new economic opportunities. It also enables the formation of social networks within communities and constitutes potential direct support to community development projects (Sano, 2000). Tourist hunting is a viable form of wildlife utilization that can provide tangible benefits to rural communities living with wildlife for centuries. For example, in Zimbabwe between 1986 and 1996, a total of 8 653 211.00 US dollars were obtained from tourist hunting leases under Communal Area Management Programme for Indigenous Resources (CAMPFIRE) (Bond, 2001). The CAMPFIRE guidelines for wildlife-derived revenue require that at least 50% of the gross income is devolved to communities living with wildlife.

The study done by Bond (2001) in Zimbabwe and Botswana on issues related to hunting tourism, found that hunting tourism can be considered a form of ecotourism, aimed at maximizing community benefits, sustainable use of wildlife and conservation as well. Through tourist hunting, wildlife becomes economically important for the rural populations, increases their interest, concern and protective attitude towards the preservation of this recognized source of income. Bond (2001) also observed that through hunting tourism, government agencies are driven to implement the legislation, support protection strategies, conduct research and monitoring activities and to aim at the reallocation of revenues to management, protection and nature conservation.

Tanzania is one of the tourist hunting destinations in the world because of its extensive areas retained for wildlife and a regulated hunting industry. More than 30 GRs have been gazetted covering approximately 11% of the total land surface area and they play a

significant role in the country's economy, by generating revenue for the Government. Tourist hunting is one of the major four economic wildlife uses including photographic safaris (game viewing), local hunting/game meat hunting and live animal trade, practised in the area. In Tanzania, tourist hunting is conducted in hunting blocks during the period from July to the end of December (MNRT, 1974). The hunting is not conducted in the rest of the period of the year to avoid disturbance to wildlife, where several species, e.g. wildebeest are in their calving period (MNRT, 1974). Seven hunting companies (TAWICO, Masailand, Mwanauta, Brighty Tours, Game Frontier of Tanzania, Tanganyika Game Fishing & Safaris, and Kiboko Hunting Company), operate in the Western Sector (Ilonga) of SGR. Tourist hunting companies support social services and social community development projects in the village, like construction of schools, health clinics and roads (Kibebe, 2005).

According to the Tourist Hunting Regulations (URT, 2000), tourist hunting companies are obliged to support community development projects as well as social services in the areas where tourist hunting was conducted. In the period 2000 to 2006, tourist hunting companies provided community support in villages around SGR in Ulanga District, for various projects, such as construction of hunting roads, hunting camps, and mosque construction (Kimambo, A. personal communication, 2007).

Currently, villagers have almost no control over tourist hunting, and the benefits generated are limited to cash the hunting companies choose to give (they are not mandated to do so) directly to the communities to ensure their cooperation (Christensen, 2004). However, the WD has included hunting company support to village development activities in their criteria for ranking hunting company performance. Each year, 25% of all total revenue generated from hunting operations are channeled to some District Councils

including Ulanga, for various development purposes (MNRT, 1996). The Tourist Hunting Regulations (URT, 2000) require tourist hunting companies to support community development projects in and around the hunting areas. This is one of the requirements for each hunting company to maintain a hunting block during the tenure period. Hunting companies provide development support to local communities acting as public agencies and within the philosophy of social capital. Maintenance of frequent contacts between hunting companies and the District authorities as well as the local communities is important in order to strengthen the relationships for mutual and sustainable development (Rugemeleza, 2006).

2.2.1 Allocation of hunting blocks

The Director of Wildlife under the Ministry of Natural Resources and Tourism (MNRT) allocates hunting blocks to hunting companies (URT, 2000). The allocation is renewable after every five years. In 2007, there were 158 hunting blocks allocated to 54 hunting companies in Tanzania. At the end of each year (hunting season), every hunting company is subjected to performance evaluation with respect to quota utilization, support to community development projects and support to antipoaching activities in and around the hunting block. Allocation of a hunting block is made to a company regardless of the category of wildlife area in which the hunting block is located. Allocations of a hunting block may be withdrawn before the term of five years if a company performed below the minimum standard.

2.3 Constraints/ Conflicts to Tourist Hunting

2.3.1 An overview on human-wildlife interactions

Aboud (1989) defined human-wildlife conflicts as a situation whereby humans and wildlife affect each other in a negative way. Many studies on human-wildlife interactions

and conflicts management have been carried out in Tanzania and other countries in the world. Human-wildlife conflicts have been real or perceived, economic or aesthetic, social or political (Messmer, 2000). Those studies on the subject of human-wildlife conflicts have been concerned with the measurement of wildlife damage, the assessment of wildlife pest numbers and population dynamics, the determination of the causes of pestilence and the development of technologies of pest control (Knight, 2002)

Conflicts between people and wildlife are found on land, rivers and lakes, in the north and south and in city and countryside in Tanzania (Knight, 2000). However, conflicts are found to be at their sharpest among the local people living adjacent to protected areas (PAs). The socioeconomic status of the communities bordering wildlife PAs, including SGR (Newmark *et al.*, 1994; Shemwetta and Kidegesho, (2000) and human population densities (Newmark, 1996) have been reported as major factors for human-wildlife conflicts in Tanzania. Socioeconomic activities of people around SGR increase the risks of the people to encounter problem animals and crop damage.

Geographical location of local communities has also been reported to be the contributing factor in conflicts in some places (Norton-Griffiths, 1996; Vandergeest, 1996). The destruction of crops and the killing of livestock and humans were the most frequently reported problems for most of the local communities adjacent to PAs in Tanzania (Newmark, 1996). Newmark added further that, the ineffectiveness of local communities in controlling wildlife was highest at both low and high human population densities. In contrast, local communities of a low human density appeared to be less effective in controlling wildlife because the problematic species tend to be large and were capable of causing considerable damage during a short period of time. Local communities were probably less effective in controlling wildlife at low human densities because the wildlife

control techniques employed by local communities were generally labour intensive and therefore local people were less able to control wildlife over a large area.

The interactions-caused conflicts reflect increased pressure for utilization of those resources in a restricted area, or decreased compatibility in uses. They take the form of illegal use of protected area resources and land use practices outside the protected area that affect wildlife interests both inside and outside the protected area. These conflicts represent people's interest in utilizing the resources of protected areas, which are being denied to them. Both expansion of agriculture and the increase of human population have taken up land previously occupied by wildlife. Local communities have the perception that the increase in incidences of problem animals results from population increase of wild animals. However, pastoralists experience more problems with lions and leopards because professional hunters habituate these carnivores with baits, which they locate near water points, thus making livestock at water points easy prey when baits are not placed.

2.3.2 Effects of tourist hunting on problem animals

A 'problem animal' in Tanzania can be defined as an animal or species which poses a potential threat or causes actual damage to human life and/or property (MNRT, 1974). In Tanzania, PAs are not fenced thus wildlife freedom of movement is almost unlimited. District Councils have a duty to combat dangerous animals and assist local communities in crop protection.

2.3.2.1 Crop damage

Due to intensive tourist hunting in SGR, most of the wounded animals and others from hunting activities, for example, elephants, buffaloes, hippopotamus, crocodiles, hyena, leopards and lions migrate to the adjacent villages in search of refuges, where they

destroy various crops, and kill/injure humans and livestock. This situation creates the conflicts between local communities and tourist hunters. In year, 2007, the Ulanga District Council spent over Tshs 5.0 million on animal control around Mbuga and Ketaketa villages after destruction of 30 000 acres of various crops , according to the District Game Officer (Makota, F. personal communication, 2007).

Crop raiding, which is defined as feeding on cultigens, can cause substantial financial losses for farmers (Epimack and Kabigumila, 2002). Crop damages in Tanzania are a source of conflicts between local communities adjacent to PAs and the conservationists. The study conducted by Kabigumila (1992) reported significant damage to life and property in the villages around Mkomazi Game Reserve. The most frequent damage was destruction of crops mainly banana (*Musca esculentum*), cassava (*Manihot esculenta*) and beans (*Phasseolus vulgaris*).

Epimack and Kabigumila (2002) cited the most problematic animals causing damage to crops in villages adjacent to Lake Manyara National Park ranging from small to large animals, i.e. from squirrels (*Xerus rutilus*) to elephants. The most cited problem animals included the elephant, olive baboon (*Papio anubis*), bush pig (*Potamochoerus porcus)* and buffalo. Over half of the respondents 59% cited maize (*Zea mays*) and bananas as the most likely crops to be damaged by large herbivores especially elephant and hippopotamus (*Hippopotamus amphibius*). Other crops cited by respondents included vegetables and rice (*Oryza sativa*). Damaged crops tended to be the most grown crops by farmers. Crop damages occurred at different times of the day but mostly during the night. Large wild animals like elephant and hippopotamus usually spread out more widely at night when most human activities were at minimum level, and retreat during the daytime

Great Ruaha Ecosystem (GRE) involved both raiding and trampling. Trampling accounted for a small portion of 3%. Most incidents involved damage to maize, sweet potatoes (*Ipomea batatas*), bulrush (*Pennisetum typhoides*), common millet (*Panicum milaceum*) and rice with damage to sweet potatoes and rice being common in areas around Ruaha National Park.

Khisa (2001) showed that crop loss was one of the primary sources of conflicts in dispersal areas of Nairobi National Park in Kenya. Property damage was usually devastating to families and often caused unbearable suffering, more so, when agricultural land was involved. In some areas of Kenya, for example, in Kwale District, farmers abandoned good cropland because of sheer futility of trying to raise crops to maturity in the presence of uncontrolled elephants. Baboons and monkeys were among the most frequent agile and notorious wildlife intruders but elephants were the most problematic animals because they are the voracious, powerful and cause most stressing damage.

Around the Budongo Forest Reserve in Uganda, the baboons and wild pigs were reported to cause most crop damage, with baboons causing an apparent much greater degree of damage than any other species (Hill, 1997). It is also important to note that wild animals did not visit all affected farms frequently. Previous work at this site shown that factors likely to affect vulnerability to crop raiding include the distance from farm to forest edge and the number of other farms lying between any field and the forest (Hill, 2000). There was no damage by baboons recorded from farms located further than 450 m from the forest edge, and no damage by wild pigs recorded beyond 300 m from the forest edge. The majority of farms experiencing any damage by either of these species lay at the forest edge and/or had no neighbours farming the area between them and the forest boundary. Thus, proximity of farm to forest boundary and the presence/absence of

neighbours farming the intervening land, were good predictors of vulnerability to raiding behaviour by wildlife. Other studies also confirm that it is those people closest to forest or Game reserves boundaries that are at a greatest risk from larger bodied animals, but the actual distance from the boundary beyond which farms are not likely to be raided varies according to the species responsible for crop damage (Plumptre and Bizumuremyi ,1996, cited by Hill *et al*, 2002).

2.3.2.2 Livestock predation

Tourist hunters habituate lions and leopards with bait, which they mostly locate near water points to ease hunting. After the hunting season (July-December) these carnivores find no free baits, and they opt for easy accessible prey like cows, goats and donkeys. Livestock are most vulnerable when queuing for water drinking.

Preliminary survey conducted in Ngorongoro Conservation Area indicated that, the transition in Maasai lifestyle from semi-nomadism to semi-agricultural settlements is reducing the quality of suitable lion habitat (reducing numbers of prey herbivores). The persistent keeping of large livestock herds in areas for prolonged periods of time provides easily accessible food resources for lions hence intensifying lion-pastoral conflicts. Furthermore, as the pastoralist economy is based on keeping cattle, goats, sheep and donkeys, lion predation of livestock is likely to have a substantial impact on the socioeconomic well being of the pastoralists (Thompson, 1997). The study by Ikanda (2002) in Ngorongoro Conservation Area revealed that livestock predation by lions occurred primarily in the dry season and involved both male and female lions. Attacks occurred both at night in corrals, i.e. enclosure for cattle and during the day in the bush. The *Acacia* and *Comiphora* woodlands, river gorges and permanent water sources that

attracted groups of lions into the habitats. Due to low prey availability and less food options, lions preyed upon more abundant and less attended livestock. Attacks on Maasai corrals varied with the characteristics of the corrals (e.g. number of walls, height, width and transparency, distance from other corrals) and their proximity to suitable lion habitat. Lion could either break into or stampede cattle out of the corrals, as such only a few corrals were targeted. Most daytime attacks were on herds greater than 50 cattle/goats attended by a single herd boy less than 10 years of age and often resulted in severe human injury. The study by Kaltenborn *et al.* (2003) in villages surrounding the Serengeti National Park showed that, killing of livestock and transmission of diseases from wild animals to livestock were among the most frequent impacts of "problem" animals to human beings.

