THE ROLE OF COMMUNITY CONSERVANCIES IN WILDLIFE CONSERVATION AND LIVELIHOODS SYSTEMS OF THE MAASAI: A CASE STUDY OF ENOONKISHU CONSERVANCY, NAROK COUNTY, KENYA.

SYALLOW DOROTHY MASIGA

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DECLARATION

I, Dorothy Masiga Syallow, declare that this project report is my original work and has not been submitted for the award of a degree in any other university.

Signed _____ Date 22.11.2013

Dorothy Masiga Syallow (C50/61558/2010).

This project report has been submitted for examination with our approval as University Supervisors.

Signed _____ Date 22.11.2013

Dr Francis Mwaura (Supervisor)

Signed _____ Date 22/11/2013

Dr Mikalitsa S. Mukhovi (Supervisor)

DEDICATION

This project report is dedicated to my parents Dr. and Mrs. Syallow, who taught me that the best kind of knowledge to have is that which is learned for its own sake.

It is also dedicated to my siblings Lily, Maureen, Linda, Mbaga and Kizito, who taught me that even the largest task can be accomplished if it is done one step at a time.

Finally to my beloved husband Gevedi and dear son Shiresi.

LIST OF ABBREVIATIONS

AWF – African Wildlife Foundation

CBNRM – Community Based Natural Resource Management

CDC – Conservation Development Cooperation

DDP - District Development Plan

DRSRS – Department of Resource Survey and Remote Sensing

FGD - Focus Group Discussion

GDP – Gross Domestic Product

IPAR – Institute of Policy Analysis and Research

KM^2 – Kilometers squared

KWS – Kenya Wildlife Service

MMNR – Masaai Mara National Reserve

NEMA- National Environment Management Authority

NCST – National Council for Science and Technology

PA – Protected Area

WWF – World Wide Fund for Nature

WCMC – World Conservation Monitoring Centre

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ABSTRACT

This study was conducted in Enoonkishu Conservancy, one of the newly established community conservancies in Mara Ecosystem in Narok County. The main objective was to examine the role of community conservancies in wildlife conservation and community livelihood systems. Specific objectives being: a) determining contribution of conservancy to wildlife conservation, b) examining land use and land cover changes, c) examining attitudes and perception of community towards establishment of the conservancy and lastly d) determining contribution of the conservancy to community livelihood.

The study utilized descriptive research design to examine current situation in Enoonkishu Conservancy. Data was obtained using both primary and secondary sources. Wildlife status and diversity, attitudes and perception of community towards conservancy establishment and contribution of conservancy to community livelihood was determine by use of questionnaire survey, focused discussion groups and interviews. Land use and land cover change was determined by analysis of three sets of Landsat TM images taken in 1990, 2000 and 2010, whereby area under different uses and cover were plotted against the year, regression analysis done.

Quantitative data was analysed using a wide range of tools in the Statistical Package for Social Sciences (SPSS) where frequencies were calculated. Results indicated that Enoonkishu has a great diversity of wild animals and habitat which are valued by community in different ways. Dominant wild animals included elephants and zebra. Most problematic ones were elephants and lions, whereas migratory included wildebeests and elephants. There were species which the community felt that they should be considered for community conservation: rhino, wild dogs, lions and elephants ranked high, while dik diks, hare, hyena were among those lowly considered for community conservation. Forests and grasslands were among the important wildlife zones It was established that land use and land cover in Enoonkishu have undergone dramatic change with 92% forest cover reduction, 90% and 97% increase in grass and cropland respectively. The community had positive attitudes and perception towards establishment of the conservancy. The study also established that the conservancy has contributed to direct

benefits such as employment, market for products and social amenities alongside strengthening social ties. Indirect benefits included improved social facilities such as health and education, as well as provision of clean water.

It is therefore concluded that formation of the conservancy has contributed to wildlife conservation and the livelihood of community. The contributions depicted by the establishment ranges from ecological to socio-economic. Interms of wildlife conservation, the conservancy has diversity of wildlife, making it an important conservation zone and therefore calls for its protection and conservation. Land use and cover changes recorded is a resultant effect of dynamics of land tenure system in the area. The positive attitude and perception that community has towards establishment of the conservancy is attributed to three things: age, level of awareness about conservation and community involvement in establishment of the conservancy and finally, conservancy model helped organizing the community within the area in ways that they can eke out livelihood from conservation activities.

The study therefore recommends development of policy that supports wildlife conservation as a land use option for communities and hence establishment of community conservancies. Regarding management issues, the study proposes development of a land use plan for the area to control encroachment into conservation areas and to guide development. Zonation of the conservancy into core conservation, buffer and settlement area zones, promotion of improved pastoralism as an alternative to traditional pastoralism and research on viability of extensive wildlife production as an income generation stream. Interms of areas for further research, the study proposes wildlife census to have inventory of what exists in the area, an examination into trends of human wildlife conflicts and challenges facing community based conservation in the area, existing opportunities, and what the government has done to enhance the sector and finally _equitable benefit sharing .

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CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

One of the greatest challenges facing humanity at this turn of the century is how to make natural resource conservation compatible with community development (Roe *et al*, 2009). Despite their long history of interaction with ecosystems, neighboring communities have contributed to endangering their equilibrium through the incompatibility between conservation and socio-economic development practices.

Globally, habitat fragmentation or complete habitat loss is thought to have caused or be responsible for the decline and extinction of many wildlife species (Morrison 1992; Caughley 1994; Ol 1998). Adams, (2004) and Igoe, (2006) observed that conservationists in Africa are faced with the challenge of how to balance nature conservation and the needs of an ever increasing human population and related activities in wildlife areas.

In Kenya for instance, 70% of the wildlife has disappeared since the national hunting ban which was declared in the 1970s, while the human population has more than doubled according to Kenya Wildlife Service records (1990). Studies conducted by Reid (2002) clearly projected massive loss of wildlife particularly in Mara Ecosystem. The situation has resulted from increased demand for land by the local populations and their domestic animals, thus accelerating the loss of wildlife land and rangelands ecosystems (Herbert &Thomas, 2006).

Wildlife management and tourism development are fundamentally shaped by the reality that an estimated 65% of Kenya's wildlife is found outside the boundaries of state protected areas on land that is individually or collectively owned through private or group ranches (Russell, 2006). The most powerful threat to the region's biodiversity is the requirement to satisfy the growing needs of rural communities that are themselves growing. Through the pressures of open access exploitation and land use changes that convert rangeland to cultivation, wildlife populations are increasingly being fragmented and depleted. Land has been cleared and forests cut down to satisfy food security needs. This situation is largely a function of wildlife's inability to compete with livestock and

agriculture as a form of land use and livelihood option for local communities (Nelson, 2003). The situation is also aggravated by the fact that private and communal land owners do not usually get to share the benefits accruing from wildlife resources which are state property assets whose revenue at state level is transferred to the central government. Wildlife in village rangelands are still centrally controlled and managed, the resource's values are not widely accessible to local communities. Rural communities, also have few incentives to prevent unsustainable uses of wildlife (e.g. poaching) and to favor wildlife-based land uses.

The Maasai Mara is one of the ecosystems in Kenya that is rapidly undergoing transformation. The communally owned group ranches regarded as dispersal areas for Maasai Mara are being subdivided into individual's holdings and this has seen alienation of wildlife from their traditional grazing areas. The need to secure wildlife range outside protected area relies heavily on conservation and compatible land use in these dispersal areas.

In order to secure the wildlife habitats, outside the protected areas, the government through environment and wildlife agencies such as NEMA, KWS and KFS is eager to exploit the benefits associated with partnering with the landowners in wildlife areas through the conservancy model. This model, however, requires good incentives to private entities such as suitable compensation mechanisms, conducive property rights, and attractive tourism contract frameworks in order to induce conservation. These efforts need complementary support by various government agencies and stakeholders in order to attain higher economic growth rates as envisioned in Vision 2030. Fortunately, the recent promulgation of a new constitutional and policy changes in land tenure and natural resources management frameworks heralds a new dawn for conservation efforts around the country including the promotion of conservancy-based tourism development.

Formation of community wildlife conservancies is being adopted as alternative land use option to integrate wildlife conservation and securing livelihood for the local community living within the dispersal areas. The already subdivided land holdings are being

amalgamated to form conservancies, and land owners paid lease fee or land rent by investors operating within the conservancies for setting aside their land holdings for wildlife conservation. Conservancies are comprised of neighboring land plots pooled together to create conservation areas for which tour operators are charged to use (Sorlie, 2008).

Many conservancies have been introduced in Kenya especially in the arid and semi-arid areas (ASALs) which are home to over 9.9 million people, (approximately 34% of the country's population), with up to 60% of the nation's livestock, 75% of its wildlife and account for more than 80% of the country's eco-tourism interests, (RoK 2007).

The Olchorro-Oiroua Wildlife Management Conservation Association (OOWCMA), which brought together several groups ranches in Mara region, was established in 1992 for the dual stated goal of providing an effective service for wildlife protection and management of tourist activities and for generating tourism revenue to benefit the land owners.

The association then evolved and resulted in formation of a number of community conservancies with similar goals, these are: Motorogi, Naboisho, Mara North and Enoonkishu. Enoonkishu Conservancy is the focus of this study.

1.2 Statement of the Problem

The conservancy model was established as an alternative land use in communal land bordering and surrounding the protected areas, on realizing negative impacts to the ecosystem such as overgrazing, increased conflicts and destruction of sustainability of the habitat for both people and wildlife. This was after the group owned ranches were established under the defunct Group Representative Act failed to represent interests of a wider community through transparent benefit sharing and equal distribution of the revenues from wildlife based tourism. The local elites misappropriated the majority of tourism revenues that accrued to the group ranches (Thompson & Homewood 2002; Lamprey & Reid, 2004). Through social influence, insider knowledge and access to

administrative channels, the committee members diverted a substantial amount of group ranch revenues into their own pockets (Azumi & MacDonald, 1993; Thompson & Homewood, 2002; Lamprey & Reid, 2004). The dissatisfaction of ordinary group ranch members with the corrupt group ranch management, sequentially lead to calls of subdivision of the ranches to individual parcels. The sub-division of land led to the exclusion of many landowners from tourism revenues and fragmentation of the wildlife trusts into many wildlife associations. Furthermore, change in land tenure led to expansion of agricultural activities, overstocking and intensification of conflicts arising from introduction of land use that were not compatible with the conservation. This was in an attempt to diversify livelihoods, and lack of confidence in the potential benefits of wildlife conservation. The result being social, economic and political needs surpassing environmental concerns.

Conservancies were then adopted to address sustainability of the land use and to add value in both income and conserving the ecosystem, so that combination of wildlife conservation and sustainable land use would create a win-win situation for both landowners and the wildlife of the Mara eco-system. However, more information regarding benefits of conservancies in Mara region are required, since limited studies are in place to access its acceptability by local communities as an alternative to the group ranch model. At the same time there is limited research on the viability and effectiveness of the model in wildlife conservation in partnership with traditional pastoralism.

Conservancy is a form of community conservation, it is considered as a management strategy aiming to reduce poverty, conserve natural resources and promote good governance. It is therefore important to ensure sustainable management of these resources.

Kenya is a country of rich biodiversity, however present exploitation rates of many of biological resource, is unsustainable. Wildlife resources have declined by about 50% and suitable habitat declined particularly on land outside of protected areas. Communal lands form dispersal areas that are important zones in wildlife management which most of Kenya's conservation areas cannot effectively and sustainably support viable wildlife

populations, and the tourism industry that relies on it. Communities living within these dispersal areas bear the brunt of living with wildlife yet little or no benefits derived from wildlife conservation trickle down to them. The group ranches failed to serve as economically viable units, while inequality in earnings between the ranch leadership and ordinary members of these ranches experienced, (Homewood *et al,.2005*). Communities living within these areas have in turn responded by diversifying their livelihoods to generate revenues from small scale agriculture and land-leases for large scale mechanized farming. These failures highlight the importance, and necessity of new transparent community conservation strategy, of which the conservancy model is an example. Formation of community conservancies in pastoral areas has been one way of promoting community based wildlife conservation. Therefore, findings of the study will expose the gains achieved from the establishment of the Enoonkishu Conservancy and also the recommendations that will help in the conservation efforts and improvement of livelihood.

This study therefore sought to explore and understand the role of conservancies in wildlife conservation and livelihoods of the Maasai. Focus of the study was Enoonkishu Conservancy, one of the newly established conservancies in Mara Ecosystem. It addressed following research questions:

i What is the contribution of the conservancy to wildlife conservation?
ii Has the community conservation model influenced the nature of land use and land cover change in the traditional group ranch environments?
iii What is local community's attitudes and perception towards the establishment of community conservancies?
iv What is the contribution of Community Conservancies to local community livelihood?

1.3 Goals and Objectives

The general objective of the study is to determine role of conservancy in wildlife conservation and local community livelihoods.

1.3.1 Specific Objectives

i To examine contribution of the Enoonkishu Community Conservancy to wildlife conservation in the Mara region.

ii To determine impact of Enoonkishu Community Conservancy on land use and land cover changes in the Enoonkishu conservancy.

iii To determine attitudes and perception of the local community towards establishment of Enoonkishu Conservancy.

iv To determine contribution of conservancy to the livelihood of local community.

1.3.2 Research Hypothesis

i H_0: No change in land use and land cover has occurred in Enoonkishu in the last 20 years.

H_1: There are changes in land use and land cover in Enoonkishu in the last 20 years.

1.4 Justification of the Study

This study is justified due to the reasons highlighted here. Firstly, the loss can be attributed to fact that up to 70% of the wildlife in Kenya reside outside the protected areas, where they are subjected to the impact of a changing land use, including encroachment of critical habitats by human settlements, pastoralism and agriculture. Land use changes in many wildlife areas of Kenya have led to cut-throat competition between wildlife conservation, pastoralism and agricultural expansion. It is unclear whether wildlife conservation and tourism will survive in some areas due to the land use change taking place in many parts of the country. It is necessary, as a matter of urgent attention, to ensure that wildlife in country will survive the sedentary lifestyles which are emerging in the rangelands through the privatization of communal group ranches into private tenure.

The conservancy model equally offers an excellent opportunity to enhance tourism development, wealth creation and environmental conservation in the following ways: (a) provision of an opportunity for rethinking and repackaging Kenya's tourism product, (b) diversification of national tourism products, (c) diversification of Kenya's tourism

destination in addition to the traditional attractions in the Coast Region, Maasai Mara and Amboseli, (c) easing off the overdevelopment in a few areas such as the Maasai Mara, Amboseli and Tsavo. (e) Promotion of habitat specific programmes for the restoration of valued eco-systems outside the protected areas.

The existing conservancies in Kenya are playing a significant role in wealth creation among pastoral communities around the country. In 2009, the revenue from Kalama Conservancy in Samburu District, for example totalled to more than $70,000 from which 60% was used to fund community projects such as school bursaries and water projects while 40% was used to fund annual operating costs of the conservancy. Similarly, the year 2000 revenue in Namunyak Conservancy from the Sarara Camp in the same district alone totalled more than $90,600 while additional revenue to the conservancy from the Kitich Camp is anticipated to reach $30,000 by 2011. Elsewhere, the Mara conservancies are generating Ksh177 million annually to about 1,511 members out of which 1,447 of the members have signed long term leases to conservancies for wildlife management, tourism development and regulated livestock production. The Mara conservancies currently employ 87 scouts and 20 operating camps. In Mara Naboisho Conservancy, for example, the land owners receive a monthly income of approximately Kshs. 10,000 as direct income for the land they have leased to the conservancy. This translates into an income of approximately Kshs. 5 million per month or Kshs. 60 million per annum as direct benefits for 500 land owners. Aside from this, the communities around the conservancies are gaining access to improved health services, borehole water supply and other social services. Consequently, the conservancy model has attracted the interest and attention of key donors in Kenya including the World Bank (World Bank, 2010).

Vision 2030, the Kenya's blue print for economic growth, aims at increasing annual GDP growth rates to an average of 10% over the vision period and the government has identified tourism as a leading sector in achieving this goal. In this regard, Kenya aims at being among the log-haul tourism destinations in the world by offering a high-end, diverse and distinctive visitor experiences that few of her competitors can offer. Among the strategies to be adopted in order to achieve these goals is the quadrupling of annual GDP

contribution to more than Kshs 200 billion and raising of international visitors from 1.6 million in 2006 to 2 million in 2012.

These goals may not be easily attained unless the government undertakes the following:-

i Diversification of the current network of tourism circuits. While the plan in Vision 2030 includes increasing bed capacity, this may not easily be attainable if the traditional circuits are used especially at the Coast, Maasai Mara and Amboseli regions.

ii Embracing the conservancy model of tourism development that can not only contribute to economic growth but also to social development of communities through wealth creation. Without the community areas where conservancies are being developed, the protected areas may not survive on the long term.

This research therefore is required to advance information that will help address the role of conservancies in wildlife conservation and community livelihood as well as providing information for planning of other dispersal areas in Kenya.

1.5 Operational Definitions

Attitude: It is a pre-disposition about or towards something.

Apiculture: The raising and care of bees for commercial or agricultural purposes.

Conservancy: a group of farms on which neighboring landowners have pooled some of their resources for the purpose of conserving wildlife on their combined properties.

Conservancy Investor: those coming in with other sets of contribution to the conservancy other than land

Conservancy Member: those who have set aside part of their land for conservation by giving title deed.

Group Ranch: a livestock production system production system or an enterprise where a group of people jointly own free hold title to a land, maintain agreed stock levels and herd their livestock collectively which they own individually.

Land Cover: It is physical nature or form of the land surface that contain attributes, which overlap or currently cover the ground.

Land Use: it is the predominant purpose, for which an area is used and may include agriculture, forestry, range, urban, communication corridors, or more uses taking place concurrently.

Livelihood: means of survival of a given community or capabilities, assets and activities required to make a living.

Perceptions: It is a process of critically analyzing and comprehending things.

Wildlife: Animals that are not normally domesticated.

CHAPTER TWO: REVIEW OF LITERATURE

2.1 INTRODUCTION

In this section, a review of previous related studies critically focuses on the four major issues identified as key in determining the role of conservancy in wildlife conservation and local livelihood. First, a review has been carried out on the first explanatory variable on wildlife conservation and trends in which the conservancy model is expected to enhance their protection. Secondly, land use and cover to determine the potential basis upon which the proposed conservancy can be established to enhance conservation efforts.

Thirdly, the concept of "perception and attitude" of local communities has been examined in general to be able to determine how it affects sustainable conservation. Lastly, an examination on different conservation compatible land uses to diversify portfolios is delved into, to determine an integrated approach that would lower investment risks and maximize the economic benefits of establishing a conservancy in Enoonkishu, in which local community livelihood will be enhanced.

2.2 Community Conservation and Management of Biodiversity-Wildlife Conservation

Protected areas have been traditionally recognized by the conservation community as the best approach for conserving biodiversity. However, PAs cover only 12% of the terrestrial land cover (Secretariat of the Convention on Biological Diversity, 2004), are often under-funded, small, or both, at the same time, biodiversity usually extends outside of the PA network into areas of growing rural populations (Leader-Williams & Albon, 1988; Newmark *et al*, 1993; James *et al*,. 1999). Hulme and Murphree (2001) noted that preserving wildlife in ways that exclude humans no longer enjoy control globally, or in Africa. According to Omo-Fadaka (1989), a large proportion of biodiversity (70%) is found outside parks and reserves', meaning that survival of many species particularly wildlife depends on dispersing into unprotected areas occupied by man. This therefore calls for involvement of neighboring community in management of biodiversity, which may be in privately or communally owned land. Community conservation initiative is therefore tool that has been embraced worldwide in conservation of natural resources.

In Canada for instance the indigenous Inuits of expansive Nunavut area have entered an agreement with government of Canada and created public institutions which are responsible for management of land, wildlife and other natural resources (Ferguson & Viventsova, 2007). According to Smyth and Grant (2012), Australian Government employs a "joint management with the indigenous, whereby policies and legislations are in place to provide some roles for the local community in governance and management of indigenous estate. In this case the indigenous estate includes an enormously rich diversity of ecosystems in the country. For Costarica, progress on recognition of forms of community governance is still slow for indigenous and local community; this is according to Cordero and Rivera (2012).

In Africa the resource based communities are highly involved in the planning and management of protected areas, after realization that the 'fines and guns' or 'fences and fines' policies never worked (Schuerholz, 1998). The communities are referred to as "support zone communities" and have been taken as key stakeholders, and participate in what is known as community based natural resource management. It started with the Communal Areas Management of Programs for Indigenous Resources (CAMPFIRE) in Zimbabwe in 1960's (Schuerholz & Baldus, 2007). A more advanced community based natural resource management is evidenced in the conservancy approach in Namibia's case. According to Jones (2012), conservancies are local institutions that provide communities with the opportunities to manage their own affairs and they do enjoy strong recognition from Government and Non-government sectors. The government also transfers game animals from state run protected areas to conservancies. Jones (2012), further notes that the conservancies develop simple game management plans. Broader wildlife and natural resource management plans to include zoning of land for different land uses, type of wild life use and strategies for dealing with human wildlife conflicts have also been developed with support of non-governmental bodies.

Community based natural resource management (CBNRM) was conceived as a way of safeguarding the future of wildlife and their habitat outside protected areas (Western, 1994). The emergence of CBNRM in Southern Africa has deep locally derived roots. In

the late 1960's, use rights over wildlife on freehold lands in Zimbabwe, South Africa, and Namibia – all then under the rule of contested white minority regimes was, through a series of legislative reforms, devolved to landowners (Jones & Murphree, 2001). This dramatic shift away from strictly centralized governance of wildlife effectively changed wildlife's status on private lands from an economic liability to an asset, and led to profound recoveries of wildlife on freehold lands and the growth of wildlife-based industries in all three countries (Bond, 2004).

Conservancy has gained increasing usage in Africa; the term has generally been applied to wildlife and habitat management units on private land (Murphree & Metcalfe, 1997). In Kenya particularly conservancy establishment comes up as the growing recognition of the value of wildlife as a land use option (NRT, 2011).

Rapid increase of conservancies has recently taken place in Kenya mainly driven by growth in tourism industry in the last few years and the need to mitigate changing land use in wildlife dispersal areas. Examples include: Northern Rangelands Trust in Samburu ecosystem, Selenkey in Amboseli ecosystem and more recently in the Mara ecosystem.

The rangelands surrounding the Mara Reserve contain year-round communities of resident wildlife, migratory wildlife also spill out onto them during the dry season. The future of wildlife therefore will require support and engagement from local communities in order to retain an ecosystem approach to conservation, allowing continued migration of wildlife through their natural range (NRT, 2011).

There is an increasing number of community wildlife conservancies and landowner associations being established around the reserve. These include Olare-Orok, Mara North, Motorogi and Naboisho conservancies. These conservancies already cover significant blocks of land, and plans are afoot for both the expansion of existing wildlife conservancies and the creation of new ones throughout the greater ecosystem (AWF and CDC, 2009). The group ranch model is giving rise to the conservancies as a model to sustain wildlife conservation even after the subdivision of the group ranches.

The Maasai Mara Ecosystem (MME) is one of the key wildlife areas in Kenya and has more wildlife than any other part of the country (Reto-o-Reto, 2007). The ecosystem in particular supports an exceptionally large and diverse population of savanna wildlife (Lamprey, 1984; Said, 1985; Ottichilo, 2000). It has the richest wildlife resources and the most spectacular wildlife watching in Kenya (Stel fox, 1986).

However, aerial surveys by the Department for Resource Surveys and Remote Sensing (DRSRS) showed the Mara has lost 60% of its resident wildlife in the last 25 years. Habitat loss, poaching and other disturbances have contributed to this decline (Ottichilo, 2000; Homewood, 2001). Meanwhile, in group-owned ranches adjacent to the MMNR, the human population is increasing very rapidly (Lamprey, 1984; Reid, 2002). As human populations grow, crop farming expanding and land privatized, these pressures will only grow. The trends of large resident wildlife in the MME are declining at a rate of 2.9% per annum for the inner group ranches (the ones which border the Maasai Mara National Reserve) and 4.3% per annum for the outer group ranches (Reto-o-Reto, 2007).

In the Mara Ecosystem wildlife and pastoral people have lived side-by-side for at least 2000 years but recent changes in human population and land use are jeopardizing this co-existence (Lamprey & Robin, 2004). Group land ownership near the Maasai Mara in Kenya led to land development and reduction in wildlife numbers caused by landowners not receiving adequate economic return from wildlife (Norton-Griffiths, 1996). In an attempt to combat this, conservancies are being created on the community lands surrounding the reserve.

Community based conservation initiatives seek to devolve property rights to the community. However, such initiatives may a times not totally address issues of wildlife management, Songorwa (1999) stated that long term success of community conservation depends on active involvement and co-operation from entire community to sustain. Some initiative fail to incorporate local community as they are generally developed as part of a broader set of donor and government conservation objectives and investments and thereby excluding local interests. Furthermore, internal conflicts or conflicts between the local and

protected area authorities can be a significant issue (Nshala *et al.* 1998), mainly due to lack of information sharing and transparency in mode of operation. Patel, (1998), noted that, this can come inform of mismanagement and corruption on the part of local elites who tend to use benefits from conservation initiative for personal gains.

There are cases where community does not commensurately benefit or inequitable level of social economic benefits realized. Nelson, (2007), notes that community based conservation in such an instance can be interpreted to have served as mechanism for state conservation agencies, their donor or nongovernmental organization to persuade communities to support conservation using rhetoric narrative of devolved community wildlife management. Hulme and Murphree (1999) stated that success of community based conservation requires a set of governance processes that allow state and community actors to operate in the fields of conservation and development while being accountable to the other actors and that are flexible enough to permit relationships, policy and practice to evolve as environmental, economic and social conditions change.

