HUMAN PERCEPTIONS AND THEIR IMPLICATIONS TO WILDLIFE CONSERVATION IN OL DONYO SABUK NATIONAL PARK- MACHAKOS DISTRICT, KENYA.

BY

ROSE WAMUYU KIAMA

A Research Project Submitted in Partial Fulfillment of the requirements of Degree of Master of Environmental Planning and Management of Kenyatta University.

MAY, 2005

Declaration

This Research Project is my original work and has not been presented for a degree in any other University.

Signed.....Date.....3rd October 2005.....

ROSE WAMUYU KIAMA

N50/5809/2003

This Research Project has been submitted for examination with our approval as the University supervisors.

Ms. CAROLYNE GETAO

Signed.....Date.....3/10/05.....

Lecturer

Department of Environmental Planning and Management

Kenyatta University

Dr. AYUB MACHARIA

Signed .....Date.....3/10/05.....

Lecturer

Department of Environmental Science

Kenyatta University

Dedication

To Uncle John and Aunt Margaret

Acknowledgement

Many people have been an inspiration to the production of this report. I take this opportunity to acknowledge the contribution of various parties who made this study possible.

First and foremost, my sincere gratitude goes to project supervisors Ms Carolyne Getao and Dr. Ayub Macharia for their tireless effort, dedication and sacrifice which made it possible for me to complete my research project. I would also like to thank Dr. Abraham Ndung'u and Mr. Daniel Thuo, lecturers in the Department of Environmental Planning and Management who have positively stimulated my thoughts with ideas and relevant information on wildlife conservation.

I also wish to thank all the residents of Ol Donyo Sabuk area, the KWS Warden at the park and the KWS librarian at the KWS library for offering me the information I sought to achieve my objectives. I also acknowledge my research assistants Simos, Caroline and Mary for their assistance in questionnaire administration.

Lastly, my special thanks go to my Uncle John Kaniaru and Aunt Margaret Kaniaru who provided financial support that enabled me to successfully undertake this research. I would like to sincerely accept full responsibility for the shortcomings of the study and I remain entirely responsible for all errors and omissions.

Abstract

Wildlife is a renewable natural resource and has considerable economic value not only in Kenya but also all over the world. In Kenya it holds economic, cultural, aesthetic, spiritual and scientific values. When used wisely wildlife can enhance a country's economy though tourism. In Kenya it is estimated that 70 % of the gross tourism earning and 50 % of total gross domestic product is attributed to wildlife. Wildlife is also a source of game meat, tusks, horns and skins. Due to its value, Kenya has undertaken measure to protect it and ensure its sustainability through the concept of National parks and Reserves. Even with these concept of value in mind, National Parks and Ol Donyo Sabuk National Park in particular face threats of extinction resulting from varying perceptions on conservation by the local people. Conservation of wildlife in the park is greatly dependent on how people perceive the existence of wildlife. This study was carried out to examine factors that contribute to human perceptions and how this implicates on the conservation of wildlife. Ways of integrating these perceptions in conservation have also been identified.

Data collection methods included structured questionnaire administration for both household and KWS administration that composed the sampling frame. Other instruments used to collect data included; observation, photography aid and review of documented data. Data collected was analyzed using qualitative and quantitative techniques.

This study established that there are several factors that influence human perception on wildlife conservation. Cases of animals escaping from the park and damaging local community's crops and property, killing domestic animals and injuring people has led people to view wildlife as an enemy rather than a valuable resource. This tension creates human-wildlife conflicts. The conflict is worsened by the fact that no form of compensation is offered by the wildlife custodians to the victims suffering from wildlife destruction. The constant conflict between wildlife and the local community are attributed to the lack of community participation in wildlife management. Benefits derived from the park are not also shared with the community. The existing policy framework does not give the local community a chance to feel like they belong to the conservation system. The policies have excluded people from national Parks and this makes people view wildlife as government property.

To rescue these wildlife resource local communities need to perceive conservation positively. This is the only way for them to participate in conservation. To put this appropriate conservation strategy in place, the study recommends that: policies and legislations governing wildlife should be reviewed to accommodate people's needs; community participation should be greatly enhanced; revenues derived from the park should be shared with the community; compensation schemes should be reviewed; public awareness and sensitization on conservation should be practiced; a project to plant a buffer zone should be initiated; and an integrated management plan for the park should be developed.

Table of contents

Chapter Two: Literature Review

Chapter Three: Study Area

List of Tables

List of Plates

List of Figures

List of Abbreviations

PRA	Public Rural Appraisal
ODSNP	Ol Donyo Sabuk National Park
KWS	Kenya Wildlife Service
USAID	United States Agency for International Development
UNEP	United Nations Environment Programme
WWF	Wild Wide Fund for Nature
IUCN	International Union for Conservation of Nature
ICRAF	International Centre for Research in Agro forestry
CAMPFIRE	Communal Area Management Programme for Indigenous Resources

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Wildlife resources in the world are dwindling rapidly under pressure of population increase, use of forests and grasslands for commercial exploitation or small- scale agriculture, and 'development' in general. At the same time conservation programmes have been launched in the many countries of the world to increase awareness and to preserve selected species and their habitat. The methods and the means of wildlife preservation have been subject to much debate, especially in Africa (Paul, 1987) International and national conservation institutions have stressed conservation, mainly through the establishment of national parks and game reserves in which animals are protected from human interventions. These parks, reserves or estates are usually owned and managed by the state, local county councils and private organizations, acting as the guardians of the national wildlife heritage. Communities surrounding protected areas however, have often borne the costs and rarely received the benefits associated with neighbouring protected areas and hence have usually had little interest in the protection of the wildlife (Paul, 1987)

USAID (1993) indicates that, local peoples' attitude is often negative towards the protected areas. Communities in western Ghana for example, prefer forest reserves to wildlife reserves because their use of wildlife resources is more limited. Many traditional societies fostered belief systems as well as social norms which encouraged or even enforced limits to exploitation of wildlife resources. Economic change, population

growth and other factors, however, have brought far-reaching shifts in traditional patterns. Recently a different approach, based on utilization of wildlife resources and management by communities living with wildlife, has been promoted. Zimbabwe's CAMPFIRE programme is probably the best-known example of the approach, but similar initiatives have been taken in Zambia, Tanzania, Namibia and elsewhere. The CAMPFIRE is an example of the utilitarian approach in conservation. It uses wildlife as an economic resource where by the income from the resource is shared with the communities living with the wildlife. It not only aims to contribute to rural development, but also to change its attitudes towards wildlife and therefore to conservation of the resource.

According to World Bank (1992) the level of wildlife conservation problems varies from country to country depending on the stage of development, the structure of the economy and the wildlife policy in place. The recognition of environmental problems, per se, brings the question of sustainable development into the picture. The current trends indicate that developing countries have begun integrating wildlife issues in their developmental programmes. Wildlife resources are finite, limited and capable of being destroyed by wrong use. Therefore just because wildlife resources have always been there does not mean this will be the case in the future. These resources are diminishing very fast, as indicated by wide spread environmental degradation. For example, the rate of species extinction is very frightening in some parts of the world. In the tropics, the rate of disappearance is a hundred species daily. With the current rate of deforestation in the tropics, the resource bank of global forests, Himalayas, the Amazon and Indonesia

will be lost in the next 25 years (Georgiou, et al. 1997). Their extinction will also bring an end to the wildlife that depends on them for survival. Oceans, rivers, seas and lakes continue to get loads of pollutants from domestic, industrial and agricultural activities. For example silt pollution in the Indian Ocean is a threat to fish, corals and other life on the coast of Kenya. Pesticide pollution and *salvinia molesta* invasion of Lake Naivasha deprives the area off bio-diversity and destroys one of the world's famous bird sanctuaries and fisheries. The tragon of the Himalayan Mountains, the harlequin beetle of South America, the drill of Cameroon and the black lemur of Madagascar and other animal species are disappearing as their resource base disappears (Tolba, 1989). These examples indicate that wildlife resource conservation should be taken seriously.

Kenya is among those countries known for their rich bio-diversity and wildlife resources, but losing these assets at an alarming rate. Kenya's national parks and game reserves are a home to spectacular array of animals, birds, reptiles and plant species. They are rated among the best parks in the whole of Africa (Nyeki, 1992). There are also private and tribal community conservation areas that have become sanctuaries to some of the endangered animal species as well as the more common ones. Marine life is also excellent and is preserved in the marine national parks of Kiwanyau, Watamu and Kisite along the Kenyan coast. Wildlife conservation objectives in the country involve the natural environments and their fauna and flora, with an implicit emphasis on wild animals. The country is known for its diversified and unique flora and fauna. Most of the endemic animals and other habitats are found in the countries national parks and national reserves and wildlife sanctuaries. The Government of Kenya takes utilization of

land by wildlife as a very important aspect of land use. In recognition of the importance of its biological resources, a number of national parks and reserves have been gazetted. Of the total area of Kenya of 582, 640 sq km, national parks and reserves cover 44,562 sq km, which is about 7.65 per cent of the country. Of this, national parks account for 5 per cent and national reserves and sanctuaries for 2.6 per cent. These protected areas were established with the aim of preserving a national heritage of great ecological and economic importance. However, the level of rural poverty, lack of incentives, increased demand for grazing and cultivatable land, and many other multi faceted problems put a lot of stress on the conservation strategy of the country (Kenya, Republic of, 2002).

People value wildlife resources in different ways: spiritually, economically, aesthetically, culturally and scientifically. Wildlife values also differ at international, national and local levels. Conservation of wildlife is directly related to local residents, for whom the resources often represent their primary source of livelihood, medicine and spiritual values. Nations may also express values related to wildlife resources, often in relation to economic benefits brought about through resource use, both consumptive and no consumptive. Subgroups within a community or different communities often have different perspectives on the use and conservation of the same set of wildlife resources (USAID, 1993). Direct economic benefits from conservation efforts encourage local communities to adopt better resource management practices. Efforts to involve local people in conservation of wildlife in Kenya will not succeed in the long term unless local people perceive those efforts as serving their economic and cultural interests.

There is need to assess the ways in which cultural practices, perceptions and value systems have fostered conservation in specific setting and to investigate how such cases can be encouraged, strengthened and replicated. Value systems compatible with sustainable development cannot be prescribed, but must emerge through local participation, and with respect for traditional beliefs and practices that have effectively conserved wildlife for centuries. With the vast majority of wildlife on land and water outside protected areas, however, it is necessary for conservation efforts to extend beyond national parks and protected areas. For this to happen there is need for understanding of locals' perceptions on conservation so as to mitigate any arising conflicts. Kenya's perceptive on the need to utilize as well conserve existing resources need to be incorporated in any new wildlife initiatives. The Ol Donyo Sabuk situation is a case in point.

1.2 Statement of the Problem

Human threat to wildlife has drastically increased in recent years and it is imperative to put forward an appropriate conservation strategy in place to protect the endangered national park under study. The future of the park depends on this. Conservation strategies that emphasize on protection without consulting people and taking into account its implication on the local community often aggravate the damages on the national park.

Ol Donyo Sabuk like many other national parks in Kenya was established without the advice or consent of the local people. This is so because the policy on wildlife management does not give room for consultation with the local people most likely to be

directly affected by such establishments. (This is explained in detail in the literature review.) Without the support or at worst acceptance by these people, the future of the park area cannot be considered secure, since in their search for the means of survival, the temptation to exploit wildlife resources from the area or to encroach upon its boundaries will be irresistible. Studies indicate that a proper conservation strategy requires integrating the management of the parks and the benefits accrued from them with the community (Marekia, 1991). Wildlife conservation in Kenya has created a dilemma especially where its survival is weighed against other development needs in a country where the population pressure demands opening up of more and more land for human settlement and food production. Also wildlife move out of the park to the poor people's land leading to their capture where possible. The Park provides the last refuge for buffalo in this area. The buffalo here is indigenous to this area of the country, but their habitat has been depleted by agricultural development. The buffalos depend upon the park for their survival and yet even with the park in place, the habitat has been reduced through encroachment by human settlements. As a result, the critical habitat of these animals has been severely limited. As a result the animals wonder in the private land and come into conflict with the landowners.

More than ever before, there is a growing concern in the area to develop approaches and management strategies that would combine both developmental efforts and conservation measures, in order to attain and sustain human well being and sustainable wildlife use. This would seek ways and means of improving, maintaining and protecting the natural environment and the wildlife for the benefit of the local communities and all the country

at large. There is an urgent need to create the necessary awareness that would indicate and strongly emphasize the perceptions on sustainable use in the available wildlife resources. If the conservation of wildlife is to be addressed, there is need to first understand perceptions of the local communities and how they affect conservation. In particular, it is important to know what motivates those whose everyday decisions and actions influence the existence of wild life.

Peoples' interaction with wildlife is as old as society itself. Human beings are attracted to wildlife resources due to their economic as well as biophysical attributes. Wildlife attracts people for different products and services and as a result, meanings emerge that are used to identify wildlife resources. Wildlife provides meat, honey, tusks, hides and skins among other products and is an integral part of peoples' cultural history including mythology, art and religion. These positive meanings have contextual uniqueness which results in the wildlife symbolizing different meanings to different people. However, wildlife also generates negative meanings in so far as they are associated with crop destruction and danger to the human beings and livestock. Exploring peoples' perception of wildlife resources is important to reveal what they know and understand and in the process to reveal any misconceptions held. Collective and individual values and perceptions can significantly influence patterns of natural resource use to form the foundation of wildlife conservation.

Studies have been done on peoples perception on conservation in Kenya but a focus on Ol Donyo Sabuk has not been covered and this is what this study intends to do. This is because perceptions have been recognized to play a major role in the success or failure of

conservation and management of wildlife (Kiss, 1990). This study therefore intends to answer the question of how people perceive wildlife and how this influences their participation in conservation. In doing this it is important to appreciate how people perceive and react to the wildlife in the national park which also roams in their farms. The study will examine perceptions and how they vary across age, education and wealth

1.3 Research Questions

1. What is the existing policy framework on wildlife management in Kenya?
2. What factors contribute to the prevailing perceptions on wildlife conservation?
3. What are the implications of varying perceptions on conservation?
4. How can the community perceptions be integrated in wildlife conservation?