In dispersal areas of Nairobi National Park, livestock predation was the common form of human-wildlife conflicts (Khisa, 2001). A total of 190 livestock including 84 goats, 87 sheep and 19 cattle were recorded being killed during the period 1994 – 1995. The key predators were spotted hyena (*Crocuta crocuta*), blackbacked jackal (*Canis mesomelas*), leopard and lion (Khisa, 2001). In the areas between Amboseli and Tsavo National Parks in Kenya, the conflicts with wildlife reported by herders were involved mainly livestock-predation and access to grazing (Campbell *et al.*, 2003).

2.3.2.3 Human death and injury

In Tanzania over the past 15 years, newspapers have reported an average of 200 human deaths that have resulted from dangerous animals each year (Baldus, 2005). The number of injuries is reported to be probably in the same order of magnitudes. The figure, however, varies greatly from year to year. Most of these cases were inflicted by crocodile (*Crocodylus niloticus*), hippopotamus, and lion. Other animals reported to kill and injure

humans include elephant, leopard, buffalo, and hyena. The most affected areas are around SGR, in southern Tanzania, followed by central, western and to a lesser extent northern Tanzania. In northern Tanzania, few accounts of carnivores that injured and even killed people in or close to the villages surrounding the Serengeti National Park were observed (Kaltenborn *et al.*, 2003). Khisa, (2001) also found that, in the period of between January 1989 and June 1994, wild animals killed 290 people and injured 218, which is an average of 42 deaths and 40 injuries per year in pastoralist areas surrounding Nairobi National Park.

2.3.2.4 Poaching of wildlife

Poaching is the illegal killing or taking of wildlife (animals. plants, and/or animal and plant products) by individuals or groups of individuals (Homer-Dixon *et al.*, 1998). Poaching in SGR buffer zone in Ulanga District threatens wildlife resources. According to the Acting Sector (Kimambo, A. personal communication, 2007), this activity mainly takes place at Ketaketa, Iputi, Lukande and Luhombero villages. Animals are killed using bows and arrows but sometimes firearms are used. In the period from 1995 - 2000, more than 85 poachers were arrested in the Western Sector. However, since 2000 the situation has been controlled when the Village Natural Resources Committee (VNRC) established by Selous Game Reserve Management Project (SGRMP). Some of the villagers were trained as Village Game Scouts (VGS) and since then only 10 poachers were arrested at Ketaketa. According to the study by (ibid), the underplaying causes of poaching were, absence of alternative income opportunities, good market of wildlife products without taxation and the high dependency of farmers on their crops which led to control of animals by shooting. This good job done by VGS led qualified for employment by tourist hunting companies.

2.4 Community Perceptions/Attitudes towards Tourist Hunting

Research on the conservation and tourist hunting attitudes of local communities is now seen as a useful tool for projects that seek to promote community participation in, and support for sustainable systems of resource management (IIED, 1994; Parry and Campbell, 1992; Hill, 1997). Survey of the attitudes held by rural populations in developing countries have found high levels of public support for the conservation of wildlife, tourist hunting and other natural resources (Ite, 1995; Kangwana, 1994; Newmark *et al.*, 1993; Infield, 1988; Harcourt *et al.*, 1986). However, several of these studies have also shown that, levels of public support for the tourist hunting and resource management institutions. This process necessitates the reversal of antagonistic relations between local communities and the external authorities responsible for wildlife management, which have in the past been associated with top-down approach for protectionist conservation (Harcourt *et al.*, 1986).

The local community is more likely to have positive attitudes towards wildlife related benefits than the wildlife induced costs (Sekhar, 2003). These differences in attitudes to wildlife are reflected in the different wildlife management practices employed. For example in India's Sariska Tiger Reserve (STR), the study shows that more than 60% of the people have positive attitudes towards wildlife conservation, suggesting that there is a need to improve benefits to local peoples (Sekhar, 2003). Also in Uganda, around Lake Mburo National Park research has shown that the community conservation, through a variety of community initiatives, has had significant influence on attitudes of local communities towards the Park (Namara and Infield, 1998).

CHAPTER THREE

3.0 MATERIALS AND METHODS

3.1 Study Area Description

3.1.1 Geographical location and size

The study was carried out in communities adjacent to SGR in the Ulanga District. The area is located in the southern part of Tanzania between 7^0 20'S -10^0 30'S and $36^0$04E-$38^0$46'E (Fig. 2). The Ulanga District covers an area of 24 560 km^2 (WD, 1995), being the largest District in Morogoro Region. The District is bordered by the SGR and parts of the Kilombero Game Controlled Area. The habitable area for human settlement is 25%. Rural communities comprise 90.7% of the population and 9.3% live in urban areas. Altitude ranges from 100 m to 1 200 m (WD, 1995). The SGR and its buffer zones contain 52% of the expansive and continuous Selous ecosystem lands that cover an area of 95 440 km^2.

3.1.2 Population, ethnicity and socioeconomic activities

Ulanga District has a population of 194 209 of whom 95 915 are males and 98 294 females (URT, 2003). The average growth rate is 2.1% per annum which is below the national population growth rate (3.3%) (*ibid*).

Density ranges between 7 and 28 persons per km^2. The sex (F: M) ratio is 102:100. The buffer zone is the land belonging to 10 villages with a total population of approximately 17 830 inhabitants, comprising of 88 117 males and 91 713 females (URT, 2003), who constitute the target group.

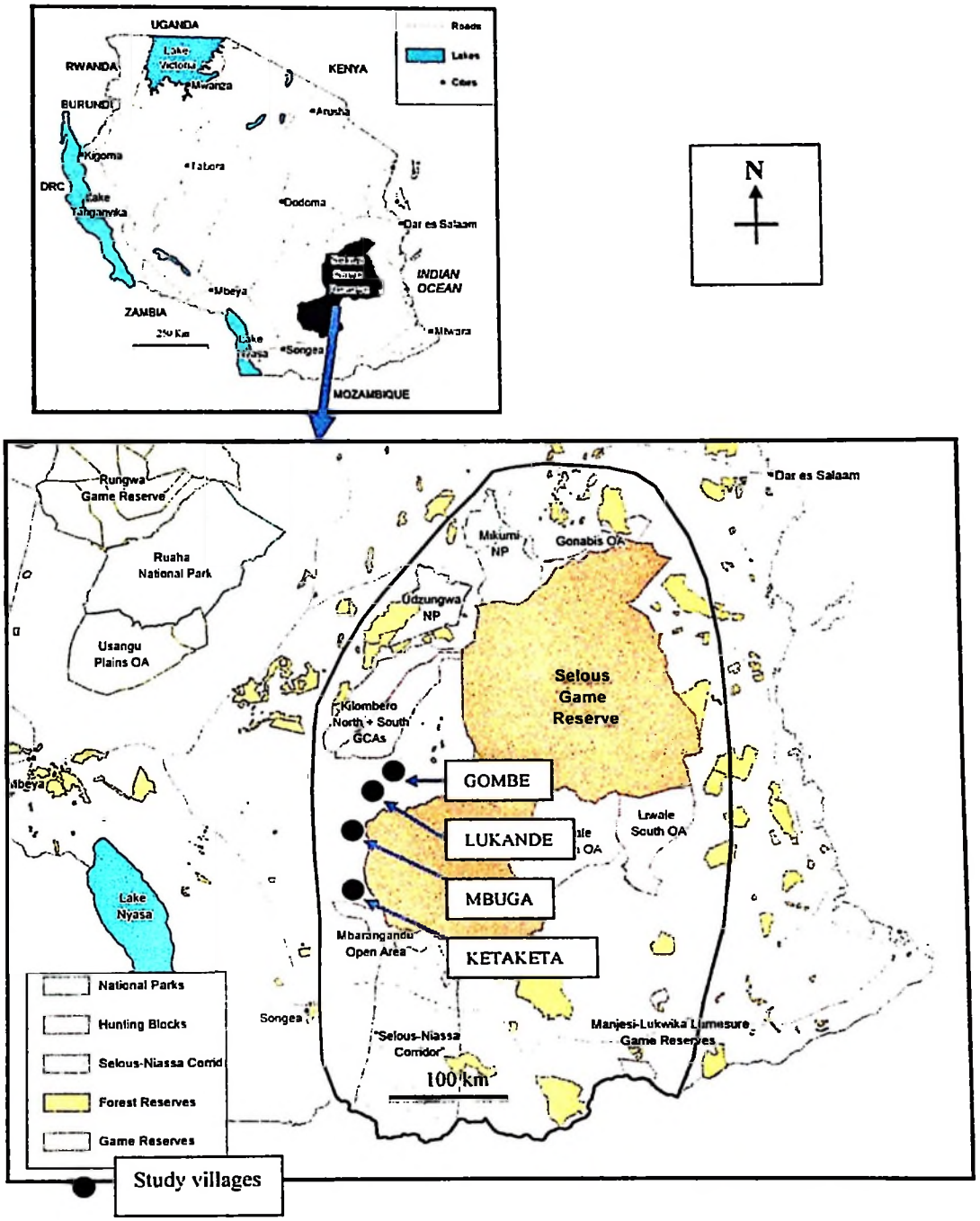

Figure 2: A map of the study area showing locations of the study villages
(Source: Selous GIS, 2008)

The major ethnic groups are Pogoro and Ngindo and minor ethnic groups are Sukuma and Maasai. The total human population in the study villages in the SGR buffer zone is presented in Table 1.

Table 1: Population by sex in the study villages

Village	Males	Females	Total
Mbuga	429	333	2 762
Gombe	460	382	842
Lukande	743	648	1 391
Ketaketa	310	214	2 524
Total	949	755	7 517

The people surrounding SGR are usually farmers. The most important economic activity in the villages in terms of subsistence and cash income earnings is small scale farming or more appropriately peasant farming. They cultivate both cash crops (simsim and cotton) and food crops (maize, millet, cassava, rice, banana, sweet potatoes, groundnuts, pigeon peas and beans). Most villagers are engaged poultry and pastoralism, keeping few cattle, goats and pigs. However, the Maasai and Barabaig large number of herds of cattle and goats. Some villagers are also engaged in non-farming activities such as employment in tourist hunting activities, fishing, charcoal making and timber sawing (WD, 1995).

3.1.3 Climate and topography

Annual rainfall ranges from 750 to 1250 mm and the rains start from late November and lasts until May. Temperature ranges from 17 ^{0}C to about 20 ^{0}C (Rodgers *et al.*, 1979). Soils in SGR are poorly differentiated and consist of non-lateritic red, the leached ferruginous, alkaline-sodic and alluvial clay soil. The western part of Ulanga District is surrounded by various rivers, such as Great Ruaha, Kilombero, Luhombero, Luwegu, Mbarang'andu, all of which flow into Rufiji River and finally into the Indian Ocean (WD, 1995). The terrain in the study area is hilly and rugged, while the flat central

lowlands east of Mahenge mountains are broken only by a few sheer-extruding hills that rise to 750 m. Mahenge Mountains are high landforms to the north and west of SGR. respectively (WD, 1995).

3.1.4 Vegetation

Selous Game Reserve being part of the Zambezian Regional Centre of Endemism possesses a very diverse flora with an estimated total of over 1 800 plant species (Vollesen, 1980). Over 75% of SGR is miombo woodland dominated by trees of the genera *Brachystegia, Julbernardia, Pterocarpus* and *Combretum. Acacia-Combretum* wooded grassland occupies north SGR, while tall *Borassus aethiopum* palms cover some 250 km^2 (Rodgers *et al.*, 1979; Rodgers, 1980).