2.3 Land Use and Land Cover Changes.

Land-use and land-cover changes affect key aspects of the earth's functioning (Lambin *et al*, 2001), including a direct impact on global biodiversity (Sala *et al*, 2000). It is estimated that since 1850, the global expansion of croplands has converted six million square kilometers of forest/woodlands and 4.7 million km² of savannahs/grasslands/steppes with a respective 1.5 and 0.6 million km² of this cropland then being abandoned (Ramankutty & Foley, 1999). A consequent of these human modifications of the natural environment is the growth of rangelands and semi-natural habitats.

Hansen *et al* (2004) noted that human populations and intense land use had grown rapidly in the recent decades mainly around the protected areas. Road construction, conversion for agriculture and demand for natural resources being the key contributing factors to primary forest clearing in areas surrounding reserves, particularly in the tropics (Mustard *et al*, 2004).

According to Brown *et al* (2005), the United States of America experienced a high rate of rural wild land conversion into residential areas in the 1950's covering 25% of the lower 48 states. Chown *et al* (2003) stated that the protected area was an attracting factor. Counties around the Yellow Stone National Parks were among the fastest growing (Rasker & Hansen, 2000). A similar scenario has been documented in China by Vina *et al* (2007) where agricultural and urban land uses continue pushing into unprotected wild lands around protected areas.

In Africa cropland expansion by small holders dominates conversion of forest lands. This is supported by a study conducted by Olson *et al* (2004) who documented that in East Africa, massive conversion of pastoral/grazing to crop was experienced from 1950s. The expansion has been an extension of cultivation from previously more humid areas into adjacent drier grazing lands.

Over the last two to three decades there has been a notable change in land-uses in the Maasai-Steppe ecosystems, especially from subsistence to extensive agriculture particularly in Kenya (Borner, 1985). In Narok District land use and land cover are dynamic and diverse (Serneels & Lambin, 2001). Mara in particularly is termed as one of the ecosystems undergoing rapid changes in terms of land use. Over the past decades Narok district has undergone rapid changes in land-use, group ranches are being subdivided into privately owned smaller holdings. Sub-division of land guarantees free hold title which declares land a commodity in the market capable of being rented, sold or leased. Land use changes favoring agriculture, rural and urban development have led to the reduction and modification of wild areas (Okech, 2000). The Maasai's are also recognizing the need to change their land use patterns from pastoral-nomadism to sedentary and crop farming to alleviate poverty and adjust to diminishing grazing ranges (Sitati, 1997).

The Mara wildlife dispersal areas are privately owned and some group ranch land is scheduled for subdivision into private parcels. Private ownership means individual residents can maintain livestock keeping, and engage in small-scale farming, mechanized

commercial farming, and wildlife tourism enterprises, only hunting is forbidden (Muchane *et al*, 2010).

Arguably, small-scale farming can turn crops directly into income and is capable of generating higher benefits than conservation. However, this may not be so; given the impact of land degradation that farming has on natural resources observed in the savannah ecosystems (Muchane *et al*, 2010). A case in point is Olderkesi ranch located in one of the remoter regions of the Mara. Here, little tourism takes place and little awareness of wildlife's` true economic potential has been brought to the attention of the local community, who engage in planting maize and raring cattle. These land uses, although driven by elaborate driving forces of survival, have associated impacts not compatible with wildlife conservation (Mundia & Murayama, 2009).

2.3.1 Land Use Patterns in Mara Ecosystem

2.3.1.1 Agriculture

The Mara Ecosystem relies on agriculture and livestock keeping as one of its economic activity. This is due to the moderate climatic conditions and moderately fertile soils. Group ranches surrounding the Maasai Mara National reserve practice pastoralism and agriculture. Most of formerly uncultivated lands are being converted to wheat production.

Due to the increasing population growth in Narok district, most of the land which was formerly used by the Maasai for pastoral grazing is being converted to crop production at a very fast rate (Amuyunzu, 1984; Lamprey, 1984; Lusigi, 1986). The natural forests are being cleared to provide room for agricultural expansion. Although livestock keeping is still an important activity in the district, more emphasis is now being accorded to agricultural production, these at the expense of forests and wildlife conservation as well as pastoral grazing (GoK, 1989). Loita plains is now producing a fifth of Kenya's wheat (Sitati, 1997). Agricultural expansion is encroaching on wildlife dispersal areas and corridors crucial for the integrity of park eco-systems. It is forcing wild animals and herdsmen into increasing conflict over the diminishing land. According to a study by

USAID, converting the often fertile soils of the parks into a wheat prairie could generate $ 203 million a year unlike $ 13 million the KWS receives each year. Not enough income is generated from wildlife to support the traditional custodians of the land.

2.3.1.2. Pastoralism

Livestock keeping is the main livelihood of the Maasai, the most predominant community in Narok South District. It accounts for 60 per cent of local people's incomes. The local Maasai communities are pastoralists and attach a high value to livestock keeping. Goats, sheep and local Zebu cattle are the dominant livestock. The limiting factor to livestock keeping is resource use which conflict with human activities and wildlife.

The high livestock density contributes to overgrazing and encroachment. Rotational grazing, which has been the backbone of the Maasai range management practice, has been disrupted, pasture has been depleted, and livestock have been displaced.

Parks and protected area usurp pastoral lands and may create conflicts through competition with wildlife for forage or predation of livestock by carnivores (Enghoff, 1990). If these conflicts imposed by changing land use patterns continue, the integrity of conservation areas and pastoralism as a wildlife conservation strategy may be jeopardized.

Pastoralism is one production system that has been extensively criticized in Africa (African Union, 2010). The concept of the tragedy of the commons places the blames for desertification and overgrazing on pastoral production economies which operate on communal land ownership systems. Hogg (1992) showed that in areas where large numbers of people share pasture with low but highly variable yields, common ownership may be the most desirable form of land tenure. Though most African governments consider pastoralism as environmentally destructive and even economically irrational, it is argued that most allegations against pastoralism are unfounded (Western & Finch,1986; Hogg, 1992). Pastoralism is the only way to survive in marginal, semi-arid environments and the majority of pastoralists have a deep respect for and knowledge of their environment. Reid *et al* (2003) asserts that pastoralism, of the many ways that people can

use the land, is more compatible with wildlife conservation than most others. However, if pastoralism is to co-exist with wildlife conservation under the current scenario, an improved system has to be adopted in place of traditional pastoralism. This means that locals need to come up way of maintaining low stock size but with higher productivity, in what is termed as improved pastoralism. In this way, they would be able to actively take care of the livestock by providing pastures and water or practice controlled grazing, which will in turn go together with wild animals especially the herbivores.

2.3.1.3 Tourism

Wildlife-related tourism provides a major contribution to Kenya's export earnings. Wildlife tourism plays an important land use role in the arid and semi-arid lands in terms of providing opportunities to supplement secure and diversify pastoral livelihoods.

Maasai Mara National Reserve is one of the most famous and finest tourist resorts in Kenya. Managed by Narok County Council, about Kshs. 2.1 billion is received annually as revenue (Daily Nation, 2010). The group ranches earn US $ 25,000 per year per camp from lodges sited within their group ranches. Members of some group ranches in the wildlife dispersal area of the Maasai Mara have organized themselves and formed the OlChorroorowa Wildlife Association, an indigenous conservation group. It also acted as a management group for their land. The group collected wildlife viewing fees from tourist and distributes to its members. Currently group ranches and individuals have amalgamated their individual pieces of land to form community conservancies such as Motorogi, Olare orok, Naboisho and Mara North. Through wildlife-based tourism, the Mara area is presently one of Kenya's highest foreign exchange earning areas (Douglas-Hamilton, 1990).

2.3.1.4 Settlement

Human populations and the intensity of land use pressures in areas around the MMNR are steadily increasing (AWF and CDC, 2009). Population on the group ranches has increased steadily since the 1950's. According to (Lamprey & Robin, 2004), human population was

about 0.8 people/km^2 in 1950, 2.5 people/km^2 in 1973, 5 people/km^2 in 1984 and 10/km^2 in 1999 (Reid *et al* 2003). These growth rates are above the national average for Kenya and are partly due to immigration of people from other parts of Kenya into the Mara Area, human population density on the group ranches in 1999 was 10.7 people/km^2 and 14.7 people/km^2 in 2002 (Reid *et al* 2003).

The escalation is a result of both local population increases as well as in-migration, often from elsewhere in Narok and Trans Mara Districts. Much of the in-migration to areas is in pursuit of economic opportunities. These changes in human densities in the Mara Ecosystem have been accompanied by similarly dramatic changes in land use practices and the development aspirations of the ecosystem's residents. As part of this process, the existing group ranch communal land ownership system is in the course of being dismantled in favour of sub-division to form individually owned plots. In some cases this sub-division has had severe impacts on wildlife populations in and around the MMNR, as is the case with intensive agriculture.

The increasing rate of development activities and the even more rapidly increasing needs for effective development, combined with preservationist approach to conservation has created increasing conflicts between those concerned with conservation and those with development. This is a threat to the wildlife species and to human welfare.

2.4 Attitude's and Perception in Community Based Conservation

Attitude is an important factor for shaping behavior intention (Ajzen, 1991). Attitude change is an imperative aspect in wildlife conservation. The assessment of peoples' attitudes and perceptions towards conservation has become an important aspect in many studies of wildlife conservation (Newmark,*et al,* 1984, Kasiki, 1996, Ashenafi, 2001). Understanding factors influencing attitudes is important to enable wildlife managers to implement approaches that attract support of the stakeholders and the general public. The success of long-term sustainable management of natural resources depends on local people's support. Triguero-Mas *et al* (2010) noted that assessing local people's attitudes, taking into account their needs, and respecting their opinions should become a

management priority. Smart (1998) observed that recently, especially the second-half of the twentieth century, there has been an unprecedented change in the earth's environment, resulting from the negative attitudes of human towards forest conservation.

Ormsby and Kaplin (2005) noted that people are more likely to appreciate conservation if benefits gained from them offset the associated costs. According to Fiallo and Jacobson (1995); Ormsby and Kaplin (2005), negative attitudes may arise due to low level of awareness regarding conservation issues and protected area management practices. An assessment of community attitudes towards policy and programmes implemented by a project under community based approach in Mkalu-Barun National Park and conservation area in Nepal, showed a general negative attitude due to lack of addressing local needs (Mehta & Kellert, 1997). Elsewhere in Upper Myammar-Burma in India a general responsive attitudes of local community towards the protected area was recorded owing to the conservation benefits they accessed from the protected area (Allendorf *et al* 2006).

Importance of wildlife including attraction to tourists, hunting opportunities during drought enjoyment derived from viewing wildlife and value for its future generations are reasons cited for positive attitudes towards protected areas in Ethiopia, however a few community members had negative attitudes owing to the fact that some of the sanctuary created led to them loosing grazing grounds and sanctuary staff had were harsh (Mekbab *et al 2003*).

Kituyi (1990) reported that, the pastoral community particularly Maasai have been better documented and more sympathetically described than most African people. Many communities in wildlife areas do not receive benefits and yet they bear the costs of living with wildlife (Kiss, 1990). As a result, the communities develop a negative attitude towards conservation (Omondi, 1994; Hill, 1998). However, despite the costs of living with wildlife, some communities have retained a positive attitude towards conservation (Newmark *et al.*, 1993; De Boer & Baquete, 1998). Gadd (2005), for instance noted that pastoral people in Laikipia area receiving indirect financial benefits expressed positive attitudes towards elephants for aesthetic reasons, while pastoral people with direct benefits

cited financial rewards derived from tourism but attributed aesthetic values to living with elephants.

Sitati (2003) documented negative attitudes of community towards elephant conservation in Transmara District; this is one of the dispersal areas within Mara ecosystem. The negative attitudes were due to community being denied benefits from resources, and thus engaged in activities that were detrimental to conservation. Omondi (1994) noted that local communities developed negative attitudes towards wildlife if their crops and livestock are depredated and if no benefit is derived from wildlife resources. Regarding attitudes towards tourism, local community in Naikarra and Olderkessi group ranches in particular, had little experience or perception of tourism, but understood the potential environmental and socio-cultural impacts that tourism could have (Martyn, 2002).

Mara Ecosystem has undergone rapid changes in the social and economic terms which can influence the relationship between people and natural resources (GoK, 1997). A rapid decline of wildlife has been noted in areas where benefits are not accrued to the local community (Norton-Griffiths & Said, 1998). This is because the community tries to engage in other land use types that are not only detrimental to wildlife population, but also cause increased conflicts. Mara Ecosystem is a typical example of such an area.

When local people do not benefit from conservation, they lack the commitment to conservation objectives (Mwamfupe, 1998). Direct benefits are more important than indirect benefits through social investments (WCMC, 1992; Goodwin, 1996). It was further noted that wildlife loss in non-tourism areas is higher than in tourism areas because the derived benefits support conservation activities and people are willing to conserve because of these benefits.

2.5 Community Conservation Initiatives and Community Livelihoods

The links between community conservation initiatives and livelihood has been described in many different ways. Agrawal and Redford (2006) have termed it as complex relationship. Adams *et al* (2006) view poverty reduction and livelihood security of

resource dependent populations and biodiversity conservation as simultaneous developmental goals while Roe and Elliot (2005) have described dependence of rural poor on forest resources as a significant underlying threat to conservation. However Malla (2000, 2003) and Gilmour *et al* (2004) have categorically stated that community conservation has been advocated by many practitioners as an important management model to achieve the twin objectives of conservation and livelihood security.

In Pednai village of Trad Province in Thailand, a participatory management of mangrove forest and coastal resources achieved twin objectives of restoring coastal and marine biodiversity, as well as income generation for all the socio-economic group of the village (Silori *et al,* 2009).

Regarding wildlife conservation and livelihoods, the benefits associated with formation of conservancies have been highlighted by Linsey *et al* (2009). Numerous studies have also found out that wildlife and tourism enterprises have substantial potential to complement and bolster the livelihoods of rural (Ashley & LaFranchi, 1997; Diggle, 2003). Barnes and Humavindu (2003), in a recent assessment of the conservancies in Namibia, found wildlife production and related tourism enterprises to not only generate greater revenues per hectare and higher levels of employment than agriculture on neighboring farms, but also point out the significantly more ecologically friendly and sustainable management influences the wildlife/tourism enterprises have on Namibia's arid and semi-annual ecosystems.

According to Lewa Conservancy, community conservancies contributed to livelihood of the community through the following : (i) Ensuring the conservation goals of the community are met through development of by-laws governing the use of natural resources, (ii) Acting as the development arm for the community by developing wildlife-based enterprises, from tourism to small businesses, (iii) Promoting improved rangeland management and livestock grazing systems by and between communities, (iv) Promoting and supporting access to education for community development of school conservation clubs, (v) Ensuring that the wider community is fully engaged in the Conservancy's

activities and management decisions through the Annual General Meetings, (vi) Reinforcing the direct link between community development and conservation and (vii) Provides a framework for fundraising and a reliable mechanism for donor linkage.

There are a number of options for generating conservation based income for communities outside protected areas. Game farming, non-consumptive use such as ecotourism and other land uses compatible with wildlife conservation are becoming increasingly important, but have mixed potential in their ability to promote community conservation (Bergin & Dembe 1995; Barrow 1996).

An important feature is the diversification away from wildlife and wildlife-related tourism as income generating activities, and the focus on sustainable resource management. Although wildlife and tourism still form the basis of many of the CBNRM activities, the government, communities and other implementers have realized the interrelatedness of natural resource use and placed considerable emphasis on diversification, focusing also on other aspects that support conservation.

This diversification is important for spreading risk in terms of income generation, but is also crucial to the ability of communities to make tradeoffs in their decision making on how to use their land, and counter calamities that result due to droughts and climate change. A number of options can be incorporated in conservancy to address community livelihoods, as described in sections below:

2.5.1 Wildlife Ranching

Wildlife ranching is an option that can be explored as part of land use within a conservancy. Wildlife ranching involves extensive management of several or many wildlife species on relatively large surface areas where a wide range of complementary production systems and uses are professionally managed so as to render them compatible and beneficial, including cropping and tourism.

The feasibility and profitability of game ranching have been amply demonstrated by a number of studies. The rationale behind advocating game ranching in Africa is that conditions in many parts of' the continent, whether resulting from inadequate rainfall or presence of certain disease organisms' are not appropriate for production of exotic cattle and other domestic stocks. Indigenous wild animal species on the other hand have evolved in the African ecosystem and are better adapted to the prevailing conditions and should therefore be more productive.

Game ranching is currently most developed in southern Africa (particularly South Africa Namibia and Zimbabwe), although a private game ranch, the Galana Ranch, was established in Kenya in the 1970s (King & Heath, 1975; Thresher, 1980). The ranch initially focused on three species: the fringe eared oryx, *Oryx beisacallotis*, the African buffalo and the eland. Reported advantages of the eland over the Boran cattle included much lower water requirement, faster breeding and growth, earlier maturity and ability to put on weight in grazing conditions under which the Boran cattle began to lose weight and approximately 14 % higher dressing out weight. In addition to these biological and physiological advantages a cost-benefit analysis of maintaining a breeding herd of 11,000 oryx and 5000 Boran on the ranch showed clearly that the financial returns on the oryx was far superior to that of cattle (Thresher, 1980).

Luxmoore,(1985), estimated that there were 7000-10,000 farmers in South Africa who derived some income from game ranching. Income from the wildlife on the ranches was derived from live animal sales, sport and trophy hunting and touristic use.

2.5.2 Traditional Pastoralism vs Improved Livestock Keeping

Pastoralism is considered a compatible land use strategy with wildlife for maintaining biodiversity. It is promoted for buffering nature reserves like Maasai Mara National Reserve and Amboseli National park from conflicts with intensive agricultural activities (Sitati, 1997).

It is one of the main socio-economic activities in the plains. Traditional pastoralism involves rearing large herds of traditional livestock breeds, especially cattle, sheep and goats using free range grazing. However, the increasing livestock populations and growing densities create an overlap of diets and forage competition with wild herbivores, resulting in overgrazing.

The livestock populations have been increasing over the years as need to meet basic requirements as household level increases. Lamprey and Robin, (2004), noted that rangelands of Mara can no longer support a greater cattle population under current pastoral practices. Therefore new system of improving traditional pastoralism can be adopted as alternative option. In order to maintain pastoralism as a conservation compatible land use, and for pastoral community to maintain their lifestyles. These will also incorporate the long-term conservation of wildlife and wildlife areas.

Improved livestock management is being promoted, whereby community is encouraged to keep few but high quality breeds that includes boran and sahiwal, and which can be actively managed by provision of pastures and water. Under these management schemes, the herds can be further divided into four categories that is fattening herd, breeding herd, stud herd and cull cow herd, to further reduce number of stock.

2.5.3 Tourism

Tourism and conservation have long been intertwined (Boo, 1990; Ceballos-Lascurain, 1996). In Kenya, the economic role that tourism plays is tremendous (Nkedianye, 2004). Tourism industry is one of the leading sources of foreign exchange earnings and offers great potential for future socio-economic development (IPAR, 2005). Earnings from tourism have remained high over the years. For instance, the tourism sector earned Ksh 21.73 billion in foreign exchange, and was ranked third in 2002, after tea and horticulture that generated Ksh 34.37 billion and 28.33 billion, respectively. Ministry of Tourism and Wildlife, (2007) showed that wildlife resources contributed directly and indirectly to the local and national economy through revenue generation and wealth creation. Statistics for the year ending 30 June 2006 showed that wildlife accounted for 70% of the gross tourism

earnings, 25% of the Gross Domestic Product (GDP) and more than 10% of total formal sector employment.

The Mara region is widely recognized as one of leading tourist attraction area in Kenya with a wide variety and numbers of wildlife species. Maasai Mara National Reserve being one of the most famous and finest tourist resort in Kenya receives about Kshs. 2.1 billion annually in revenue (Daily Nation Newspaper, 2011).

Accoding to Mwanjala, (2005), tourism represented the biggest single economic incentive to landowners to sustain wildlife on their land. With over half the wildlife in Kenya outside protected areas, tourism development is a critical component in the quest to encourage landowners to conserve and benefit from wildlife.

As a number of emerging tourism initiatives on privately owned land neighboring the reserve have demonstrated, where properly nurtured, tourism in the greater Mara is a conservation compatible land use that has the potential of providing community landowners with a sustainable livelihood (AWF and CDC, 2009). On the other hand, if the appropriate incentives, institutions and management support are not in place, tourism is not a viable form of land use, and other conservation-incompatible land uses move in, and undermine the wider wildlife dispersal areas that are critical to the MMNR.

On the other hand, if uncontrolled and ill-managed tourism can have significant negative impacts on wildlife and the environment (Walpole *et al,* 2003). Uncontrolled and unregulated tourist use in some wildlife areas is a source of concern for a variety of perceived or actual ecological and social impacts, including wildlife disturbance and displacement, habitat damage and pollution. Much of this impact is due to ignorance or a lack of effective management and control (Roe *et al,* 1997).Tourism can also be diversified, to include sports tourism such as golfing and horse riding.

2.5.4 Apiculture

Apiculture is one of the fields of agriculture that has not been given due recognition in developing countries, whereas developed countries like USA and China which control the world food production do so by practicing Apiculture.

Unlike many other aspect of agriculture that are more obviously visible because they occupy large expanse of land, apiculture is not easily noticeable as it could be practiced on a small portion of land or land that is not good for other crops.

The experience of apiculturists (Bee farmers) in developed countries shows that commercial Apiculture is a money spinner. This is an enterprise that requires only initial capital investment with little or no minimal running cost as it does not require feeding (with the rich vegetation) and does not compete with other aspects of Agriculture. What is more, pollination, honey, beeswax production and honeybees also produce other natural products called pollen, propolis, royal jelly and bee venom which are playing increasing role in Nutrition, industries and medicine for the wellbeing of humanity.

Kenya does not produce adequate amounts of honey for domestic consumption; it relies on imports to supplement local honey. This implies that the domestic market for honey is assured and with reasonably high prices. There is also a significant international market as bees from Europe and America succumb to problems of disease and climate change.

To address this, numerous organizations have come up with initiatives to support and promote apiary. Honey Care Africa for instance organizes reliable collection of the honey and helps farmers acquire hives. It also provides local training and technical support to organized local community groups in order to expand bee keeping. Other agribusiness oriented organizations such as African Beekeepers Limited focus on production, processing and marketing of honey in partnership with beekeepers who are ready to adopt improved beekeeping technology. The main aim being to ensure production of high quality honey that can compete favorably with honeys produced elsewhere in the world. Additionally, intermediary body that brings a broad representation of stakeholders has

been formed to represent and coordinate apiculture in Kenya. The Kenya Honey Council promotes and facilitates growth and expansion of bee sector to contribute to economic growth and poverty reduction. In the Mara Region, bee keeping is undertaken by local communities using traditional log hives and does not yield significant revenues.

2.5.5 Social Networks

Livelihoods can be explained as epitomized by social capital. Social capital include the networks, connections, social security membership, for example, money schemes, burial societies and the wider cultural, familial, extended family relationships which sustain livelihoods. These are an integral part of many communities livelihoods sustainability and form a social safety net in ameliorating possible shocks and stresses in the environment.

Social capital enables people to gain access to resources; it can also prevent people from gaining access to resources. In the sense, that it is the same strong social ties that bring benefits to members of a group or community that also enables the group or community to bar others from accessing these benefits (Portes, 1998). It provides individuals' access to crucial resources that they otherwise would not be available to them, but then again, the access to social capital also depends on the social location of the specific individuals or groups attempting to appropriate it (Edwards & Foley, 1997).

Social relations, networks, organizations, and associations constitute a unique, vitally important resource that poor people and poor communities can use to move out of poverty, because they along with trust and norms that hold and connect them together and thereby enable people to act collectively and mobilize greater resources to achieve common goals (World Bank, 2000/2001).

Social capital is therefore identified with social relations and structures such as social networks that enable individuals, groups or communities to gain access to resources (Bourdieu, 1986) that they otherwise could not achieve, or could only achieve with great difficulties (Coleman, 1990).

2.6 Research Gaps

A number of research gaps were identified from review of literature which the study delved into. Studies on community conservation initiatives mainly looked at the general efforts being directed towards conservation of the natural resources; however specific issues that warrant such initiative had not been comprehensively investigated. Moreover studies on land use and land cover changes mainly addressed the general Mara Ecosystem, specific areas such as ranches and the upcoming conservancies have not been addressed. Regarding attitudes and perceptions a lot had been covered in protected areas and the associated efforts, tourism activities and conservation of specific animal species. However analysis of attitudes and perception towards community conservation initiatives had not been investigated.