1.4 Objectives of the Study

The study aims at assessing individual's perceptions for conserving the wildlife of Ol Donyo Sabuk National Park. To achieve this goal, the study will specifically set out to.

1. To review the existing policy framework on wildlife management and the extent to which it addresses the needs of the local community.
2. To examine factors that contributes to the prevailing human perception on wildlife in ODSNP.
3. To assess the implications of human perceptions on wildlife conservation in ODSNP.
4. Identify ways of integrating the community perceptions in wildlife conservation.

1.5 Research Premises

The study is based on the following premises:

1. Age, Education, gender, income, knowledge about the wildlife are major determinants of individual perceptions in conserving the park.
2. People's actions towards conservation of the wildlife are guided by their perceptions

1.6 Significance of the study

It is important to promote environmentally sound and sustainable development in areas adjacent to protected areas with a view of furthering protection of these areas. It is equally important to involve local communities in conservation of wildlife. This is important because it benefits residents neighbouring protected areas and it makes them feel like they own the resource

The study aims at enhancing the protection and conservation of wildlife. Understanding human perception can assist in achieving this in three ways: First, people do not respond to all types of wildlife in the same way. Second, people of different ages and education levels may perceive conservation of wildlife in different ways. Where such differences can be identified, it may be possible to design conservation programmes to target different preference of specific audience. Finally human response and behaviour are shaped by a wide range of internal factors such as values, innate preferences and learned preferences and socially determined attitudes are more open to influence within the

deeply held values espoused by the communities while challenging beliefs and attitudes that may hinder conservation of wildlife.

The results of the study would also be relevant in forming a base for identifying conservation priorities and suggest new ideas for those entrusted with communicating the importance of wildlife to the people. It would at the same time enhance involvement of local communities in wildlife conservation and also ensure that wildlife also contributes to their welfare. Conservation of the wildlife resources is important in the country's development process. The results and recommendations of this study once interpreted, synthesized and fed back to various stakeholders could stimulate action towards changing negative perceptions to positive ones so as to ensure conservation of wildlife.

1.7 Justification of the study

Wildlife constitutes important resource with substantial socio-economic, cultural, scientific and environmental values. Kenya relies on tourism as a source of foreign exchange thus is determined to protect and conserve natural resources and particularly the wildlife heritage that it is endowed with. The study is focused on Ol Donyo Sabuk because it is an important national heritage. It contains important animals and plants as well as landform, unique geographic features (Fourteen Falls and the Kilimambogo Summit) and environmental phenomena and a large range of different habitats. As well as the economic value of tourism, the park has important ecological value and harbour vast vestiges of unique habitats that should be protected from misuse by human activities.

The study focuses o the role of the communities in wildlife conservation of the park. Conflicts arise due to animals escaping from the park and interfering with peoples lives. This makes the ODSNP a problem area due to these conflicts. These conflicts need to be addressed and to effectively do so, it is important to understand peoples' perceptions. Understanding perceptions would also help to guide the people in enhancing their conservation skills.

People have the ability to think, work and change things. They can improve or modify the environment through their perceptions on conservation. It is therefore necessary to direct to guide human resources for the provision of skills in natural resource management. Individual's positive perceptions on conservation have the ability to improve the environment. Deliberate efforts are required in order to make decisions that consider the environment in its totality

1.8 Scope of the Study

Spatially the study covered the area surrounding the ODSNP, which is 20 km2. It focused on the varying human perceptions influencing wildlife conservation and management in the park. The study focused on factors contributing to these perceptions and how they implicate in conservation. The study also looked at wildlife management policies in the park and advanced proposals and recommendations for sustainable wildlife management in the area. Consequently, the community members and the KWS administrators formed the study population.

1.9 Operational Terms

Conservation

Protection and rational use of resources to yield the greatest sustainable benefit. Conservation embraces preservation, maintenance sustainable utilization and restoration and enhancement of the natural environment (IUCN, UNEP and WWF, 1980).

Sustainable Use

Using resources to benefit present generations while maintaining its potential to meet needs and aspirations of future generations. It emphasizes the issue of meeting the needs of the present generation without compromising the needs of the future generations (IUCN, UNEP and WWF, 1980).

KWS

A state corporation charged with conservation and management of Kenya Wildlife Resource as directed in the Wildlife Act. It is the sole body charged with management of Wildlife Resource.

Stakeholder

Any individual or group with a distinct interest in the use and management of a particular natural resource.

National Park

These are areas set aside for protection of wild animals' vegetation, so that the authorities may propagate, protect and preserve them. In these areas hunting is forbidden. It is prohibited to kill or capture fauna, and destroy or collect flora except by, or under the direction and control of the park authorities (Nyeki, 1992).

1.10 Chapter Outlines

The study is subdivided into six chapters:

Chapter One comprises of introduction, background to the problem, statement of the problem, research questions, and objectives of the study, research premises, and justification of the study, significance of the study, scope of the study, operational terms and limitations.

Chapter Two is basically literature review and comprises of previous studies, agreements and disagreements and conceptual framework.

Chapter Three is description of the study area, that is, physical set-up, socio-economic set-up and ecological set-up of the area.

Chapter Four discusses research design and methodology used in the study. That is, types and sources of data, methods of data collection and methods of data analysis.

Chapter Five is data analysis and discussion using tables, statistics and charts relevant to the objectives and techniques applicable to data type.

Chapter Six gives the conclusion of the research project and comprises of findings, recommendations, summary, and areas for further studies.

Bibliography and appendices are included immediately after chapter six.

CHAPTER TWO

LITERATURE REVIEW

2.1 The Beginnings of Conservation

Since ancient times human beings have practiced conservation although they did not think of it in those terms. The stone-age hunters and gatherers, for example, hunted only a limited number of the wild animal as for their daily subsistence. They only killed mature healthy animals but left the young ones and potential mothers unharmed. Those animals, which were believed to be sacred, were left unharmed to avoid misfortune such as death and disease attacking the community. These practices ensured the growth, prosperity and survival of the wild animals and plant species (Marekia, 1991). In this way people co-existed or lived harmoniously with their environment. This kind of co-existence without destruction was possible at a time when the human population was small compared to the available resources such as land, plants and animals, Land use practices did not change dramatically. For example need for settlement land, road construction, timber harvesting and other development; the available resources were not exploited for commercial gain, e.g. hunting for skins, husks and meat.

The concept of conservation started in the 19th century. It began with a group of explorers at the historic campfire in Yellowstone, USA in 1870 (Nyeki, 1992). They decided that the area had such natural beauty that it should be made a "public park or pleasuring ground for the benefit and enjoyment of the people" (Nyeki, 1992). Two years later, the government passed a bill authorizing such use, and the words "National Park" came into official use.

This brought in the concept of protected areas. These were areas set aside by the government to protect and preserve the wildlife. They were seen as the most reliable way of safeguarding certain habits or species especially those in greatest danger. Many countries have consequently adopted this strategy. Canada for example, protected the area around the mineral hot springs at Banff in 1885. This later became Banff National Park. The national Trust of Great Britain was founded in 1895 to conserve places of national Interest (Nyeki, 1992). The Laponia National Reserve in Sweden was established in 1909. Denmark had 25% of its total land classified as an area of zoological interest where any change to habitats was prohibited.

President Kruger of South Africa created the first Game Reserve in the African continent in 1892. This was called Sabi Game Reserve, which later became the world famous Kruger National Park (Nyeki, 1992). In Zambia, between 1972 and 1975, 18 new National Parks were established. This replaced the old system of Game Parks. There was a consolidation of the management areas that replaced the old controlled hunting areas. The Department of Wildlife, Fisheries and National Parks was split in 1974, into the Department of National Parks and Wildlife Service, and Department of Fisheries.

In Nigeria, the first attempt to conserve wildlife started with the creational of forest reserve. The first reserves were established in 1900 some of which exterminated elsewhere. In early 1930s there was a rapid decline ink wild animals in Nigeria but there were conflicting view on how this decline should be stopped and whether it was

worthwhile to establish reserved areas. The main stumbling blocks to progress were the system of land tenure; the density of human population; the large herds of cattle and the high amount of hunting by individuals and by organized drives. In his report, Boyle 1948 recommended that Nigeria form three departments – Administration, Police and Forestry – to be responsible in various ways for wildlife management. Later the Forestry department alone took over the responsibility. The Forestry department of Northern, Western, Eastern and Mid-West formulated each of their own laws and methods of protecting wildlife. Nigeria is now divided into twelve States, each with its own Forestry Department responsible for the wildlife of the state.

2.2 Wildlife Conservation in Kenya

Development of wildlife conservation in Kenya can be divided into three periods, the pre colonial, the colonial and the post -colonial periods.

a) The Pre Colonial Period

The interaction of humans and wildlife in east Africa is old. Although most of the important events related to the present day conservation occurred in the 19th century, trade in wildlife products is reported as early as 110 A.D when Greek ships came down to red sea bringing goods to the East African coast. They took back Cinnamon and animal products such as tortoise shells and ivory. Ivory trade motivated slave trade through the demand for porters to transport the product to coast. Human suffering related to the slave trade is suggested as one of the reasons why Africans developed supposedly negative attitudes towards wildlife. In addition to ivory there was to export of rhino horns, tortoise

shells and leopard skins. Plant products such as myrrh were also collected. Wildlife conservation during this period was closely linked to the imperative of co-existence between humans and the natural environment. There was plenty of land and a lower human population density than today. Maintaining natural ecosystems in their natural state was therefore relatively easy. Hunting and burning of vegetation kept the balance between humans, wildlife and their habitats (Marekia, 1991).

b) The Colonial Basis Of Conservation

Prior to the 1960s, nature conservation was exclusively the concern of the white colonialists, following the establishment of the society for the while colonialists. Following the establishment of the society for the preservation of the Fauna of the empire in Britain in 1903. In 1905s, a delegation from the society met with the secretary for the colonies and drew his attention to the deterioration of the wildlife situation in east Africa. In response, in 1906 the 'Game Rangers' were started to help manage wildlife. Their role was to preserve game from preserve game from extinction, mainly the kudu rhino, sable antelope, buffalo and eland which had steadily decreased due to while settlements in wildlife areas. The two world wars resulted in significant killing of wildlife to provide cheap protein for prisoners and troops. After World War II there was agricultural expansion in Kenya. Pockets of wildlife, which had survived, were further reduced or entirely eliminated (Marekia, 1991).

In 1930, an International Convention held in London laid down the principle upon which national parks and other sanctuaries are to be established. The ratification of the

Convention by the British government in 1935 automatically bound Kenya to these principles. In January 1945, the colonial legislature adopted the national parks ordinance, which set the national park policy in the colony. In December 1946, Kenyans first national park (Nairobi National Park) was established. Others that followed were Tsavo National Park in1948 and Mt. Kenya National Park in 1949. In the real sense, whites for whites established these parks. The complex patterns of natural resource utilization practiced by the local population were not adequately understood and where such patterns were understood, they were singled out for eradication (Marekia, 1991).

The idea behind establishing parks was to protect nature from the natives. For this reason, the prospects of relinquishing the colonies to autonomous native governments frightened the whites. National parks administration was thus put under a body of trustees consisting of colonial private citizens appointed by the governor. The concept of national parks and game reserves had a strong aura of colonialism surrounding it. African reaction to them aroused some fear among the early major conservationists. They thus sought a solution to this by transferring a sense of ownership and responsibility from the white colonialists to the new rulers at independence.

With this in mind, the International Union for the Conservation of Nature (IUCN) launched its African special project in 1960. In the Arusha Conference in 1961, the gathering had the task of encouraging African leaders that nature conservation had economic potential in the form of tourism. Two African leaders Julius Nyerere of Tanganyika and Jomo Kenyatta of Kenya attended the gathering. Thus, national parks

and reserves initiated and implemented by the colonialists with no regard for African aspirations and needs were legitimized by the leaders of the two independent nations who saw their economic potential. In addition, protecting Africa's heritage in the new Africa's heritage in the new African states created a sense of national pride (Marekia, 1991).

c) Conservation in Independent Kenya

After the 1945 changes, two government institutions administered wildlife in Kenya. The Kenya National Parks Organization responsible for national parks and reserves and the Game department that was responsible for wildlife outside protected areas including those on private land.

At independence in 1963, there were 10 national Parks and game reserves. Until late 1978, the national parks were administered by the National Park Service under the supervision of a board of trustees. It is therefore ironic that major killings of wildlife in the 1970s particularly elephants was during the period when the inherited trustee system was in charge of conservation. In 1976 Act of parliament merged the two organizations into one government department, the wildlife conservation and management department under the ministry of tourism and wildlife. Poaching was so rampant in the 1970s that towards the end of 1987 a change of conservation and management policy was essential if Kenya was to save her remaining stock of her valuable wild animals. The government amended the wildlife conservation and management Act to create Kenya Wildlife Service in 1989. Power within the Kenya wildlife serve rests within the Director to whom

regional and individual park wardens are responsible. All the major decisions however were vested in the President (Marekia, 1991).

2. 3 Significance of Wildlife in Kenya.

The existence of humanity depends largely depends on wildlife resources for various uses. Benefits derived from wildlife include: spiritual, economical, aesthetical, cultural and scientific. In Kenya tourism has a major economic value. The tourist industry supports over 300,000 jobs, in hotel industry and in informal sector for people who produce handicrafts that are mostly bought by tourists. Indirectly it promotes agricultural development since tourists get a large demand for food both from here and overseas. It is estimated that 70 %of tourism earning and 50 % of total gross domestic product is attributed to wildlife. In a way wildlife has become one of the most important foreign exchange earners in Kenya today (Nyeki, 1992). National parks and reserves in Kenya are home to spectacular mammals and birds. They provide aesthetic beauty. This value cannot be estimated in terms of money. For these reasons we have to support and care for this valuable resource. Many people ask why we need to protect the remaining species of wild animals and birds from extinction. They wonder why there is so much concern for environmental conservation. The aim of conservation and management of wildlife is to provide opportunities for public recreation, preservation of plant and animal communities' scientific study, protection of water catchments and/or scenic areas and economic gain (Nyeki, 1992).