3.1.5 Wildlife potential

Selous Game Reserve is rich in the diversity and abundance of fauna, with about one million animals of different species (MNRT, 1996). About 60 species of large mammals and about 440 species of birds have been recorded in SGR (Rodgers *et al.*, 1979). About 60% of Tanzania's elephant are found in SGR (Baldus, 2003, cited by Kideghesho, 2001).

3.2 Methods

3.2.1 Research design

Social survey was conducted, whereby a cross-sectional research design was adopted. This design allows collection of data at one point in time from a sample selected to represent some larger population. The design was suitable for purposes of description and determination of relationships between and among variables at the time of study (Babbie, 1990). One time means that data are collected in as a short time as is feasible (Singleton *et*

al., 1993). This design is considered favourable because of the limited time available for data collection.

3.2.2 Site selection and sampling procedure

There are 17 villages surrounding the SGR in Ulanga District. The study selected four out of 17 villages with outstanding problems of human-wildlife conflicts and benefits derived from tourist hunting activities identified by Selous Game Reserve Administration and the District Game Officer of Mahenge. Purposive sampling was employed to select four villages based on the discussions with the District Wildlife Authorities and Government Village Officials, particularly with regard to wildlife potentials and tourist hunting activities in SGR. The selected villages were Mbuga, Gombe, Lukande and Ketaketa (Fig. 2). A list of households for each village was obtained from the respective village government offices. The heads of the households were selected for formal interview because they are responsible for family decision making. A sample size of 174 households was found sufficient to allow reliable analysis and provide a sampling frame for the time allocated for the study. In each hamlet and in every village, at least 10% of the households were surveyed (Table 2). In total, 174 households were surveyed representing about 10 % of the total households for the four villages. According to Boyd *et al.* (1981) and Kajembe and Luoga (1996), the sample is regarded adequate if it constitutes 5%. However, in order to obtain sufficient information, a sample ought to be not less than 20 households (Tunis, 1988). For that reason, the sample was considered statistically representative.

Table 2: Number and proportion of households sampled in each study village

Name of the village	Total number of households per village	Number of respondents per village (sample size)	Percentage sampled
Mbuga	654	65	9.9
Lukande	225	23	10.2
Gombe	310	31	10.0
Ketaketa	554	55	9.9
Total	743	174	10.0

3.2.3 Data collection

Both primary and secondary data were collected. Primary data were mainly collected using structured questionnaires (with both close and open ended questions). General information on the main economic activities undertaken by the communities on tourist hunting activities and various sources of household livelihood were obtained through Participatory Rural Appraisal (PRA) techniques. Other methods included direct observation and focus group discussion. Secondary data was obtained through a review of relevant documents.

3.2.3.1 Preliminary survey

Pre-testing was done to double-check the quality of instruments for collecting data before they were put into use. This was considered important in order to determine if questions and terms are understood by the respondents. According to the American Statistical Association (1997) pre-testing is central to the planning of every good survey and it is critical in identifying questionnaire problems. Before administering questionnaires and

interview guides for this study, they were pre-tested to five randomly selected households. After the pre-testing, flaws in the questionnaires and the interview guides were identified and rectified. Also, training of research assistants was done before embarking on data collection. Pre-testing helped to check the validity and reliability of the questionnaire items (Kajembe and Luoga, 1996).

3.2.3.2 Primary data collection

Primary data were collected from different sources. Both quantitative and qualitative data were collected using a combination of methods, i.e. questionnaire survey, focus group discussion, interviewing key informants and researcher observation.

Questionnaire Survey

Questionnaires were developed to pursue major issues identified during reconnaissance survey. A questionnaire is a group or sequence of questions to elicit information upon a subject or sequence of subjects from informants (Casley and Kumar, 1988). Structured questionnaire was used to collect data about the impact of tourist hunting on livelihoods of local communities and the relationship to socio-economic activities. In order to elicit more information, open-ended and close questions were used (Appendix 1). Open-ended questions helped to get the respondent's views regarding the problem under research, while in the closed-ended questions, respondents were provided with alternative answers.

Participant Observation

Participant observation is distinguished by the fact that the observer (researcher) becomes part of the situation being studied (Kajembe and Wiersum, 1998). Participant observation involved observation of community and household activities (general farm activities, production systems, behavioural relationship) and tourist hunting activities. It further

supplemented information obtained by formal survey and highlighted on socio-economic impact of wild animals on human activities.

Participant observation helped to get close to the people and facilitated respondents to feel free during interviews. Moreover, participant observation was used as a guide to asking questions where respondents failed to react to questions. During the fieldwork, constant interactions with the villagers were part of the information collection process. The researcher developed friendly relationships with villagers while trying to study their way of life, making sense out of their conflicts with wild animals from SGR in their daily tasks. During the survey, activities like hunting in SGR and photographic tourism were observed, noted and photographed. Also, the researcher could observe the state of the environment, i.e. state of vegetation (standing trees, stumps, bare land) and wild animals. Furthermore, direct counting of animal carcasses hunted, number of tourist facilities such as hunting camps (camp sites), number of tourists and local employees in the camps, was carried out. This was important because, the study is about the impact of tourist hunting on local communities and the data, therefore, helped in determining the types of wildlife utilization and benefits obtained from tourist hunting during the study period. The technique was used as an initial medium for learning about social and physical environmental interrelationship.

Focus Group Discussions

Group discussions are cheaper and quicker to conduct than individual interviews with the same number of respondents. However, they have their own disadvantages in that not every one who was invited will attend but if some of them have shown up, one has to run the session regardless (Cooksey and Lokuji, 1995). Focus group discussions were conducted using a checklist (Appendix 2). A total of 18 respondents were invited to

participate in focus group discussions for each village sampled. A recommended discussion group should not exceed 25 people to make it manageable (Kajembe and Luoga, 1996). Thus, the number of group discussion sessions was dependent on the population of the selected communities. Some persons selected were those who had been involved in tourist hunting activities, and the actual discussions were focused on tourist hunting experiences of participants and their communities.

Considering the relatively large size, age and gender of the majority of the participants in the study areas, this method was efficient and quick in collecting data. The distinctive feature of the focus group session was the prior analysis by the researcher of the situation in which subjects were involved. The advantages of this method were: the informal group situation, the open-ended nature of the questions, and the interaction among participants who encouraged and stimulated in-depth discussions. The language problem, inevitable in focus group sessions, was bridged with the aid of research assistants who translated the content of the discussion schedule into local language for the participants.

The researcher acted as the facilitator of the discussions. The focus group session's team consisted of the researcher and research assistant was village game scout serving in the areas of study. The choice of VGS as research assistants during the study fieldwork was vital because VGS have the technical know-how, local language power and have the confidence and trust of the communities and an insight into how, where and when to reach or meet the people. To be effective, coherent, successful, reliable and accepted, experienced VGS were selected by the researcher as research assistants one in each village. Subsequently, training was organized for the research assistants by the researcher. The training was done in two sessions. The first exposed the research assistants to the question guides and the principles that guide focus group discussion sessions and the

focus of the study. The second session was to pre-test the question guide and also to examine their notes taking and recording abilities. Convenient buildings (Village Government offices) were used for the focus group sessions, and led by an independent member selected among them. The researcher took notes and explored questions when need arises without inclining the respondents to a particular response (Cooksey and Lokuji, 1995). The discussion was guided by a checklist of open-ended questions (Appendix 2). The technique was used for cross checking the information obtained from the questionnaire survey.

Key Informants Interview

A key informant is an individual who is accessible, willing to talk and has a great depth of knowledge about the issue in question (Bernard, 1995). Key informants are not only members of the clientele, but are most often informed outsiders (Mettrick, 1993). This technique was considered in this study to allow the production of rich and varied data set in a less formal setting and more thorough examination of experiences, feelings and opinions that questions could not capture. Key informants in this study included village government leaders, SGR Project Manager, Managers of tourist hunting companies, and District Game Officer of Ulanga District. These people were interviewed to get their professional view on the issue to be researched by using a checklist (Appendix 3).

3.2.3.3 Secondary data collection

Data from secondary sources were obtained mainly from documents and records from the Western Sector of SGR-Ilonga, SGR headquarters, Wildlife Division headquarters, libraries of Sokoine University of Agriculture (SUA) and University of Dar es Salaam (UDSM), reports from the District Game Officer of Ulanga and Managers of hunting

companies. Other data were obtained through review of current literature on various topics, from electronic sources in the internet and other related studies.

3.2.4 Data analysis

The quantitative and qualitative data information collected through questionnaire survey were coded and entered into the computer. The Statistical Package for Social Science (SPSS version 11.5) was employed for analysis of the data. Outputs were given in frequencies and percentages and some variables were compared by cross tabulation. The χ^2 test was used to test variable association and their dependency levels. Data from tourist hunting were also analysed using Microsoft Excel. Data from focus group discussions were summarized picking the main points and conclusions reached by the group members themselves (Cooksey and Lokuji, 1995). Focus group discussions data were used for clarification of information obtained from the household survey.

3.2.5 Limitation of the study

The study encountered a problem of language barrier, however the use of local research assistants. Village Game Scouts (local translators) was applied to address the issue of data collection through training them as research assistants for data collection. Funds provided for research were not sufficient to perform some of budgeted activities. This resulted into picking unreliable transport to visit some of the villages and hamlets (sub-villages) within the study villages. Actually, it was very risky, time consuming and costly to the researcher as sometimes a lot of time was spent travelling from one village/hamlet to another. The villages' hamlets were sparsely located. At the end of the day, some of household heads were missed because they had stayed for quite a long time waiting for the interviewer who could not turn up in time. Hence, a lot of time was wasted on one homestead.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Socio-economic Characteristics of the Respondents

4.1.1 Characteristics of the households

The respondent characteristics in the household were sex, age, tribe, level of education, land owned by the household, household size, income, duration of residence and economic activities. Household respondents in all villages comprised of more men than women, with 61.5% and 38.5%, respectively (Table 1). That implies that the majority of the households in the study area were male headed and this is a typical characteristic of most traditional African societies. The dominant tribe in the study area was Wapogoro 75.3%. Other tribes included Wasukuma, Wangindo, and Wandewa. The majority of respondents (58.0%) had lived in area more than 15 years.

Table 3: Sex distribution in villages around SGR (n=174)

Villages	Frequency %	Sex of respondents		Total
		Males	Females	
Mbuga	Frequency	41.0	24.0	65.0
	%	63.1	39.9	100.0
Ketaketa	Frequency	33.0	22.0	55.0
	%	60.0	40.0	100.0
Gombe	Frequency	16.0	15.0	31.0
	%	56.6	48.4	100.0
Lukande	Frequency	17.0	6.0	23.0
	%	73.9	26.1	100.0
Total	**Overall frequency in villages**	**107.0**	**67.0**	**174.0**
	Overall % in villages	**61.5**	**38.5**	**100.0**

Results from the survey further show that, 67.2% were married, 17.8% were single, 9.2% were widowed, and 5.8% were divorced (Fig. 3).