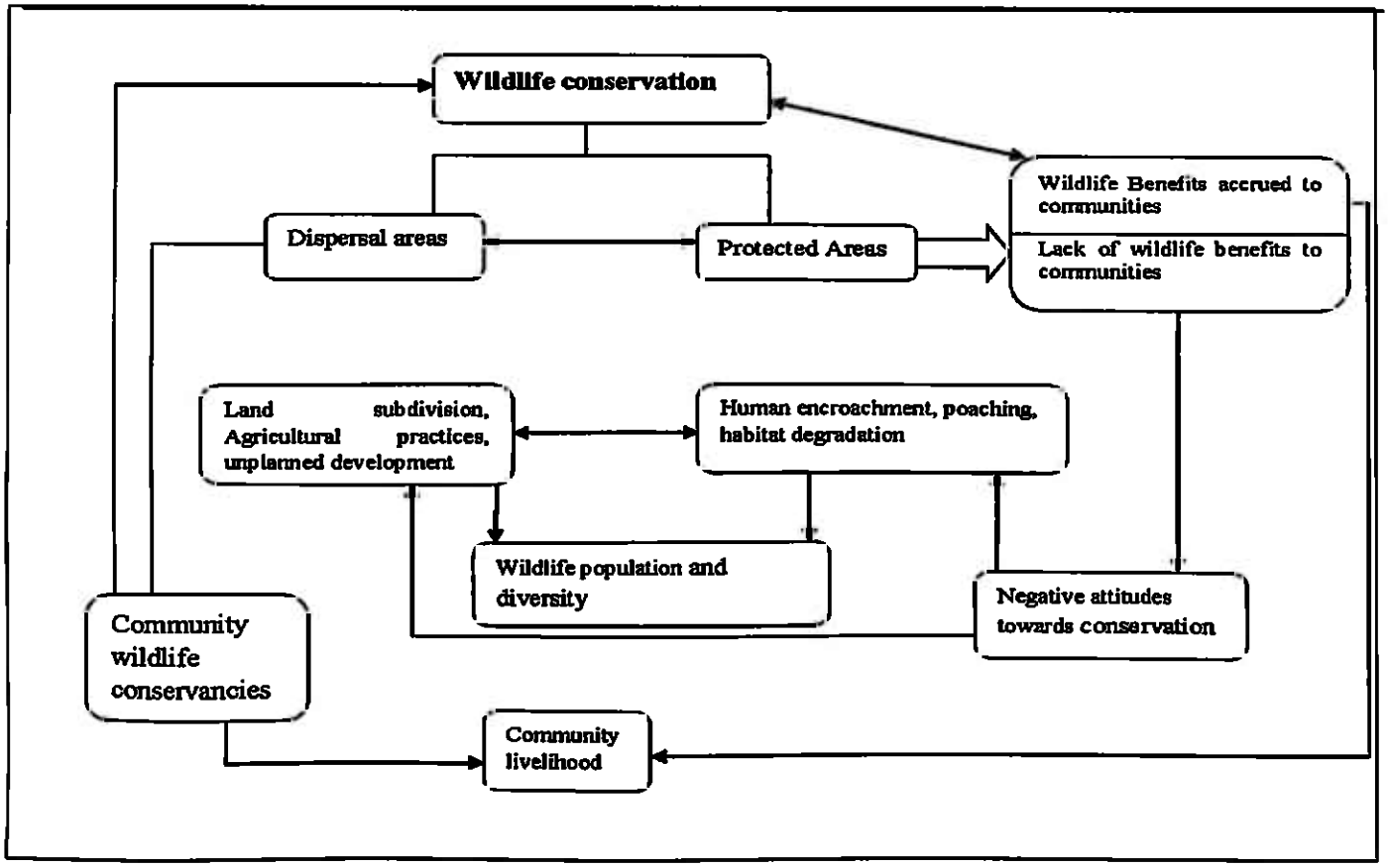
2.7 Theoretical and Conceptual Framework

The study role of conservancies in wildlife conservation and community livelihood is based on the concept of community based conservation dubbed as "conservation with the people and to some extent "conservation by the people". The approach focuses on the collective management of the ecosystem to improve human wellbeing, as it considers that community have local knowledge, skills and resources to be mobilized and fully employed. It aims to devolve authority for ecosystem management to local community, thereby empowering locals to manage their own resources without damaging, depleting or degrading.

The principle behind community based conservation is that communities will invest in environmental conservation if they can exploit the resources on a sustainable basis for their own benefit. It is based on creating appropriate institutions under which resources can be legitimately managed and exploited by the resident communities. Profits from the enterprise may be used for communal benefits or distributed to individual households at the discretion of the community.

Community based conservation developed after realizing that the traditional fortress management dubbed as "conservation against people" saw exclusion of local and solely dedicated to protecting wildlife and preserving protected areas. Wildlife was brought under state regulation so that legal exploitation and conservation was the exclusive domain of the state. The indigenous communities suffered, in effect, a double expropriation: they were forbidden to use indigenous wildlife resources and also progressively excluded from the country's land base.

The protectionist approach towards conservation assumes that local people use natural resources in irrational and destructive ways, and as a result cause biodiversity loss and environmental degradation. Protected areas following the fortress model are characterized by three principles: local people dependent on the natural resource base are excluded; enforcement is implemented by park rangers patrolling the boundaries, using a "fines and fences" approach to ensure compliance; and only tourism, safari hunting, and scientific research are considered as appropriate uses within protected areas. Local people are labeled as criminals, poachers, and squatters on lands they have occupied for decades or centuries, they tend to be antagonistic toward fortress-style conservation initiatives and less likely to support the conservation goals. Figure 2.1 below shows how different variables the study examined interrelate.



Source: Researcher 2013

⟶ Arrow points to resultant effect. ⟷ Both cases depend on each other.

⟹ Cumulative effect

Figure 2. 1: Conceptual Framework

CHAPTER THREE: STUDY AREA

3.1 INTRODUCTION

This chapter gives details on the study area, specifying its location, land use patterns, demographic characteristics, geology and soils of the area, wildlife resources, livelihood systems and conservancy framework.

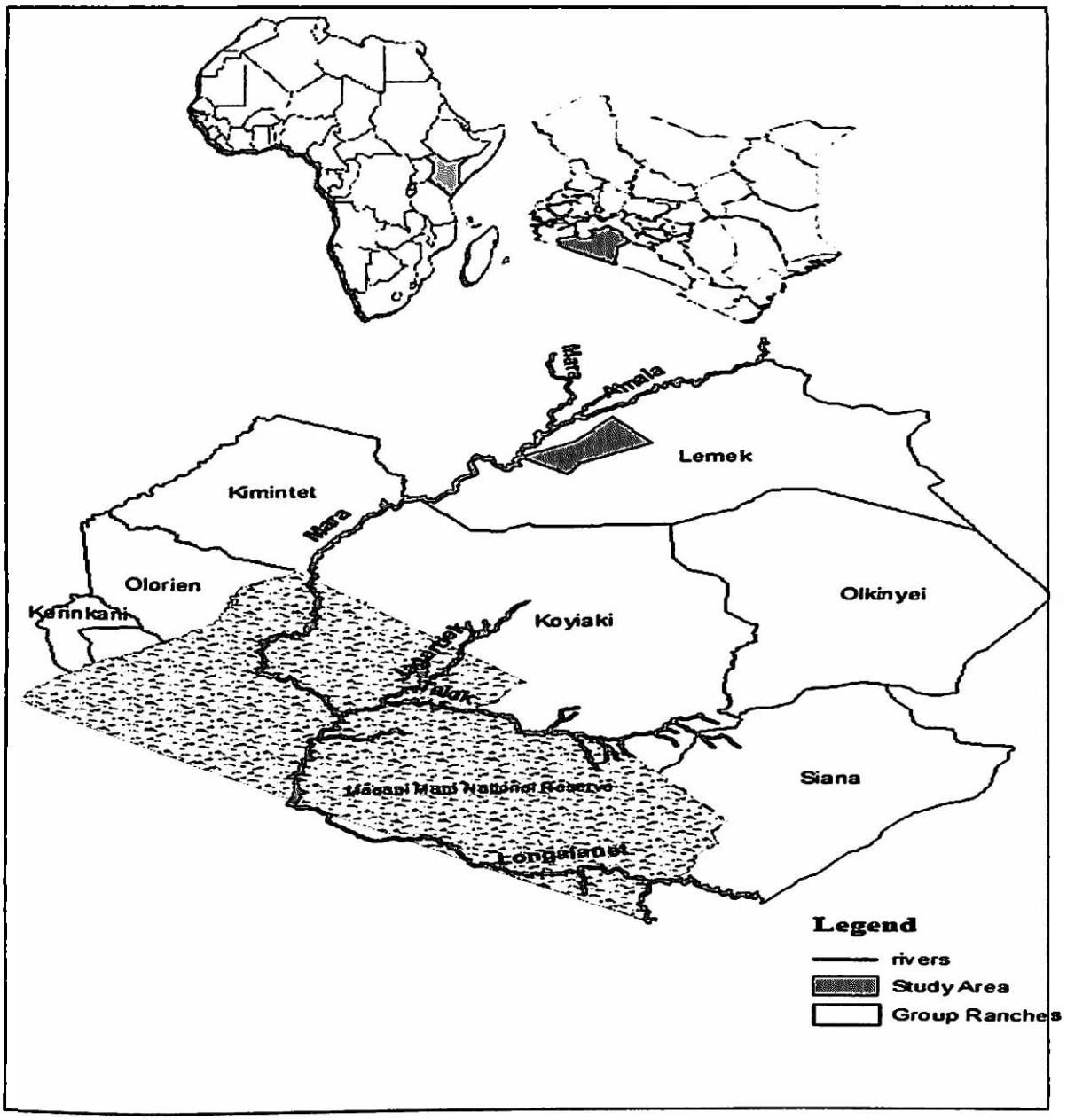
3.2 Location

Enoonkishu conservancy is located on the northern tip of Mara Ecosystem in Narok South District, Kenya (Figure 3.1). It forms part of the larger Mara Ecosystem which covers a total area of 6000 Km^2 (Sinclair, 1994). The study area is bordered to the south by other community conservancies such as Olchorroowua and Mara North Conservancy while the Mara River marks the western boundary (Figure 3.1).Enoonkishu Conservancy lies between latitudes 1°01′ and 1°06 South and longitudes 35° 12′ and 35° 19′ East.

3.3 Land Use Patterns

Land ownership in the study area has undergone a shift from trust land to group ranch and more recently reverted to individual holdings (Sitati, 1997; Thompson & Homewood, 2002). Enoonkishu Conservancy formed part of the larger Lemek community land managed as group ranch from the early 1970s until mid-1990s. Following a government directive that all communal lands be subdivided, land subdivision process commenced in 1992 in Lemek group ranch and was completed by 1999 when land title-deeds were issued Thompson & Homewood, 2002). There are a number of other land owners in the Enoonkishu Conservancy, including:

- Kisii communities who are traditionally arable farmers without much livestock and occupy a total area of 800 acres. Their land is densely populated with some small holdings of 2 acres. They are reputed to be behind the clearing of indigenous forest for charcoal production in the area.



Source: Friends of Conservation

Figure 3. 1: Location of Enoonkishu Conservancy

- The company Free the Children has 300 acres within the conservancy area. This company builds schools for poor communities. They have a headquarters on the north-eastern boundary of the conservancy.

- Two large scale farms border the conservancy: Olerai Ltd and Shimo Ltd. They mainly grow arable crops for domestic consumption with pivot irrigation extracting water from the Mara River. They bought their land from Maasai landowners within the last decade. Like all large scale farmers they are always looking for new land and may well encroach into the conservancy area to farm if the conservancy fails.

3.4 Demographic Characteristics

The human population in Narok South District, where the study area lies, is reported to be 279,147 persons, in which all these people are rural area dwellers (GoK, 2009). Natural increase of the Maasai population through birth, immigration and people displaced by wheat farms explained the increase in the number of people in the 1970s and 1980s (Duraiappah *et al*, 2000).

Previous statistics (CBS, 1997), have reported that population in the district has been increasing at an intercensal rate of 5.3%, a rate that is higher than the national average of 3.3%. The population increased from 125,000 in 1969 to 210,306 persons in 1979. By 1989, the District human population stood at 398,272 persons and was projected to attain 576,000 persons by 1997. Human population density was reported to increase from 7 persons per Km^2 in 1969 to 22 persons per Km^2 in 1989 and was projected to increase to about 32 persons per Km^2 in 1997

3.5 Climate

The Mara ecosystem is a semi-arid savannah environment, rainfall amounts and regime are influenced by the biannual shift of the Inter Tropical Convergence Zone (ITCZ) north and south of the equator. This gives rise to a bimodal rainfall pattern, the heavy rains fall between March and June, with a peak in April. The short rains fall in November and December (Norton-Griffiths & Said, 1998). An average of 800 mm of rainfall is received

annually within a range of 500 mm to 1,800 mm (Jaetzoldt & Schmidt, 1983). Enoonkishu Conservancy area particularly receives 1000-1200 mm of rain annually which is the highest rainfall in the area.

3.6 Geology and soils

The geology of Narok area is composed of extensive metamorphosed Precambrian sediments modified by erosion, rift faulting and volcanic activity (Lamprey, 1984). The southern Narok is based on phenolite rock from tertiary volcanic activity. There exist many flat topped rocky hills (inselbergs) such as Kilelion, which is of volcanic origin. They support a bush land type of vegetation, due to fire resistance offered by the rocky slopes and the free drainage of the soils (Denise & Popp, 1978).

The soils in the study area are diverse in both texture and structure due to physical deposition with differing levels of suitability for farming. Part of the area is eroded and with deposits of alluvial soils on the valley bottoms. Some parts have sandy soils and a significant percentage of clay. Some parts of the conservancy have dark grey to brown soils that are fairly shallow with low nutrient content but good drainage. These soils can support crop farming. Other areas have black to dark reddish brown clay loam, that are deep with moderate nutrient hence suitable for crop farming. However, grey to brown loams that are deep with moderate nutrients cover almost all of the remainder of the area. The shallow, poorly drained, sandy clay that is susceptible to erosion and not suitable for crop farming is found in the Emarti sub-location.

3.7 Drainage and Hydrology

Enoonkishu Conservancy area is well drained. The existing forests and swamps are source of permanent and seasonal streams within the area. Mara River flows through Enoonkishu Conservancy; it forms the western boundary of the conservancy. Several springs are found within conservancy, this include: Koita Oit, Morijoi, Nampaso, Njapit and Ntutu springs. Additionally there is a borehole and swamps at different locations in the conservancy.

3.8 Wildlife Resources- Flora and Fauna

Enoonkishu area comprises a landscape dominated by acacia-grassland mosaic, forestland and cliff faces with the dramatic Kileleoni hills extending into the plains. In the conservancy, the vegetation consists largely, of grassland, with Phocaea (grass family) forming the main vegetation layer, interspersed with few annuals and perennials, and occasional trees and shrubs, mostly *Acacia* spp. Enonkishu Conservancy has the highest density of forested land within the Mara Ecosystem as well as the highest hill . Forest comprises a mixed species of indigenous trees such as *Erythrina abbysinica, Diospyros abyssinica, Acacia* spp ,*Olea capensis, Diospyros abyssinica, Olea africana, Warburgia ugandensis* and *Manilkara butugi.* The savanna bush land species include*: Acacia. abyssinica, Acacia mellifera, Combretum* spp., *Erythrina abyssinica, Euclea divinorum* and *Albizia coriara* (Earth Care Services, unpublished, 2009).

This mixed vegetation makes Enoonkishu home to a wide diversity species of both mammals and reptiles. These include:

- Herbivores: elephant, hippopotamus, eland, giraffe, Thomson's gazelle Grant's gazelle, wildebeest, common zebra among others. The rare mammal in this class include: Black and white colobus monkey and klispringer.
- Carnivores include lions, leopard, spotted hyena and black backed jackal among others. Rare carnivore being wild dogs.
- Common birds include Maasai ostrich, kori bastard, weaver birds, starlings, vultures, and eagles.

3.9 Livelihood Systems

Enoonkishu area comprises the area traditionally occupied by pastoralist Maasai community. The main socio-economic activities being livestock keeping, wildlife conservation, bee keeping and crop farming. The main livestock kept here are traditional herds, especially cattle, sheep and goats using free range grazing. The main type of cattle kept by the Maasai pastoralists is zebu with a carrying capacity of 3.5 acres per cow. Livestock keeping is the lifeline of pastoral Maasai community. Livestock keeping meets the cultural and financial needs of the pastoralists. Apart from problems of marketing and

heavy reliance on traditional livestock keeping practices, livestock numbers are on the increase putting pressure on the available pasture and water resources. In addition, pastoralism has been threatened by increasing recurrence of drought leading to loss of livestock, thus threatening the livelihood of the local communities. The twin effects of rising livestock numbers and increasing recurrence of drought exacerbates land degradation as clearance of pasture exposes the land to soil erosion because of heavy rainstorms that often occur in the area, *albeit*, for a short time. In addition, increasing livestock numbers increases pressure on pasture and water resources.

3.10 Conservancy Framework

Enoonkishu Conservancy is a Not for Profit Company, it is managed by a board of elected Maasai landowners and an advisory committee. In terms of ownership, EC is made up of 100 Maasai owned parcels of land covering an area of 10,000 ha (25,000 acres). These 100 landowners in turn provide for the 1,200 members living within the conservancy. Membership falls under two main categories: shareholders and investors. Shareholders are land owners who have contributed part of their land parcels to conservation by committing their respective title deeds, whereas investor are those with business premises within the conservancy. Land owners who have not made any commitment are referred to as non-members. This category also encompasses non Maasai's who reside within the conservancy.

Formation of the conservancy was initiated January, 2008.Enoonkishu has registered the Land owners management committee which is the management arm and the Management company. It has obtained NEMA license to allow development and setting up of tourism facilities as part of crucial requirement. The conservancy is still undergoing planning and zoning of the conservancy into core conservation area, buffer and settlement zones is still in progress.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 INTRODUCTION

This chapter gives details on the research design the study employed, sampling procedures as well as source used to generate data.

4.2 Research Design

The study utilized descriptive research design, whereby a description of opinion on the investigated phenomena was explored and examined so as to use information generated to make inferences about the entire population from which the sample was drawn. Descriptive research design was found appropriate for the study since the research focused on gathering opinions on the role of conservancy in wildlife conservation and community livelihood.

4.3 Sample Size and Sampling Procedures

The study covered an area with a total population of approximately 1200 people; this is the population that formed the target population, from which the sample population was picked from. A total of 111 households making up the Enoonkishu Conservancy were listed down; this was followed by listing down members belonging to each household who were of age 18 years and above. They are considered as adults and at this age are entitled to being part of the conservancy and decision making group. A sample size of 120 respondents was utilized, however 115 respondents were obtained, as 5 respondents later declined to provide information or gave partial information and therefore the questionnaires were discarded. These therefore represented a response rate of 95.8%.

4.4 Sources of Data

4.4.1 Primary Data

Primary data was generated using questionnaires, interviews and focused group discussion.

4.4.1.1 Questionnaire Survey

Questionnaire was used as the main tool for information gathering. The questionnaire was divided into four subsections, each section addressing specific theme. It was administered to selected respondents to gauge their opinion on (a) contribution of conservancy to wildlife conservation, where inform regarding wild animal status was examined using indigenous knowledge (b) examine community attitudes and perception towards establishment of conservancy(c) contribution of the conservancy towards community livelihood. The questionnaire included both open and close-ended questions (Appendix 1).

Pilot testing of the questionnaire was done on a sample of 15 respondents to gauge their understanding and some questions were rewritten before final administration of the questionnaires (DeVaus, 1996). Each respondent was taken through the questionnaire by the researcher, who was assisted by one field assistant to elaborate the questions. The respondents were then left to provide answers for those who were literate whereas for the semi illiterate or illiterate respondents the researcher/field assistant aided in filling in the questionnaire. They were encouraged to elaborate on points of interest and relevance and some section in the questionnaire also relied on indigenous knowledge of the local community.

4.4.1.2 Focus Group Discussion

Focus group discussion (FGD) is a form of qualitative research in which a group of people are asked about their opinions, beliefs, attitude and perception towards an idea (Krueger, 1988; Stewart, 1990). FGD was used as it was a good way of gathering respondents of similar settings to discuss their indigenous issues related to the conservancy. The FGD targeted men, women and the youths within the conservancy. Three different focus group discussion sessions were held each session comprising of men, women and youths, each FGD had 8 to 15 participants.

Participants in women FGD were picked from Enoonkishu Women Group, youths were from Emarti youth group and Enoonkishu scout group registered under the conservancy, whereas referral from the Chairman of Enoonkishu Chairman was used to obtained participants for the men FGD.

For women and youth group Yes/No tags were used to select participants, whereby all members were presented with tags bearing 'YES' or 'NO'. Those who selected 'Yes' tags formed respondents of women and youth group participants.

FGD generated more information on: attitude and perception of community towards establishment of EC and Contribution of conservancy to community livelihood.

Additional information was obtained from key informants who included: Officials of Enoonkishu Conservancy (Chairman, Secretary and Treasurer), Kenya Wildlife Service personnel (Community Warden) and honorary warden. Main information that key informants provided was contribution of conservancy to wildlife conservation.

4.4.2 Secondary Data

Secondary information was generated mainly from satellite images taken over the area. Unpublished reports and minutes of Enoonkishu Conservancy were used to obtain additional information about the conservancy.

Satellite images were used as main source of information about land use and land cover in Enoonkishu Conservancy. Three sets of images from Land-Sat Thematic Mapper (TM) sensor, of 30m resolution, taken in March 1990 (image id LT41690611989076XXX02), January 2000(id LE71690612000027EDC00) and January 2010 (LT41690611989076XXX02) covering Mara region (169/61) was used to determine changes in land use and land cover that had occurred in the past 20 years.

The satellite images used for the analysis of land use and cover changes were obtained from Directorate of Remote Sensing and Resource Survey (DRSRS). The images had already been pre-processed in that geometric rectification and image registration had been done. The two steps were neccesary to fit the images to that of a map projection and reference image. This is especially important in scene to scene comparisons of individual pixels as change detection were being made. Since Landsat TM imagery was used, and it

covered an expansive Mara ecosystem, subsetting was done to narrow down the size to study area, this was to speed up processing of data.

Image classification was then done to identify homogeneous group of pixels through supervised classification. Three training areas were used that is: forests, grasslands and crop/farmlands. These images were then exported to Arc GIS version 10.1 (Arc Geographical Information System) .The images were then exported to Arc GIS where multi band images were created by assembling the data using image analysis extension "layer stack" where further analysis was done to produce land use and land cover maps.

Enoonkishu conservancy was delineated from the general area, by use of its boundary coordinates which were taken by the researcher. Using the applications of Arc GIS the different classes of land use and cover were assigned distinct shading to represent the coverage area for the three specific years under investigation that is 1990, 2000 and 2010, they were then represented as land use land cover maps.

To determine sizes of each land cover and land use in each year under investigation, Arc GIS calculator application was used to calculate sizes of forest, grasslands and croplands. The areas obtained were transferred to Excel spreadsheet where line graphs were drawn to, best line of fit drawn and regression equation derived.