The government of Kenya has always recognized the magnitude of the wildlife destruction. Wildlife species have disappeared from the country's national parks and reserves. For instance the elephant population declined rapidly from about 165,000 to 18,000 and rhino from 250,000 to 350 between 1996 and 1988. A ban on game trophy dealing in 1977 and 1978 almost stopped the trade. At almost the same time, world opinion turned against the mass killing of these endangered creatures (Nyeki, 1992). Thus the government is determined to save the remaining herds of wildlife for the enjoyment of the present and future generations. It does this through establishment of national parks and reserves both terrestrial and marine.

2.4 Policy on Wildlife Resources Planning and Management

In order to provide mechanisms for nature conservation and management, Kenya has formulated its own policy on the environment and has also established an institutional framework to adequately implement this policy. It is important to note that Kenya's policy on nature conservation is not found in one policy but rather in various ministerial statements, national development plans, Sessional Papers and relevant laws. Wildlife protection is very much associated with, and influenced by policies dealing with overall environmental protection. However the legal framework for all KWS policy was set by parliament in Sessional Paper No. 3 of 1975 whose elements were bound into law in the Wildlife conservation and Management Act Cap. 376 amended in 1989. According to Kenya Republic of (1975), some of the policy issues concerning wildlife management include:

a) National parks

KWS with other stakeholders is supposed to continue to exploring the possibility of gazetting more national parks in both terrestrial and marine areas in order to protect representative samples of unique land, marine and coastal ecosystems that are vital for biodiversity conservation and sustainable development of Kenya and beyond. The management of marine protected areas and other national parks should be guided by management plans developed within the framework of Integrated Zone Management through a participatory process. This participatory process has however been ignored on the ground.

b) Conservation of Key Ecosystem

The key conservation areas include indigenous forests wetlands and arid and semi arid areas. KWS supports and will take an active role in the protection and sustainable management of the indigenous forest resources due to their invaluable ecological and intrinsic values as wildlife habitats and critical catchment areas. It is also the role of the KWS to support and continue to play an active role in the protection and sustainable management of the wetland resources because of their invaluable ecological and intrinsic values for conservation locally, nationally and globally. KWS supports and will continue to take an active role in the protection and sustainable management of the arid and semi arid areas ecosystems and landscapes because of their invaluable ecological and intrinsic values as ecosystems that supports critical species and genetic materials of national, regional and global importance (Kenya, Republic of, 1975).

c) Human-Wildlife Conflicts and Compensation

It is KWS policy to minimize human/wildlife conflicts by adopting appropriate and practical conservation and management strategies. KWS will help to create awareness amount the communities together with training to enable the communities to become effective in creating and managing wildlife barriers in their localities. Other policies of KWS include: to develop a competent authorities and private landowners who have a license and undertake game farming, ranching or any other forms of wildlife management with the responsibility of controlling problem animals arising from their property; and that where determined as appropriate compensation for damage and/ or loss arising from wildlife will be done by the state with funds voted by parliament and drawn from the exchequer at a scale commensurate with prevailing market conditions to be determined by the District Wildlife Compensation Committees. In that case compensation shall only apply when damage/loss occurs on land that has not been registered as conservation area. This is the rule that all visitors that enter the National Parks do to at their own risk. In the case of human injury or death it must be proved that it was not as ka result of deliberate provocation or teasing of the animal by the victim (Kenya, Republic of, 1975).

d) Encroachment in Protected Areas

Grazing of livestock is not allowed in National Parks water and pasture, transfer of diseases, grazing and the accompanying activities generally undermine the naturalness of the protected areas and are often not compatible with sustainable management of tourism potential of protected areas. Access to the national park by the communities for water, firewood, thatch, and timber or any other commodity available in the protected area is

prohibited. Where appropriate KWS will collaborate with the communities and other stakeholders to develop alternative sources of these resources for the convenience of the communities outside the protected areas.

e) Wildlife Use outside Protected Areas

It is a policy to develop responsibility and competent authorities (landowners and community groups) as much responsibility for conserving wildlife outside protected areas and is allowed under the Act. In such cases KWS retains the regulatory, advisory and monitoring roles to the landowners. Good examples of high concentrations of wildlife outside the protected areas include the Laikipia, Kajiado, Machakos, Samburu, Lamu and Taita Taveta districts. A number of landowners within the same geographical area may form a wildlife forum for internal self-regulation of the activities. Such a forum must be registered by the KWS and its mandate and responsibility agreed upon by the relevant parties.

2.4.1 Wildlife Conservation and Management Act

The sections, by laws and regulations of the Wildlife Conservation and Management Act (Cap 376 laws of Kenya) gives powers to the law enforcement personnel of KWS. It is empowered to physically protect the national parks and reserves against trespassers, poachers honey collectors, fuel woodcutters, livestock grazing and other destructive activities. They may construct barriers such as moats and ordinary or electrical wire fences. This may give more effective protection to a specific area, or it may stop wild animals straying out of the conservation area into human settlements. The law

enforcement personnel may arrest and prosecute any person who breaks the provisions of the Act, or any of the by-laws or regulations made under the Act. This mode of wildlife management through the national parks rarely reflects interests of the surrounding communities. These interests include farming, firewood collection, grazing, settlement and game hunting. As a result the communities' surrounding the national parks in Kenya have resented the fact that the wildlife are being conserved at their expense.

2.4.2 The 1989-93 National Development Plan

This plan period coincided with the institutional and legal amendment era in terms of wildlife conservation and management. As a response to the situation on the ground, wildlife population declined among the rhino, elephant, Gravy's zebra and buffalo and given the competitive demands on land use between wildlife which has a high economic value emanating from its support of the tourist industry and livestock production fork food, the monitoring and management of wildlife and livestock populations especially in marginal areas and rangelands will be intensified.

The increased pressure on land due to human settlements for agricultural production is likely to limit land availability for wildlife conservation and management offers the only ideal balance between human economic activity through tourism and environmental conservation.

In order to promote wildlife protection and conservation the government endeavored to use strategies such as: Carrying our research aimed at enhancing conservation and management of wildlife populations; possible translocation of certain species from

threatened dispersal areas to parks and reserves in order to enhance their conservation in furtherance of overall ecological balance and for tourism promotion; embark on special protection of endangered species such as the rhino, elephant, Gravy's zebra, hunter's antelope and the carnivores like the cheetah and the leopard; effecting physical measures such as the digging of trenches and mounting of electrified fences around wildlife parks to contain wildlife within the parks thereby protecting human lives, domestic animals and crops from damage by wildlife; and educating the public and the continuing importance of protection and conservation of wild life for aesthetic value and as a natural heritage and for their role in maintenance of proper ecological balance and sustaining to tourist industry.

2.4.3 Policies Influencing Public Participation in Wildlife Conservation.

Policy areas which can be influenced by public attitudes include wildlife utilization, compensation and game control, use of parks, land and resources adjacent to parks, tourism, and culture and employment.

a) Compensation

Kenya is the only country in the region that provides direct financial payment to an individual or landowner in the form of compensation. Unfortunately the escalating human. Wildlife conflicts mean that the government is faced with an increasing burden of payment. It is not easy to make a judgment on whether funds provided for compensation by the government are adequate, given other legitimate demands and priorities for development. This is both an ethical and political question. Nevertheless, it is difficult not

to question the policy of returning major revenues generated from a park to the consolidated fund at the national level. It seems reasonable to suggest the diversion of at least a proportion of this money to be directly used at a local level, as a form of compensation to those who directly suffer from wildlife damage. Proposals for such scheme have been developed by Wildlife Conservation and Management Department (WCMD). The Wildlife Compensation Programme on crops or property was stopped in 1991 and that of life or injury is not effective because it takes a long process to be approved and the money compensated (30,000) is inadequate compared to human life.

b) Wildlife Utilization

There is policy support for public participation in wildlife management and utilization in Kenya's key wildlife policy documents. The Wildlife Act states that ...The prime objectives of the service should be to ensure that wildlife is managed and conserved so as to yield to the nation in general and to individual areas in particular, optimum returns in terms of natural, aesthetic and scientific gains as well as such economic gains as are incidental to proper wildlife management and conservation. Sessional Paper No. 3, 1975 says that wildlife should be managed to optimize the returns from this resource taking into account returns from other forms of land use. In section V of this Sessional Paper, provision for the public to benefit from consumptive forms of wildlife utilization is elaborated. Forms of utilization mentioned include sport hunting, live animal capture for export or for restoring other areas within Kenya, cropping for meat trophies and game ranching. The paper also indicated that the wildlife services would seek to encourage and use, through extension services, technical and financial assistance to land owners, actual

utilization by the service itself and enforcement of regulations. However, since the bans on the hunting and trophy trade in 1977 and 1978, these consumptive forms of use have been prohibited. The public has only to benefit through the use of wildlife for tourist viewing and photography.

The viability of national parks as sustainable ecosystems depends on the continued ability of many wildlife species to disperse onto private land outside the parks at certain times of year (Nyeki, 1992) If landowners continue to bear the costs of wildlife migration and are prohibited from other forms of wildlife use besides the present tourist viewing, they will increasingly attempt to eliminate wildlife through fencing and other means. However, if private landowners, either individuals or cooperative groups, can generate income directly from wildlife, they will recognize the value of this resource on their land. They are then likely to take responsibility for conserving wildlife and ensuring enforcement of the Wildlife Act. In this way the full burden of conservation will no longer be seen solely as a government responsibility. Resources from the private sector will be channeled into various types of utilization, reducing the burden on the Government and aid agencies (UNEP, 1988).

c) Population Policy

UNEP (1988) indicates that Kenya has a population policy concerned with the growth rate and distribution of human population. The promotion of family planning to limited family size and strategies to discourage migration from rural to urban areas can influence the number of people living in wildlife areas. Thus, indirectly population policy can

influence how the public manages wildlife and other natural resources. The public manages wildlife and other natural resources. The public can contribute to conservation through influencing the birthrate and migration into a wildlife area. For internal groups ranches can control settlements limit, livestock numbers and control irrigation along riverbanks by taking into account consideration the land carrying capacity. The resources available and their importance for wildlife. Families can limit family size by taking into account the growth of population and the land available. Basic needs and education must be provided to raise the standard of living to encourage family planning.

A wildlife-planning unit exists in the Department of Wildlife Conservation and Management to prepare plans for national parks and reserves. Besides planning for protected area, planning for wildlife conservation and management is becoming increasingly necessary in wildlife areas outside parks (trust and private lands). This requires consideration of land and natural resources use and has to take into consideration the relation between conservation objectives and development policy. It involves assessing human and other needs, potential problems, conflicts and benefits, defining strategies and action required, acquiring resources, preparing plans for national development, sectoral, district and park projects (UNEP, 1988).

2.5 Perception of National Parks

To the majority of the average uneducated Africans, their attitude towards national parks are that such parks are still European institutions, established for the enjoyment of the tourists and of no particular concern to the indigenous people other than as foreign

exchange earners (Berchin and West, 1990). There is, fortunately, a small but increasing number of Africans who enjoy visiting national parks, and also there is better understanding of the role parks play in conserving the national heritage. The urbanized Africans for instance mainly visit Nairobi National Park. The prevailing attitude, however, remains that parks are to be tolerated mainly because they provide required funds.

One might well ask what the future brings for national parks in view of the rapidly increasing human populations and, consequently, accelerating pressures on the land. It seems that, if national parks are to remain untouched, it will be essential that they play an increasingly significant role in the economy of the countries concerned (Ibid). The cardinal question then is: How can this be achieved with due reference to policies governing national park management and without damage to the living resources of these parks?

Since parks are the major attraction for the tourist industry, it really is of little consequence how their recurrent costs are, met and no undue significance should be laid on whether or not the revenues of any park cover its costs of up keep (Buencher and Dawkins, 1981). If a park runs at a loss, it is a matter of policy how losses are going to be covered. Recurrent costs of parks can be met from general government revenues, from tax on the tourist industry, or from entry fees – of more likely from a combination of all three. One unfortunate fact is that in east Africa today there are inadequately defined national policies governing the purposes and objectives of park management. As

long as these remain ill defined, it will be most difficult for those charged with management and maintenance of parks to do an adequate job (Ibid). Fortunately, efforts are under way to rectify this situation through the African convention for the conservation and management of wildlife.

The general objective of those managing national parks should be to maintain the ecological scene as it was before man started drastically to interfere with his environment. Native species of wild animals and plants should be preserved in maximum variety land in reasonable abundance. A special effort should be made in East Africa to maintain a representative collection of the spectacular variety of species of animals and plants that ate present in undisturbed habitats. British colonial power brought conservation to Kenya early, with a concern for rapid loss of game through bunting pressures. Hunting without a license became illegal shortly after the turn of the century, although funds were very limited for implementation of rules created by the society for the preservation of the Fauna of the Empire, based in Britain. Most land now protected was designated between 1945 and 1960 in areas deemed low in economic potential (Glover, 1983). National Parks came under the authority of the National service, with mostly European game wardens and external funding mostly from World Wide Fund for the Conservation of Nature, the International Union for the Conservation of Nature and Natural Resources and the New York Zoological Society. National reserves, in areas where human activity could not be excluded, came under control of the Forest Department. Because Kenyan parks were created by the government with little regard for

local need, Kenyan reactions to park designation have been described as 'baffled and angered' (Berger, 1993).

With the perception that subsistence hunting was reducing wildlife, game patrols failed to stop Africans from hunting without permits. Anti poaching campaigns, for example, are alleged to have destroyed the Waliangulu people around Tsavo National Park who were dependent on elephant hunting. At one time, about one-third of the adult male Waliangulu were in prison for poaching. Early conservation policy saw Maasai as somewhat compatible with wildlife, not excluded from game reserves but removed from national parks. The prevailing attitude was one of separation between people and wildlife. This is the root of policy failure in Kenyan conservation.

With independence, the new Kenya government's strong aspirations for growth began a period of 'utilization without management'. Few facilities or funds were available for monitoring wildlife and ecosystem impacts or for development and maintenance of park facilities. Attitudes of the new regime were in strong contrast to British values of wildlife, introducing utilization as part of conservation management. Because hunting safaris and increasing wildlife tourism were such significant earners of foreign exchange, the economic value of game was perceived early on.