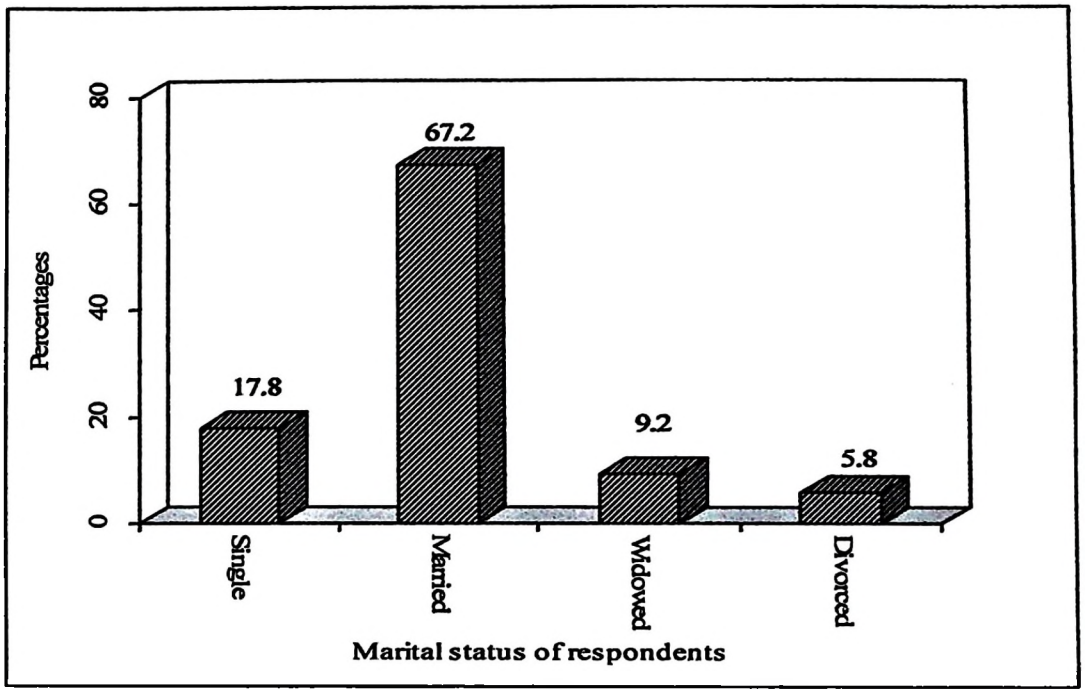

Figure 3: Marital status of the respondents

4.1.2 Age distribution in the villages

The age distribution of respondents ranged from 20 to above 66 years of age as shown in Table 4. Most of the respondents were young (68.4%), with age ranging from 20 to 40 years. In Mbuga village there were many (46.2%) people with the 31-40 years age group followed by those in the 20-30 years age group (21.5%). Gombe village had the highest percentage of people in 20-30 and 31-40 years age groups with 61.3% and 22.6%, respectively. Ketaketa village had the highest percentage of old people more than 60 years accounting for 18.2%, followed by Gombe with 12.9%.

It seems the young group 20- 40 (68.4%) were the most active in tourist hunting activities, followed by age group 41-60 (17.8%), and lastly > 60 (13.8%). The high percentage observed for the age of 20 to 40 years to be the active participants in tourist hunting activities could probably be associated with the fact that many people in this category especially in Mbuga village live adjacent to SGR. The lower percentage (17.8%) for the group >41 years could be to the fact that, the aged have many family responsibilities to take care of than young ones.

Table 4: Age distribution in villages around SGR (n=174)

Villages	Frequency %	Age distribution (years)				Total
		20-30	31-40	41-60	>60	
Mbuga	Frequency	14.0	30.0	13.0	8.0	65.0
	%	21.5	46.2	20.0	12.3	100.0
Ketaketa	Frequency	20.0.	14.0	11.0	10.0	55.0
	%	36.4	25.5	20.0	18.2	100.0
Gombe	Frequency	19.0	7.0	1.0	4.0	31.0
	%	61.3	22.6	3.2	12.9	100.0
Lukande	Frequency	6.0	9.0	6.0	2.0	23.0
	%	26.1	39.1	26.1	8.7	100.0
Total	**Overall frequency in villages**	**59.0**	**60.0**	**31.0**	**24.0**	**174.0**
	Overall % in villages	**33.9**	**34.5**	**17.8**	**13.8**	**100.0**

In general, Mbuga village had a higher percentage of people in all age groups than the rest of the villages except in the 20-30 and > 60 years age groups (Table 4). Also, there were more people in the young generation in two villages Mbuga and Gombe in the 20-40 years

age group which accounts for 67.7% and 83.9% of the respondents in the respective villages. The χ^2 –test on age showed that, there was a significant influence of age on participanting in tourist hunting activities (χ^2=17.9, d f = 9, p<0.005). The results on age distribution suggest differences in participation of tourist hunting activities in some members prevail in the four villages. It is the differences between the aged and young people. The young generation prefer to participate in tourist hunting in various hunting companies (Plate 1). On the other hand, the aged advise the young people to participate in tourist hunting because they have some knowledge of English to communicate easily with tourist hunters, they are also energetic and headworkers.

Plate 1: An elephant which was killed in block LU 3 of SGR by a tourist hunter

4.1.3 Household size

Most of the male respondents were heads of households (70.5%), while women headed

four and six members and 17.8% of them with more than ten members (Table 5). Only 20.7% of the households comprised 1-3 people while 21.3% of the households had 7-10 people.

Table 5: Household size in study villages (n=174)

Size of household (Persons)	Frequency in villages	%
1-3	36	20.7
4-6	70	40.2
7-10	37	21.3
> 10	31	17.8
Total	**174**	**100.0**

The average household size in villages interviewed in the study area was 4.3 persons which almost coincides with the 2002 census (URT, 2003), which was 4.4 persons for Ulanga District. Mbuga village of had a higher household size than the rest of the villages. The natural increase of human population within the study area is compounded by migration of people from outside the study area. Households in areas with more land resources, tend to have larger numbers of people than in areas with land pressure. A χ^2 test to examine if there was a significant difference in household size between the two villages near SGR (i.e. Mbuga) and further from SGR (i.e. Ketaketa) showed no significant difference (χ^2= 36.9, df = 3, $p<0.005$). This suggests that areas with land abundance and tourist hunting activities encourage human population growth because they are able to support large populations. These have consequently resulted in acquisition of more land for agriculture, settlement, grazing and increased demand and use of wildlife resources. Most of the converted land is shared between humans and wild animals. This

exacerbates the problem of human-wildlife conflicts in the study area. The higher demands on natural resources mean more pressure on available resources (trophies, fish, and timber, logs, building materials, honey, charcoal, grazing and firewood) and thus creating more tensions and conflicts between conservationists and users. Some of the villagers' demands on natural resources accelerate deforestation, hunting, and unsustainable utilization of natural resources besides the pressure on land.

The direct effects of increase in household size on natural resources in a given area are well documented by Billsborrow and Okoth-Ogendo (1992) and McNeely *et al.* (1995). They include increase in consumption of the available natural resources, subsequently causing indirect effects associated with increase in poverty and migration in a given area. The increase in population growth usually has been reported to be an important factor in destruction of natural resources which is significantly modified by national and institutional circumstances within which the damage occur (Billsborrow and Okoth-Ogendo, 1992). In this study, probably the presence of tourist hunting companies near Mbuga village around SGR might have facilitated more people to settle on this part than the rest villages of the study area.

4.1.4 Level of education

The respondents varied in terms of level of education. Most of the people in the study villages had no formal education (65.5%), while those with primary education accounted for 27.6%, by followed by those with secondary education (6.9%), no university graduates were recorded (Table 6). Ketaketa had a large number of people without formal education (83.6%) compared to Lukande (65.2%), Gombe (61.3%) and Mbuga (52.3%). The actual number of people with primary education in Mbuga village was higher (40.0%). In general, the education level was low and usually limited to primary education.

Since the number of individuals with primary education was higher in Mbuga village (40.0%), it is possible that even the level of illiteracy was higher in other villages.The high level of illiteracy increases misunderstandings among individuals in a community. The tensions and misunderstandings among individuals in a community can lead to natural resource utilization conflicts (e.g poaching of wildlife). The increase in education also increases options of respondents to meet their livelihoods. Generally, the education of respondents has implications on accessibility and availability of natural resources around them, and affects their economic participation and involvement of individuals within the household in tourist hunting as well as community activities. Involvement of the local communities in conservation and management of natural resources reduces the chances of natural resources utilization conflicts. Usually the practice imparts a sense of ownership and benefits sharing at a local level and as a result improves the relationships between local communities and SGR authorities. Increase in education level promotes the level of awareness and creates positive attitudes and values which stimulate people to manage natural resources sustainably and participate in tourist hunting activities thereby reducing resource use conflicts. It is therefore expected that more unsustainable natural resources utilization (poaching) takes place in other villages due to the high level of illiteracy than in Mbuga village. These findings agree with those of Katani (1999) in showing that an increase in education level increases the level of awareness and thereby motivates people to manage natural resources sustainably. There is no development without education (Kajembe and Luoga, 1996).

Table 6: Education level of local communities (> 18 years both sexes level) in study villages around SGR (n= 174)

Villages	Frequency/%	Education of respondents			Total
		No formal education	Primary education	Secondary and high school	
Mbuga	Frequency	34.0	26.0	5.0	65.0
	%	52.3	40.0	7.7	100.0
Ketaketa	Frequency	46.0	7.0	2.0	55.0
	%	83.6	12.7	3.7	100.0
Gombe	Frequency	19.0	10.0	2.0	31.0
	%	61.3	32.3	6.4	100.0
Lukande	Frequency	15.0	5.0	3.0	23.0
	%	65.2	21.7	13.1	100.0
Total	**Overall frequency in villages**	**114.0**	**48.0**	**12.0**	**174.0**
	Overall % in villages	**65.5**	**27.6**	**6.9**	**100.0**

4.1.5 Economic activities

The most important economic activity in the villages in terms of subsistence and cash income earnings is small scale farming or more appropriately peasant farming. The respondents' occupations are illustrated in Fig.5. The main occupations of the people are farming (61.5%), livestock keeping (13.3%), self employment (5.7%), hunting (1.7%), business (12.1%), and Government employment (5.7%) There is also a small group of people who are typical pastoralists keeping cattle with herds ranging from 50 to 120. They

also keep goats/sheep that range from 1 to 40. This group comprises the Maasai and Wasukuma who are mostly nomads and few of them have decided to reside permanently in the villages, and even engaging in agriculture. This was observed at Mbuga and Gombe villages where one Maasai family and three families (two Maasai and one Sukuma), respectively practise agro-pastoralists and are permanently staying in these villages.

Ikanda (2002) observed a changing lifestyle in the Maasai from semi-nomadism to semi-agricultural settlements in Ngorongoro Conservation Area. A remarkable transition from semi-nomadic to sedentary semi-agricultural settlements, and the development of small-scale farming in areas that have historically been known to be prime wildlife habitats, migration corridors or natural wildlife buffer zones was observed. Through an attempt to get enough food, water, shelter and space, both people and wildlife have found themselves in competition for the aforementioned resources.

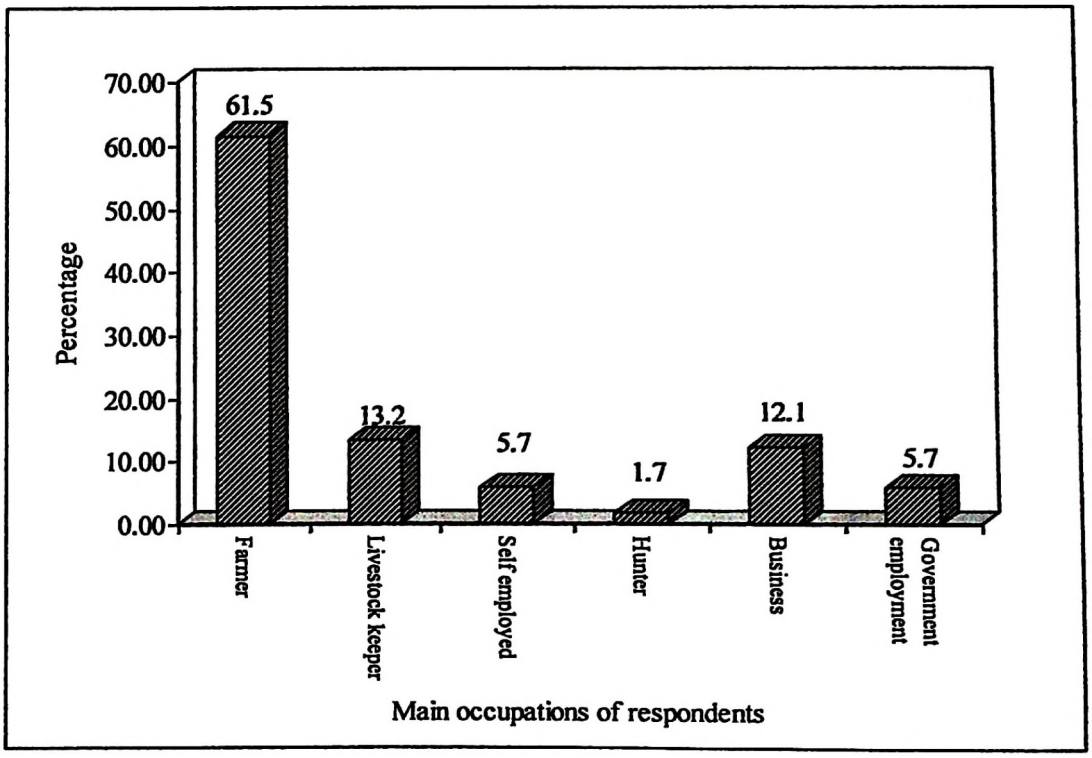

Figure 4: Main occupations of respondents

4.1.6 Household sources and annual income

A large number (60.3%) of households had an annual income less than Tshs. 150 000 in all the four study villages (Table 7). The respondents' own estimate of their households' annual income indicates that they live in abject poverty irrespective of the fact that they inhabit a fertile area. In general household income was below one dollar per day. In addition, people living very close to SGR like Mbuga village had more opportunities of gaining extra income through employment in the tourist hunting activities (SGR) than those who were further from SGR, i.e. Lukande, Gombe and Ketaketa. This was probably why these villages lagged behind Mbuga village in terms of annual income per household. Generally, the local communities surrounding SGR were poor and their capita income was lower than the average Gross National Product Per Capita (GNPPC) of 1 US$ (1 133.60 Tshs) (BOT, 2005).