CHAPTER FIVE : RESULTS AND DISCUSSION

5.1 INTRODUCTION

This chapter presents analysis and findings of the study as set out in the research methodology. The research data was gathered through questionnaires as the primary research instrument, focus group discussion. Analysis of satellite images were used in examining changes in land use and land cover within the Enoonkishu Conservancy

5.2 Respondents' Demographic Characteristics.

5.2.1 Age and Gender of the Respondents

Most of the respondents (49%) were of age 29-39 years, while respondents aged above 51 years were the least (6%). Of those interviewed, majority comprised of (63%) male respondents, while (37%) were female (Figure 5.1 and 5.2). This shows that the population in the conservancy is made of youthful group of people aged between 18-38 years. Many of them being men, however in Maasai traditions women are not usually given that opportunity to represent the family

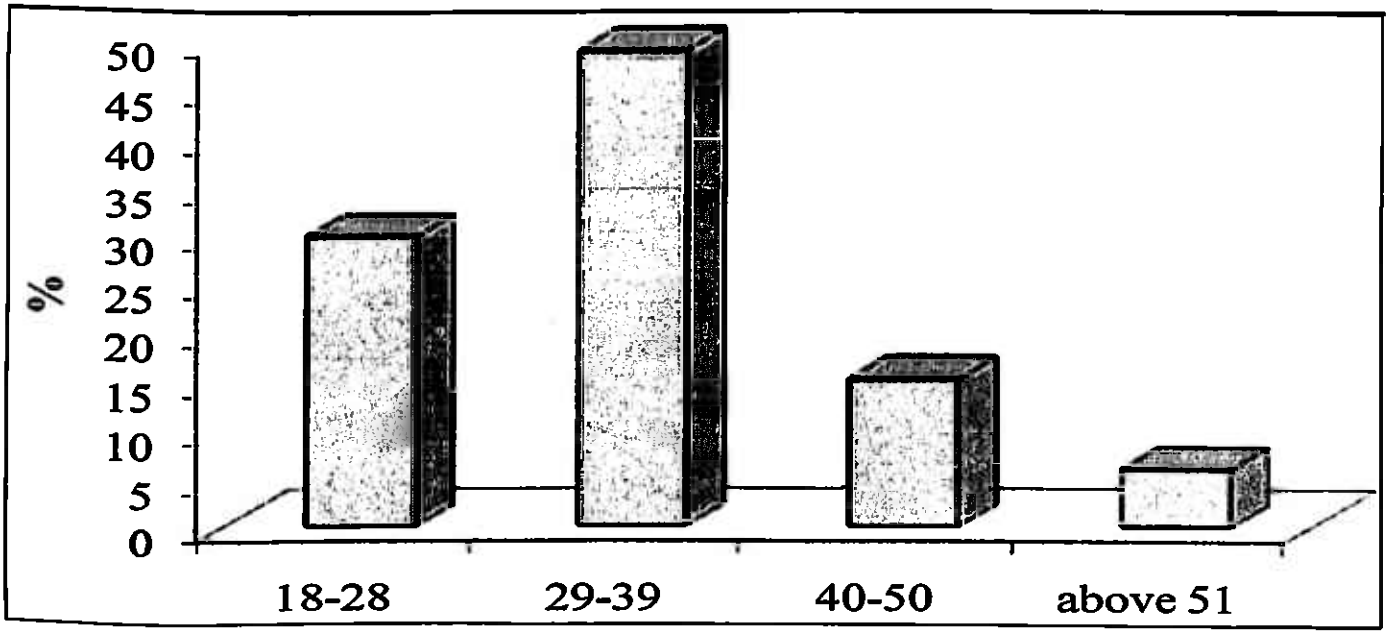


Figure 5.1: Age of respondents

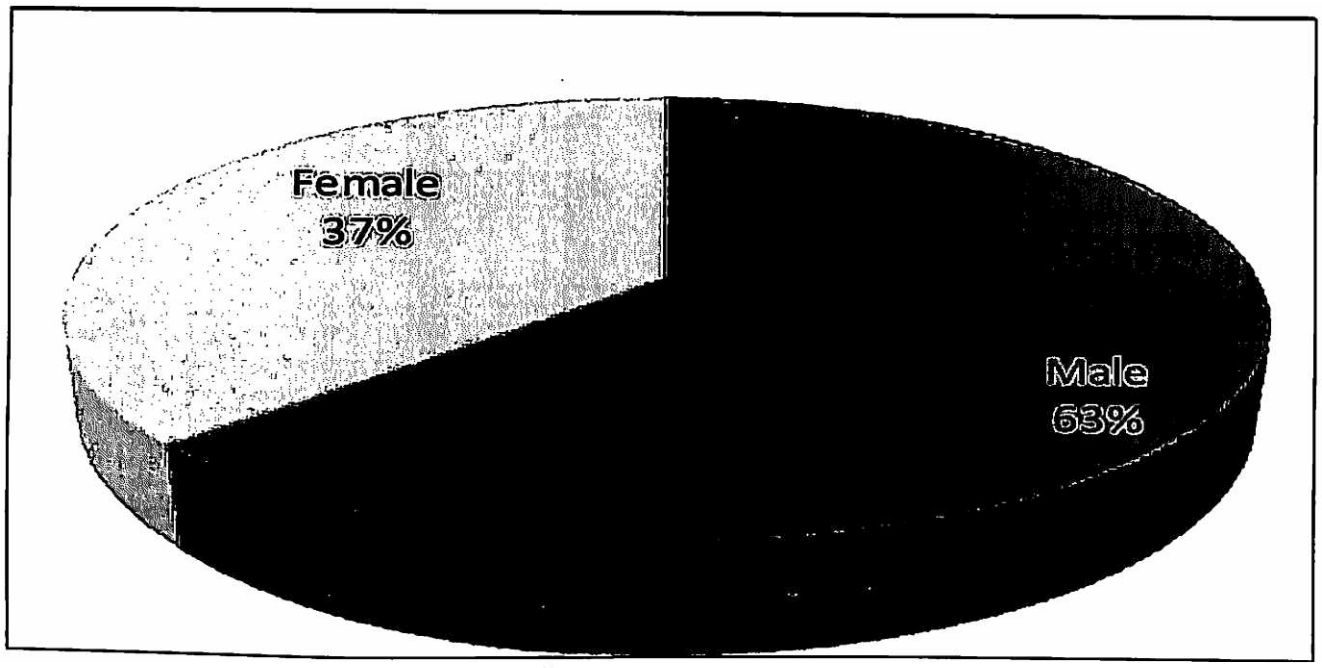


Figure 5.2: Gender of respondents

5.2.2 Education and Occupation

Of those interviewed majority had informal education attributing to 32%, those with secondary education (28%), primary education (25%) while (15%) had acquired tertiary education. Results further showed that most respondents had formal employment (43%), 27% of respondents were unemployed while 29% were self-employed (Figure 5.3 and 5.4). This implies that a greater majority of population within the conservancy have made way to acquire education, and thus a higher percentage of those in employment which mostly included: tour guiding, teaching profession, environmental conservation related jobs and as hotel stewards.

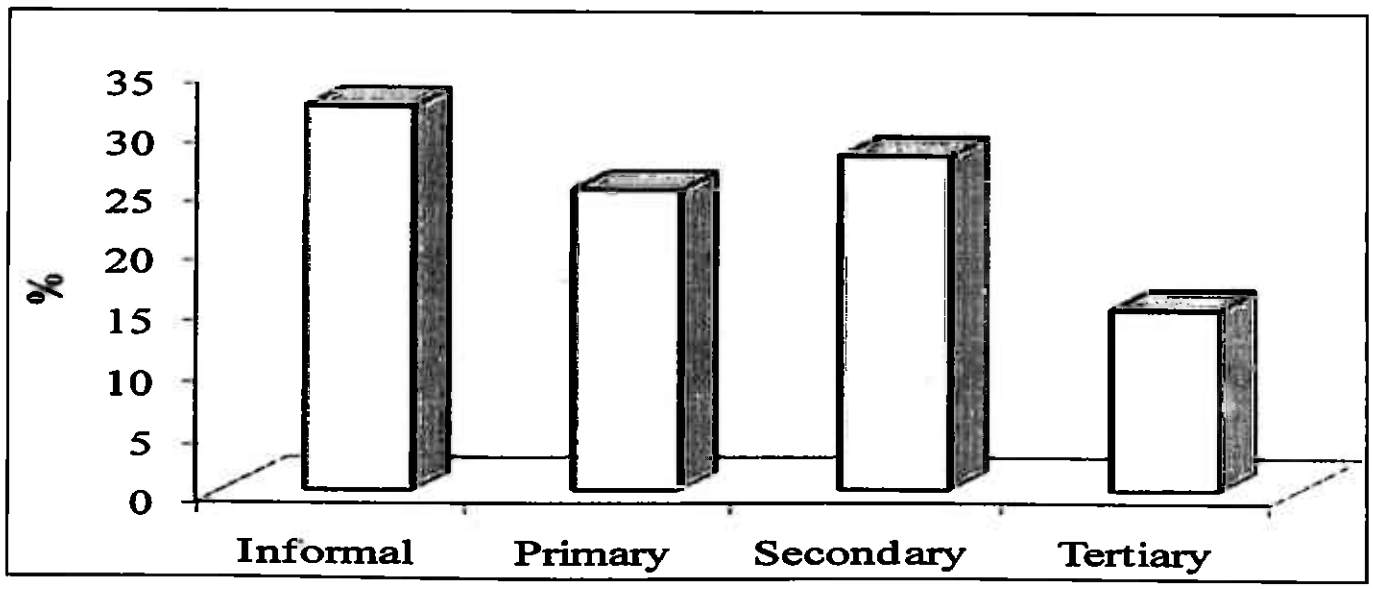


Figure 5.3: Level of Education

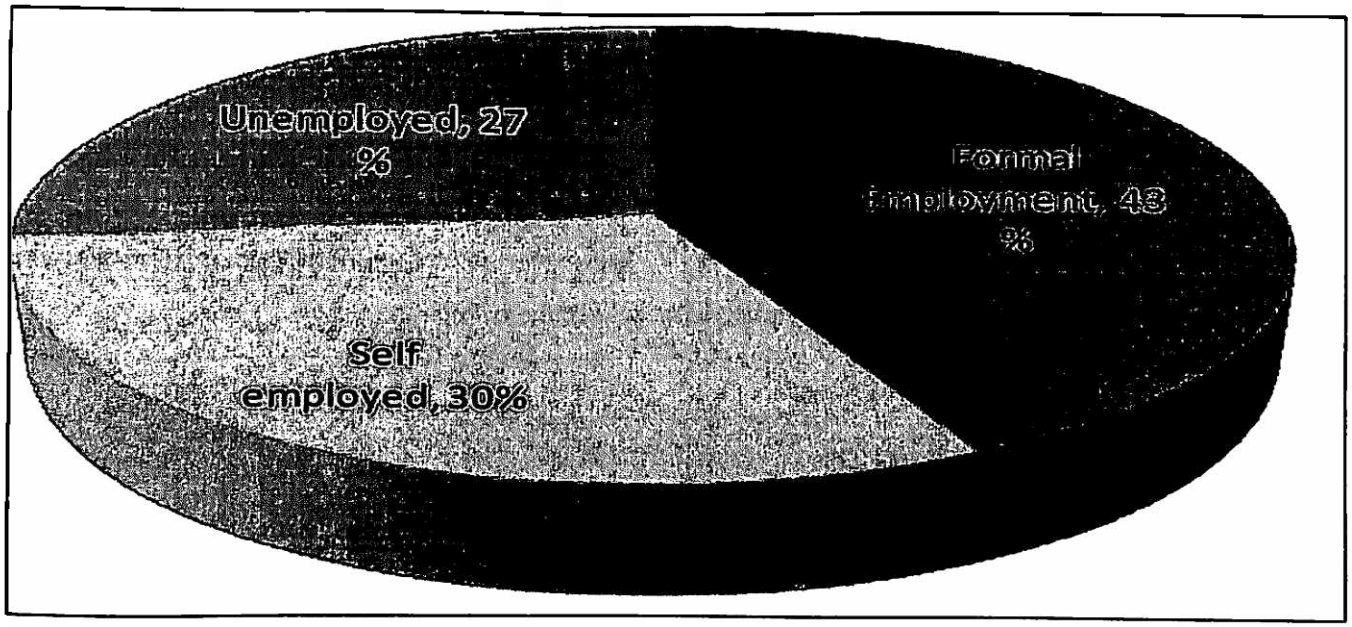


Figure 5.4: Occupation status

5.2.3 Residence and Mode of Land Acquisition

A vast majority of the population was residents by birth (89%), this also represented the ethnic background of the community that is Maasai's, while the remaining 11% respondents were residents by immigration, representing the non Maasai's. Regarding tenure status, most respondents (85%) had acquired land by inheritance, 9% had leased while 6% had bought the farms (Figure 5.5 and 5.6). This shows that the indigenous Maasai's are the ones who are traditional owners of the farms, and some have leased or sold out to the non Maasai's present in the area.

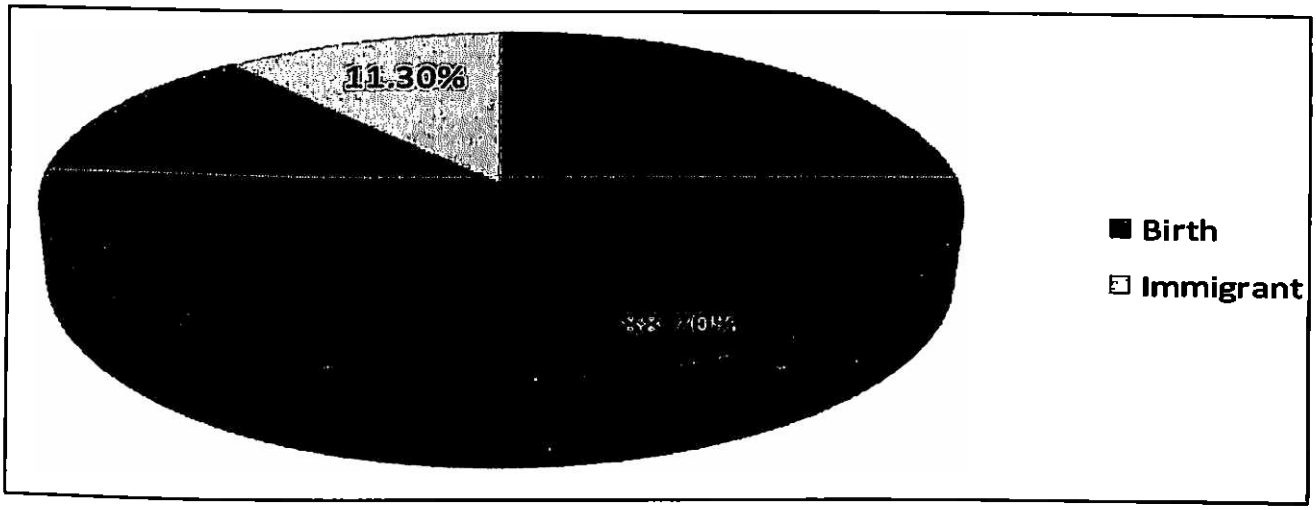


Figure 5.5: Residence Status

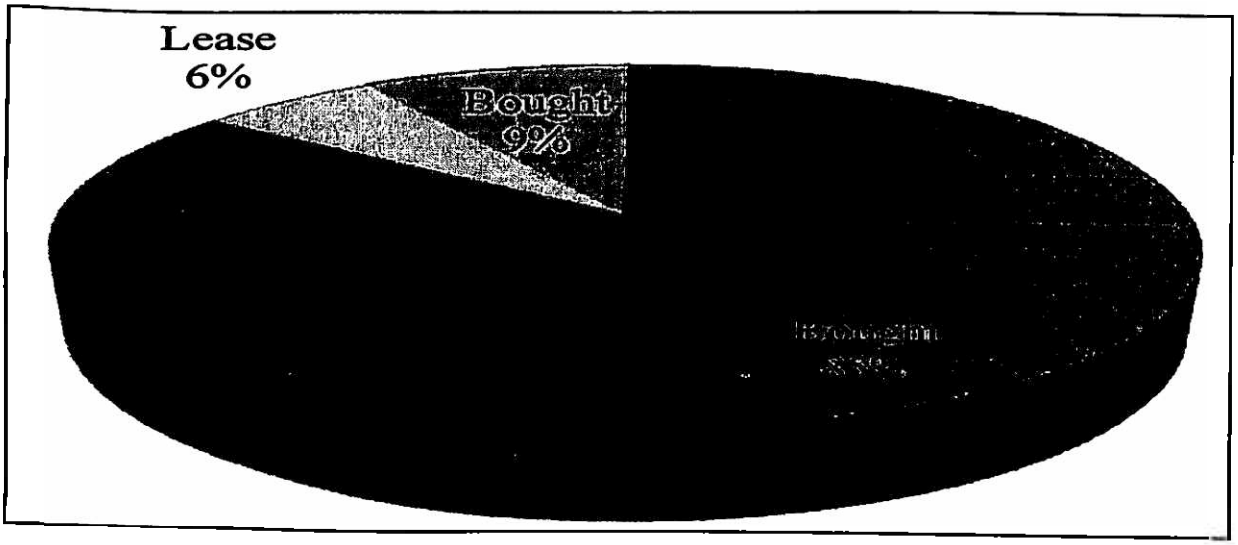


Figure 5.6: Mode of Land Acquisition

5.3 Contribution of Conservancy to Wildlife Conservation.

To determine how the conservancy contributed to conservation of wildlife, a number of issues were investigated including: a) dominant species, b) rare species, c) most valued and least valued species, d) most problematic animals, e) wild animal to be considered for community conservation and those least considered, f) resident and migratory species, g) wild animals that had disappeared from the conservancy and those that emerged, h) important and least important wildlife zones, i) status of wild animals in the conservancy and j) wild animal conflicts in the conservancy.

5.3.1 Dominant Animal Species

The study sought to find out dominant wild animal species in the conservancy. Majority of respondents (39%) indicated that elephant was the most dominant animal species followed by zebra (35%). Lion and gazelle each had a 4% dominance rate. The rest of animal species including: antelopes, buffalo, giraffes, monkeys, hare, snakes and warthogs had representation of between 1% and 4% (Figure 5.7). This shows that dominant species are those that are common in numbers or those whose destructive impacts were highly felt by community.

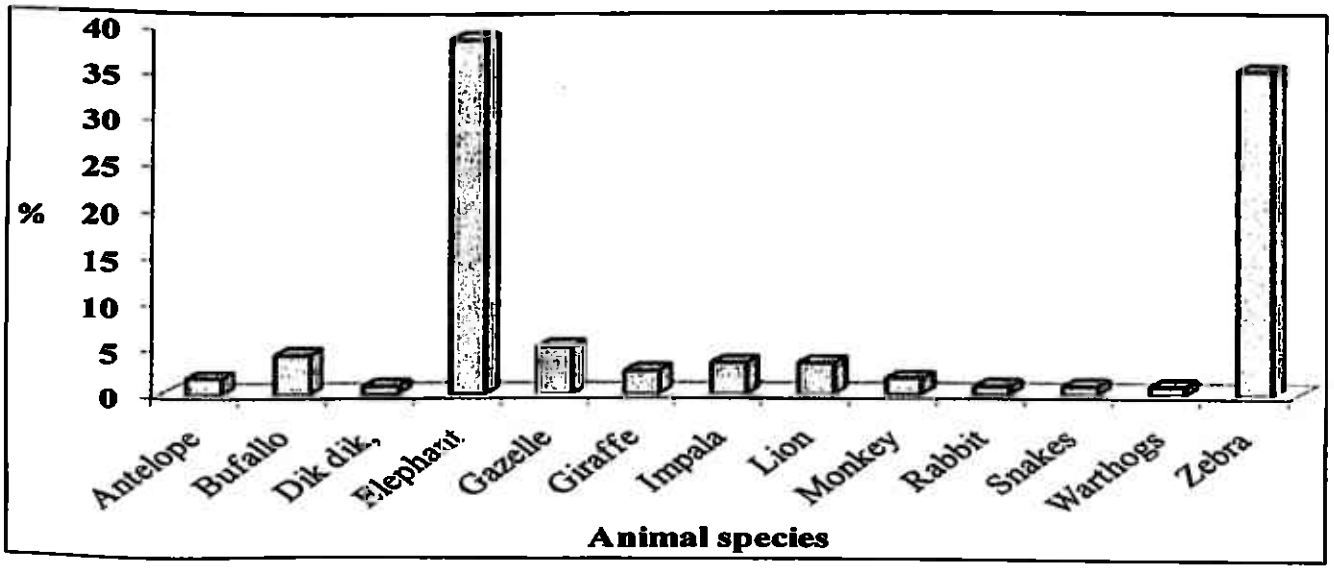


Figure 5.7: Dominant Species

5.3.2 Rare Wildlife Species

Rare wild animal species are those whose citing are not common in a given area. Findings of the study indicated that the rhino is the rarest wild animal species as indicated by 25% of respondents; this was followed by wild dogs (23%) and cheetah at 10%. The rest of wild animal species that include: birds, buffalo, eland, forest hog, gazelles, hyena, impala, klipspringer, leopard, snake, topi, tortoises, waterbuck and warthogs ranged between 1% and 10%, (Figure 5.8). This is likely to indicate that rare species are rhinos, wild dogs and cheetah which are highly perceived to be endangered and not easily sighted not only in the area but country wide. These findings are similar to Ogutu *et al* (2009) and Walpole *et al* (2001) who stated that wild dogs and rhinos had been wiped out of the area due to infectious diseases and illegal hunting for rhino horns respectively.

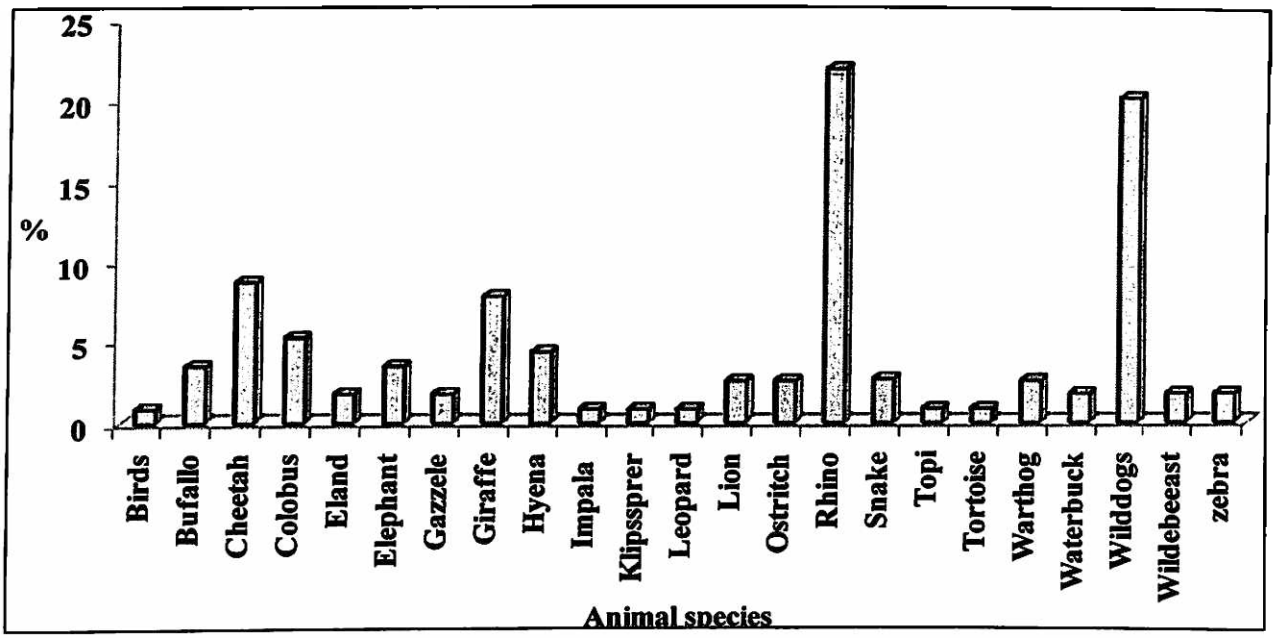


Figure 5.8: Rare Species

5.3.3 Most Valued and Least Valued Wild Animal Species

Elephants, lions and rhino were among the most valued wild animals in the conservancy, with 29%, 18% and 12%, respectively according to the respondents. Buffaloes, wild dogs,

leopards, colobus monkeys, gazelle, giraffe crocodiles, cheetah and warthogs were associated with values of (1%) to (9%) (Figure5.9). Regarding the least valued wild animals: dik diks (16%), hare (15%), hyena (13%) and baboons representing (11%) were among the least valued wild animal species in the conservancy. Other less valued species included zebras (9%) and antelopes (8%). The rest of animal species such as antelopes, snakes, ostriches, zebra and warthogs were lowly valued at a range of 0.5% to 6% (Figure 5.10). The highly valued wild animal species in Enoonkishu Conservancy: Elephants, lion and rhino falls within the bracket of Kenya's big five wild animals. In such a case the highly valued animals could be used as a marketing tool for the conservancy and reasons to advance conservation and preservation of the area. Least valued wildlife species appear to be those common and have no impact in any way. It is imperative that the community be informed about the ecological roles of such species, which they may not be aware of, in such a way that as the conservancy continues establishing the issues could be taken up as subject for community awareness creation.

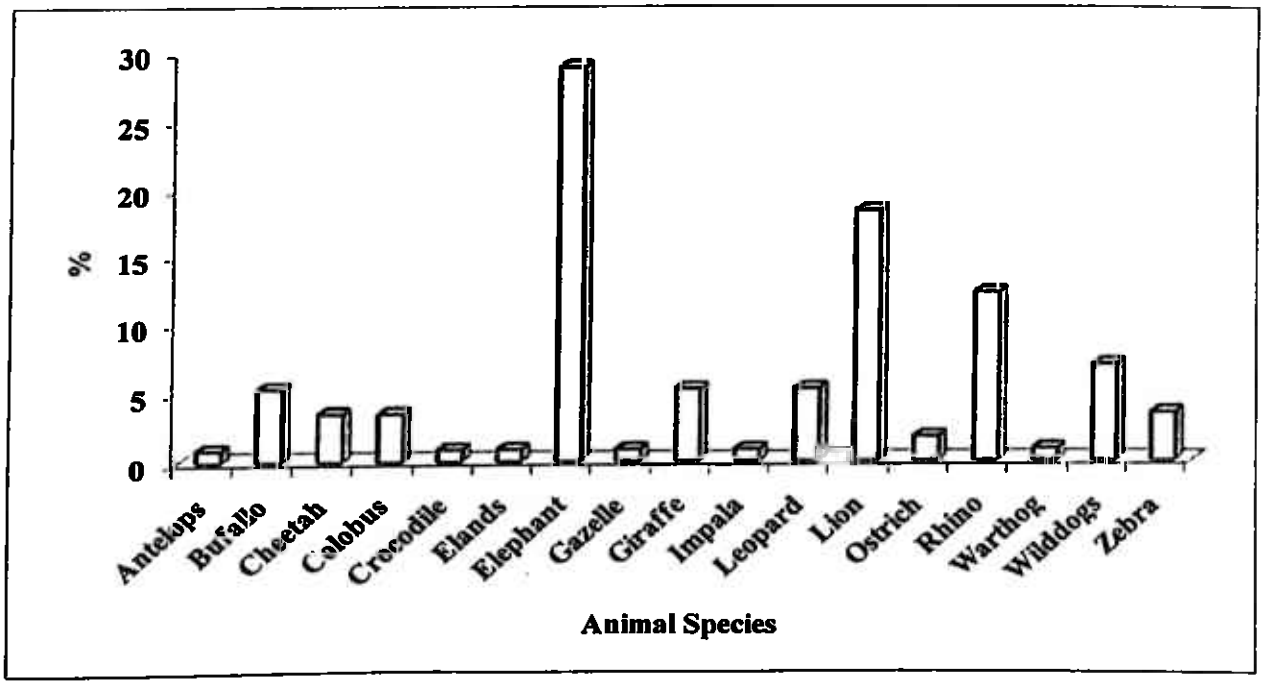


Figure 5.9: Most Valued Species

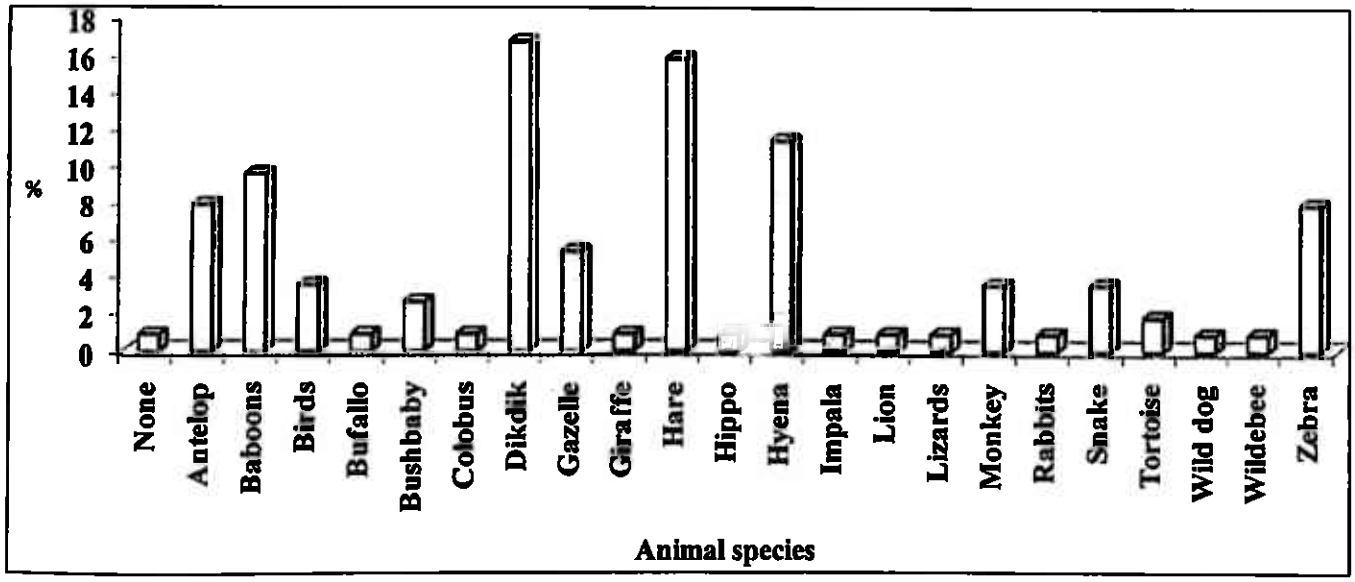


Figure 5.10: Less Valued Species

5.3.4 Most Problematic Species in the Conservancy

Findings indicated that elephant was the most problematic of all wild animals as indicated by (40%) respondents, followed by lion at (18%), baboons at (6%) and buffalos at (7%). The rest of animals: bush pigs, crocodiles, hyena, monkeys, rhino, snake, warthog and zebra showed a problematic level of 1% to 5% (Figure 5.11). This most problematic animal species are those commonly involved in human wildlife conflict in the area.