Little conservation ethic existed in the central government after independence but economic value argued for its conservation. Attempts were made at consumptive utilization of wildlife outside established parks, beginning the idea of wildlife management as a legitimate land use on park with livestock or development alternatives.

The Wildlife Act of 1976, governing the former unified National Parks Service and Game Department, proposed that landowners supporting wildlife should receive sufficient remuneration to enable sustainable wildlife utilization. Compensation for loss of life and damages to property began with the wildlife Act. These early management techniques attempted to view wildlife at the landscape level with multiple uses zones and accounting for local needs. Unfortunately, political and administrative problems failed to implement rural development of wildlife utilization.

2.6 Human Perceptions

Human beings exploitation of natural resources is the inevitable outcome if their endeavor not only for survival but also for the improvement of their material well being or standard of living. Since man first appeared on the earth, the history of his ecological and social development has been characterized by systematic and as time went by a destructive use of the wildlife resources. Man's perception and relationship to wildlife resources can be said to be influenced by: habitat characteristics, technology and his social and cultural structure. It is the interaction of these various aspects that makes it necessary to observe that "Resources are not, they become (Ministry of Environment and Natural Resources (Kiss, 1990)

Any group of people perceives and interprets its wildlife resources within the context of such an economic and socio-cultural framework. Such interpretation incorporates the attitudes that may be culturally conditioned and they largely determine the way various people regard their relationship with their respective habitats, of which resources are only

part of. Consequently for each group of people, the "stimulus field" is different. What each group sees as values, and the way it shapes and builds in landscape, is largely determined and structured by its traditional customs, its culture, aspirations, systems of production, social structure among others (Kiss, 1990). Thus wildlife resources perception is present and basic to all man's activities of environmental utilization and exploitation.

2.6.1 Complexities in Human perceptions

Traditionally international and national conservation efforts have tended to rely on strict protection through the establishment of national parks, and other protected areas. Communities surrounding protected areas have however often borne the costs and rarely received the benefits associated with neighbouring protected areas and hence have usually had little vested interest in the protection of the wildlife resources in those protected areas. Communities in Western Ghana, for example, prefer forest reserves to wildlife reserves because their use of resources in wildlife reserves is more limited. In cases where the management of a protected area is weak, pressure of growing populations, widespread poverty and unsustainable land use practices outside the protected area boundaries can cause people to engage in illegal and destructive encroachment within the protected areas (Wells and Brandon, 1992).

Local people often view conservation as antithetical to development (Gartlan, 1992). Efforts to involve local people in the conservation of biodiversity in African countries will not succeed in the long term unless local people perceive those efforts as sewing

their economic and cultural interests. For communities to have a positive perception they must have a degree of control over the wildlife resources to be conserved. Human use of resources is the primary source of pressure on ecosystems (wildlife resources) today, far outstripping the natural processes of ecosystem change. In the modern world, virtually every human use of the products and services of ecosystems translate into an impact on these ecosystems. Thus, every use becomes either an opportunity for enlightened management or an occasion of degradation.

Responsible use of wildlife faces fundamental obstacles, however. Typically, human beings do not even recognize ecosystems as cohesive units because they often extend across political and management boundaries. They look at them in pieces or concentrate on the specific products they yield. They always miss their complexity, the interdependence of their organisms – the very qualities that make them productive and stable. In most cases human beings always fail to understand the vulnerabilities and resilience of ecosystems thus failing to find ways to reconcile the demand of human development with the tolerance of nature (UNEP, 2000).

2.7 Alternative Approaches To Wildlife Conservation

In recent years, farmers and pastoralists have been looking upon protected areas as the last remaining frontier for cultivation and grazing. Wildlife is now competing with herding and cultivation for land use. This is threatening wildlife resources, which countries like Kenya depend a lot on for foreign exchange through tourism. Various management approaches have been suggested to conserve wildlife and effectively manage this valuable resource for sustainable development.

According to Morrison (1992), there are 2 basic attitudes underlying wildlife management: -

1. Conventional isolationist approach where management actively seek to protect the park or reserve from the surrounding society. Policing and patrolling become the major way of relating with the people. Investment is made in fencing, patrol equipment and arms. Intruders are confronted with administrative and physical force. The only human interference tolerated is research by small teams by scientists. The intellectual justification for this approach is that preservation of virgin natural areas is a goal in itself. It has been argued that all species have a right to exist.

2. An approach is also envisaged which aims at putting parks under local popular control. The approach does not exist in actual practice. However an emerging management approaches emphasize collaboration between authorities and local communities. The line of argument is that confrontational attitude would only develop and would sharpen local resentment of wildlife and primary vegetation and make the local people draw the conclusions that the government values the lives of the wildlife more than their welfare and socio-economic development. Hence people would try to kill the game and cut down trees. In this case, it is clear that confrontational management approach cannot secure protection thus the alternative would be to transform the locals themselves into protectors of parks

and reserves. This is the background to community approach to management of protected areas. In its broadest sense, the community approach involves communities in the conservation practice.

This is normally done through: -

1. Persuading communities surrounding national parks to allow grazing of the migratory wildlife species in their farms. The communities are compensated for allowing grazing and also for any destruction caused by these species.

2. Involving them in various activities carried out in the national parks. These include employment of local people in the park as patrol guards, ticket collectors and tour guides. Arrangements are also made where certain proportions of income generated from national parks is earmarked for the local community.

    a. Providing and upgrading amenities for communities surrounding national parks. These include schools, cattle dips, health facilities and improving infrastructure using income derived from the parks. This method is aimed at diverting their attention from the protected areas by providing them with benefits. The benefits are provided on condition that they respect the boundaries.

According to KWS (1996), the community approach to management of wildlife has facilitated conservation in the Amboseli National Park. The approach pays attention to

the socio- cultural values of the communities surrounding the park. The communities have benefited from revenues derived from tourism and payment of opportunity costs incurred in accommodating the migratory herds. The communities at present view the park as an economic asset that requires adequate protection.

The community approach allows communities involvement in decision-making concerning the management of the park resources. Wildlife committee of influential elders skilled in promoting community solidarity, encourage and educate the communities on the importance of protecting the national parks. This has helped the government of Kenya in reducing poaching leading to an increase in wildlife population (KWS, 1996). However in the case of ODSNP, the community approach does not exist. People in this area have always been ignored and disregarded in decision

2.8 Conceptual Framework

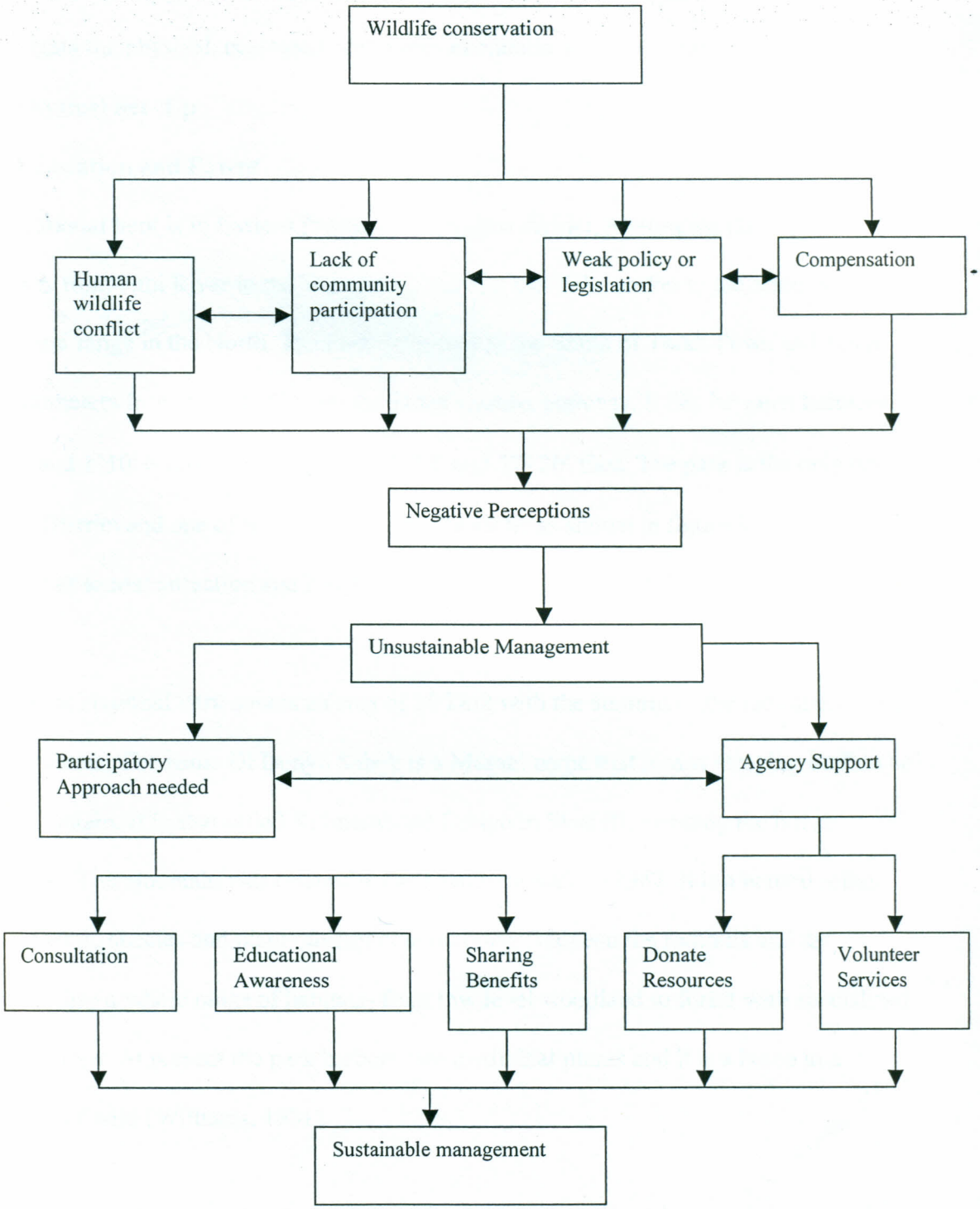
There are numerous factors causing negative perceptions in wildlife conservation. They include human - wildlife conflicts, lack of community participation and weak policy and legislation framework. These factors impact negatively on the wildlife conservation and result to unsustainable management.

The institutional framework charged with management of wildlife does not provide for community participation yet the community lives alongside the wildlife. As a result human – wildlife conflict erupt. The conflicts are as a result of damage caused on lives, property and crops by wild animals and lack of compensation for these destructions. Out

of frustration, landowners will kill these animals if they get a chance to. It is important to note that lack of community involvement will lead to failure of conservation efforts. The local community becomes a threat to wildlife conservation and they develop negative perceptions that hamper efforts made to conserve wildlife.

To ensure sustainable management and change of perception in wildlife conservation, participatory approach and involvement of agencies support as forms of management strategies are needed. Consultation, education and awareness campaigns, sharing of benefits, volunteer services and donation of resources will assist in minimizing the problem of conflicts and lead to the path of sustainable wildlife management. Below is a summary of the conceptual framework.

Figure 2.1 Conceptual model for Wildlife conservation



Source: Author, 2005

CHAPTER THREE

STUDY AREA

3.1 Introduction

This chapter discusses background information of ODSNP and it's surrounding. It highlights the physical, ecological and socio- economic set of the study area.

3.2 Physical Set- Up

3.2.1 Location and Extent

The national park is in Eastern Province, Machakos district, Matungulu Division. It extends from Athi River in the West, to Komarock and Tala market to the South and Kianzani range in the North. The Park is located to the South of Thika Town and about 65 kilometers from Nairobi City on the Thika Garissa highway. It lies between latitudes 1° 05′and 1°10′ South and longitudes 37° 10′ and 37° 20′ East. The park is the only one in the District and one of the smallest in the Republic as shown in figure 3.1. It is utilized largely as tourist attraction and it is administered through the KWS (Williams, 1981).

Ol Sabuk National Park covers an area of 20 km2 with the summit of the mountain being 2148 meters. The name Ol Donyo Sabuk is a Masaai name that means sleeping buffalo or big mountain. It is also called Kilimambogo Donyo in Swahili, meaning the hill of buffalos. The mountain was established as a national park in 1967. It is a natural refuge for endemic species and plant- animal communities. Between the foothills and the summit lies a whole range of habitats- from low level woodland to forest with specialized associations. At present the park harbors rare medicinal plants and it is a home to a number of wild (Williams, 1981).

3.2.2 Relief and Drainage

There are basically two types distinct relief units clearly defined in this area: the flat volcanic plains at an altitude of 1524m above sea level stretching westwards from the Ol Donyo Sabuk hills. Steep sided wooded valleys cut the plains. Matuu Hill and the Komarock Hill which are thought to be a residual hill on the plain, however, rises above the general level of the plain; the hilly area formed by the basement system rocks varies in height from 4000ft to 7000ft (Fairburn, 1963)

The entire area is drained in the East- Southern direction from the Nairobi and Kapiti plains into the Yatta plateau. The Athi River which is the only all seasonal river passes through the study area forming the famous Fourteen Falls as it continues its way into Kitui District. These form suitable watering points for the wild animals. Figure 3.2 shows the physical features of the study area.