Table 7: Household annual income in the study villages around SGR (n=174)

Villages	Frequency %	Annual income of the households (in Tshs 1000.00)				Total
		<150	150-400	401-1000	>1000	
Mbuga	Frequency	12.0	32.0	16.0	5.0	65.0
	%	18.5	49.2	24.6	7.7	100.0
Ketaketa	Frequency	53.0	2.0	0.0	0.0	55.0
	%	96.4	3.6	0.0	0.0	100.0
Gombe	Frequency	27.0	2.0	2.0	0.0	31.0
	%	87.1	6.5	6.5	0.0	100.0
Lukande	Frequency	13.0	7.0	3.0	0.0	23.0
	%	56.5%	30.4%	13.0%	0.0	100.0
Total	**Overall frequency in villages**	**105.0**	**43.0**	**21.0**	**5.0**	**174.0**
	Overall % in villages	**60.3**	**24.7**	**12.1**	**2.9**	**100.0**

Nahonyo (2001) made similar observations in villages adjacent to the GRE in southern Tanzania. The western parts were observed to have a larger mean per capita income than those in three other sides, being followed by the southern part of the GRE. The reason behind was associated with the tendency of the western side people to engage in beekeeping at the same time being involved in growing cash crops such as tobacco as well as food crops such as rice and maize with high production.

Actually, human socio-economic and demographical factors have a wide range of effects on natural resources, wildlife and environment in general. Understanding human socio-economic and demographic patterns provides the basis for adopting better plans in human population control, land use and natural resources utilization. Interactions and conflicts have in many cases, attributed to competitive exclusion of resource utilization, as a situation arising empirically from increased human populations, consequently resulting in higher land demand and acquisition.

4.1.7 Land acquisition and ownership

Villagers in the study area acquire land through various means. Fig. 5 shows various ways in which the respondents acquired their present land. The majority (82.7%) said they acquired land by clearing bush of unoccupied land (clearing a virgin land). Others (54.7%) inherited the land from their ancestors. The other group, which accounted for 13.0% bought the land they own. The village government was reported to be responsible for allocation of land to 14.2% of the respondents. Few respondents (8.9%) acknowledged acquiring land through other means. The study indicated that, land was not a problem in the area, with 60.0% of the people in the area owning more than 2.0 ha. Most of the farms (86.0%) were 5.5 km from home.

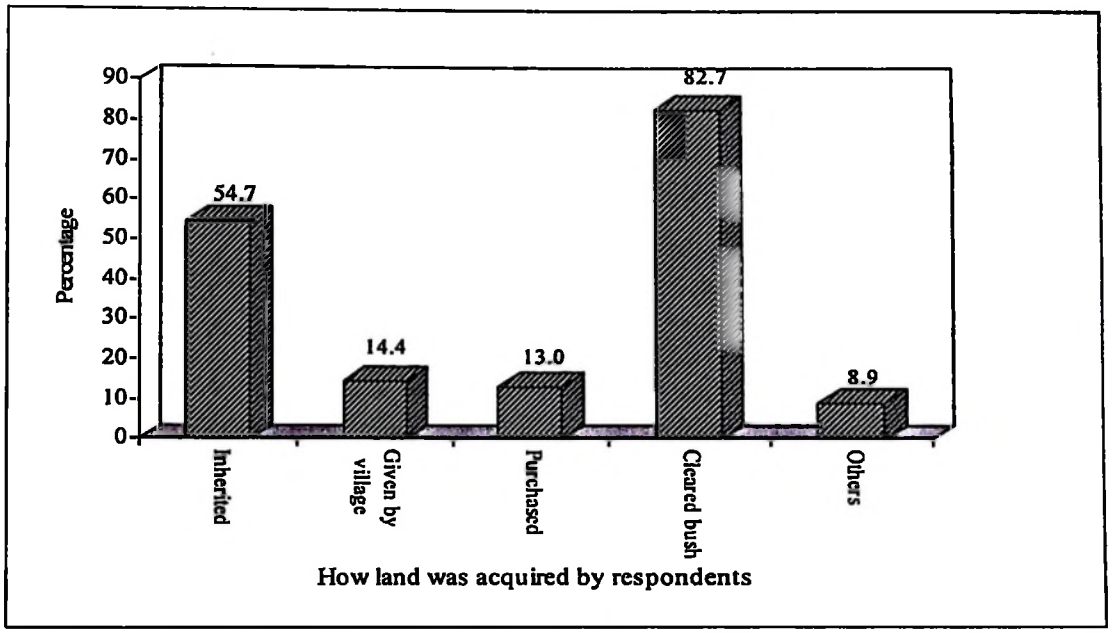

Figure 5: How land was acquired by respondents (Note: The percentage response of respondents cannot add to 100% due to multiple responses.)

A feature observed here is that commoditisation of land is not well developed in the villages and this is a further evidence of the underdeveloped nature of agriculture. A χ^2-test was used to assess the difference in mode of land acquisition between the households in two villages near (Mbuga) and further (Ketaketa) from SGR , the difference between the villages was highly significant ($\chi^2 = 36.4$, df = 9, $p<0.05$). Respondents in all the villages acquired land through self allocation by clearing 'unclaimed' virgin land whenever the need arose for extra land to support either the increased family size or deterioration in land fertility. Sometimes clearing more land saved as an asset which can be used or sold in the future and ensure an additional income and food security to an individual as well as the household. In all the study villages, most respondents, who acquired land from village governments and those who had bought land were immigrants. A χ^2- test for the difference between land size owned by individuals and the age groups of the respondents in the study area showed a significant difference ($\chi^2 = 12.1$, d f =4, p>

0.05). Most of the young respondents that were in the 20-30 years and 31-40 years age groups owned relatively small land sizes which ranged between 0-2.5 ha and 3-5 ha. Age of the household heads and size of the household substantially influenced the total land owned. Older people had larger land size compared to young people implying that they had larger families to care for, hence land was important for economic welfare of the households. Kizima (2003) showed that in Handeni District, Tanzania, the older Zigua people possessed a large piece of land compared to young individuals of the same tribe for the well being of their families.

4.2 Human-Wildlife Interactions

4.2.1 Tourist hunting and effects on problem animals

Members of local communities reported the incidences of human wildlife conflicts were increasing. This presents yet other conflicts between members of local communities and the Government. However, both the District and the MNRT are obliged to protect life and properties of people from problem animals as spelt out in the WCA, No.12 of 1974. Local communities however felt neglected in this respect. Both expansion of agriculture and the increase of human population have taken up land previously occupied by wildlife (Lichtenfeld, 2003).

In the study area, some respondents held the perception that the increase in incidences of problem animals resulted from population increase in species like zebra, elephant, buffalo, crocodile, and also due to intensive tourist hunting of animal species in SGR (Plate 2), animals tend to search for safe place for hiding, such as near villages. Crocodile, lion and leopard were the only problem animals that had higher incidences of human-wildlife conflicts in the study villages especially Mbuga village. The Wasukuma were the dominant pastoralists in the area and are ranked highest in livestock keeping. They

attributed significant losses of their livestock to tourist hunting practices. They alleged that, professional hunters habituate lions and leopards (carnivores) with bait, which they mostly locate near water points to attack the carnivores. After the hunting season (July-December) these carnivores find no free baits, and they then opt for easily accessible prey like cattle and goats. A similar study done by Kibebe (2005) in Simanjiro District, discovered that, in Maasai community, lion and leopard were the only problem animals that had higher incidence of human-wildlife conflict, and livestock were most vulnerable when queuing for drinking water.

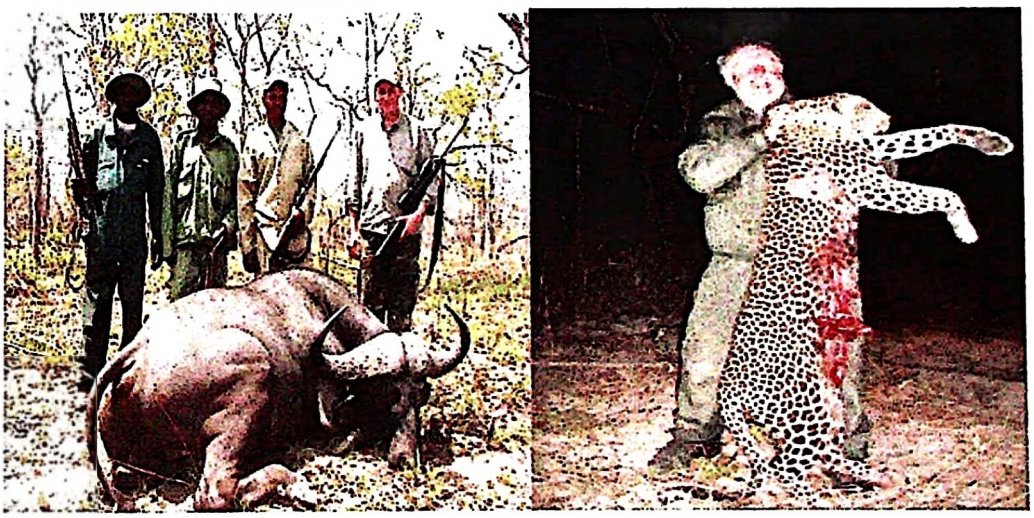

Plate 2: Buffalo and leopard killed in Block LU 3 of SGR by a tourist hunters

Very few people (1.1%) failed to express opinion on the nature and types of human-wildlife conflicts prevailing in their areas. The majority (94.8%) had problems related to wild animals. The major problems were associated with wild animals leaving SGR due to intensive hunting and roaming around the villages where they caused crop damage and threatened human life and livestock.