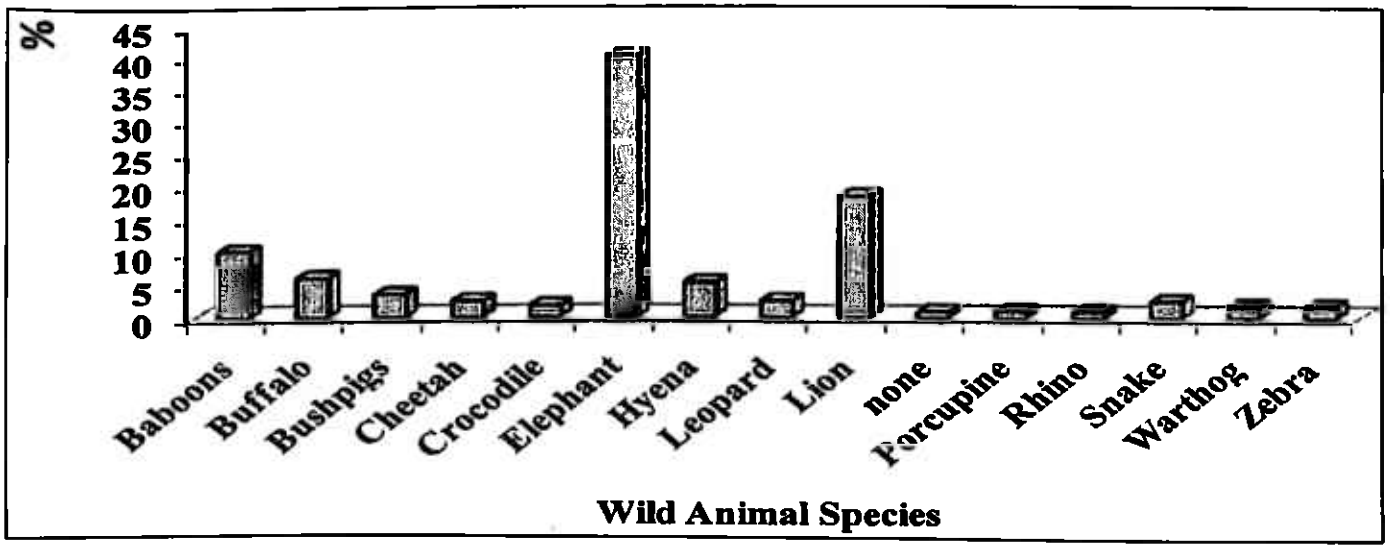


Figure 5.11: Problematic Animal Species

5.3.5 Wild Animals Considered for Community Conservation vs those Least Considered

The study sought to find out wild animals to form focus of community conservation in the conservancy. Findings show that elephants (39%), rhino's (15%), lions (14%) and wild dogs (10%) should be highly considered for community conservation within the conservancy respectively. Other species noted were: zebra, giraffes, cheetah, buffalo, gazelles and leopard which had rankings of 1% to 5% (Figure 5.12). These wild animal species to be considered for community conservation appear to be those facing threats of poaching and impacts of land use change therefore are endangered.

On the other hand, most respondents felt that zebras (16%) and hare (14%) were wild animal species to be least considered for any community conservation efforts. Other wild animal species listed in this category included: birds showing (11%) and antelopes (7%). The rest of the animals ranged between 1% and 5% in the ranking of least important animal species in the conservancy (Figure 5.13). These wild animals are the common species which do not face any threats.

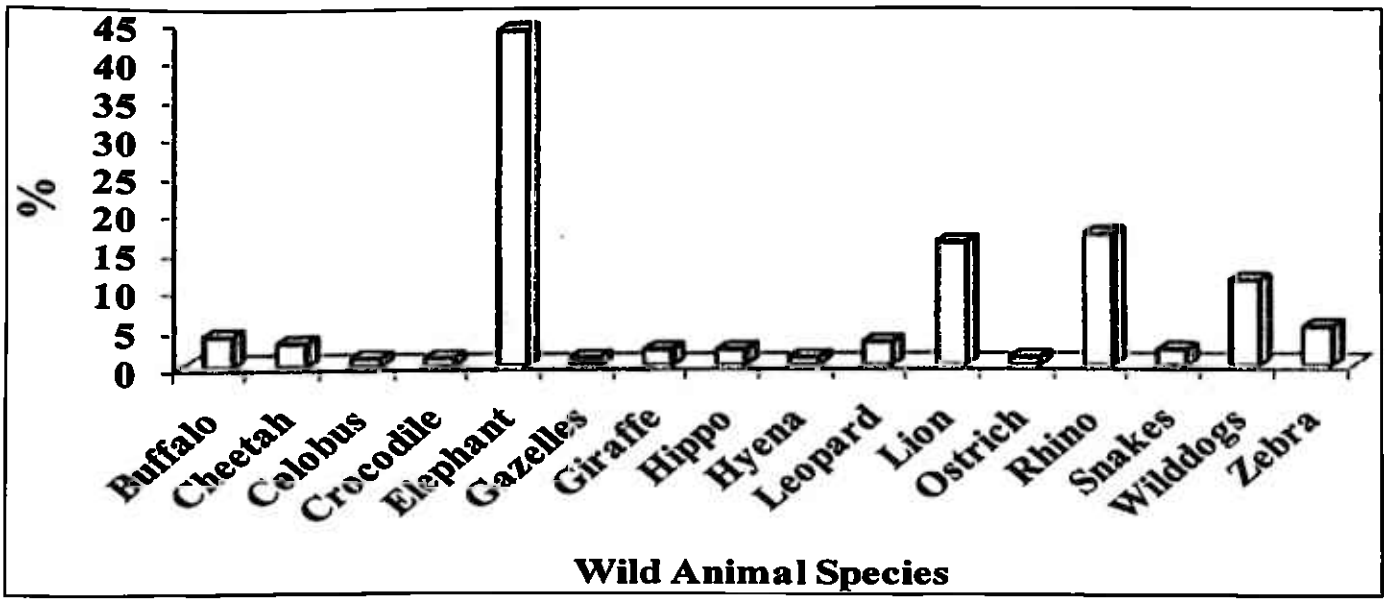


Figure 5.12: Animal Species Considered for Community Conservation

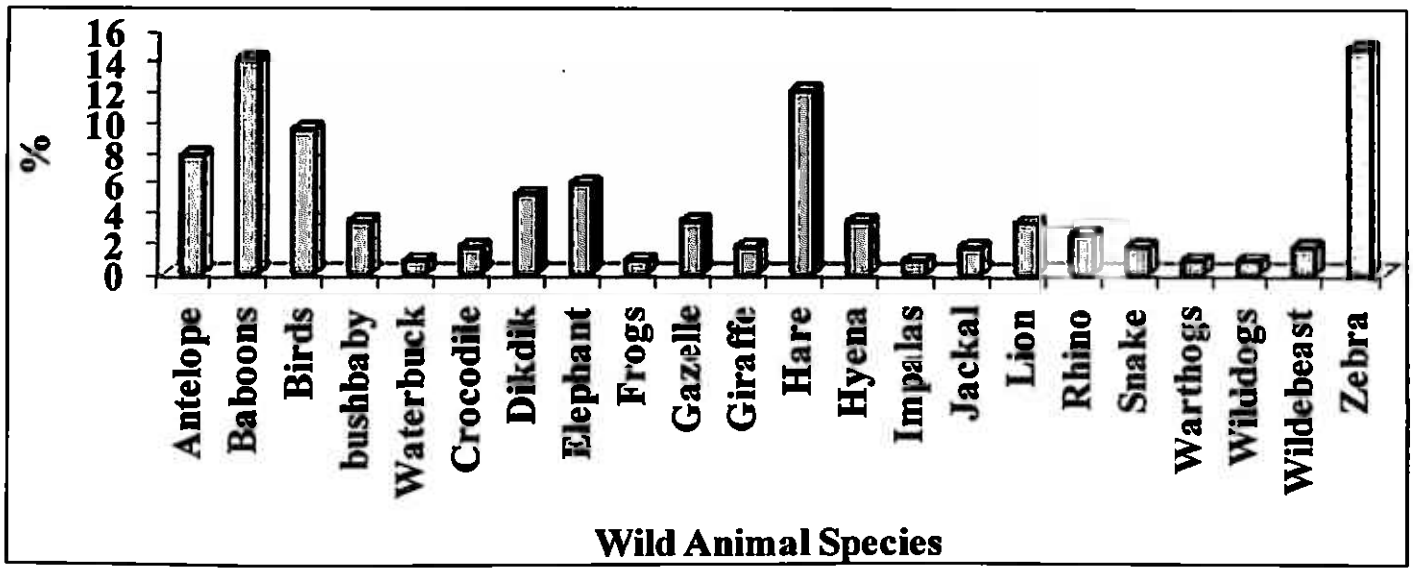


Figure 5.13: Animal Species not Considered for Community Conservation

5.3.6 Resident vs Migratory Animal Species

Findings indicated that, zebra (33%), elephant (22%), gazelle (6%) and hyena (6%) were the resident wild animal species. The rest of wild animals: antelopes, baboons, buffalo, bushbuck, cheetah, gazelle, giraffe, hippos, hyena, impala, leopard, lions monkeys, warthogs, and wildebeest had 1% to 5% residence rate in the conservancy (Figure 5.14).

Elephant was the most migratory animal species 45%followed by wildebeest 26%. The rest of the animals: antelopes, baboons, birds, buffalo, cheetah, gazelle, giraffe, leopard, lion and wild dogs were less migratory with a tendency of between 1% and 5% (Figure 5.15).

Results indicated that the area in focus hosts families of elephants that are migratory and some resident. For migratory population, it was noted that they move out of the conservancy during wet season(April-June), when the area is very soggy, and make return in dry season when the area has sufficient water and pastures compared to the surroundings. This is an indication of importance of such areas as dry season refuge.

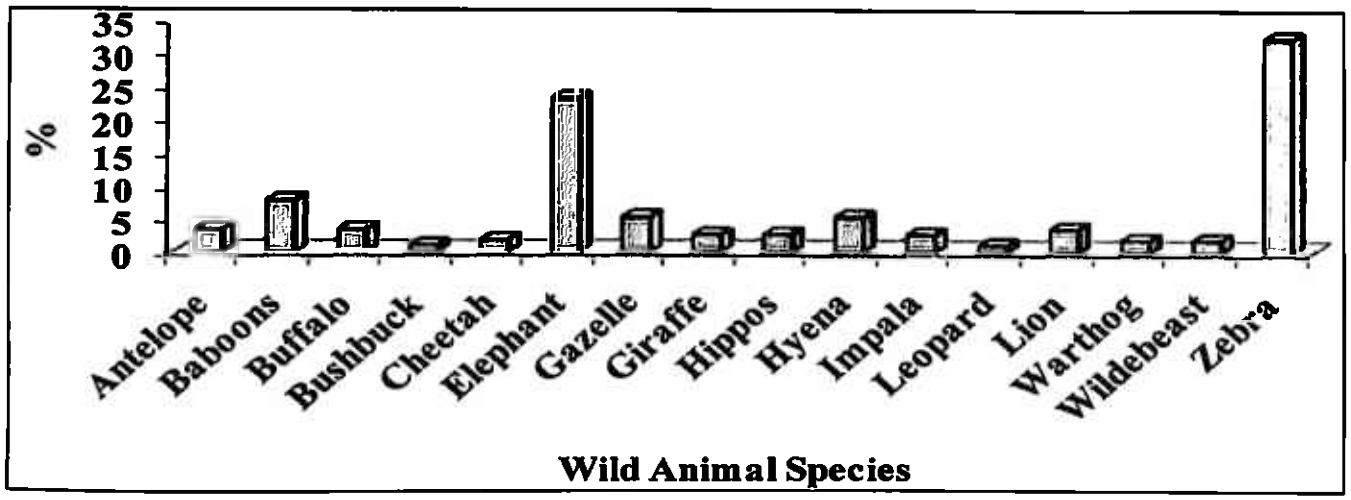


Figure 5. 14: Resident Animal Species

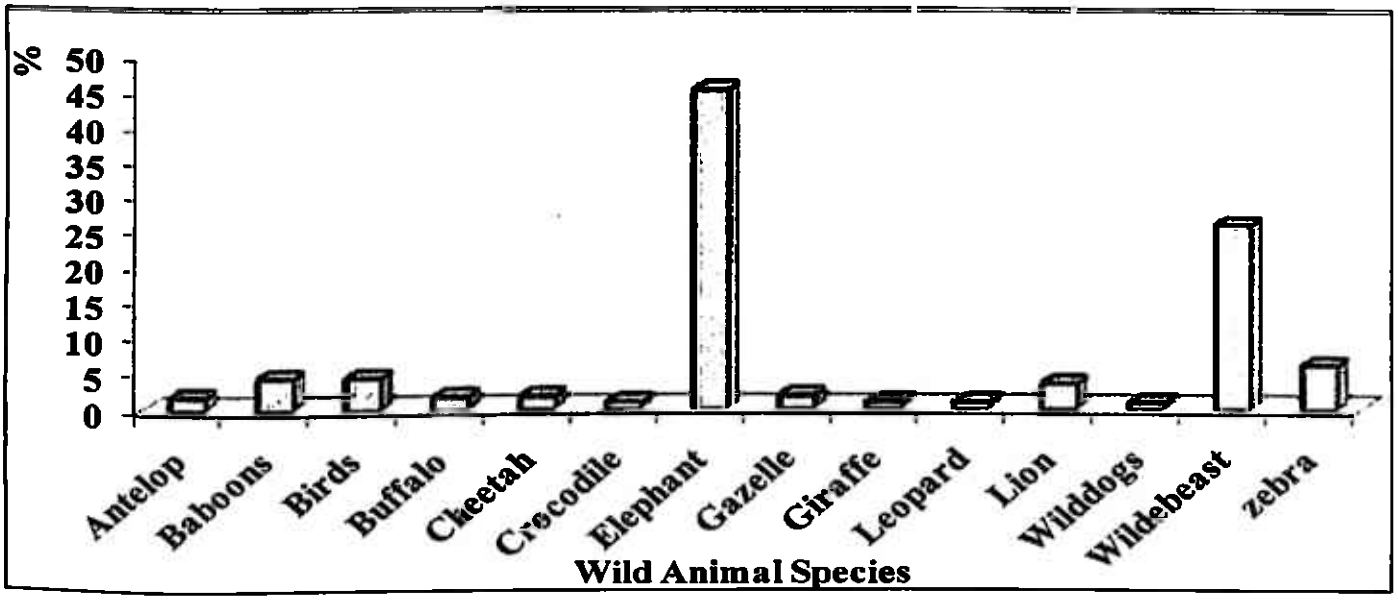


Figure 5.15: Migratory Animal Species

5.3.7 Wild Animals that have Disappeared

Regarding whether there had been any loss of wild animal species in the conservancy, respondents noted rhinos (40%) showed a great decrease in population followed distantly by wild dogs (7%) and cheetah (6%). The rest of wild animals including: eland, baboons, elephants hippos, squirrel, topis, wildebeest and zebra indicated a slight disappearance from the conservancy ranging between 1% to 5% disappearance rate, 23% of respondents indicated that there was no animal species that had disappeared (Figure 5.16).

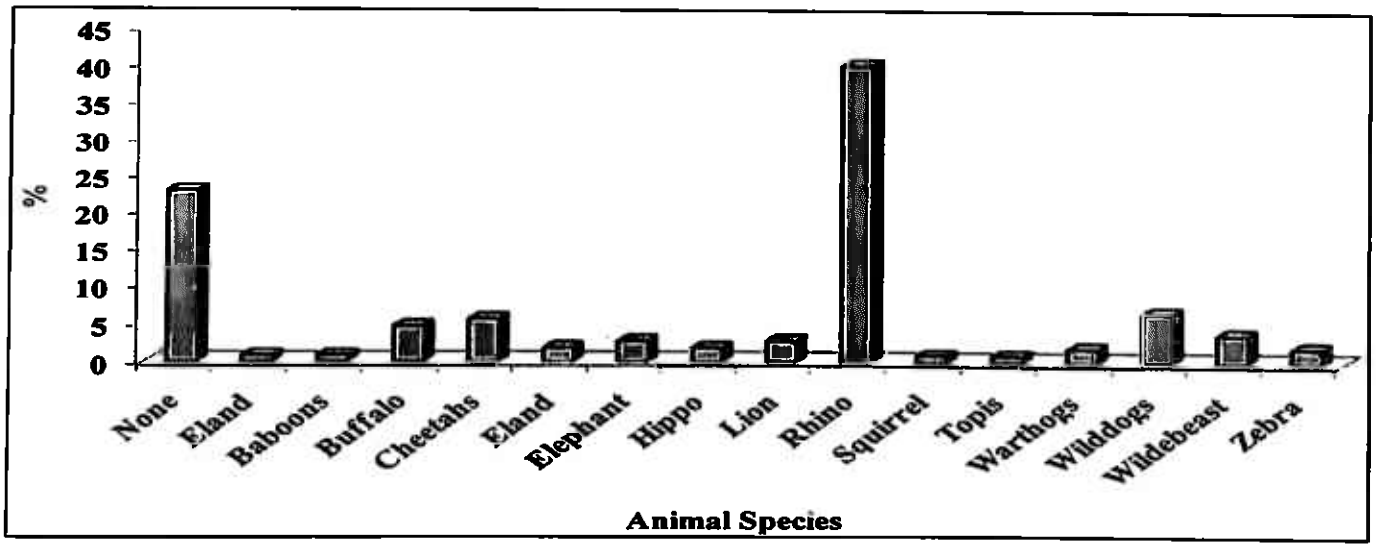


Figure 5. 16: Wild Animal Species that have Disappeared

5.3.8 Reasons for Disappearance

Poaching (39%) contributed greatly to disappearance of wild animals, followed by human wildlife conflict (35%) and habitat loss (23%) respectively. However 3.4% of the respondents indicated other reasons for the disappearance of the animals including natural means like extinction path, climate changes and imbalanced food chains (Figure 5.17).

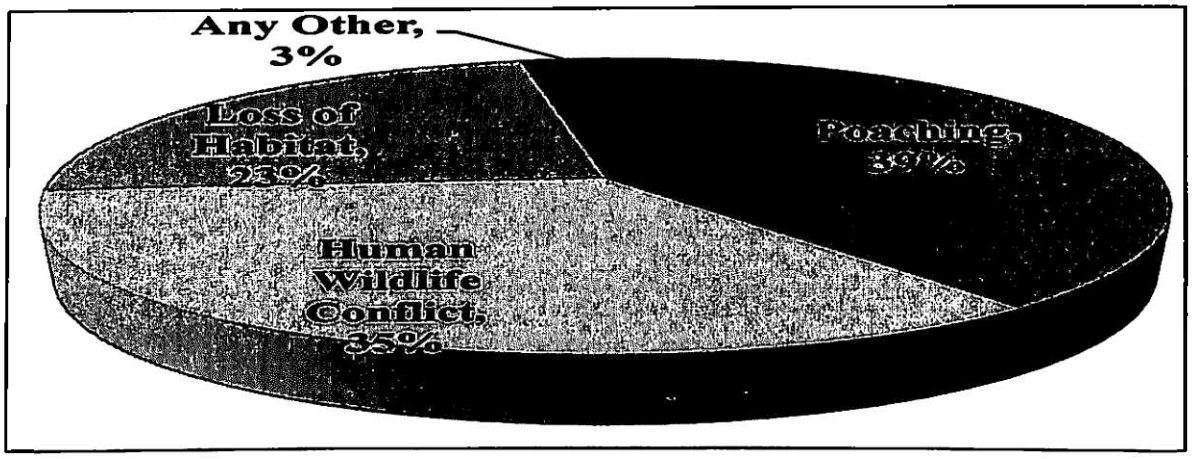


Figure 5. 17 : Reasons for Disappearance

5.3.9 New Animal Species

The study sought to find out animal species that initially were not in the conservancy but currently are. 13% of respondents said no animal had come to the conservancy, while (32%) noted that buffalos had come back to the conservancy whilst initially they were not there, (21%) mentioned wild dogs had increased and (6%) indicated lions had increased. The rest of animals that had come to the conservancy indicated a 1% to 4% increase (Figure 5.18). These findings concurs with Dublin *et al* (1990) who had reported crash in buffalo population in North and Western Serengeti due to illegal hunting for bush meat. Similar cases were reported in Enoonkishu especially before formation of the conservancy. Reappearance of buffalo has been contributed by enhanced security through patrols thus reducing cases of illegal hunting, as well as recovery of vegetation and hence good habitat.

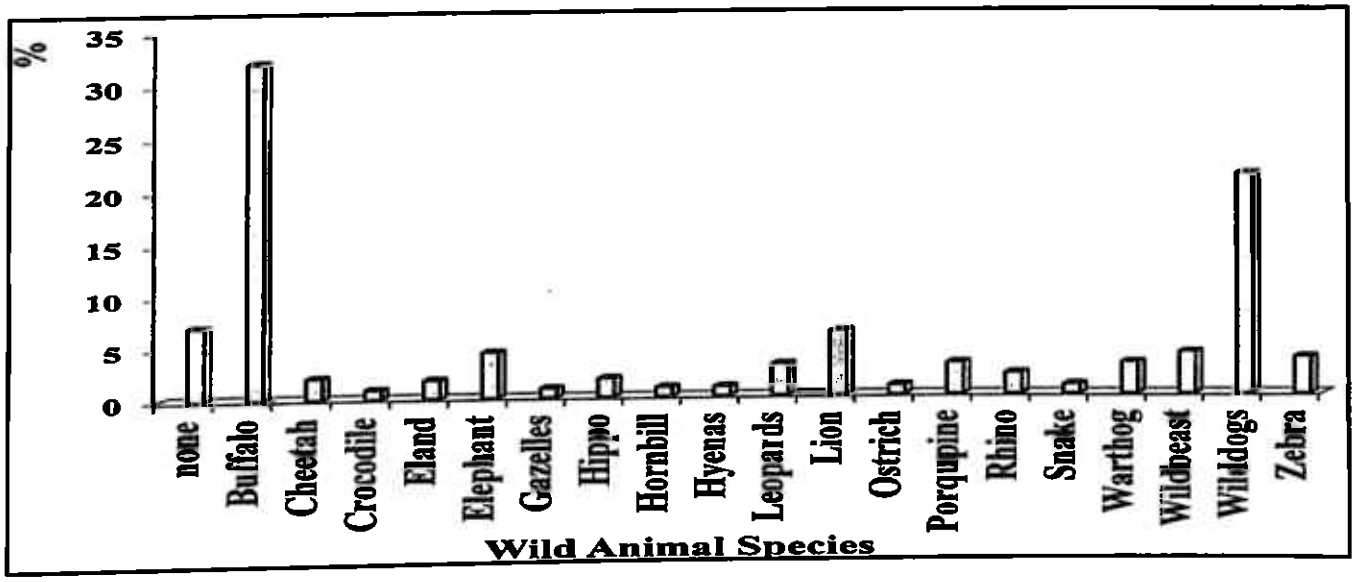


Figure 5. 18: New Animal Species

5.3.10 Most Important Wildlife Zones vs Least Important Zones

The study sought to find out most and least important wildlife zones in the conservancy. Findings showed that, the forest (30%) was the most important wildlife zone in Enoonkishu conservancy as most of wild animals preferred it as their habitat, (16%) of the respondents noted swamps, followed by grasslands (15%), hills (13%) and bushes (10%).