3.2.3 Geology

According to the National Atlas of Kenya of 1970, the geology is a basement system of Precambrian. Rocks have been observed to be mainly sediments, grits, sandstones, shales and limestone that have been metamorphosed by heat and pressure. Other types were derived from lavas and volcanic fragmental rocks. The varieties of rocks have been observed to be extensive and include mica and mica hornblende, gneisses and schists and marbles (Fairburn, 1963)

3.2.4 Soils

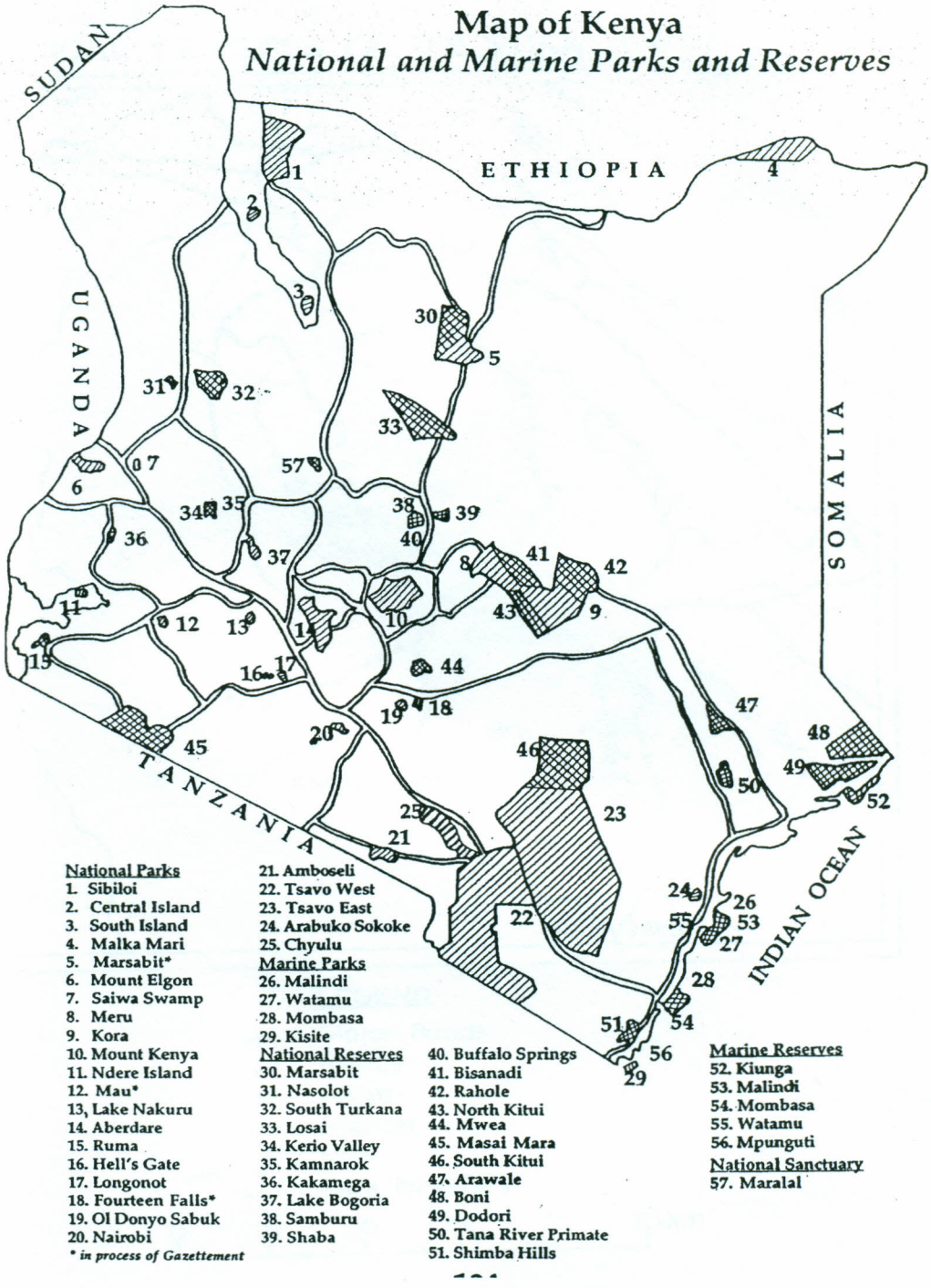
Most soils are residuals of weathering deposits whose composition is controlled more by the physical conditions of formation than by the types of rocks which they are derived.

The alluvial sands include river deposits and the outwash fans from the hills. Volcanic rocks underlie the plains while basement systems rocks underlie the hilly area. The black cotton seasonal logging soils which cover the entire western side of the park are mostly confined to the basement rock system areas. Red laterite soils are most common but in some places sandy soils and even black cotton soils dominate. Soil type partly influences agricultural practices. The soil content in the soils is favourite to the herbivores living in the park and especially the buffalos (Fairburn, 1963)

3.2.5 Rainfall and Temperature

The average rainfall is about 902 mm annually. The regime is bimodal with rain seasons normally distributed between March to May and October and December with April and December forming the peaks. Maximum mean annual temperature is between 22° c and 26° c and minimum annual is between 10° c and 14° c. Potential evaporation was reported to be about 2100mm per annum thus exceeding the annual rainfall. The high evaporation rate leads to reduction of water in the rivers within the park. However it is less for higher parts like the Ol Donyo Sabuk hill and the ranges surrounding it. Minimum mean humidity is 14- 47 (Hans, 1986: 6). During dry seasons, there is shortage of pasture in the park. As a result herbivores leave the park to look for pasture outside the park on the other hand, during rainy seasons when plants are growing in the farm, the herbivores also attack. This results to conflict between them and the farmers.

FIGURE 3.1 LOCATION OF STUDY AREA



SOURCE: KWS, 1996

PHYSICAL FEATURES OF THE STUDY AREA

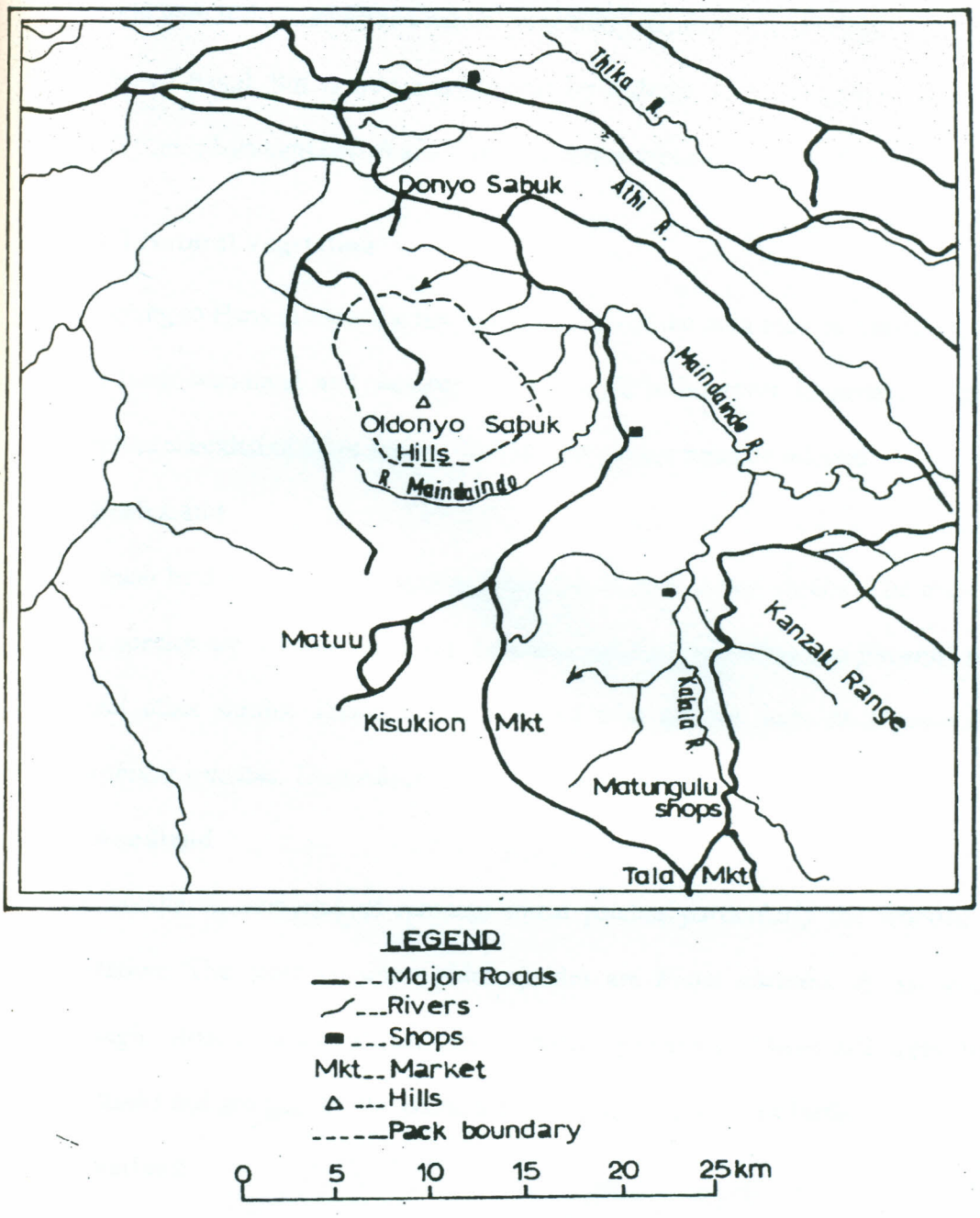


FIGURE 3.2

SOURCE: KWS, 1996

3.3 Ecological Set- Up

3.3.1 Vegetation

There is very little undisturbed natural vegetation remaining in the study area. The top of Ol Donyo Sabuk hill is however covered by a dense forest consisting of tall trees of which *Canopharyngia holstii* and *Croton megalocarpus* are the most prevalent.

3.3.1.1 Natural Vegetation

According to Hans (1986), the natural vegetation of the area may be divided broadly into bush land, woodland and wetland vegetation. It is however important to note that a complete checklist of plant species for the area has not been developed.

(a) Bush Land

The bush land vegetation comprises primarily of grasses and shrubs. The most common plant species are: *Commiphora spp Lantana camara Euphorbia spp phoenix*, palms and several other shrubs. These are interspersed with grasses such *as Digitaria digitata, Sporobolus spicatus, Themeda triandra and Cyperus spp.*

(b) Woodland

The woodlands comprise of remnant forest patches particularly the wooded riverline vegetation. The most common plant species are *Ficus altisima, F. sycomorous, F. thoningii, Acacia xanthophloea*, and *Albazia gymnifera.* These tall trees lining the riverbanks and growing on the island serve as vantage points for birds.

(c) Wetland

Water macrophytes are conspicuous on the edges as well as the more open water of the river. These plant species include: *Potamogeton natans, Cammolina bengalensis, Raphia ruffea, Pistia stratiotes, Cyperus papyrus and Cyperus dives.*

3.3.1.2 Cultivated Crops

(a) Large Scale Farming

The largest commercial production firm around the study area is called Muka Mukuu Cooperative central farm and it occupies 500 ha. The area was pre dominantly under coffee, sisal and cattle ranching. But due to poor management, the commercial production of the farm has since ceased. Nonetheless, unless the management of Muka Mukuu improves, this remaining area of 500 ha may be subjected to subdivision to its members which would result in changing land use patterns in the area (Hans ,1986)

(b) Small-Scale Farmers

A large majority of the inhabitants of Ol Donyo Sabuk ecosystem particularly Muka Mukuu. Gatwanyaga and Nyakinyua are subsistence farmers. They engage in the farming of food crops such as maize, bananas and potatoes. Because of their small size of land, they practice intensive farming to maximize production. This practice if unchecked, may contribute to environmental degradation especially through soil erosion. Similarly because of the intensive nature of use of the area, use of chemicals cumulatively may contribute to environmental degradation of the river system through eutrophication (Hans, 1986)

3.3.2 Wildlife

Since the gazettment of the Park in 1967, the following animals have been observed. They include: Mammals- hippo, colobus and velvet monkeys, olive baboon, bush duiker, bushbuck, buffalo, zebra, impala, Thomson gazelle, giraffe, hare, rhinoceros, hart beast, warthog, wild pig, leopard, spotted hyena, crested porcupine, aardvark; Reptiles-

crocodile, python, green mamba, cobra, water monitor, lizard and gecko; Amphibians- frogs and toads and a variety of invertebrates; Birds- ostriches, guinea fowl, heron pelicans and cormorants (Williams, 1981).

3.3.3 Domesticated Animals

The main livestock in the area are beef cattle, goat, sheep, and donkeys. Livestock population in the study area is highly valuable. In some cases the livestock especially the goats used to roam in the park before its gazettement thus competing with wildlife for grazing area. However this does not occur anymore since the area is ender protection. Individual have an average of one cow and three goats each.

3.3.4 Land Use

3.3.4.1 Land Tenure and Ownership

According to Hans (1986), there are five basic tenure systems in Ol Donyo Sabuk ecosystem; Government land tenure, Trust land tenure, Individual tenure, and Protected Area Status

(a) Government Land Tenure

The government lands tenure is governed by the government lands Act, Cap 280 of the laws of Kenya. Under the governments lands Act, the commissioner of lands has the powers to regulate the leasing and other disposal of government lands for other purposes. Within Ol Donyo Sabuk ecosystem, part of the land falls in this category.

(b) Trust Land Tenure

Trust lands are regulated by Trust land Act Cap 288 of the laws of Kenya and Chapter ix of the Kenyan constitution. The title to all Trust land is vested in the county council

within whose area of jurisdiction it is situated. Thika county council has a claim over land adjoining Ol Donyo Sabuk and from which they are already collecting revenue for visitors who visit the Park.

c) Individual Tenure

Individual tenure is based in the English property law (laws used during colonial era) which confers title and rights to individuals. This tenure system has introduced in Ol Donyo Sabuk system different norms, values and other external factors which at present have significant influence on land use in the area. The effect of individual land tenure has been to a large extent been to disrupt and replace extensive landscape and organizational patterns. The individual land tenure system is a statutorily embodied in the Registered Land Act Cap300 of the laws of Kenya. Under this system, legal persons own land as individuals and regard these parcels as commodity to be bought, sold, leased or transferred.

(d) Group Tenure

The land (Group Representative) Act, Cap286 of the laws of Kenya makes provision for the incorporation of representatives of groups, such as Muka Mukuu, Nyakinywa Investments who have recorded as owners of land under the Land Acquisition Act Cap 284 of laws of Kenya.

(e) Protected Area Status

The management of Protected Areas such as Ol Donyo Sabuk National Park in Kenya has evolved through various stages since their inception and are governed by the Wildlife (Conservation and Management) Act, Cap 376 of the laws of Kenya. Many were originally created under the exogenous ideals of conserving areas for their scenic or

unique value rather than for ecological or economic reasons. Over the ensuing years, there has been a progressive emphasis on the ecological goals of conserving biological diversity and ecosystem functions.