4.2.2 Tourist hunting and effects on crop damage

Intensive hunting in SGR was a source and biggest problem related to crop damage caused by wild animals, which was reported by most of the respondents (94.3%) in the whole study area, followed by threat to human life and livestock depredation. When people were asked about the species causing damage, they claimed that crops were destroyed by elephant, yellow baboon, hippopotamus, vervet monkey, warthog, bushbuck, reedbuck (*Renduca renduca*), birds (*Quelea quelea)*, guineafowl, cane rat (*Thryonomys* sp), giant Gambian rat (*Cricetomys gambianus*), porcupine (*Hystrix africaeaustralis*), aardvark (*Orycteropus afer*) and bush pigs (Fig. 6)

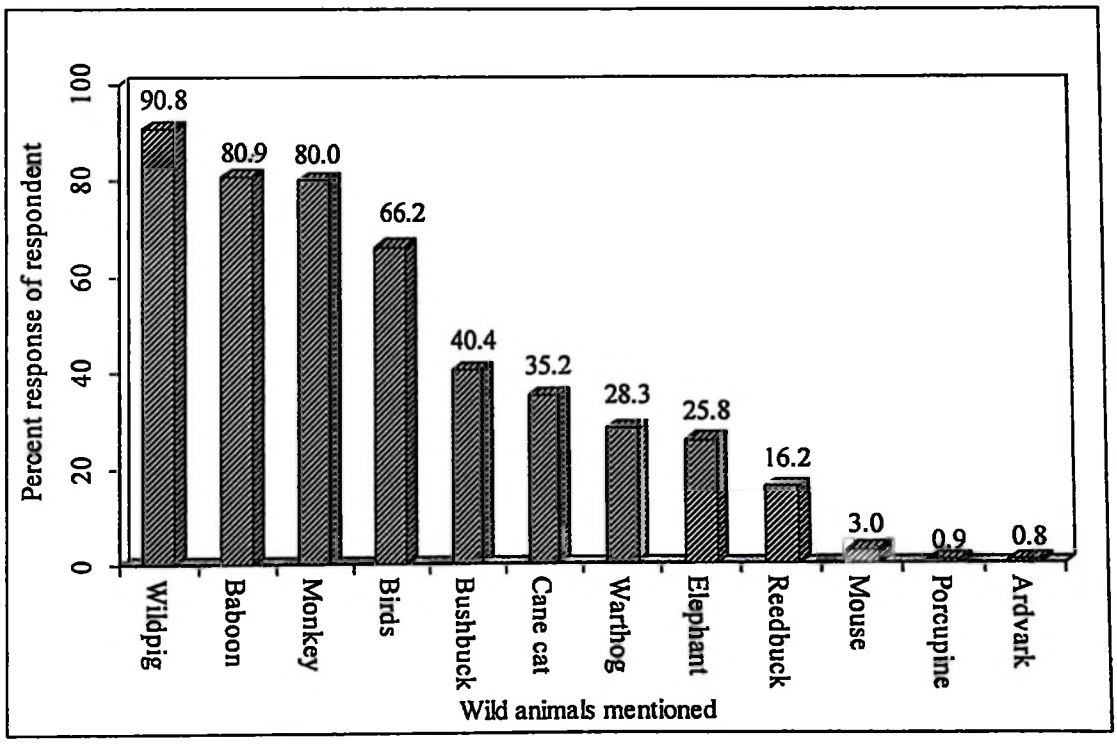

Figure 6: The percent response of respondents mentioning wild animals involved in crop damage (Note: The percentage response of respondents cannot add to 100% due to multiple responses).

Most of the wild animals mentioned above were among the frequently reported wild animals involved in crop damage. However, wild animals that were less mentioned by

respondents include the porcupine, aardvark, and mouse rat (*Mastomys natalensis*). Therefore, wild animals involved in crop damage ranged from small (e.g birds, mouse, cane rat) to large animals (e.g hippopotamus and elephants) were more feared than other species by the farmers in this area in that were the most voracious, powerful and caused most stressing damage within a single foray. A single foray may result to complete damage of a whole farm, thus causing unbearable suffering to local communities in the study area. This might be the reason for regular reports of elephant and hippopotamus crop raids to the District Game Officer. This study further revealed that, the presence of these large mammals, especially elephant and hippopotamus in farms was a source of fear to farmers, especially women and children, and they would run back home with complaints of insecurity after observing fresh footprints. Crop damage by small animals (birds, mouse, reedbuck, bushbuck, porcupine, aardvark, and cane rats) appeared to be tolerated partly because the farmers themselves easily managed them and in certain cases they served as a source of protein. That is why such wild animals were rarely reported as crop raiders to the District Game Officer.

Epimack and Kabigumila (2002) also reported that the most destructive wild animals to crops ranged from small to large mammals in villages adjacent Lake Manyara National Park. This is similar to results obtained by Haule *et al.* (2002) in Kilombero GCA who reported that most of crop raiding was caused by small to large animals, namely, bush pig, baboon, birds, buffalo, monkey and hippopotamus.

Nchanji and Lawson (1998) reported that people living adjacent to Banyang-Mbo Wildlife Sanctuary in Cameroon complained bitterly about elephants. Other wild animals, such as cane rat, buffalo, porcupine, bushbuck, bush pig, monkey, domestic goat and grasshoppers were found to be the major causes of crop damage. Andama (1999) has

shown that most people assign blame to particular crop raiders that correspond to the perceived origin of the raiding animal rather than the amount of crop lost or frequency of raiding incidences. In villages adjacent to Mgahinga Gorilla National Park (MGNP) in Uganda, porcupines were perceived as causing more crop damage in community gardens. These community claims that crop raiding by porcupines occurred throughout the entire park boundary were contradictory to study findings which showed that birds caused more damage.

In this study, wild animals involved in crop damage came from either the SGR or the village land, i.e. within human settlement. Only one respondent (0.6%) indicated that crop raiders were staying came from their village land and 95.4% of the respondents pointed out that the majority of the crop raiders came from the SGR (Table 8).

Table 8: Distribution of response on sources of potential crop raiders

Source of raiders	Frequency (n=174)	%
SGR	166	95.4
Village land	1	0.6
Don't know	7	4.0
Total	**174**	**100.0**

It is possible that wild animals within the village settlement might be non-aggressive ones and possibly the primates that have the ability to get used to the human environment. The uniqueness of a 'successful' primate pest is being omnivorous, terrestrial and behaviourally adaptive to changing habitats, a condition that makes them notoriously difficult to control. No single method guaranteed a success of curbing primate pest (Else and Lee, 1986). Unlike larger pests that can be deterred by fences and other obstacles,

primates can easily cross barriers to surrounding human settlements (Newmark *et al.*, 1994). Suppression of crop raiding primates has faced a great challenge and in most cases has proved to be ineffective, as other primates quickly occupy the existing space. Apart from the baboon and vervet monkey, wild pig was also among the most destructive wild animals in villages adjacent to SGR. Control of wild pig needed engaging people full time at night guarding and even during the rain season which is a dangerous undertaking and partially effective. In addition to wild pig, baboon and monkey caused more damage than other species, also were considered as very difficult to deal with because people could not necessarily predict when or whether they would visit an individual farm, and the protection methods available were considered inadequate.

4.2.3 Livestock predation

Intensive tourist hunting, also caused lion and leopard to migrate from SGR to adjacent villages and attack livestock, which accounted for a few incidences (5.1%) probably due to the small sample taken from the pastoralists. (N = 20). Despite the small sample, a χ^2 test to check whether livestock predation had a significant effect on the number of reported cases by pastoralists, was highly significant (χ^2 =16, df=3, $p<0.05$). That means livestock predation was one of the major types of human-wildlife conflicts in the study area. This can be supported as well by the number of livestock attacks by wild animals reported in the year 2004 in Ulanga District; i.e. out of 20 pastoralists interviewed, ten experienced livestock predation, which accounted for almost 50.0%.

These problems might be attributed to either intensive tourist hunting or population density that is increasing outside the SGR or proximity between areas with high number of humans/settlements and areas with increasing number of wild animals or both. Actually the contact between humans and wild animals varies considerably depending on location

of the village in respect to the protected area, types of wild animals involved, seasonal changes and the nature of human activities (Kalternborn *et al.*, 2003; Nahonyo, 2001).

4.2.4 Human injury and loss of life

Data collected from the Acting Western Sector Manager of SGR, and District Game Officer of Ulanga District, on the trend of loss of human life over the period of five years (2000- 2004). Showed that a total 15 people were injured and five were killed by wild animals in villages adjacent to SGR due to intensive tourist hunting. The number of people injured by wild animals increased from four cases in the year 2000 to nine cases in the year 2004. The wild animals responsible for these deaths and injuries were the crocodile, lion and hippopotamus with crocodile contributing 50.0% of all the reported cases. (Table 9). Lion and hippopotamus accounted for 35.6% and 14.4%, respectively of all the reported cases of death and injury. Crocodile accounted for 66.7% of the reported cases of human deaths while lion accounted for 33.3% of the reported cases. These findings are similar to that of Baldus (2005), who found that in Tanzania, lion on average accounted for a 25.0-33.3 % of the estimated annual cases of human deaths and injuries.

Crocodile attacks on humans were heavily observed in Mbuga village for the two years 2005 and 2006, whereby people's main source of water is the Luwegu River and its tributaries. The Luwegu and its tributaries support a number of crocodiles. Villagers in the areas through which the Luwegu river passes, normally fetch water for drinking and washing clothes from that River. Sometimes they do bath in the river and these situations expose people to a high risk of being attacked by crocodiles. Many crocodiles are killed during tourist hunting as shown in Plate 3.

Table 9: Human injury and loss of life due to wild animals in study villages (2000-2004)

Year	Responsible animals	Villages							
		Mbuga		Ketaketa		Gombe		Lukande	
		Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
2000	Crocodile	0	3	0	0	0	1	1	0
2001	Crocodile	0	0	0	0	0	0	0	0
	Lion	0	3	1	0	0	0	1	0
2002	Lion	0	2	0	0	0	0	0	0
	Crocodile	0	0	0	0	0	2	2	0
2003	Crocodile	0	2	0	0	0	0	0	0
	Hippopotamus	0	1	0	0	0	0	0	0
2004	Crocodile	0	1	0	5	0	3	0	0
	Lion	0	0	0	0	0	0	0	0
Total		**0**	**12**	**1**	**5**	**0**	**6**	**4**	**0**

Source: SGR Project and DGO Ulanga District

Plate 3: Crocodile which was killed in block LU 3 of SGR by a tourist hunter

Few cases of attack of humans by crocodile were associated with either tourist hunting or

both crocodile and hippopotamus. Since both the hippopotamus and crocodile are amphibious, then whoever goes to the river for washing, fetching water, swimming, fishing or bathing is likely to be attacked by the hippopotamus and crocodile. The hippopotamus has got extra advantage over the crocodile as it has the ability to travel a longer distance on land than the crocodile. By having such opportunities and ability to utilize both aquatic and terrestrial environment efficiently, the hippopotamus has more chances of coming into contact with humans than the crocodile. The increase in cases of crocodile attacks on humans is probably associated more with the human behaviour and activities around the river than other factors. The study showed that there were other factors that contributed to an increase in crocodile attacks on humans .One of them is the increase in the number of crocodiles in the Kilombero/Luwegu Rivers, although this needs recent crocodile counts.

People killed or injured by lion were mostly those who either were in the tourist hunting activities or in the field carrying out productive activities (cultivating or looking after livestock) or at homesteads in an attempt to rescue livestock from wild animal attacks. Rarely a lion invaded a village and killed people, though in one instance a lion attacked a family in one village and later came to be established after shooting it that it was very old and probably was not able to hunt its own prey. The increase in the number of lions in the study area has an effect not only to livestock keepers but it has caused human injury and deaths in some villages around the study area. Baldus (2001) and Baldus *et al.* (2003) also reported that near Lindi Airstrip (Tanzania) lion killed 23 people in five months in the year 2000. In Bonye-Dutumi, crocodiles killed 11 people in two years and it was estimated that wild animals kill at least 200 people on average per year in Tanzania.

In all cases, there is a need to educate the villagers clearly and understand the sociobiology and ecology of all wild animals in their surroundings in order to avoid unnecessary attacks of dangerous animals. Even the ranging patterns of dangerous wild animals should be well known to individuals residing adjacent to PAs and for these cases those living adjacent to the SGR. This approach might minimize human injury and loss of life due to wild animals from tourist hunting activities in SGR.