The rest of zones: salt licks, rivers and plains got percentage of between (1%) and (9%) from the respondents (Figure 5.19).

Least important wildlife zones in the conservancy included settlements and roads as indicated by 19%, farms fields (18%) and rocky areas (15%). The rest of the zones had between 1% and 10% percent response in terms of being rated less important, these were: rivers, grasslands, forests and plains respectively (Figure 5.20). The rating was being determined by animals preferred habitat in the conservancy

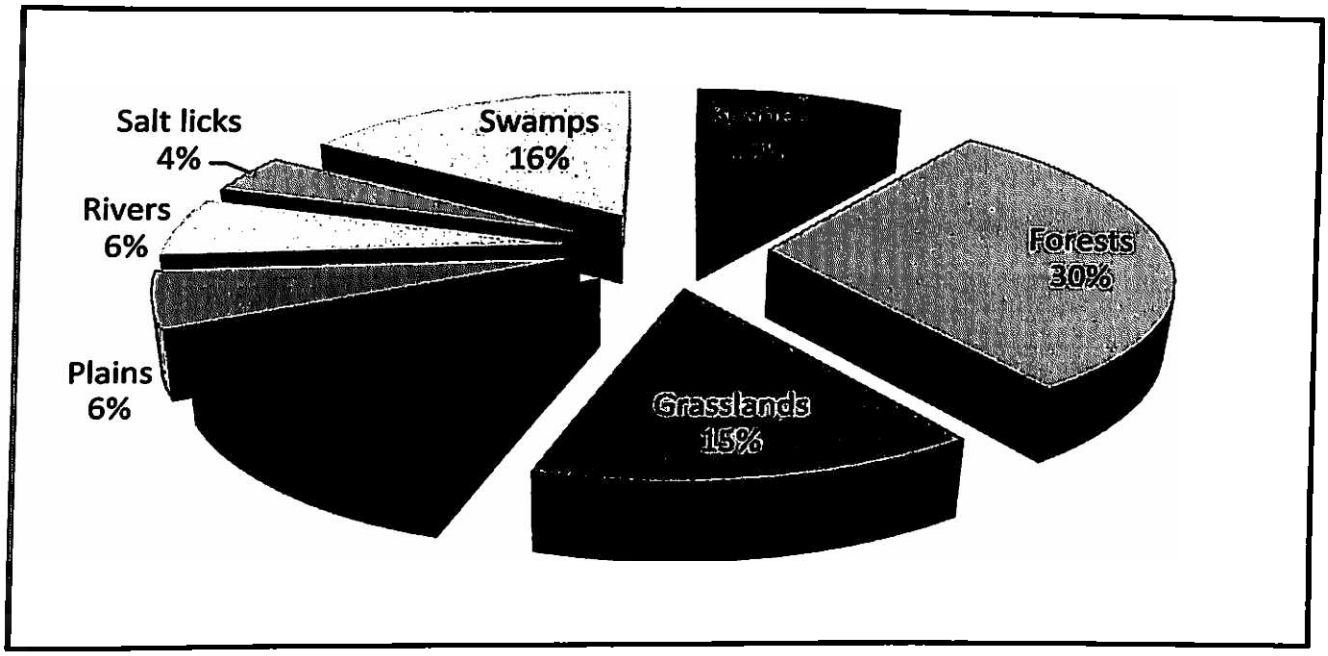


Figure 5.19: Most Important Wildlife Zones

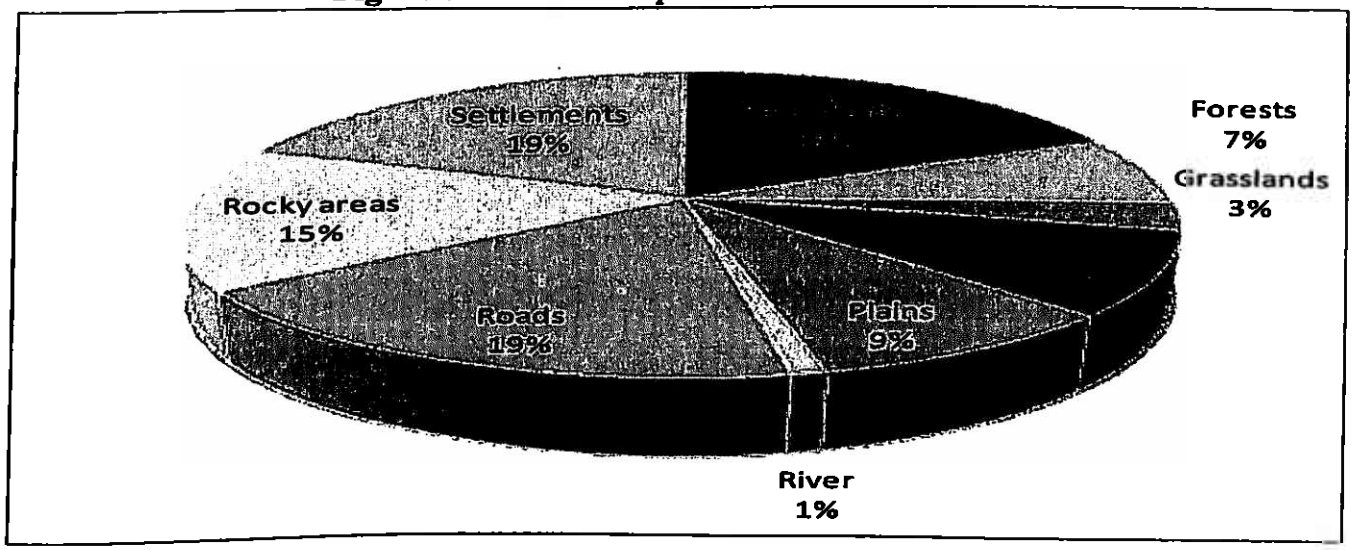


Figure 5.20: Least Important Wildlife Zones

5.3.11 Status of Wild Animal Population and Diversity

The study sought to find out status of wild animal population and diversity in Enoonkishu Conservancy. It was noted that (85%) of the respondents had perception that there was an increase in wild animal population and diversity, (3%) of respondents indicated a decrease, (10%) of the respondents said it was constant while the remaining (2%) had no idea of the issue (Figure 5.21).

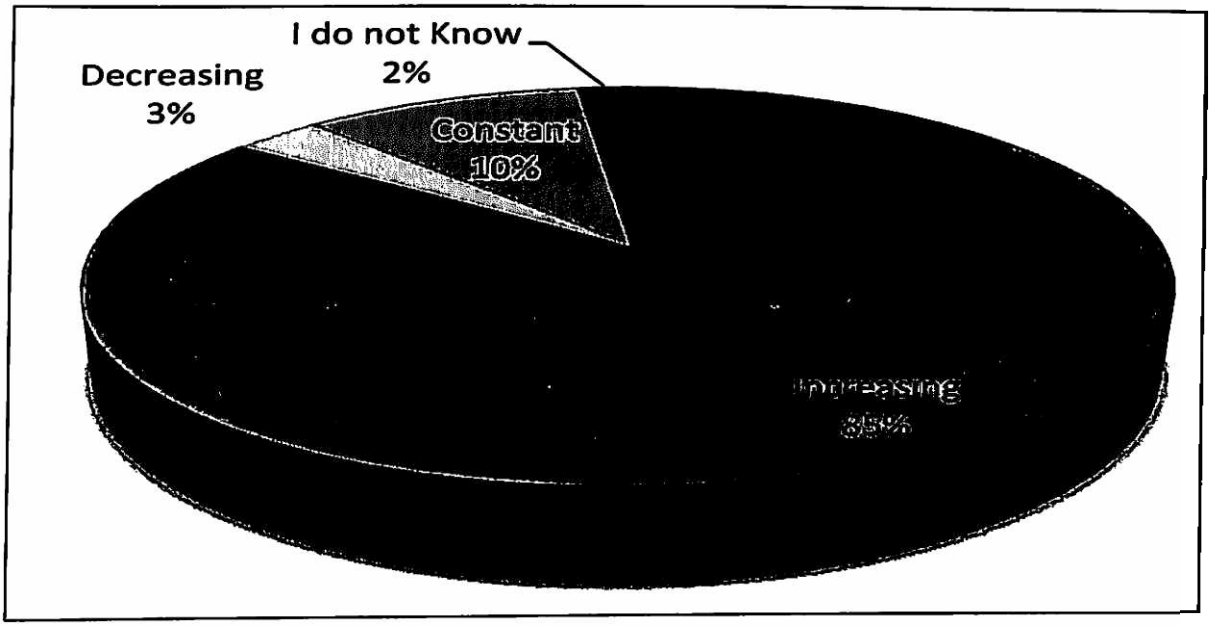


Figure 5.21: Wild Animal Population and Diversity

5.3.12: Wildlife Conflicts

The study examined whether residents in the conservancy experienced human wildlife conflict. 94% of the respondents said they experienced human wildlife conflict while (6%) indicated that there were no human wildlife conflicts experienced in the conservancy (Figure 5.22). Regarding types of human wildlife conflicts experienced in the area: livestock depredation seemed to be the most common problem (28%), human attack by wild animals was also a perceived problem in the area (26%) followed by crop depredation (22%). Other types of conflicts (Figure 5.22), included wild animal attack on human being (14 %), poaching (10%) was least experienced in Enoonkishu Conservancy.

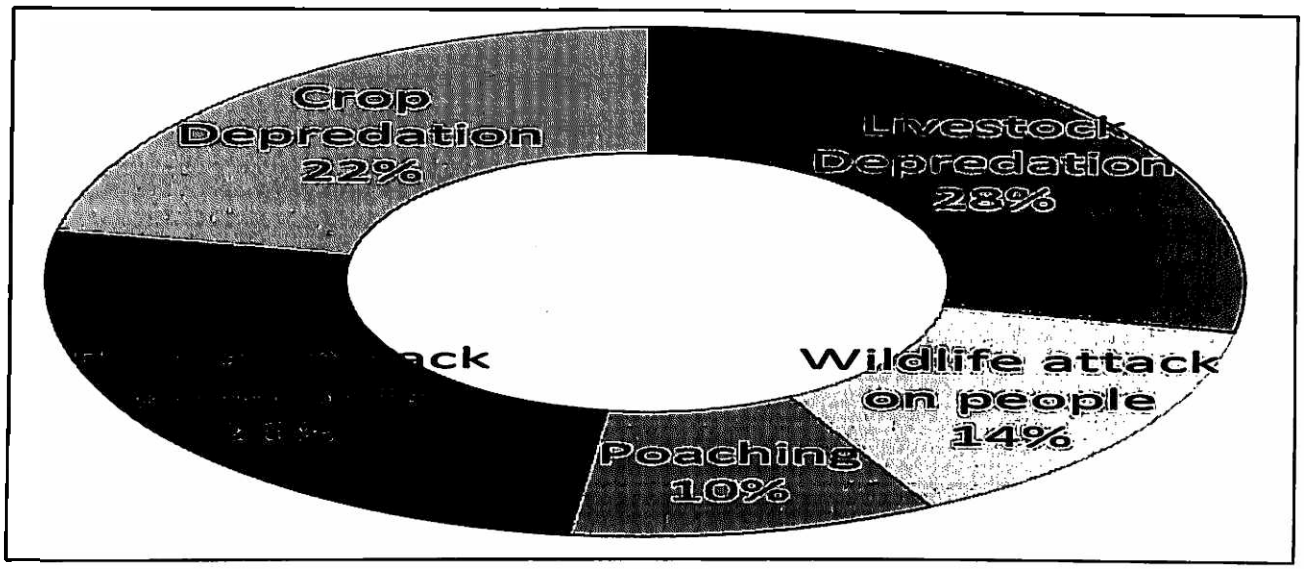


Figure 5. 22 Types of conflicts

5.3.13 Wild Animals Involved in Conflicts

46% of the respondents said elephants were mainly involved in human wildlife conflict followed by lion (30%), leopard (18%), the rest of animals attributed to less than 5%, (Figure 5.23). Elephants were more associated with crop depredation, destruction of stores and fences, while lions were associated with livestock depredation in the area. These findings are similar to Sitati (2003) who documented comprehensive human elephant conflicts in Transmara district, but are different from Mwathe (2007), who documented hyena as the wild animal most involved in conflicts in Nguruman.

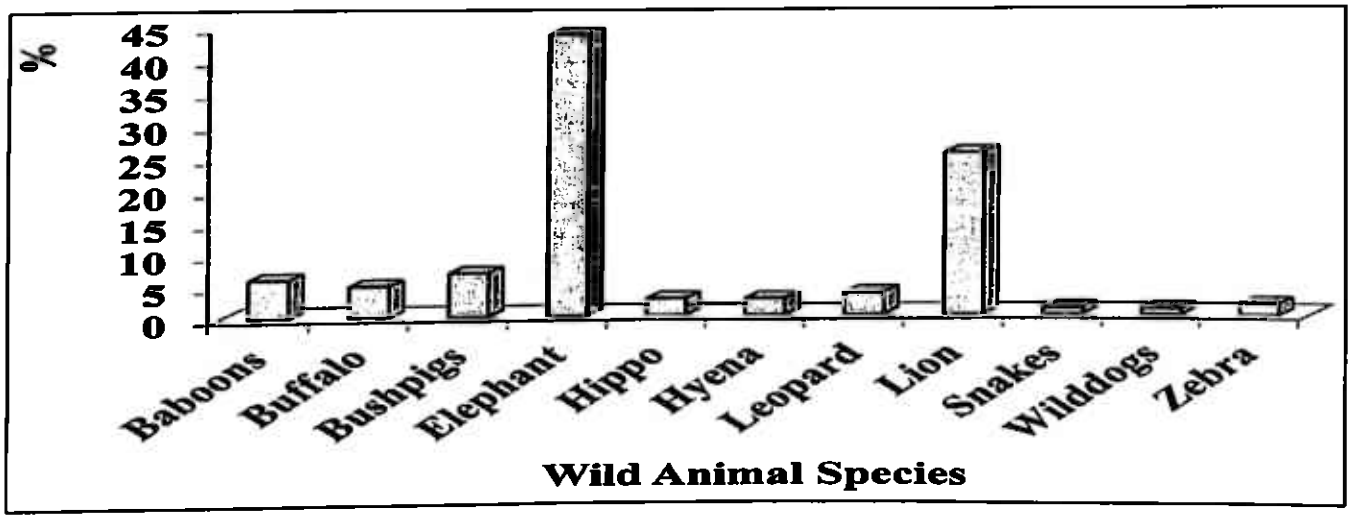


Figure 5.23: Wild Animals Involved in Conflicts

5.3.14 Causes of Conflicts

Majority of the respondents (25%) indicated encroachment as the main cause of conflicts, followed closely by farming (10%). Other reasons given by respondents include crop depredation, competition between residents' animals and the wild animals and drunkenness, ranging from 0.1% to 5% (Figure 5.24).

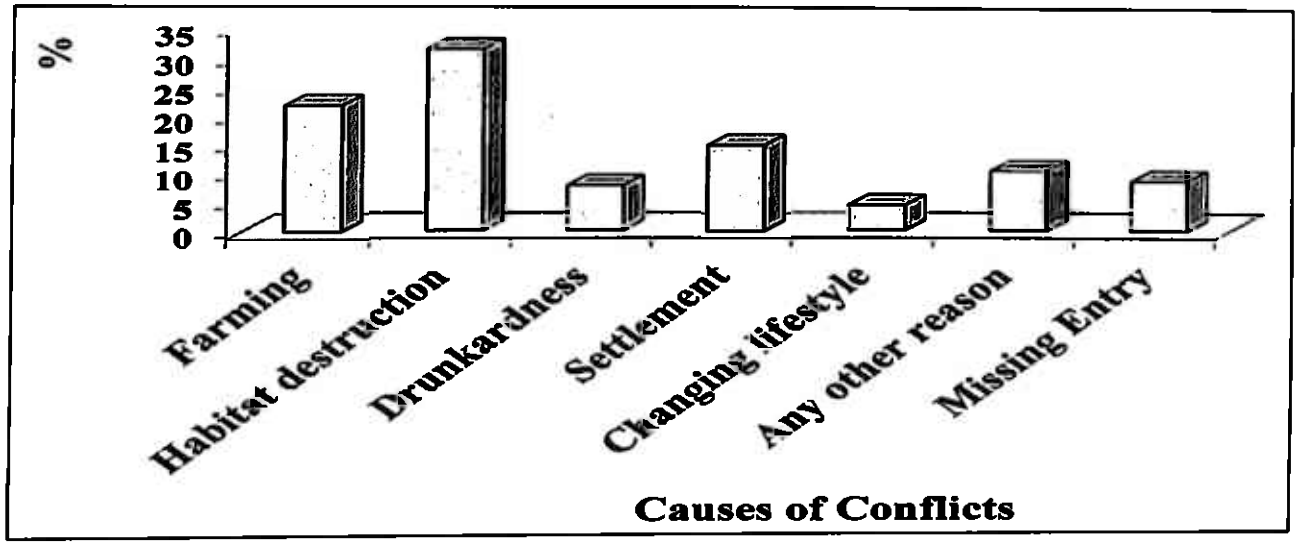


Figure 5.24: Causes of Conflicts

5.3.15 Wild Animal/habitat Uniqueness in Enoonkishu Conservancy

77.4% of the respondents said that there were unique animals that could only be cited in Enoonkishu Conservancy, while 22.6% of the respondents said there were no unique animals found in Enoonkishu Conservancy. Among the unique wild animals included black and white colobus monkeys, klipspringer and wild dogs, while unique wildlife habitat included expansive indigenous and riverine forests.

5.4 Land Use Land Cover changes

The study sought to find changes that had taken place in Enoonkishu in terms of land use and land cover in a span of 20 years. Three broad classes of land use and cover were identified on the Landsat TM image that is; forests, grasslands and farmlands. Findings indicated a close link in increase/decrease of the land use and cover over the 20 years under investigation. The trend line in land use and land cover changes in years under investigation was strong to explain increased changes in land use and decrease in land

cover, and therefore reject the null hypothesis that states "No change in land use and land cover has occurred in Enoonkishu in the last 20 years".

The trend line in forest cover is explained by a 92% decrease in relation to the 20 years and is therefore strong to solely explain the sharp decrease of forest cover within the conservancy area. The sharp decrease in forest cover could be explained by two main issues namely: livelihood issues, settlement and development in the area. With issuance of individual title deeds, households had to settle in respective allocated plots, considering that vast area in Enoonkishu was forested they were forced to clear to create family settlements. For the case of livelihood, the area residents who are mainly Maasai's have transformed to become agro pastoralists and embracing agriculture as alternative means of eking livelihood. This has seen them practice crop farming or are leasing out land to agricultural communities. Charcoal burning has also been cited as a key contributor to forest loss, whereby landowners enter informal agreements with charcoal burners, and get a certain percentage of revenue from sale of charcoal. It was noted that charcoal produced from the area is one of the finest quality and is referred to as 'black gold'.

Grasslands and crop farms have on contrary showed a marked increase of 90% and 97% respectively. Increase in area under crop farms can be explained by the expansion of land under agriculture both large and small scale farming. Those practicing large scale farming own farms that were acquired before onset of land subdivision in the group ranch and practice irrigated farming and specializing in maize, beans and millet production for commercial purposes. On the other hand small scale farming is practiced on small pockets mainly slash and burn for subsistence.

Increase in grassland cover can be explained by the fact of regeneration of abandoned crop farms. Findings of this study are similar to Sitati (1997) who noted that cultivated acreage in pastoral ranches to the north of reserved had markedly increased from 73 km^2 to 308.6 km^2. Mundia and Muryama (2009) also documented decrease in forest cover and expansion of agricultural land in areas surrounding Maasai Mara National reserve. Mbonile *et al* (2003) and Olson *et al* (2004) also had a similar observation and noted that

woodlands and forestlands without enforced protection status had been reduced in size and their respective vegetation cover diminished. Such areas had either been converted to pastures for grazing, or fields for rain fed agriculture or their woody plants extensively cut for charcoal production.

The conservancy model therefore comes in handy to stabilize land cover changes by incorporating compatible land uses.