Most of the population around the park holds land on Group Tenure system. No individual title deeds are held. There is only one title deed for the Muka Mukuu Co-operative and these residents are members of the co- operative. This results to haphazard settling and farming to an extent of farming at the park periphery. Residents feel that this area is still part of the Muka Mukuu farm

3.4 Socio- Economic Set- Up

3.4.1 Infrastructure Facilities

The study area which is mainly in Kianzabe location is served by 91.5 kilometer of roads, most of which are not well maintained and they become impassible during heavy rains. It is usually hard to access the park using these networks due to their poor conditions. When it is raining they are too soggy and during dry seasons they turn too dusty. There is one health centre, one dispensary and several private clinics (Hans, 1986).

3.4.2 Demographic Variables

It is undisputable that colonial policy constrained the indigenous people within boundaries that were fixed at a time when population was low. After 1960, with the advent of independence and settlement of the local people on the former European ranchlands, there has been a remarkable increase in the population of the area. In 1999

the population of Ol Donyo Sabuk ecosystem was estimated to be about 40,000 people with an annual growth rate of 3.1 %. (Machakos District Development Plan 2002-08). This raises fear in that with such a population increase, if left unchecked may lead to devastating and irreversible wildlife degradation in the park

3.4.3 Special Interest Sites

There are four picnic sites in the ODSNP. They are located at strategic points within the park. The first is near the park entrance and there is one at the summit of the park where one can have a spectacular view of the entire park and the surrounding area. The rest two are located at the park edges.

3.4.4 Historic Sites

The only historic site in the park is the Macmillan grave. Macmillan owned the area before it became gazetted as a national park. Figure 3.3 shows these sites within the park.

3.4.5 Economic Activities

The main economic activity in the area is farming. Growing of both cash crops and food crops is practiced. The only cash crop grown is coffee while food crops include maize, beans and cow peas. Small scale farming is practiced. The communities also keep small numbers of livestock. This livestock substitutes dairy income from agricultural crops.

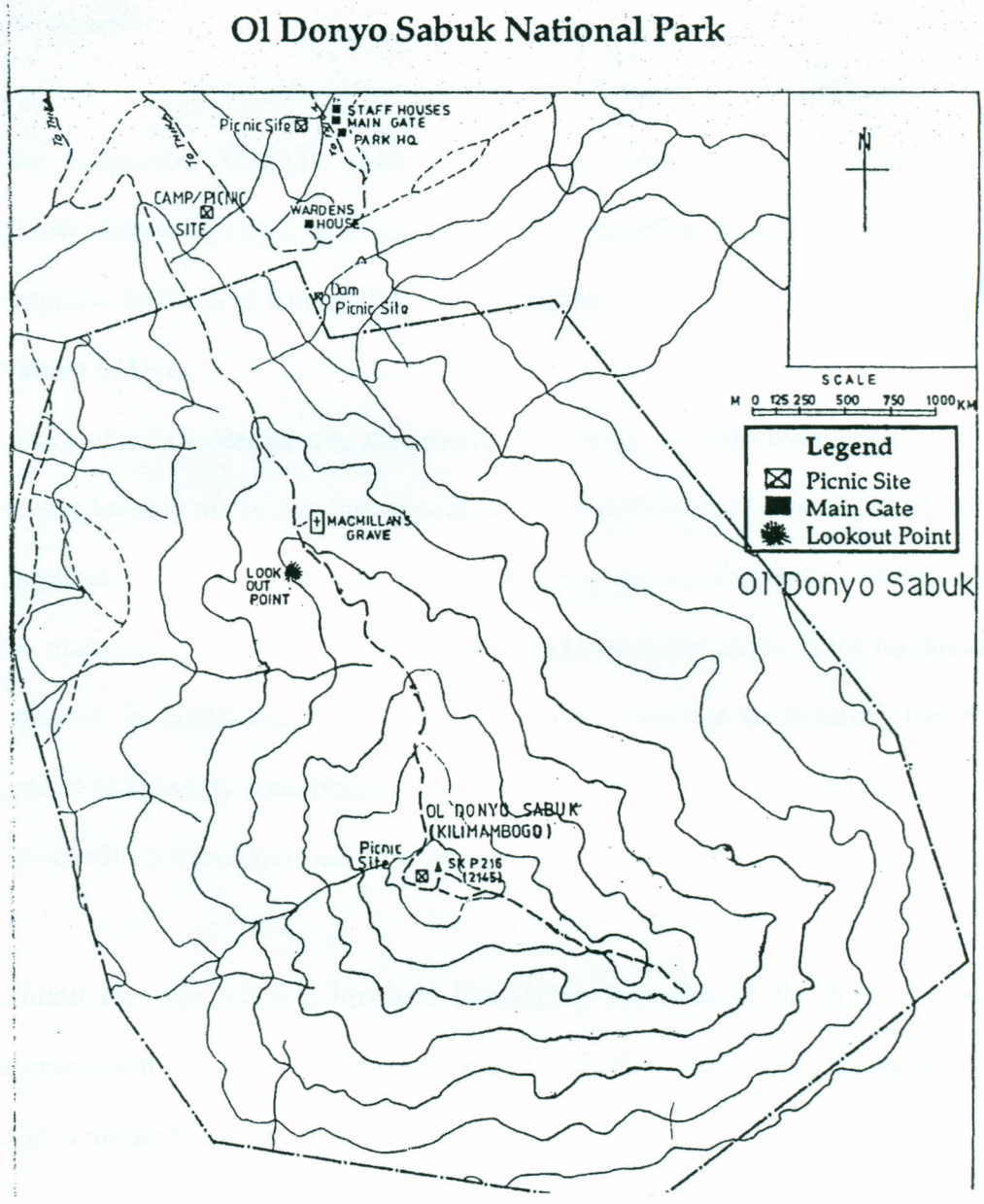
Tourism is also practiced in the ODSNP. Several camp and picnic sites are found within the park and activities such as hiking take place. There are established game and nature trails where recreation activities take place.

Guided educational tours suitable for organized groups such as schools and community groups also take place.

3.4.6 Educational Activities

The area has achieved an enrolment rate of over 80 % in the primary schools. The provision of facilities however has not been growing at a steady rate. Instead, there has been a general decline in the condition of the existing facilities. This enrollment rate overstretches the available facilities since the area has only two primary schools. In case of conservation awareness programmes, it is hard to serve all pupils adequately. There is only one secondary school which is understaffed and does not accommodate all the pupils leaving the primary school. At tertiary level, there is no institution available and learners have to go to colleges outside the region or terminate their education at secondary level. This state of education reduces the level of awareness on conservation issues (Kenya, Republic of 2002).

FIGURE 3.3



SOURCE: KWS, 1996

CHAPTER FOUR

4.0 Research Design and Methodology

4.1 Introduction

The research design and methodology adopted is the focus of discussion in this chapter. It sets the framework through which relevant data was collected and analyzed. It specifically discusses nature and sources of data, sampling methods, methods of data collection and methods of data analysis and presentation

4.2. Nature of Data

The nature of data collected was directed at addressing the objectives of the study and particularly looking at the varying perceptions of human beings in the ODSNP and how they implicate on conservation and also examining the existing policy framework on wildlife management and the extent to which it addresses the needs of the communities. This data is in qualitative form using descriptive methods to describe the human perceptions in the study area. Information collected identified the various perceptions that exist in wildlife conservation and how they impact on conservation in the park.

In addition the type of data involved identifying the roles of the KWS in wildlife management at the park and at the same time identify the relationships that exist between the local community and the KWS.

4.3 Sources of data

During the study data collection, two basic types of data were collected in order to achieve the objectives of the study.

4.3.1 Primary Sources of Data

This data was collected from the field survey mainly from the household's head (both male and female) living in the area surrounding ODSNP and from the KWS wardens and security personnel. Data was collected through observation sheets and guided questionnaires. Questionnaires were administered to the relevant respondents. A sample of a guided questionnaire administered to households appears in Appendix I, while of questionnaire administered to KWS administration appears in Appendix II.

4.3.2 Secondary Sources of Data

Secondary sources of information exist as storage of previously collected information. This was collected from published and unpublished information sources. This also necessitated the reviewing of the following documented information:

- Published information from government agencies and Administrative information compiled by Government Ministries
- Relevant reference publications (Text Books)
- Maps and District Development Plans
- Reports of previous studies done such as thesis, dissertation and project reports.

4.4. Sampling Design

Due to the nature of this study, the sampling frame consisted of the people residing along the ODSNP boundary. It is important to note that sampling frame refers to a statistical sub-division from which a sample is taken, which locates individuals from the population

(Bell, 1984). The population frame consisted of households. The only institution interviewed was the KWS.

Simple Random Sampling

This is a basic probability sampling design, where a process that gives each element in the population an equal chance of being included in the sample. Given that Ol Donyo Sabuk region is a rural setting with settlements that are randomly distributed. Simple random sampling ensured that all the samples had an equal chance of being interviewed and that they were from the most representative population.

The ODSNP has only one gate. To collect data, this gate was used as the baseline. Simple random sampling was then used to collect data from the right and left direction of the gate. The population was divided into two transects, that is the one towards the left and the one towards the right. The settlement on the left direction is called Kitambasia and the one on the right is called Zambani. In the Kitambasia side, 26 household questionnaires were administered, while 21 questionnaires were administered in the Zambani area.

Table 4.1 Sample Design for Household Survey

Transect	Questionnaires Administered	Percentage
Kitambasia	26	55
Zambani	21	45
	47	100

Source: Field Survey

4.5 Research Instruments

In order to collect both primary and secondary data effectively and in an appropriate form and in desired detail and accuracy, the following instruments were used.

4.5.1 Questionnaire Administration

Questionnaire refers to a set of standardized questions arranged in a definite order to which respondents are sought from all the individuals constituting the sample a view of obtaining comparable results. Questions are presented with exactly the same wording and exactly the same order to all respondents (Bell and Roberts, 1984).

4.5.1.1 Household Questionnaire

A set of standardized questions arranged in a definite order were targeted at household heads. The household heads were assumed to have deeper knowledge of the area and to have interacted more with the wildlife to develop perceptions. For this study the households were targeted because they are the units that influence wildlife conservation thus forming the basic unit for conservation. The questionnaires were aimed at reviewing the existing policy framework on wildlife management and the extent to which it addresses the community needs, examining factors that contribute to the prevailing human perceptions and the impacts that these perceptions have on conservation of the ODSNP. The questionnaires also aimed at identifying ways of integrating the community perceptions in the conservation of the national park.

4.5.1.2 Institutional (KWS) Questionnaire

A well designed and structured questionnaire targeted the KWS administration. The questionnaire was important for obtaining information about this institution that interacts

with the local community in wildlife conservation issues. Like the household questionnaire it was aimed at addressing the study objectives.

A questionnaire as a method of data collection was chosen because its standardized wording, order of questions and standardized instructions of recording responses offers uniformity and it also enables the respondent to have a greater confidence and thus feel free to express their views once they are assured of confidentiality. With the limited time available to carry out the research the questionnaires made it possible to cover a wider area and obtain information from different people.

To avoid getting wrong or irrelevant information (due to misunderstanding or misinterpretation of questions) and loss of questionnaires, the questionnaires were administered by the researcher with the help of two trained research assistants. This was important because greater sensitivity was given to misunderstandings by making sure questions were well understood before recording responses.

4.5.2 Observation

Observation is the basic technique of data collection. It is the foundation of all scientific work both in social and physical sciences (Bell, 1984). Throughout the study observation was made and recorded. Observation was made along the transects designated routes. They were two transects as shown in Table 4.1. Observation was useful for the description of topography, soil and vegetation cover, location of farms in relation to the park, crop damage and forms of settlements. Observation was useful where the respondents were unable or unwilling to co-operate with the researcher.

4.5.3 Photography

Following the observation made, photography was used. This involved the use of a camera. For the purpose of this study, photography was used to capture the real situations on the ground. Data collected through this method included

- Crop destruction by buffalos
- Cross breed of a wild cat and a domestic cat
- Watering point outside the park shares by the wild animals domestic animals and local people
- Sign Post
- Road Network
- Human settlement

4.5.4 Review of Documented Data

These include materials already processed and published. They were obtained from magazines, journals, Development Plans, maps Government Sessional Papers and other published reports related to human perceptions on wildlife conservation. These materials were obtained from libraries and resource centres like the KWS, UNEP, Kenyatta University and relevant Government Ministries

4.6 Methods of Data Analysis

The data collected was analyzed under each objective. This was important because it helped address each objective. In reviewing the existing policy framework governing wildlife management, the data collected from both existing policy publications and the field study was analyzed descriptively and presented in a continuous narrative style. In analyzing the factors contributing to human perceptions in the park and the implications these perceptions have in wildlife conservation and also in trying to identify ways of integrating these perceptions in the conservation of the national park, both qualitative and quantitative methods of data analysis and presentation were used. Qualitatively, data from the field was organized, interpreted, meanings assigned and appropriate conclusions drawn and recommendations given. Qualitatively, statistics were used where the average percentages of the findings were identified and revealed. The data was also graphically analyzed and presented using techniques such as tables, pie charts and bar graphs.

4.7 Constraints of Data Collection

Various limitations were encountered during data collection. It was difficult to get relevant materials for the study. The researcher visited many libraries and research centres but materials relevant to the study area and the study topic were inadequate.

Local communities also expressed mistrust towards the researcher. Most claimed that people who visit the area in the name of studying and never return to give them a feedback or progress of their study's achievement. They also said that they do not benefit

from such studies. Some were unwilling to be interviewed while others withheld information.

Time was limited for adequate data collection. This forced the researcher to concentrate only on the area adjacent to the park. In addition, there was inadequate time to visit all relevant libraries and resource centres that might have material relevant to the study.

It was not possible to take photos of wild animals as they rest in bushes and thus hard to spot them. There was also fear of being attacked since the researcher did not have access to a vehicle to move with safely around the park.

CHAPTER FIVE

DATA ANALYSIS AND DISCUSSION

5.1 Introduction

This chapter consists of data analysis and discussions covering policy issues on wildlife, factors contributing to various perceptions, and their implications on wildlife conservation.