4.3 Tourist Hunting and Local Communities

4.3.1 Role of tourist hunting in local communities

Tourist hunting is a major source of revenue from consumptive tourism for the MNRT and Ulanga District Authority. More than 80% of the revenue of the Tanzania Wildlife Protection Fund (TWPF) is derived from tourist hunting. During the period 1993-2004 revenue from tourist hunting showed a gradual increase (Baldus *et al.*, 2003). The 25% of the hunting revenue to the Treasury accruing from tourist hunting is paid to the districts adjacent the SGR, under the condition that, 60% is for community development and the remainder is for conservation. The money has to be passed on to the villagers for development purpose, but this money does not reach the villages. Instead the money is used at district headquarters (Baldus, *et al.*, 2003)

Ulanga District is one of the five districts in Tanzania receiving the highest amount of revenue from tourist hunting. It receives an average of almost Tshs 29 091 million per year (Table 10). However, as mentioned before, the local people around SGR benefit little from the funds, since over the have only manage level, past eight years these local people have only managed to construct one village Government Office at Mbuga village and the Police Station at Mwaya which has not been completed.

Table 10: Tourist hunting revenue allocated to Ulanga District from 2002-2008

Year	Revenue allocated (Tshs-Millions)
2002/2003	24 219 752
2003/2004	27 276 656
2004/2005	27 230 250
2005/2006	45 079 004
2006/2007	35 171 398
2007/2008	15 547 205
Total	**174 524 265**
Average	**29 091 200**

Source: Wildlife Division Headquarters, Dar es Salaam

Tourist Hunting Regulations (URT, 2000) require hunting companies to support community development projects in and around the hunting areas being one of the requirements for each company to maintain a hunting block during the concession period. There are seven hunting companies in Ulanga District, but none of them support local communities in social development services. This system has, however, caused some misunderstandings and also disparity between local communities and hunting companies.

4.3.2 Perception/attitudes of local communities towards tourist hunting

Few respondents considered wildlife in general as a resource worth conserving (38.0%). About 7.0% of the respondents were unsure and 55.0% did not perceive any benefit from wildlife including tourist hunting (Fig. 7).

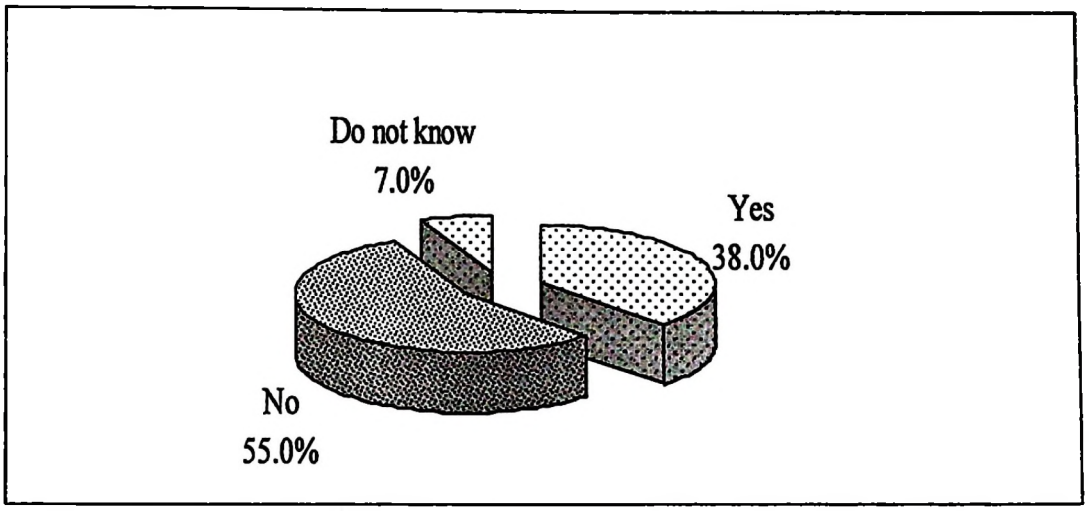

Figure 7: Responses of local communities on perception towards tourist hunting

The benefits gained from tourist hunting were too few compared to the money gained from tourist hunting (Table 11). Only 37.4% of the respondents said they benefit of the revenue while the remaining 66.6% said either they did not , or they were not aware of the benefits.either they did not, or they were not aware of the benefits. Other benefits mentioned include market for village products (37.9%), transport (34.5%), building village Government office (37.4%), building Police Station (37.4%), provision of both meat (27.6%), warehouse (21.3), building school (31.0%) and water supply (95.4%) (Table 11). Reasons for the limited benefits could be that only a few get casual jobs at the camps and only a few have commodities to sell to the camps. But, some may benefit indirectly and fail to know if the benefits were from tourist hunting activities.

Table 11: The benefits gained by local communities from tourist hunting

Type of benefits	Frequency/ %	Responses				Total
		Yes	No	Do not know	N.A	
Employment	Frequency	65.0	48.0	60.0	1.0	174.0
	%	37.4	27.6.	34.5	0.6	100.0
Market for villages	Frequency	66.0	59.0	25.0	24.0	174.0
products	%	37.9	33.9	14.4	13.8	100.0
Transport	Frequency	60.0	90.0	23.0	1.0	174.0
	%	34.5	51.7	13.2	0.6	100.0
Building village	Frequency	65.0	59.0	45.0	5.0	174.0
government office	%	37.4	33.9	25.9	2.9	100.0
Building police station	Frequency	65.0	90.0	18.0	1.0	174.0
	%	37.4	51.7	10.3	0.5	100.0
Supply bush meat	Frequency	48.0	89.0	36.0	1.0	174.0
	%	27.6	51.1	20.7	0.6	100.0
Warehouse hire	Frequency	37.0	83.0	30.0	24.0	174.0
	%	21.3	47.7	17.2	13.8	100.0
Building school	Frequency	54.0	120.0	0.0	0.0	174.0
	%	31.0	69.0	0.0	0.0	100.0
Water supply	Frequency	0.0	166.0	8.0	0.0	174.0
	%	0.0	95.4	4.6	0.0	100.0
Total	**Frequency of benefits**	**460.0**	**953.0**	**245.0**	**57.0**	**174.0**
	Overall % of benefits	**264.5**	**462.0**	**140.8**	**32.8**	**100.0**

Note: The percentages response of respondents add to more than 100% due to multiple responses. Also N.A. (Not applicable

The Wildlife Policy of Tanzania (MNRT, 2007), asserts that 'the policy will continue to give wildlife economic value to rural communities to enhance rural development without prejudice to the environment (URT, 2000). Despite 112 years of SGR existence, benefit-based approaches in the SGR buffer zone have not demonstrated this commitment. In an interview with local people some 55.0% of respondents felt that the trend of crop damage was increasing while 41.0% said it was constant but likely to increase due to growth of wildlife populations according to the District Game Officer of Ulanga. The Ulanga District Wildlife Officer confirmed this by saying that the costs of controlling crop damage from wildlife have increased within the past 4 - 5 years. He attributed this to creation of the new Game Reserve, (Ruhiji Game Reserve) which has given rise to improved habitats, effective protection and, therefore increased wildlife populations in proximity to human settlements and their properties. The wildlife-related benefits (earned mainly indirectly through implementation of development projects) have remained more or less the same as estimated by Messmer (2000), i.e. US$2.5 per household per annum. These benefits can hardly alleviate poverty, a scenario which in any case may encourage continuation of illegal activities.

Despite the support local communities benefit from hunting companies such as employment, bush meat, building school, members of the local community expressed strong disapproval of tourist hunting to take place near their area. Respondents were asked to provide suggestions whether they were happy having tourist hunting camps nears their area or not (Plate 4). They said that, tourist hunting had done harm than good to them. It was showed that 61.5% of the respondents disliked tourist hunting, while 13.2% did not know and 2.9% had nothing to say. Only 22.4% of the respondents said they liked tourist hunting (Fig.8). Most people disliked hunting because they realized only indirect benefits, in the form of foreign exchange earnings to SGR.

Plate 4: Tourist hunting camp in L1 Block of SGR

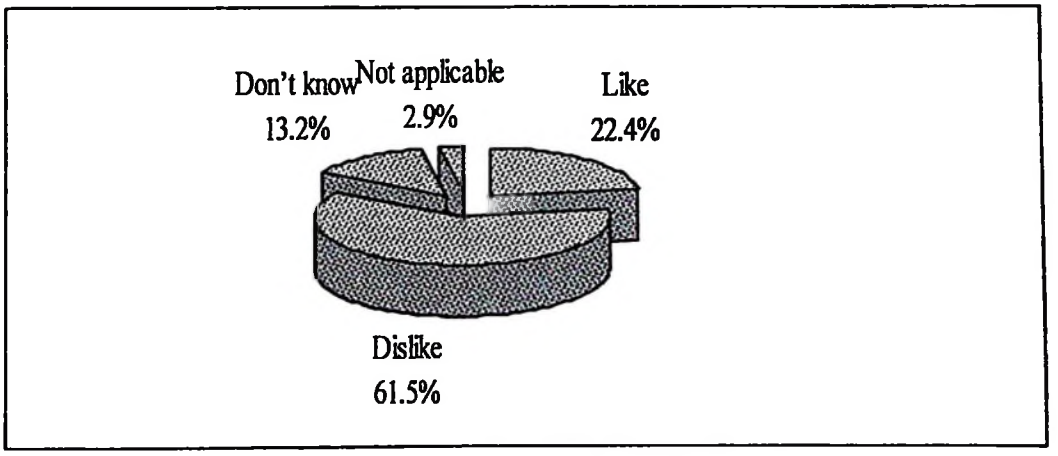

Figure 8: Responses of local communities on attitudes towards presence of hunting activities near their area

Despite its wide practice in the world, tourist hunting is perceived by some people especially animal welfare activists, as being immoral and with no potentially positive contribution to conservation. Groups like Humane Society, Save the Earth, Green Peace, and Animal Welfare argue that safari hunting is not beneficial, neither to wildlife conservation nor to the local communities (Pye-Smith, 2001, cited by Kibebe, 2005). Ndaskoi (2002) remarks that, wildlife in Tanzania is exploited without local communities

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Tanzania has a reputation for excellent trophy hunting and for record trophies. Trophy hunting allows the off take of mature males from wildlife populations managed through setting of quotas that are kept low to maintain high trophy quality. Tourist hunting has been recognised as a sustainable and economically viable form of land use. Thus tourist hunting is an activity that is consistent with Tanzania's policy on wildlife conservation and utilisation, which aims to promote sustainable use of wildlife and maximize economic return from low volume but highly priced markets. Accordingly, Tanzania aims to enhance its tourist hunting industry as a form of wildlife utilisation that can make significant contributions to the local communities living around protected areas and the national economy.

Despite this success, the tourist hunting industry and the land upon which it is carried out can benefit from further improved management and regulation, both on the part of the government and on the outfitters in the private sector. The industry still remains undeveloped in relation to its potential. Furthermore, the distribution of the benefits from the industry are of little direct benefit to local communities living adjacent to protected areas or bordering onto hunting blocks. On the other hand, earnings from the tourist hunting industry do not contribute significantly to the upkeep of the GRs and GCAs that remain the core area for tourist hunting.

Ulanga District is one of the six leading Districts receiving higher income from tourist hunting. Other districts are, Simanjiro, Mpanda, Monduli, Meatu,and Chunya (WD,

1995). However, the clearing of important wildlife habitat through encroachment, for agriculture limits wildlife habitats, which again will constrain tourist hunting options and over time lead to less revenue to MNRT and district authorities

The study concludes that, tourist hunting does not benefit the local communities living adjacent to SGR, in Ulanga District. Also wounded animals migrating to the nearby villages cause injury and loss of life and property

5.2 Recommendations

- Much more is needed to understand the conflicts between Government and local communities, regarding the access to and use of the 25% revenues from tourist hunting. Ulanga District should develop a useful mechanism that will ensure village community members are timely informed about receipt and distribution of 25% allocation according to tourist hunting regulations. The District should inform village members on project plans and their importance to the community, especially where revenue allocation from tourist hunting is to be spent.

- The Government should amend the hunting regulations and direct the hunting companies to help the communities surrounding PAs.

- The MNRT, through the WD should therefore establish and monitor regulations that prohibit baiting of the 'cats' particularly at or near water points in pastoral areas.

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APPENDICES

Appendix 1: Household Questionnaire

(I) Structured Questionnaire for Member of the Local Community

A: Identification of Variables

Households identification's number.....

Name of the Respondent.....

Name of Village .....

Name of Ward.....

District .....