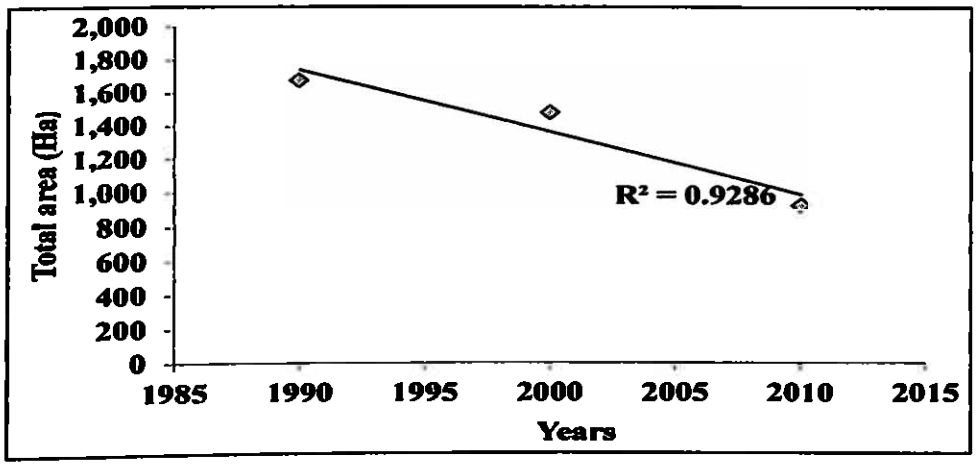


Figure 5.25: Forest Cover change

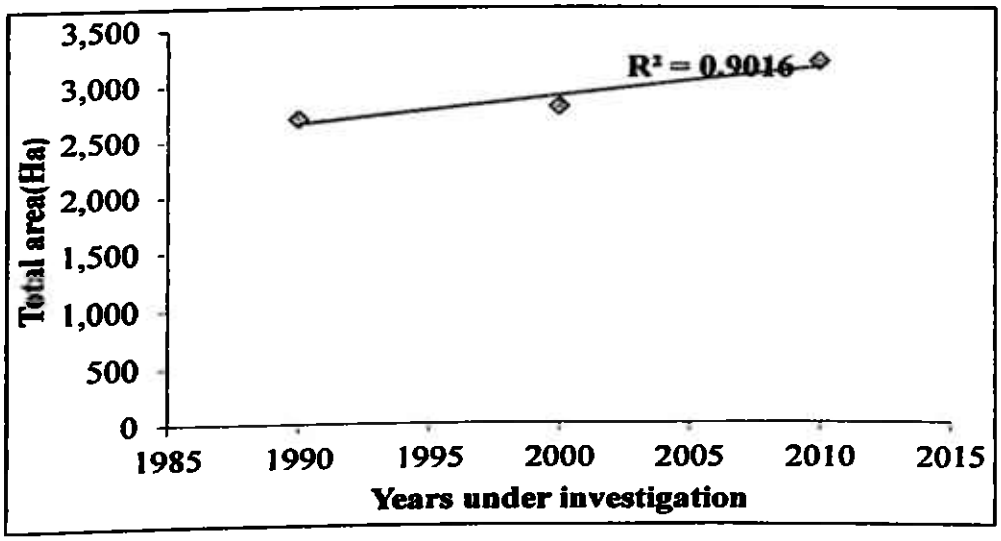


Figure 5.26: Grass lands cover Change

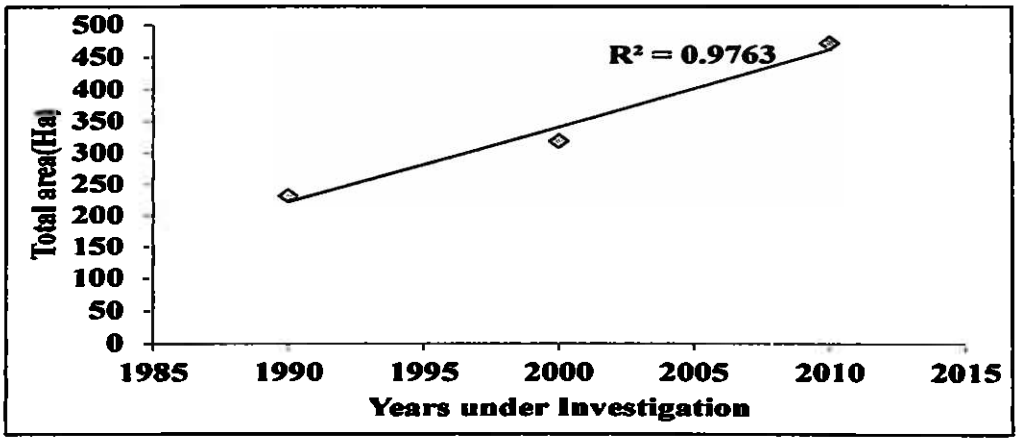


Figure 5.27: Crop/Farm lands

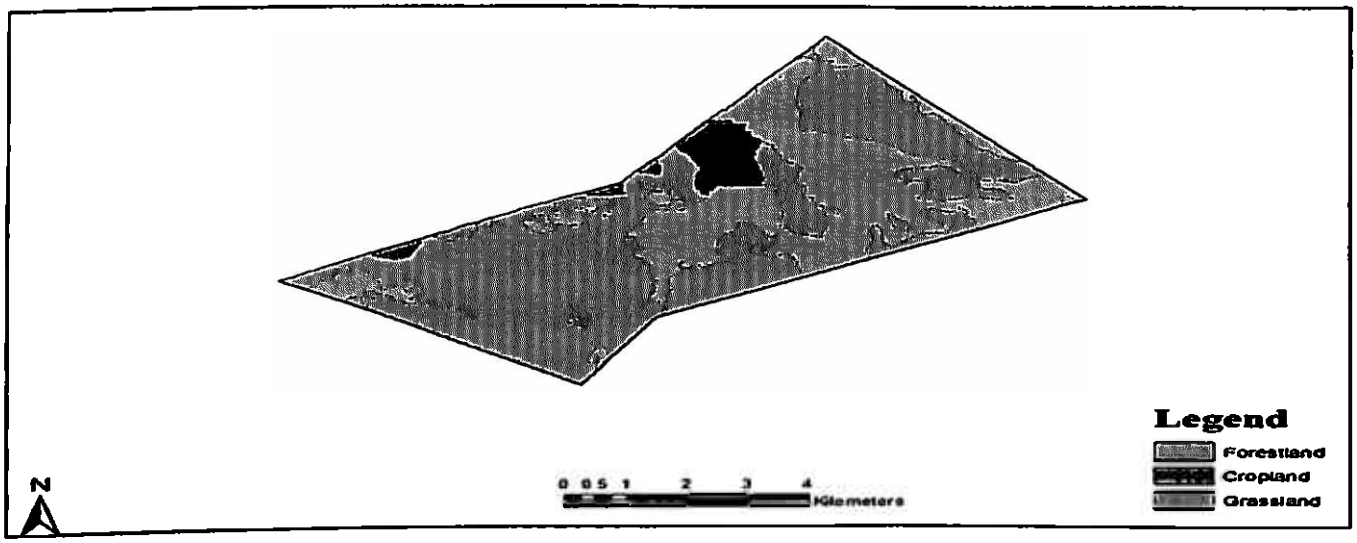


Figure 5. 28: Land Use and Land Cover of Enoonkishu in 1990

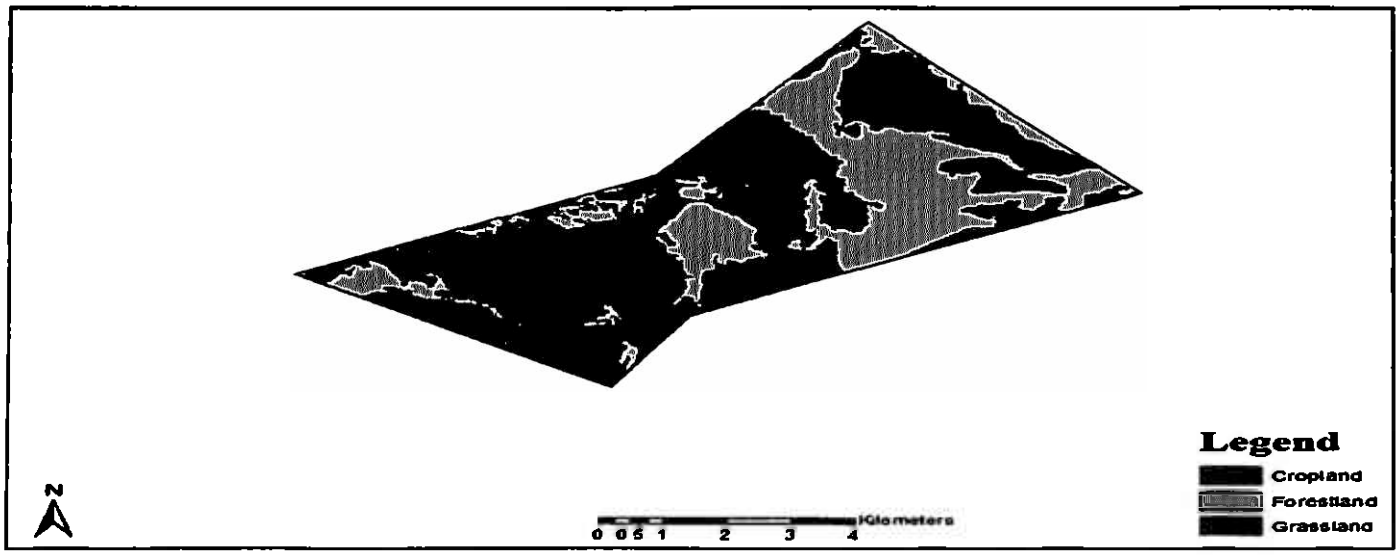


Figure 5. 29: Land Use and Land Cover of Enoonkishu in 2000

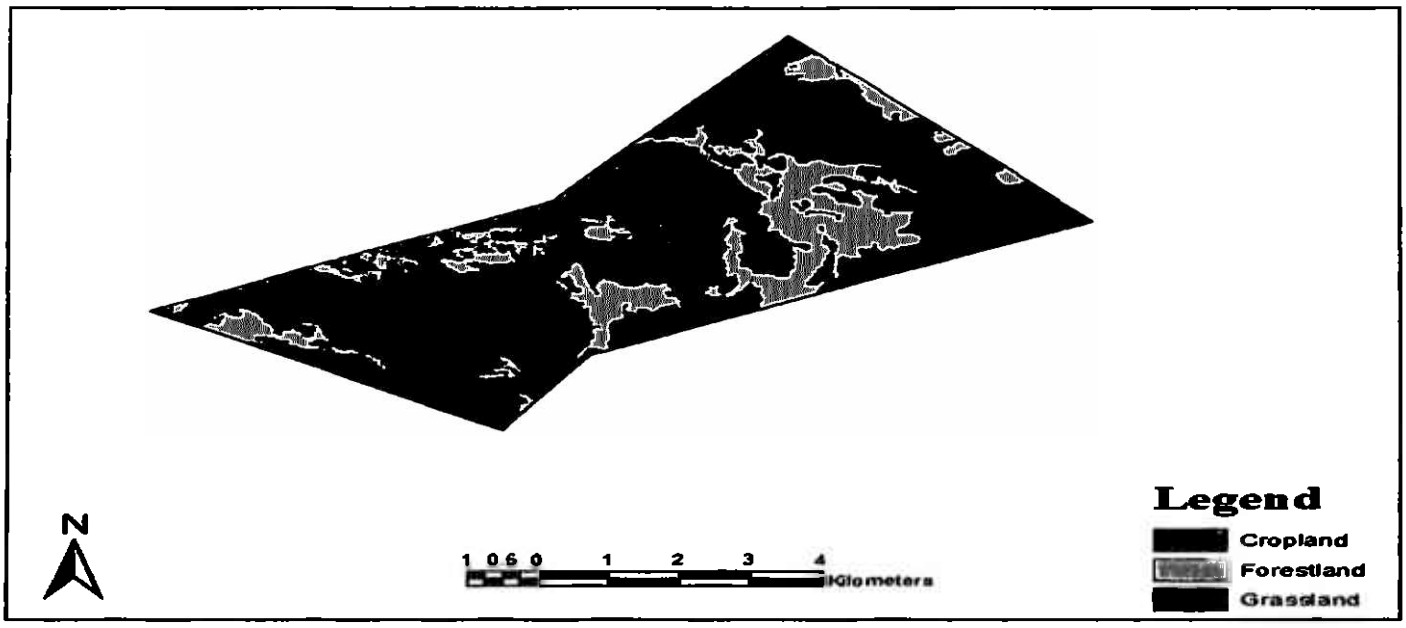
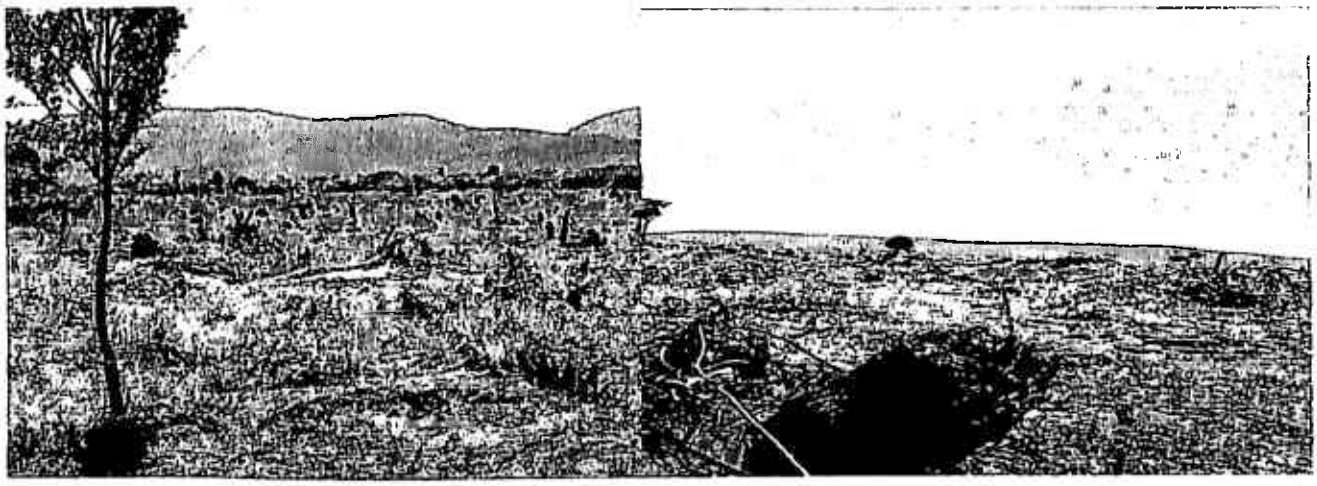


Figure 5. 30: Land Use and Land Cover of Enoonkishu in 2010



Source: Tarquin Wood

Plate 5.1: Sections of Cleared Areas

5.5 Attitudes and Perception towards Conservancy Establishment

The study examined attitudes and perception of local community towards establishment of Enoonkishu Conservancy.

5.5.1 Membership and Stake in the Conservancy.

Majority of respondents (86%) were members of the conservancy while (14%) were not members. Category of membership included: (84%) shareholders and investors (7%) the remaining (9.0%) were non shareholders.

Regarding stake of the respondents in the conservancy as per the membership drawn from, majority of the respondents (44%) had between 1-50ha of land invested in the conservancy, (23%) had 51-100 ha, (15%) contributing 101-150 ha, (9%) had other investments besides land, while 9 % did not have any stake in Enoonkishu conservancy, which represented the nonmembers of Enoonkishu conservancy (Figure 5.28). The study revealed that majority of respondents is members of Enoonkishu Conservancy by shareholding, and have put portion of land to conservation. Membership also includes investors such as Olerai limited, Free the Children, Shimo Limited, African Bee keepers limited, Nubian and Sopa Lodges.

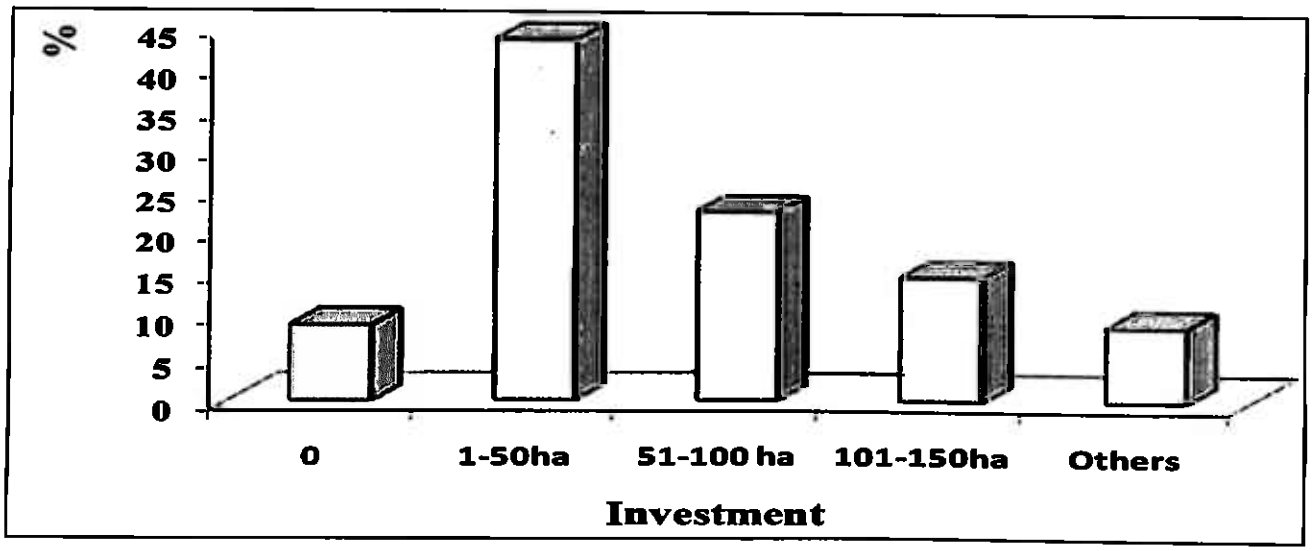


Figure 5.31: Respondents stake in Enoonkishu Conservancy

5.5.2 Importance of Establishment of the Enoonkishu Conservancy

The study sought to know whether conversion of the area to conservancy was of any importance to the community. 91.4% of the respondents indicated that conversion was of great importance while 4.3% did not find any importance in conversion, 4.3% of the respondents did not know whether the conservancy was of any importance to the community (Table 5.1).

Table 5. 1: Importance of converting Enoonkishu Area into Conservancy

	Frequency	Percent (%)
Yes	105	91.4
No	5	4.3
I don't know	5	4.3
Total	**115**	**100.0**

5.5.3 Attitudes and Perceptions towards Establishment of Enoonkishu Conservancy

A number of statements were posed to respondents to gauge local community attitudes and perceptions towards establishment of the conservancy. Respondents were to indicate whether they strongly Agreed (SA) Agreed (A), Unsure (U) Disagreed (DA) or Strongly Disagreed (SDA) with the statements posed.

According to the findings of the study, local communities in Enoonkishu conservancy have responsive attitude and perceptions towards formation of the conservancy. The respondents strongly agreed (81%) to the fact that the establishment of conservancy helped in conservation of the wildlife in the area and Mara Ecosystem at large. It was also strongly agreed (64.3%) that formation of conservancy would enable planned development of the area. This is an indication of how the community understands connections of Enoonkishu as a single unit to the larger Mara ecosystem. The issue of planned development comes in to shape up the adhoc development fashion.

It was evident that community members were involved (68.7%) in the formation of conservancy from the start; this gave community members chances to chat or discuss the different benefits and opportunities coming hand in hand with the adoption of conservancy and therefore giving each member equal say. The main purpose for establishment of conservancy was to conserve wild animals as an alternative land use option, the respondents strongly agreed (77.4%) that the conservancy contributed to community livelihood and as such were ready to give more land to conservation (64.3%). Community participation is an important aspect in governance of community conservation initiatives.

However, traditional pastoralism is an issue of concern, since respondents appear unsure of the improved pastoralism that the conservancy is advocating for as an alternative to traditional pastoralism. 24% of the respondents strongly agreed formation of conservancy would interfere with traditional pastoralism, (13%) agreed, (23%) were unsure, (21%) disagreed while (20%) strongly disagreed (Table 5.2). Improved pastoralism involves reducing stocking rate while improving the quality of productivity to minimize resource conflicts associated with overstocking. This is one of the factors that should be critically examined and addressed in order to balance conservation work and Maasai traditional lifestyle of livestock keeping.

The positive attitude of the community towards establishment of the conservancy is almost similar to what was documented by Ariya (2008), who noted that community's attitudes and perception towards elephant conservation had appreciably changed following

the establishment of the human-elephant conflict mitigation project. However, most studies documented negative attitudes towards conservation, mostly due to lack of benefits accruing from conservation. Sifuna (2010) in his comparative studies between Kenya and Namibia noted that Kenyans had negative attitudes towards conservation, as wildlife conservation was often perceived interms of wildlife welfare and hardly interms of human welfare, unlike in Botswana where human welfare concerns had been mainstreamed in conservation effort, thereby giving it positive outlook. Sitati, (2003) also documented negative attitudes towards elephant conservation in Transmara District; this was due to destructive impacts that elephants had to human population within the area, and lack of benefits accruing to the community bearing costs of living within them.

Table 5. 2: Attitudes and Perception towards establishment of EC.

	ATTITUDINAL ITEM	SA	A	U	DA	SDA
	EC will help in conserving wildlife range.	81%	13.6%	3.5%	1%	0.9%
	EC will contribute to livelihood improvement.	77.4%	14.8%	6.1%	0	1.7%
	EC gives members equal chance to participate in wildlife conservation and access to benefits accruing from conservation.	68.7%	18.3%	9.6%	1.7%	1.7%
	EC supports other conservation compatible land use practices.	68.7%	20.9%	6.1%	1.7%	2.6%
	The future for wildlife is good with establishment of Enoonkishu conservancy.	82.6%	12.2%	4.3%	0	0.9%
	Am willing to give more land to conservation	64.3%	14.8%	11.3%	3.5%	6.1%
	I took part in the formation of Enoonkishu Conservancy from the beginning.	69.9%	11.9%	10.8%	7.2%	1%
	EC will contribute to conservation of Maasai Mara Dispersal areas.	72.2%	17.4%	7%	1.7%	1.7%
	EC will enable planned development in the area.	64.3%	17.4%	13%	1.7%	3.5%
	EC has excluded part of the community in conservation.	30%	10.8%	13%	26.4%	18.9%
	EC will interfere with traditional pastoralism	23.5%	12.8%	22.6%	21.1%	20%

SA: Strongly Agree, **A:** Agree, **U:** Uncertain, **DA:** Disagree, **SDA:** Strongly Disagree

5.6 Contribution of Conservancy to Community Livelihood

5.6.1 Changes in Income

The study investigated whether there were any changes in the income of respondents since establishment of the conservancy. 85% of respondents claimed there were notable changes in the level of their income, while 15% had not realized any changes.

There were also benefits accrued to members of the conservancy (89.6%) as opposed to non-members (10.4%). These benefits ranged from employment opportunities (30%), market for products (30%), social amenities (21%), diversified sources of livelihoods and least of all was land leases (10%) (Figure 5.29).

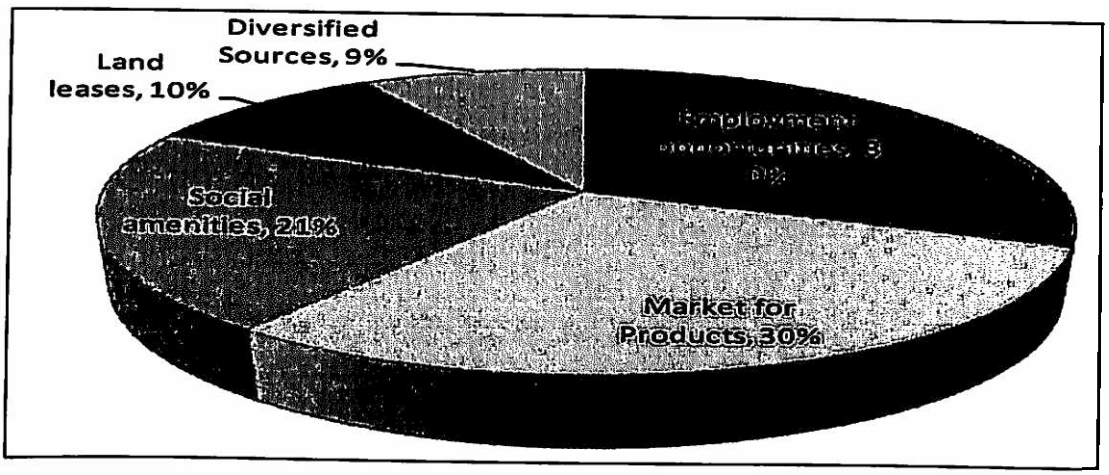


Figure 5.32: Types of benefits accruing to conservancy members

5.6.2 Land Use Incorporated in Conservancy

With regard to diversified sources of livelihood, a number of land uses had been incorporated in the conservancy. Beekeeping keeping (30%) was an outstanding land use, followed by wildlife tourism (24%). Crop farming (19%), improved pastoralism (13%), traditional pastoralism (12%) and sports tourism (13%). Others included wildlife ranching (9%) and charcoal burning (1%), (Figure 5.30).

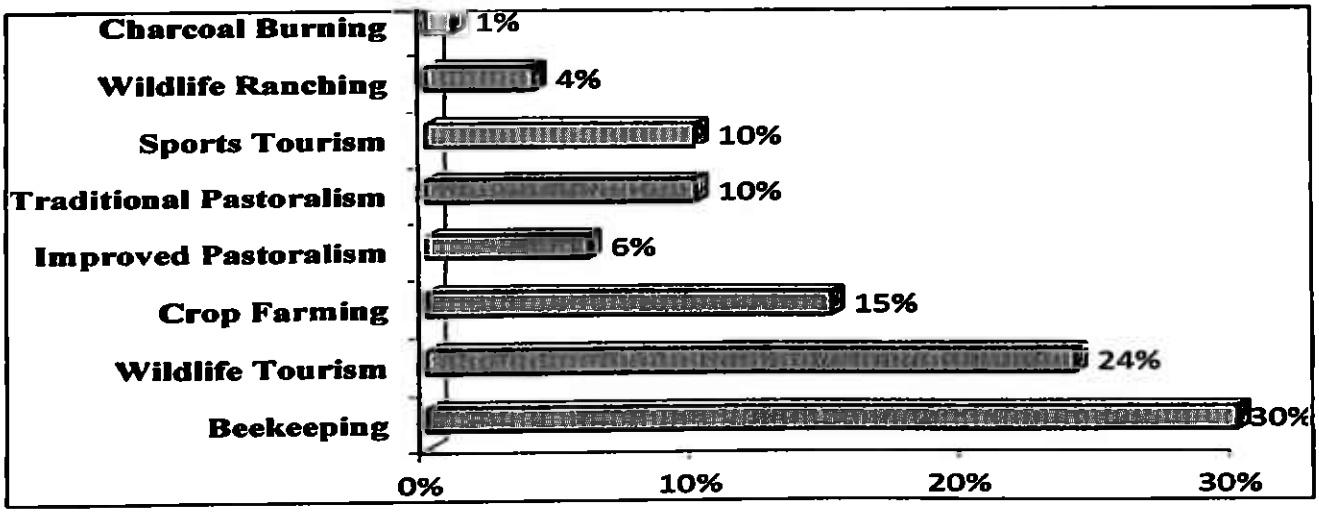


Figure 5.33: Land uses practiced in conservancy

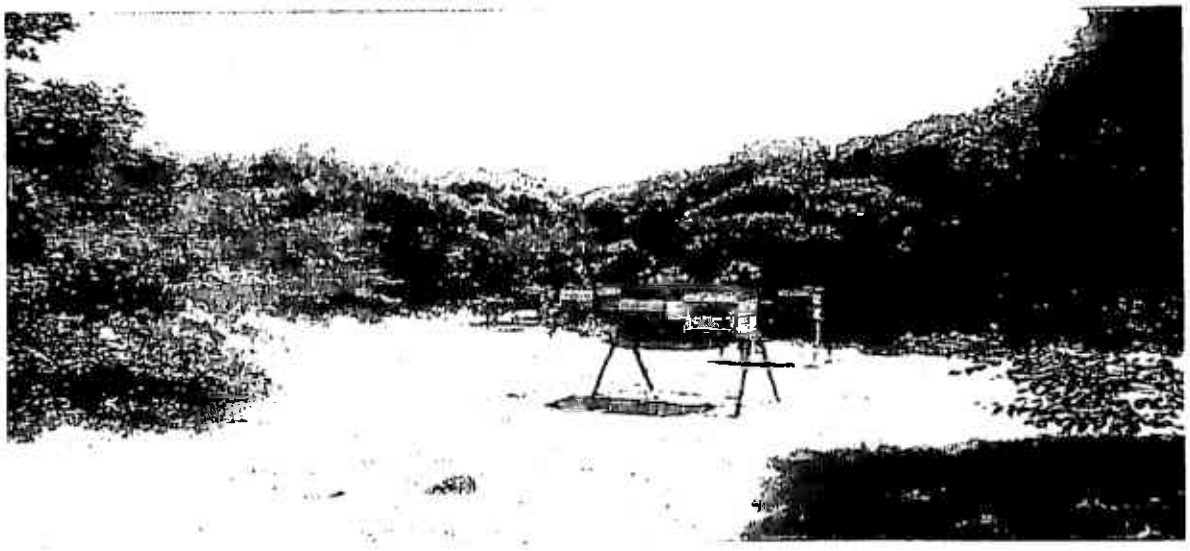


Plate 5. 1: Bee Hives Established in the Conservancy

Majority of respondents (85%) noted that these land use practices contributed towards revenue generation, while (8%) noted that the practices did not generate any revenue, the remaining (7.0%) did not have any idea as to whether they ever contributed to generation of revenue.

Exploring whether these land use practices were compatible with wildlife conservation, (83%) of respondents agreed that the land use practices mentioned were compatible with

conservation efforts by Enoonkishu conservancy, (11%) said that the land use practices were not compatible while (6%) of the respondents did not know whether the land use practices were compatible with the conservation efforts of the conservancy or not.