5.2 Evaluation of the current national policies on wildlife management.

5.2.1 Policy and legislation

Kenya has formulated its own policy on wildlife management and has also established an institutional framework to adequately implement this policy. This is done for the purpose of providing mechanisms for nature conservation and management. The legal framework for all KWS policy was set by parliament in Sessional Paper No. 3 of 1975 whose elements are bound into law in the Wildlife Conservation and Management Act Cap 376 amended in 1989.

Some of the existing policies related to wildlife management are outdated in relation to KWS objectives. The policies were adopted from those that existed during colonialism and some are vague and require clarification. Others are contradictory and require harmonization or coordination.

5.2.2 The Wildlife Conservation and Management Act Cap 376

This Act governs the conservation and management of wildlife in the country including utilization and administrative functions of wildlife authorities. The National Wildlife

Policy calls for the management of wildlife as a renewable resource, which should be used on sustainable basis. The main objective of the policy is to maximize benefits from wildlife resource in terms of economic, cultural, scientific and aesthetic gains. This policy allows for consumptive utilization of wildlife resource sustainably but contradicts the 1977 ban on hunting that aimed at protecting some endangered species for instance the elephants and the rhinos. The ban restricted any killing of wild animals for consumptive purposes and anyone found violating this law is prosecuted.

The Wildlife Act lacks explicit and complete conflict mitigation measures that form the basis of sustainable use of wildlife resources. It is stated that it is KWS policy to minimize human/wildlife conflict by adopting appropriate and practical conservation and management strategies. KWS is supposed to be creating awareness among communities together with training to enable the communities to become effective in creating and managing barriers in their localities. In the case of ODSNP no community training or awareness on conservation issues is undertaken. There is no barrier or buffer zone existing between the park and the communities' farms and settlements. In this case there is laxity to implement rules that can at least mitigate conflict.

Another major weakness in the Act is the fact that it does not involve or recognize community involvement in wildlife conservation. KWS does not consult the community in any way and neither does it involve them in its decision-making. This is a major bottleneck because the community is part and parcel of the system where the wildlife

exists and for conservation to be successful and effective, the community involvement and support is paramount.

The Act gives mandate and responsibility to KWS of facilitating the wise use of wildlife resource sustainably while protecting both people and property from injury and damage by wildlife. KWS has failed to protect both human beings and their property. To make the situation even worse the Wildlife Compensation Programme on crops or property was stopped in 1991. Compensation of life or injury applies when damage occurs on land that has not been registered as conservation or protected area. There is a rule that all visitors who enter the national parks do so at their own risk. This rule can discourage visitors because they know that if any harm happens upon them, no form of compensation will be offered since the area is protected. In the case of human injury or death it must be proved that it was not as a result of deliberate provocation or teasing of the animal by the victim. The period between the injury/death and compensation is long since the process it takes so length. Many communities who have been victims view it as ineffective. Victims start the process by making applications to District Committees established by Section 62 of the Act. The committee consists of the District Commissioner, who is also the committee chairman; the Divisional Officer of the Service, the Officer in Charge of the Police Division; the District Medical Officer; one Elected Member of the National Assembly representing a constituency in the district and who is appointed by the Minister; the Chairman of County Council in the district, and three other members appointed by the Minister to represent the general public of the district. Compensation

awarded after approval by the District Committee is payable out of moneys provided by parliament for that purpose.

This process is lengthy and complex. It involves people who are in charge of other duties and might not all be available when meetings are called. The process of paying out the money by the parliament can also be lengthy, and victim always loose hope of compensation and others give up following up their payments. Applications made at the ODSNP on injuries or deaths have to be piled up until they are five in number because according to the warden, one cannot convene the District Committee after every single incident. The process thus is also affected and influenced by the number of cases.

KWS officers usually impound grazing of domestic animals in national parks and their owners always prove ownership before getting them back. They are penalized for grazing either by fine or imprisonment. When wildlife destroys crops and damages property no compensation is given. The Act in this way ignores the needs of the communities.

The Sessional Paper No. 3 of 1975 indicated that that deploying more wardens in the national parks and reserves to enhance poaching control and security of parks would strengthen the wildlife conservation and management. It stressed the need for human resource for research in the domain of wildlife conservation as well as training of more game wardens. At present most parks in the country ODSNP being a case example have inadequate number of staff. The park is under the leadership of a warden who does not have an assistant. The security personnel are few and they cannot park effectively. KWS

also experiences staff that is not well trained in certain areas such as anti- poaching techniques and this results to loss of their lives especially when they are dealing with heavily armed and ruthless poachers. Necessary tools to fight poaching are also a hindrance. The policies stress measures that can enhance conservation but these measures are not implemented.

5.2.3 Education and Research

KWS is responsible for creating awareness among the local people on the importance of wildlife conservation. Groups for instance Organized Education Groups Programme (OEGP) where groups of people from schools, colleges or members of the community are encouraged to visit parks and learn more about conservation exist in some parks for example the Aberdare National Park. However, such groups are not found in all the parks, and in particular in ODSNP. Policies should ensure that conservation awareness takes place in all the parks as this can greatly influence the local communities to change their perceptions on wildlife conservation and especially if they look at it as a burden. KWS is also undertaking efforts to teach school children to conserve wildlife as part of their environment. The KWS at ODSNP have undertaken this task but it is still at early stages but with time it will be effective as the young minds are enlightened more and more.

KWS is responsible for research that takes place in its own park. ODSNP has not been able to establish a research center. Research centers are aimed at identifying the trends and changes taking place in the ecosystem. Once identified the findings are then used to

predict future aspects that can influence the effective conservation and management of wildlife. Surveys on both animals and vegetation are carried out.

5.3 Factors Contributing to Human Perception on Wildlife conservation.

5.3.1 Extent of Interaction

The community of Ol Donyo Sabuk always interacted with the wildlife in the area long before the park was established and gazetted in 1967. Conflicts between the people and the wildlife were experienced but they were not as grave as they are today. This is because the population at the time was low and thus there was enough land for both wild animals and the human beings. No boundaries existed and there was freedom of movement from one place to another. Both wildlife and human beings benefited mutually from one another existence. Subsistence hunting was practiced but it was done in such a way that only the mature healthy animals were killed. Young ones and potential mothers were always left unharmed so as to provide meat for another day. Since the area was not protected, local people could kill animals without fear of being prosecuted or questioned by the authorities. 37 % of the respondents indicated that they benefited from killing of animals before the establishment of the park. Both wildlife and the local people respected one another and although there were negative impacts (poaching and crop destruction) from their interaction, they were not as damaging as they are today. Several other benefits were derived from the area. 25% of the respondents said that they benefited by acquiring firewood and wood for charcoal burning. This was a major benefit to them as they even sold the charcoal to earn a living. The area was also a source of medicinal herbs and trees and this helped the locals to acquire treatment for

various minor ailments. This was also a major benefit as 21% of the population claimed to have benefited. Other benefits that the respondents claimed to get from the area included horns, skins and hides, construction material for their houses (this included trees and grass for thatching) wild fruits, grazing fields for their animals and fresh water. However, 9% of the respondents claimed that they never derived any benefit from the area but the majority of the respondents who formed the study population said that they did benefit from the area that is now currently under a national park.

Since the gazettment of the park, the interaction between the wild animals and the local people charged dramatically. The only benefit being experienced today according to 8.8% of the respondents is fresh water. 91.2% of the population claimed that they do not benefit in any way from the park. Constant conflicts between the local people and the wildlife have developed over time as the people feel that the wildlife exists at their expense. Consequently, the local people develop negative attitudes towards wildlife conservation.

5.3.2 Education Level

The literacy level of the local people is low. According to this study 64.4% of the respondents only acquired primary education and 17.8% of the study population has no formal education. Only 4.4% is in the process of acquiring tertiary education. This low level of literacy has made it difficult for the people to understand the need and importance of wildlife conservation. This low level of formal education also makes it difficult for KWS to involve the local community in wildlife management within and

outside the park. It is hard to instill in them positive attitudes towards wildlife conservation and management.

According to the park warden, the local communities will take a long time to be integrated in the management of the park because of their low level of education. The park needs a management plan that will have to include the participation of the local people in its preparation. Due to their low level of education and lack of understanding as to why wildlife is being given so much attention, their participation will not be very helpful in the preparation of the park management plan which is likely to improve conservation of wildlife and also benefit the local people.

The warden further explained that the community is not in a position to write any proposals that can help them solicit funds from donors or development partners. He indicated that in Maasai Mara Reserves where communities are benefiting from wildlife resources in terms of water, health facilities, schools, roads and electricity, the community themselves incite the need and then seek help from stakeholders to formulate proposals. ODSNP has only had one proposal written through the help of the park management. The proposal has been approved by European Union (EU) who has given funds for development of the bee keeping projects and provision of water tanks. For a donor organization to approve a proposal, it must have come from and written by the community itself. The local communities of Ol Donyo Sabuk have no capacity to do this and they blame the government and KWS for neglecting them instead of taking care of

their needs like other national park and reserves do. Most of them do not even understand the role of the KWS.

5.3.3 Loss and Damage of Crops

The Ol Donyo Sabuk National Park is located in an area where the main economic activity is agriculture. The local communities engage in agricultural activities, which include the growing of cash crops mainly coffee and food crops such as maize, beans and cowpeas. Majority of the local population are small-scale farmers and depend entirely on farming for their livelihood. This study found out that 80% of the population that participated is into farming activities. The rest of the population was comprised of small-scale business people and workers of Thika Del Monte Company. Very little income is acquired from these farming activities, thus making it difficult for them to survive. 53.3% of the total households' income falls below one thousand shillings per month while the rest 46.7% earn between one thousand shillings to five thousand shillings. Their low level of income brings about high poverty levels. This is so much that the residents cannot even construct good houses to live in. Most of them live in thatched huts as shown in plate 1.

Farming activities, which the local community depends on for their livelihoods are under major threat from the wildlife in the park. The park has no form of fence or barrier, which can stop the wild animals from escaping to the farms. Animals mostly move at night and some will invade granaries during the day when there is no human in sight. 100% of the respondents indicated that they have had cases of animals escaping from the park to their farms and homes. Invasion of farms according to 26.7% of the study

population happens daily. Destruction of farms also takes place twice or thrice per week according to 66% of the study population. The intensity of destruction is experienced when the farmers are planting and when plants are grown until harvesting period. Figure 5.1 shows the number of animals invading farms.

Food crops suffer more damage than the coffee. Buffalos, monkeys and warthogs are the most notorious animals and cause most damage. Buffalos graze on maize just as cattle do, from the time they attain leaves and height to the time they are harvested. They feed on beans and cowpeas only during the dry season. The damage inflicted on beans and cowpeas during wet seasons is mainly trampling. The coffee plantations on the other hand is bent and tilted and broken when buffalos rub themselves against the plants when they are moving. During drought also they become the most crops destroyed since the buffalos browse on them. Buffalos mostly raid the area at night between 9.00 p.m and 4.00 am twice or thrice per week. These animals move considerable distances in search of good grazing areas and water during the dry seasons. They are the most destructive of all the wild animals as they cause 50% of crop destruction.

Plate 1. Human Settlement

Source: Field Survey, 2005

Plate 2: Section of a Damaged Farm Next to The Park

Source: Field Survey, 2005

Warthogs also cause destruction of crops at night but they are not as destructive as the buffalos. They mostly feed on growing maize. Monkeys on the other hand cause a lot of havoc. They feed on grown maize and they also attack granaries with stored maize. The farms thus have to be constantly guarded but at night it is impossible to guard them as the animals and especially the buffalos can attack human beings. They usually move in parks and when they invade a farm, nothing remains. This damage generally makes

productive farming impossible as crops are destroyed before they mature as shown in plate 2 and this result to negative perceptions amongst the local people towards these animals

The local community talk about there loses with a lot of bitterness. Majority of the respondents see it as negligence on the part of KWS management to contain the animals in the park. To worsen the situation there is no compensation given for loss crops, yet the local community depends almost entirely on farming for their survival.

5.3.4 Loss of Livestock

The local community-neighboring ODSNP keeps various types of livestock. Livestock's kept include: goats, cows, sheep and chicken. They also keep pets for example cats. Just like agricultural crops, the survival of livestock is also threatened by wild animals from the park. The most endangered livestock are the sheep, goats, calves and chicken. They are usually attacked and eaten by small leopards, hyenas and mongooses. In most cases the mongoose cut the chicken necks and just sucks blood leaving the rest of the body. On the other hand, hyenas and leopards attack goats and calves feasting on them from behind and in most cases they never finish eating the whole animal. They usually leave it lying with intestines and other inner body organs lying out. These wild animals always avoid eating the inner body organs. 35% homesteads interviewed said they have lost their livestock to wildlife. Table 5.1 shows the number of homesteads where livestock have been killed either by hyena, leopard or mongoose.

Table 5.1 Number of Household Attacked by Hyena, Leopard and Mongoose.

Livestock	Households	Percentage
Chicken	18	60
Goats/sheep	8	27
Calves	4	13
Total	30	100

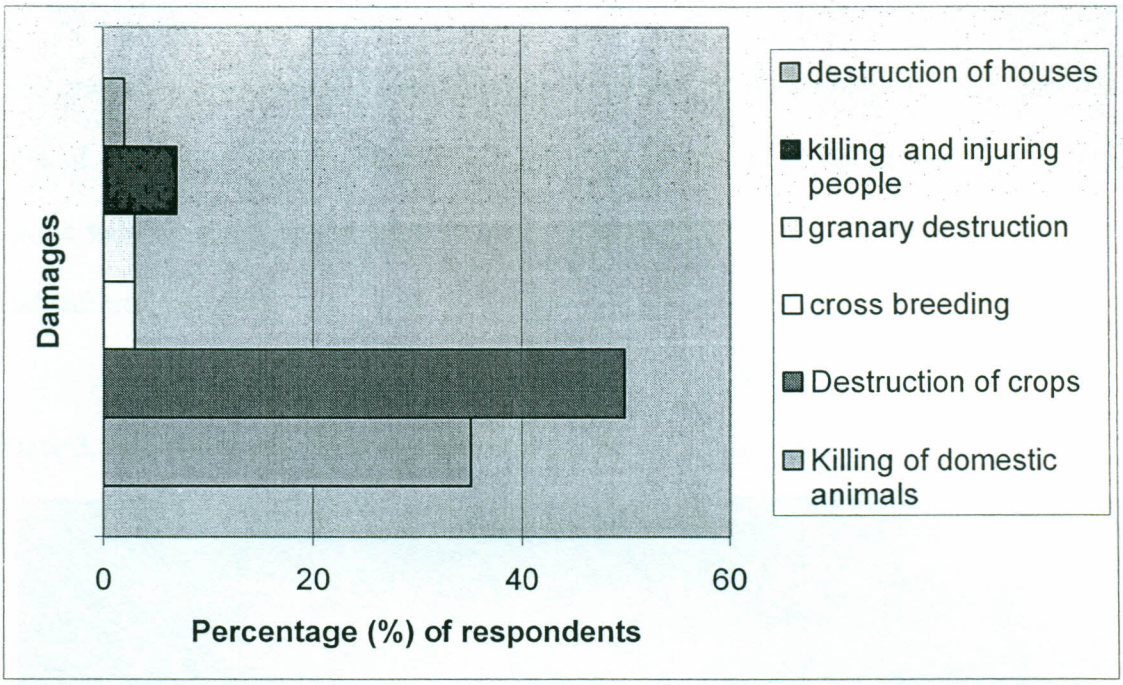
Source: Field Survey, 2005

From the table above, it can be observed that a good number of the human population living around the ODSNP looses their precious livestock to wild animals. This obviously results to hatred and bitterness towards the wild animals.