6. Distance of the Village from Tourist Hunting Area (Selous).....(km)

7. Geographical Position System Coordinates of the Village

1. 37L.....2. UTM.....

8. Date of Interview.....

B: General Characteristic of Respondent

9. Age of respondent [yrs] **(Circle the appropriate answer)**

1. 20-30 years
2. 31- 40 years
3. 41-60 years
4. Above 60

10. Gender **(Circle the appropriate answer)** 1. Male 2. Female

11. Type of household **(Circle the appropriate answer)**

1. Male headed 2. Female headed

12. Marital status **(Circle the appropriate answer)** 1. Single 2. Married

3. Widowed 4. Divorced

13. Tribe/ Ethnicity of the respondent.....

14. Have you attended formal education? **(Circle the appropriate answer)**

1. Yes **2.** No

If yes, which level of class did you end?

1. Primary education **2.** Secondary education **3.** College **4.** University **5.** Others (specify).....

15. What is the total number of people living in your household **(Circle the appropriate answer by writing the number)** e.g (Male=5 or female= 3)

Sex **1.** Male **2.** Female

C. Livelihood Strategies / Economic Activities.

16. What is your occupation?

....

17. Which of the following is your main occupation(s) **(Tick from the list)**

1	Occupation	Ticks
2	Agriculture	
3	Livestock keeping	
4	Fishing	
5	Hunting	
6	Lumbering	
7	Business	
8	Employment(gvt/private	
9	Politician	
11	Beekeeping	
12	Religion	

18. What is your annual total household income in year 2006? (Estimate, Tshs) **(Circle the appropriate answer)**

1. Below 150, 000.00 Tshs.

2. Between 150, 000.00 and Tshs.400 000.00

3. Between 401, 000.00 and Tshs.1 000 000.00

4. Above 1, 000, 000.00

19. What is the main source of your household income? **(Circle the appropriate answer)**

1. Sale of crops **2.** Sale of livestock **3.** Self employed **4.** Tourist hunting activities **5.** Salary) (specify).....

20. What are the leading income-generating activities in your household? **(List them in order of importance of the household economy)**

S/N.	Income generating activity	T Shs. Generated in 2006
1.		
2.		
3.		

21. Do you own land for agriculture/livestock /settlement? **(Circle the appropriate answer)**

1. Yes **2.** No

22. If the answer Q 21 is yes what size is it? (in acres). **(Circle the appropriate answer)**

1. 0 to 5 acres

2. 6 – 10 acres

3. 11 – 15 acres

4. 16 – 20 acres

5. More than 20acres

23. How did you acquire the land you own? **(Circle the appropriate answer)**

1. Bought
2. Rented
3. Inherited
4. Allocated by village government 5. Self allocation in general land

24. Is the land owned enough for agricultural/livestock/settlement? **(Circle the appropriate answer)**

1. Yes **2.** No if no where do you get another land?.....

25. Were you born in this village? **(Circle the appropriate answer)**

1. Yes **2.** No

26. If no, go in Q. 27

27. What is your original .....

28. How long have you being here in the village? .....years

29. Why you came here? .....

30. Do you have children participating in tourist hunting activities in SGR? **(Circle the appropriate answer)**

1. Yes **2.** No

I f yes go to Q 31

31. How many of your children participating in tourist hunting?..... ....and indicate their level of education and age in the table below

S/no	Age	Sex		Level of Education
		Male	Female	
1				
2				
3				
4				

32. (a) If your answer to Q 30 is Yes, how many members of your household are working/

Employed in the tourist companies?(**Write the number for each gender)**

1. Male.....**2.** Female.....

(b) How many Tshs were earned (in total) as salaries/ wages in 2006 by your household members in Q.31

33. How many shillings did your household get from tourist hunting in the year

1. 2004.....**2.** 2005.....**3.** 2006.....

C: Economic Activities Aspects / Thematic Data.

34. What are the major economic activities of the head of household? **(Circle your answer)**

1. Agriculture crops **2.**Livestock farming **3.**Mixed farming **4.**fishing

5. Wage employment (specify).....**6.**Other business (specify).....

35. Has your household ever sold any commodity/product to any tourist hunting camps? **(Circle appropriate answer)**

1. Yes **2.** No **3.** Don't know

36. If your answer to Q.35 is yes, list down the commodities/products that your household sold to tourist hunting camps in 2006

S/N.	Commodity/product sold	T Shs. Earned
1.		
2.		
3.		
4.		

37. What are the bottlenecks to economic activities in the villages? **(Circle the appropriate answer)**

1. Poor roads 2. Lack of reliable markets for village products 3. Lack of farm inputs and implements 4.Others (specify).....

38. Is you village government get any income accrued from tourist hunting through District Council of Ulanga (25%) **(Circle appropriate answer)**

1. Yes 2. No 3. Don't know.

39. If your answer to Q 38 is Yes, how much in year.....Tshs.

40. If your answer to Q. 38 is yes, mention the uses of the income

(i).....

(ii).....

(iii).....

D: Tourist Hunting Activities.

41. Have you ever heard any information concerning tourist hunting activities which are undertaken near your area? **(Circle appropriate answer)**

1. Yes **2.** No

If yes go to Q42;

42. If yes, what are the reasons for involving in hunting activities? **(Circle appropriate answer)**

1. Earning a living **2.** Maintain historical/traditional hunting values and skills

3. Others (specify) .....

43. If no, explain why.....

44. Do you know whether the tourist hunting activities provide any benefits to village communities? **(Circle appropriate answer)**

1. Yes **2.** No

1. Monetary allowance (Tips) **2.** Employment), specify what type and who are employed.....**3.** Market for village products (Name the products).....**4.** Transportation (Specify the type i.e free or payable for)

6. Religious contribution (specify)..... .....**7.** (Others), **List them**

(i).....

(ii).....

(iii).....

(iv).....

E: Socio-economic Impact of Tourist Hunting on Livelihoods of Local Communities.

45. Do you think tourist hunting activities have positive impact benefit on social services? **(Circle appropriate answer)**

1. Yes **2.** No

46. If yes how tourist hunting activities have impacted positively social services? **(Mention activities)**

(i).....

(ii).....

(iii).....

(iv).....

(v).....

(Vi).....

47. Do you think the tourist activities have negative impact on social services? **(Circle appropriate answer)** .

1. Yes **2.** No

if yes how?,(Explain).....

48. What are the problems associated with living adjacent to SGR? **(Circle appropriate answer)** .

1. Do not experience any problem **2.** Poaching **3.** Restricted access to hunting **4.** Conflicts with wildlife **5.**Encroachment to SGR boundary **6.**Other.....

49. Rank the above answers in Q 51 according to the big problems/ Treat **(Tick according to the column on Rank 1, 2 or 3 below)**

S/No	Threat/Problem	Rank 1	Rank 2	Rank 3
1	Do not experience any problems.			
2	Poaching			
3	Encroachment			
4	Conflicts			
5	Restricted access to hunting			
5	Other			

50. Do you have problems with wild animals? **(Circle appropriate answer)**

1. Yes 2.No

51. If yes, what are the problems? **(Circle appropriate answer)**

1. Attacks on human being 2. Killing/attacks on livestock

3. Destruction of crops 4. Others (specify).....

52. What are common problem animals in destruction of crops? **(List them)**

1.....2.....3.....4.....

53. If you were to rank problem animals in your area which are the most problematic animal species? **(List them)**

1.....2.....3.....4.....

54. What measures do you think the government should take to control these problem animals?**(Explain)**.....

55. What are the most destroyed crops? **(List them)**

1.....2.....3.....4.....

56. Is there any wildlife poaching in your village near SGR? **(Circle the appropriate answer)**

1. Yes **2.** No

57. What are the reasons for poaching? **(Circle the appropriate answer)**

1. Subsistence meat **2.** Trade to meat **3.** Traditional to eat meat

58. What is the poaching trend in your village? **(Circle the appropriate answer)**

1. Decreasing **2.** Increasing

59. If increasing in Q 61, explain why?...

F: Perception of Local Communities Towards Tourist Hunting in SGR.

60.. What is your attitude towards tourist hunting/ wildlife conservation? **(Circle appropriate answer)**

1. Like **2.** Dislike **3.** Don't know

61 . If you dislike in Q63 what is the reason? Explain.....

62. If you like in Q 63 what is the reason? .....

63. To what extent has the tourist companies addressed the relationship/ needs of the communities in your village? **(Circle appropriate answer)**

1. Excellent **2.** Good **3.** Poor

64. Why do you think the SGR was established? **(Circle appropriate answer)**

(a) As a source of foreign exchange (tourist hunting)...**1.**Yes **2.**No **3.**Don't know

(b) To provide wildlife product..... .....**1.** Yes **2.**N **3.**Don't know

(c) For future Generation.....**1.**Yes **2.**No **3.**Don't know

(d) To protect wildlife/stop poaching.....**1.**Yes **2.**No **3.**Don't know

(e) Other..... ... .**1.**Yes **2.** No. **3.** Don't know

(f) Don't know.....**1.** Yes **2.**No **3.**Don't know

(g) for the benefit of villagers in its surrounding area... **1.**Yes **2.**Do **3.**Don't know

65. SGR should be converted to agricultural land (Circle appropriate answer)

1. Agree 2. Disagree 3. Don't know.

66 .How do you assess this statement' It is important tourist hunting to continue' **(Circle appropriate answer)**

1. Agree 2. Disagree 3. Don't know.

67. The Government should encourage more tourist hunting companies near your village **(Circle appropriate answer)**

1. Agree 2. Disagree 3. Don't know.

68. Do you know what Wildlife Management Areas (WMA) is? **(Circle appropriate answer)**

1. Yes 2. No

69. If yes, go to Q 70

70. If WMA established in your area, which form of wildlife use would like to take place? **(Circle appropriate answer)**

1. Safari hunting 2.Game viewing 3. Other (specify).....

Appendix 2: Checklist for Focus Group Discussion

- What is a livelihood strategy in the village?
- Can you identify the tourist hunting activities?
- What is the positive / negative impact from the tourist hunting on livelihoods of local communities?
- What is the perception / attitudes of local communities towards tourist hunting?
- What are the benefits accrued from tourist hunting activities?
- What is the major source of income of the villagers?
- What is the relationship between SGR- (Tourist hunting) and the district authority/ village government/villagers?
- Do you know the laws that regulate tourist hunting activities?
- What is the social service provided by tourist hunting companies to improve people's livelihood?

Appendix 3: Key informants

1. Village government officials

- What benefits did the village community members get from wild animals during the tourist hunting?
- What extent do you think the government/ hunting companies has addressed the needs of the communities in the villages surrounding Selous?
- Is tourist hunting in SGR posing negative/positive impact on the livelihoods of local communities?
- How is the situation of poaching in the village?
- Do your villages experience problems with wild animals?
- What do you think are the advantages and/or disadvantages of the tourist hunting on livelihoods of local people?

2. Tourist hunting companies

- What are the aims of your company?
- Where in Tanzania do you conduct the majority of your business?
- What services does your company offer to the local communities near your hunting block?
- What is the estimated number of clients/ per year in your hunting safari activities in the last 10 years (1996-2005)?
- How do they link with local communities in terms of proving benefits?
- How do the local communities directly benefit from your hunting activities?
- What services does your company offer to the local communities near your hunting block?
- How many permanent employees do you have from local communities?
- How many temporary employees do you have from local communities?

3. SGR and other wildlife officials

- What is the income generated per year from tourist hunting in SGR for past 10 years
  - What are most important 12 animals for generating income in SGR in 1996 and 2006?
  - What is the distribution of income from tourist hunting to district council of Ulanga.
  - What are the perceptions/ attitude of local communities towards tourist hunting in SGR?
  - What are number of poachers arrested from the villages from July 2001-2006 in SGR?
  - What are the reasons for villages to get involved in poaching?

4. District game officer

- What is the contribution of tourist hunting activities on livelihoods of local communities near SGR?
- What is the relationship of district authority with communities in the vicinity of the SGR?
- What is the type of social services provided by tourist hunting companies to district authority?
- What is the positive and negative impact of tourist hunting on livelihoods of local people?