5.6.3 Social Amenities

Majority of respondents (83%) of the respondents noted that there were social amenities that arose from the establishment of Enoonkishu Conservancy while (17%) of the respondents said that there were no amenities. These included: health facilities, clean water, educational and recreational facilities (Figure 5.31).

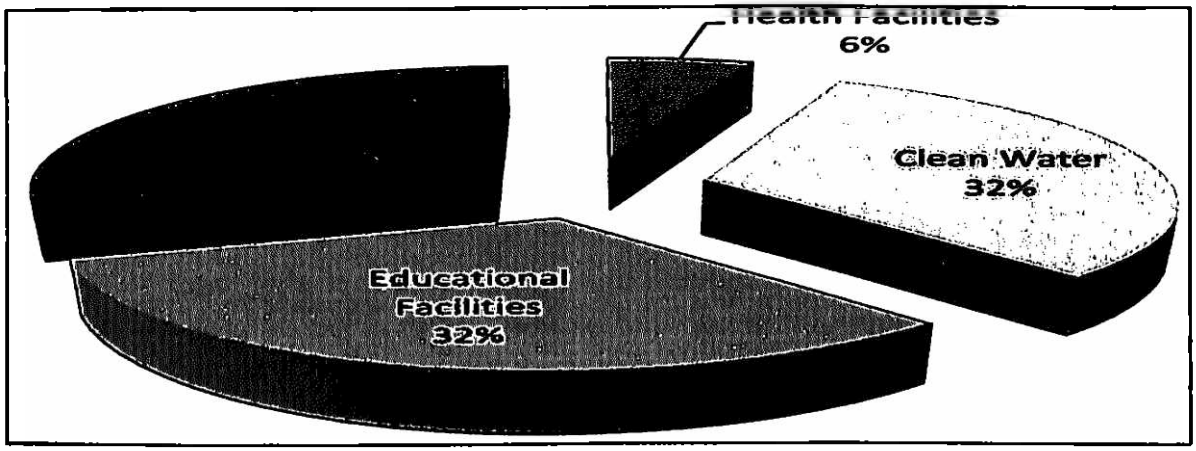


Figure 5.34: Social amenities within the conservancy

Source: Tarquin Wood

Plate 5. 2: School going Children in the Conservancy

Also arising due to formation of the conservancy were strong social community networks as evidenced by existing groups such as: women group (41.5%), scouts group (37%), youth group (17%) and men group (5%) (Figure 5.32). These groupings shared a number of common activities such as bead works and bee hive management cited with women group, while scout grouping were involved in wildlife monitoring and other conservancy management activities conservancy and got paid for services they rendered.

Asked whether the group's vision pointed towards securing livelihoods of its members: Majority of respondents (87%) attested to this, (7.0%) did not while (7%) of the respondents did not have any idea.

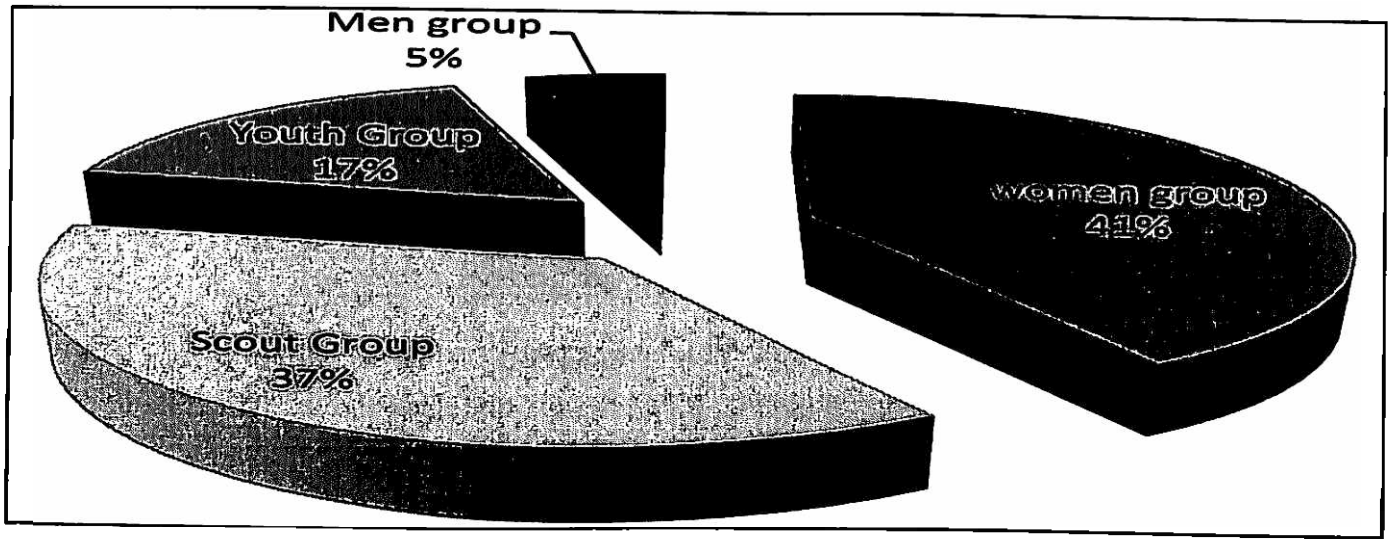


Figure 5.35: Social groups formed within Enoonkishu Conservancy

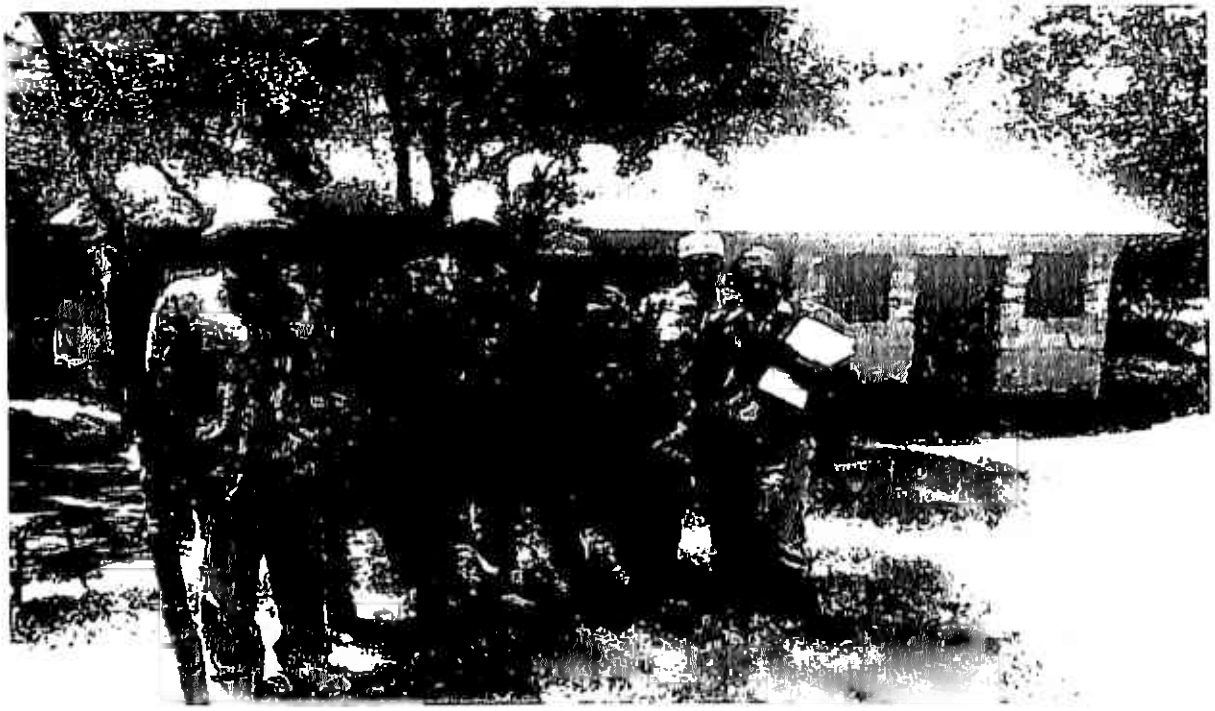


Plate 5. 3: Some Members of Enoonkishu Scout group

Plate 5. 4: Some members of Enoonkishu Women Group

Establishment of the conservancy has seen the community accessing benefits from conservation. Both social and economic benefits have so far been realized. Most benefits as indicated by the study are indirect such as creation of employment opportunities, market for products and social amenities. Employment opportunities have been created by camps established within the conservancy as well as the conservancy itself which employs community scouts who undertake patrols and management of wildlife. On the other hand, the Conservancy hosts sports: cricket competition on yearly basis, and has seen establishment of bursary kitty that supports school going children from the community, development of facilities such as health and provision of clean water to the community.

Direct benefits from conservation are a crucial factor for any community conservation venture to succeed. However, it appears that in the conservancy has not fully developed since the conservancy is in its early stages of development and therefore has not reached a level where members are paid monthly leases. The study clearly indicated that monthly leases have not yet been fully realized by members of the conservancy.

Community livelihood can also be examined in terms of social aspect, findings of the study evidently showed that the community within the conservancy has organized itself into groups namely: Enoonkishu women group and scouts groups. From the identities women group comprises of women from the conservancy who have joined hands and collectively undertake some economic activities such as bee keeping and bead work for sale. On the other hand Enoonkishu scouts group is made of young men, who are mainly involved in patrols and monitoring activities within the conservancy. It is under the umbrella of Enoonkishu conservancy that has seen growth of these social entities.

The findings agree with Coad *et al.* (2008) who argues that conservancies can help communities to improve their social, economic and environmental conditions by benefiting from the natural resources in their area. Besser *et al* (2006) also notes that conservancy model provides social network and that sense of social belonging contribute to the positive perception on poverty in a given region. According to Ashley (2000) many of the positive social impacts are better ascribed to CBNRM in general, than to the

tourism component in particular, however, the desire to develop tourism provides momentum for the broader process. While assessing effectiveness of community based conservation in northern Kenya, Glew *et al* (2010), noted that local community accessed a number of benefits from the conservancies, these included: medical care and educational bursaries, provision of water, improved security in the area as well as transport facilities. The majority of livelihoods as a result of community-based conservation were not financial in nature. Bedelian (2010) noted that conservancy model offers individual an opportunity to gain financial benefits from land leases

CHAPTER SIX: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter provides summary of the findings from chapter five, it also gives conclusions and recommendations of the study based on study objectives.

6.2 Summary of Findings

The following were major findings of the study:

Conservancies just like protected areas can be exceptional wildlife conservation sites and complement conservation of wildlife. Enoonkishu is a host of diverse wildlife species, which can be linked to diversity of habitat types within the conservancy. The most important habitat types (wildlife zones) being forests, swamps, grasslands and bushes, while settlements, farm field and rocky areas form least important wildlife zones.

The study established that the Enoonkishu Community Conservancy has contributed towards wildlife conservation in the Mara region because the area is characterized by a wide range of wildlife. Dominant wild animal species in the conservancy include elephants and zebras, whereas rhino, wild dogs and cheetah were classified as rare animal species. Regarding valued wild animals, elephants, lion, rhino and wild dogs ranked top in this category. However, dik diks, hare, hyena, baboons and antelope were lowly valued by community. Additionally, elephants and lions were ranked as the most problematic wild animal species in the conservancy mainly involved in crop depredation, infrastructure vandalism, human attack and livestock depredation generally termed as human wildlife conflicts.

The study noted that rare (rhino and wild dogs), valued (elephants, lion, rhino and wild dogs) and most problematic animal species (elephant and lions) should form focus for community conservation initiative. On the other hand, wild animals perceived to be of least value were also rated as those to be least considered for community conservation initiative, they included: hare, dikdiks, baboons, antelopes and zebra, one of the dominant wild animals in the area. The conservancy is also a host of both migratory and resident

wild animal, migratory species are mainly elephants and wildebeests whereas zebras, gazelles, hyena and elephants being resident species. The conservancy initiative brought about surveillance through frequent patrols, this reduced incidences of habitat destructions and illegal bush meat hunting thereby resulting to return of some wild animals which had disappeared from the area, and these include: buffaloes, wild dogs and lions, termed as new animal species in the conservancy. Before initiation of the conservancy, poaching, human wildlife conflicts and habitat destruct were so imminent and contributed to loss of wild animals in the area, rhinos, wild dogs and cheetah are among the affected species.

The conservancy model offers a unique set up in, that there is close interactions between human being and wildlife, thus human wildlife conflicts of different kinds. Livestock depredation, crop depredation and human attack on wildlife are common forms of human wildlife conflicts in the areas. Habitat destruction, farming and settlement being main causes of the conflicts.

The study revealed major changes in terms of land use and cover in the study area. There was massive reduction of forest cover for the past 20 years, mainly to create space for crop farming. Both large scale irrigated farming and small scale rain fed 'slash and burn' farming were being practiced in the area. Farming is practiced by non Maasai's who have leased land from Maasai's. There are also few Maasai's who are gradually embracing farming as an alternative means of livelihood. Contrary, there is marked increase of both grassland cover and crop farms, showing 90% and 97% increase.

Regarding local community attitudes and perception towards establishment of Enoonkishu Conservancy, the study found that the community was positive towards the community conservation initiative. It was perceived that formation of Enoonkishu Conservancy would contribute to conservation of wildlife range, enable planned development in the area and contribute to livelihood of the community by incorporating conservation compatible land use. As such community was willing to set aside more land for conservation purposes, as they have known essence of conserving the area. Community involvement in formation of the conservancy from the initial stages was evident and had strong expression of future for

wildlife being guaranteed with conservancy model being adopted; however changing pastoralism style is still an issue to be examined as most community members were unsure of improved pastoralism.

Lastly, findings of the study revealed that formation of the conservancy contributed to community livelihood systems. Both direct and indirect benefits have been accessed by conservancy members. Direct benefits presently evident are employment opportunities and market for products. Indirect benefits include: social amenities such as provision of clean water and educational facilities in terms of physical infrastructure and bursaries to students. Monthly land lease to land owners has not fully developed in Enoonkishu Conservancy since it is in its early establishment stages.

Also coming up with the establishment of Enoonkishu Conservancy is formation of strong social networks evidenced by formation of Enoonkishu women group and Enoonkishu scout group. Besides being involved in conservation efforts within the conservancy, the groups conduct activities to generate revenue, and thus addressing livelihood.

6.3 Conclusion

The study concludes that formation of the conservancy has contributed to wildlife conservation and the livelihood of community. The contributions depicted by the establishment ranges from ecological to socio-economic.

Firstly, in terms of wildlife conservation, the conservancy has diversity of wildlife, making it an important conservation zone and therefore calls for its protection and conservation. The area is a host of species marked as endangered; it also offers refuge for migratory wild animal species. The existing human wildlife conflicts are a normal scenario in area where wildlife range and human being overlap.

Secondly, land use and cover changes recorded is a resultant effect of dynamics of land tenure system in the area. This is an area which land was communally owned under group ranch and has gradually been subdivided into individual holdings whereby each owner has user rights by virtue of title deed. In this case, one has rights to put it under any

use. Uncontrolled use of land has contributed to massive forest destruction, and consequently destruction of wildlife habitat. Conservancy model therefore is conservation compatible land use option that should stabilize land use in the area by controlling what is to be practiced.

Thirdly, the positive attitude and perception that community has towards establishment of the conservancy is attributed to three things: age, level of awareness about conservation and community involvement in establishment of the conservancy. Community in the study area is composed mostly of youths who are informed about the dynamics of land tenure its impacts, and therefore have appreciated efforts towards mitigating. The involvement of local communities in the planning and establishment of the conservation measures such as the conservancies is important, as it gives early information to all concerned parties thereby reducing resistance.

Finally, conservancy model helped organizing the community within the area in ways that they can eke out livelihood from conservation activities. Both direct and indirect benefits have been realized by members of the conservancy, even though it is at its early stages of establishment.

6.4 Recommendations

The study therefore gives recommendations focusing on policy, management issues and area for further research as follows:

6.4.1 Policy Recommendations

This study recommends formulation of policies that strongly address community based wildlife conservation initiatives to encourage adoption of wildlife conservation as a land use option. The policies should support establishment of conservancies and diversification of direct benefits to include practices such as: wildlife farming and culling as the case of conservancies in Southern Africa. If the processes of formulation are underway, then adoption and implementation should be fast tracked.

6.4.2 Management Recommendations

i Land use plan should be developed and implemented to control encroachment into conservation areas.

ii Zonation of the conservancy or planning into core conservation area, buffer and settlement zones should be conducted, and this should take into consideration the present livestock production system, and be addressed accordingly, to reduce conflicts especially during extreme dry seasons.

iii Improved livestock management within Enoonkishu Conservancy should be promoted as an alternative to traditional pastoralism, as it cannot be supported by current land tenures.

iv Research on the viability of extensive wildlife production should be undertaken as the conservancy continues to take shape, as way to increase its sources of income.

6.4.3 Research Recommendations

The study investigated role of conservancy in wildlife conservation and community livelihood in Maasai Mara dispersal areas a case of Enoonkishu conservancy. It therefore proposes further investigations on:

i Conflicting aspects in community based wildlife conservation.

ii Wildlife census within Enoonkishu Conservancy.

iii Trends of human wildlife conflicts.

iv Challenges facing community based conservation in the area and what the government has done to enhance the sector.

v Equitable benefit sharing.

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APPENDICES

Appendix 1: Questionnaire For The Community

My Name is Dorothy Masiga Syallow, a student from University of Nairobi, department of Geography and Environmental Studies. I am undertaking research as part of MA degree in Environmental Planning and Management. The purpose of this questionnaire is to generate information to my study entitled "The role of community conservancies in wildlife conservation and livelihoods systems of the Maasai: a case study of Enoonkishu Conservancy, Narok County, Kenya. This is a purely academic research and any information provided will be kept confidential.

SECTION A: PERSONAL DETAILS

Tick the appropriate box or fill in blanks space

1. What is your age in years?.....
2. Level of education:

   (i) [ ] Informal **(ii)** [ ] Primary **(iii)** [ ] Secondary **(iv)** [ ] Tertiary
3. Occupation:

(i) [ ] Employed **(ii)** [ ] Self employed **(iii)** [ ] Un employed
4. Residence:

   (i) Birth **(ii)** Immigrant
5. Residential location within the conservancy area

(i) [ ] Inside (ii) [ ] Boundary (iii) [ ] nearby (iv) [ ] Far from conservancy
6. What is your ethnic background

   (i)[ ] Maasai (ii) [ ] Non- Maasai
7. Number of years spent in the conservation area.....
8. Category of membership:

(i) [ ] Investor (ii) [ ] Shareholder (iii) [ ] Non-Share holder (iv) [ ]

Part B: Wild animal species diversity community

9. Which are the dominant animals species in the conservancy?.....
10. Which are the rare wildlife species in the conservancy?.....

11. Which are the most valued wildlife species in the conservancy?.....

12. Which are the less valued wildlife species in the conservancy?.....

13. Which are the most problematic species in the conservancy?.....

14. Which are the most important wildlife zones in the conservancy?.....

15. Which are the least important wildlife zones?.....

16. Which species should form the focus of community conservation?.....

17. Which species may not require community conservation efforts?.....

18. Which are the resident animal species in Enoonkishu conservancy?.....

19. Which are the migratory animal species and when do they move in to the conservancy?.....

20. What is your perception of wild animal population and diversity in Enoonkishu Conservancy?

(i) [ ] Increasing **(ii)** [ ] Decreasing **(iii)** [ ] Constant **(iv)** [ ] I have no idea

20. What is your current perception of wild animal habitat in Enoonkishu Conservancy?

(i) [ ] Increased **(ii)**[ ] Reduced **(iii)**[ ] Constant**(iv)** [ ] I have no idea

21. Which wild animals used to be here but are now absent?

.....

22. What could be possible reasons for the disappearance of these wild animal species

(i)[ ] Poaching **(ii)**[ ] Loss of habitat **(iii)** [ ] Human Wildlife Conflict (iv) [ ] any other, specify.....

23. Which wild animals never used to be here but are now present?

Give any possible reasons for appearance

.....

24. Do you experience any human wildlife conflict in this area? (i) [ ] Yes

(ii) [ ] No

If yes, please tick common types of conflicts being experienced

(i) [ ] Crop depredation (ii) [ ] Livestock depredation (iii)[ ] Poaching (iv)[ ] Human attack (v)[ ] wildlife attack

(ii) Please state (a)wild animal involved the incase of human wildlife conflict, (b) tribes associated with poaching and wildlife attack in the area as well as reasons for.....

.....

(iii) In your own opinion what are the possible causes of the conflicts listed above

.....

.....

25. Are there any wild animal species or wild animal habitat which are unique and found in Enoonkishu Conservancy only?

(i) [ ] Yes (ii) [ ] No

Explain your answer

.....

.....

.....

Part C: Part C: Attitudes and perception of local community towards conservancy establishment

(a). Are you a member of this conservancy?

(i) [ ] Yes (ii) [ ] No

(b) If yes which category of membership do you belong to?

(i) [ ] Investor (ii) [ ] Shareholder (iii) [ ] others

State your stake in Enoonkishu conservancy in terms of

i) Investments for the case of investors .....

ii) Acreage/hectares contributed towards the conservancy incase of shareholders

.....

(c) If no give reasons why you have not subscribed to membership of the conservancy

.....

26. Do you think converting this area into conservancy is of any importance to the community?

(i) [ ] Yes (ii) [ ] No (iii)[ ] I don't know

Give reasons for your answer above:

.....

.....

27. Please indicate whether you agree or disagree with the following statements

Establishment of Enoonkishu Conservancy	**Strongly Agree**	**Disagree**	**Uncertain**	**Disagree**	**Strongly Disagree**
Establishment of EC will help in conserving wildlife range.					
Establishment of EC will contribute to livelihood improvement.					
Establishment of EC gives members equal chance to participate in wildlife conservation and access to benefits accruing from conservation.					
Conservancy supports other conservation compatible land use practices.					
The future for wildlife is good with establishment of Enoonkishu conservancy.					
Am willing to give more land to conservation					
I took part in the formation of Enoonkishu Conservancy from the beginning.					
Establishment of Enoonkishu conservancy will contribute to conservation of Maasai Mara Dispersal areas.					
Formation of Enoonkishu conservancy will enable planned development in the area.					
Enoonkishu Conservancy has excluded part					

of the community in conservation.					
Formation of Enoonkishu Conservancy will interfere with traditional pastoralism					

Part D: Contribution of conservancy to livelihood improvement

28. Have there been changes in your income since Enoonkishu Conservancy was established?

(i) [ ] Yes (ii) [ ] No

29. Are there benefits accrued to you for being part of the Enoonkishu Conservancy?

(i) [ ] Yes (ii) [ ] No

If yes what kind of benefits have you accessed?

(i) [ ] Employment (ii) [ ] Market for Products (iii)[ ] Monthly lease (iv)[ ] any other, please specify

.....

If, no state why you think Enoonkishu Conservancy is not of any benefit to you.....

30. a). Are there any other land use activities that have been incorporated into the conservancy?

(i) [ ] Yes (ii) [ ] No

b). If yes please tick to indicate land use practices that are currently being practiced within the conservancy alongside wildlife conservation

(i). Traditional Pastoralism (ii).[ ] Sports tourism -golfing

(iii). [ ] Traditional pastoralism (iv). [ ] Improved livestock keeping

(v.)[ ] Bee keeping (vi). [ ] Crop farming

(vii) [ ] Tourism (viii) [ ] Charcoal burning

(ix) [ ] Wildlife ranching

31. Do you think these land uses have contributed towards increased revenue generation?

(i) [ ] Yes (ii) [ ] No (iii) [ ] I don't know

32. Do you think these land use practices are compatible with conservation?

(i) [ ] Yes (ii) [ ] No (iii) [ ] I don't know

42. Are there any social amenities that have been or are being established since establishment of Enoonkishu Conservancy?

(i) [ ] Yes (ii) [ ] No

43. Please tick to indicate the kind of amenities:

(i)[ ] Health facilities(ii) [ ] Clean water facilities (iii) [ ] Educational facilities

(iv)[ ] Recreational facilities

Appendix 2: Questionnaire for Key respondents

1 In your own opinion do you think there has been changes in land use and cover in this area (Dispersal area of Maasai Mara)? What are some of the changes that have occurred in the past 20 years? What are the possible causes of these changes?

.....

.....

.....

.....

2 Are there any unique features/animals in Enoonkishu Conservancy

.....

.....

.....

3 What are some of the benefits experienced since establishment of Enoonkishu Conservancy?

4 In terms of conserving wildlife b) In terms of community livelihood round

.....

.....

.....

5 State and explain why conservancy model will be beneficial in conservation of greater Mara Ecosystem?

.....

.....

.....

6 Do you think adopting conservancy model will be beneficial? What are some of the opportunities that are likely to be associated with setting aside this area for conservation?.....

.....

7 What other land uses do you think would go hand in hand with wildlife conservation? Do you think it/they will contribute to community livelihood?

Appendix 3: Focused Group Discussion Questions

1. How is conservancy beneficial to you?
2. How has conservancy set up changed your pastoral lifestyle?
3. How were you involved in establishment of Enoonkishu Conservancy?
4. How do you see Enoonkishu Conservancy in the next 5 years?
5. How has establishment of EC contributed to livelihood?
6. How will conservation of Enoonkishu area contribute to preservation of Mara Ecosystem?
7. What changes interms of land cover and use have occurred in Enoonkishu area?
8. What challenges were faced in establishment of Enoonkishu Conservancy?