It is always a sad sight for the livestock owners to view the carcasses of their molested livestock. Just like in the case of damaged crops, there is usually no compensation offered by KWS for the loss of livestock. The study population argues that this causes them a lot of financial strain since they usually depend on them when their crops fail or destroyed by the wild animals.

The extent of damage caused on both crops and livestock by the wildlife varies greatly as shown in figure 5.1. Crops suffer the most damage with 50% of the respondents loosing their crops to wild animals. Killing of goats, calves and chicken follows in the list with 35% loosing their livestock.

Figure 5.1 Damages Caused by Wildlife



Source Field Survey, 2005

Other damages include loss of human life due to conflicts with animals like the hippopotamus and the buffalos. There have been instances of cross breeding between domestic cats and wild cats resulting to abnormal offspring's who can neither be described as wild nor domestic. The respondents worry about the cats because they do not know if the cats can develop wild traits that can harm them or their livestock and especially the chicken there is also a likelihood of extinction of the domestic cats if this cross breeding trend continues. An example of such an offspring is shown in plate3.

5.3.5 Diseases and Pests

The local people complained of infection of their cattle with rinder pest, nagana and foot and mouth diseases. Buffalos transmit foot and mouth disease to livestock. Ticks carry

rinder pest that mainly affect cattle. In ODSNP routing monitoring of the wildlife is lacking and such diseases go unnoticed for a long time until they cause damage. The wild animals have immunity (natural) protection to the diseases while livestock does not. 10% of the respondents claimed to have lost their livestock through diseases transmitted by the wildlife and they are bitter because no form of treatment is offered for their sick and suffering animals.

Plate 3. Offspring of a Wild and Domestic Cat

Source: Field Survey

5.3.6 Compensation Issue

The issue of compensation is a major problem that influences how the people of Ol Donyo Sabuk behave towards the wildlife, which they conflict with. According to the policies and legislations governing the wildlife conservation, there is absolutely no compensation given to loss of crops and property damaged. This is an issue that is not understood at all by the local community as they keep blaming KWS for not compensating their losses. The people are also unaware that it is the government through the Treasury and not KWS that disburses compensation payments incases of injuries or death caused by wild life. They also emphasize the lengthy and dehumanizing aspects of the life compensation process. They claimed that the compensation rate for a human life was only Kenya shillings 30,000. This rate, according to the people affected is unfair and does not value human life or human dignity. Compensation for human life should be increased to at least one million shillings. This lack and delay of compensation has attributed to the negative perceptions of locals towards wildlife conservation. The local communities feel that the KWS should always offer them compensation in case of crop, animal or human loss as soon as it happens.

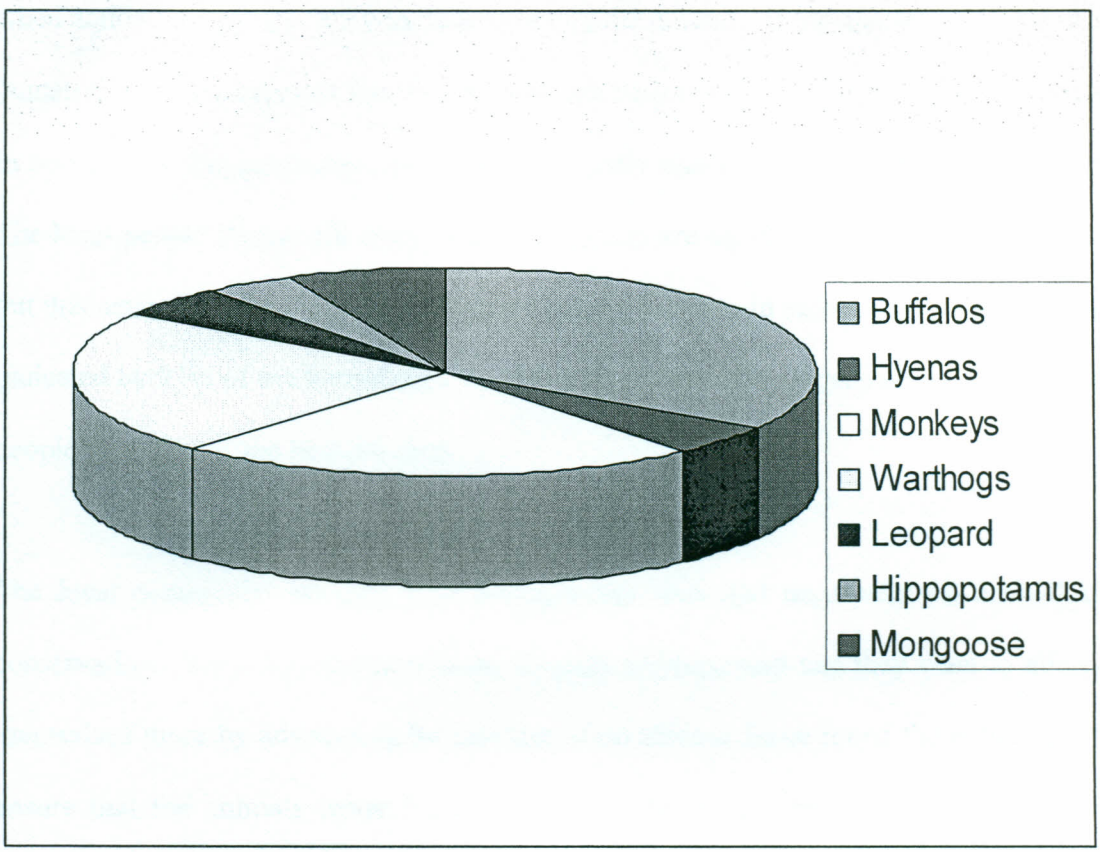
Table 5.2 Preferred Compensation by Local Communities

Damage caused on	Compensation
Agricultural crops	Vary on type of crop and acreage
Chicken	Ksh. 1,000 per chicken
Goats/sheep	Ksh. 7,000 per animal
Calves	Ksh. 10,000 per calf
Human injury	Ksh.200, 000
Human life	Ksh.1, 000,000

Source field study, 2005

The compensation of chicken is very high because the chicken is the most affected. Attacks on them by wildlife are the highest compared to other domestic animals. The compensation procedures should also be speeded up and the compensation should always come through the KWS straight to the affected persons and not through political channels like the Members of Parliament or the chiefs and assistant chiefs.

F igure 5.2 Animals Invading Farms



Source: Field Survey, 2005

5.4 Implications of Human Perception On Wildlife Conservation.

5.4.1 Action taken on wild Animals

The people of Ol Donyo Sabuk perceive that the government through KWS values wildlife more than human life. Consequently, communities see wildlife as an enemy rather than a resource, and they are not in the least interested in its conservation. Each destruction that takes place in their farms is either forwarded to the Assistant Chief, to the Chief or to the Park Warden. 71% of the households said that they always forwarded

their grievances to the Park warden. However no action(s) has ever been taken according to 74% of the people who have ever forwarded their cases. There are however, times when actions are taken. They include shooting the animals, if the animal is endangering human life. These cases of shooting animals are very minimal and they rarely take place. In some cases the game security personnel usually chase the animals back to the park. The local people always fill complainant forms and are usually told to wait for feedback but this never happens. They feel that the actions taken are in appropriate and this is well indicated by 93% of the households. In cases where the wild animals are killed, the local people view that as the best solution.

The local community through their attitudes has impacted negatively on the wildlife conservation. They feel alienated from the park management and they want to alienate themselves more by advocating for erection of an electric fence round the entire park to ensure that the animals never leave the park. This is clearly stated by 50% of the households who feel that their survival will only be ensured by secluding the animals in the national park. Others feel that the animals should be killed and the meat, skins, horns and any other animal part that is valuable given to the people. A number of the respondents also say that, the park area belonged to their ancestors long before the colonialists came to take over the area and later donating it to the government, and thus all the animals should be moved to other bigger national parks like Nairobi or Tsavo and the land given back to the locals for cultivation.

5.4.2 Decreasing Numbers of Wildlife

Park encroachment and low quality vegetation are the major threats to game number in the park. According to the park warden, the number of wildlife in the park continues to decrease. However, they do not have exact figures as a census of the animals has not been conducted in a longtime. It is always difficult to carry out a census due to varying reasons. For one, the park has an undulating terrain where animals and especially the buffalos hide, secondly, because of the proximity of human settlement along the park periphery and harassment or molestation of the animals, they have resort to hiding in the bush in the park until nighttime when they leave to graze.

The warden further, explains that the local people usually poach the animals in the park and use them as food. He said that some people are caught poaching in the park and other times, they just find traps meant to catch and kill unsuspecting wild animals in their farms. Most of the local people however, would not acknowledge this fact although some said that the animals which invade their farms deserve nothing out death and if they had the means and a route of escaping, they would always kill them. In some farms, it was observed that they keep traps made of wires that can easily strangle a small unsuspecting animal like a warthog, hyena or leopard. The big animals (buffalos) are hardly touched because killing them is hard and also if one did so, they are likely to be caught and prosecuted because its size will attract attention and they cannot be hidden in a house.

5.4.3 Park Encroachment

When the park was established, the people who lived around there though they were not many continued residing there because they were not given an alternative settlement area. The park boundary was well defined with posts all round but no fence was put up. The number of this settlement continues to increase. There is no buffer zone between the park and the human settlement. These local people have been observed to be clearing forested and bush areas for farms. These are the same bushes where animals get their food and shade when they want to rest. The encroachment into the park has imposed problems to park management. It has been observed that encroachment into the periphery of the parks management has caused the following:

- Animals have been cut off from water points in low-forested area just outside the park boundary. The watering point is an area of conflict as the wildlife, domestic animals and the human beings share it. The water point in plate 4 is found at the edge of the park and it one of the major conflict areas.
- Illegal settlements deprive of the buffalo its free movement around the park.
- Clearing land for agricultural denies the wild animals their natural source of food as all this is cleared in the process.
- Closed the migratory corridors for the buffalos.

According to the park warden the buffalos like to graze as they move. The buffalos usually move to an extent of approximately one kilometer from the park boundary. Because of this people living along the park boundary are frequently reporting crop destruction cases by the buffalos.

Local communities also encroach in the park to cut firewood for subsistence and also make charcoal for selling. This is possible as the park covers an entire area of 20 sq km and there are only eight guards in the park. They are usually overwhelmed by work and thus cannot patrol the whole park all the time. 8% of the respondents said that they know of such deforestation cases, this activity degrades the park by reducing the number of trees that are home and food to the wild animals. Deforestation has also lead to soil erosion as the park is literally a hill and removing vegetation makes the soils vulnerable to agents of soil erosion.

Plate 4. Water Point Found at the Park Border

Source: Field Survey, 2005

5.4.4 Misconceptions of KWS Management

The majority of the respondents had fiery complaints about the KWS officials. According to 22% of these people, enemity has developed between the park employees and the community due to the conflict that exists between the local people and the wildlife. They view KWS officials as the wildlife owners who let loose their animals to cause havoc in their farms and lives. They also view them as development agency that should help them in building schools and developing other projects like water, hospitals, roads and even giving bursaries for poor children. They fail to understand that KWS is only charged with the responsibility of managing and conserving wildlife in the park and largely depends on external development partners (donors) to ensure its smooth running. KWS is wholly blamed for all the conflicts that exist between the wildlife and the local community.

In the past the local community has always been left out in management of wildlife. At present the ODSNP has a programme of educating the young people on the importance of wildlife as a national resource, why it should be conserved and ways of conserving it. This programme however, only targets the young people in primary schools, because by enlightening and making them aware of conservation issues when they are still young, they are likely to grow up with a different perception from that of their elders and thus manage issues of conservation well. A lot of mistrust will thus continue existing until this young generation is of age to change the mistrust and until the less educated people pass on. This mistrust leads them to feel that the KWS are out to harass them in the name of protecting wildlife. Anyone found killing animals is arrested and punished either

through a fine, jail term or both. The fact that one is punishable by law because of killing an animal that may have destroyed their crops or property makes the relationship between the local people and the custodians of wildlife (KWS) even worse. The people are also ignorant of the fact that KWS does not set rules of wildlife management, bur are laid down by parliament. Consequently they blame them for not them allowing their access to the national park.

.5.5 Integrating the Community Perceptions in Conservation

The local people view wildlife resources in the ODSNP as a threat to their livelihood and not as a valuable renewable natural resource. They do not understand how an animal can be valued more than them and especially when it destroys their crops, property and lives. The study was able to capture the perceptions of the local people and sought ways to integrate them in the conservation and management.

5.5.1 Need for Wildlife Conservation

Wildlife has potential to improve the status of the area. The local people do not feel it yet due to conceiving the idea that the benefits are for the KWS only. Farmers need to stop looking at the protected area as the last remaining frontier for cultivation and grazing. Wildlife at the park is competing with the farmers for land use. This threatens the animals, which if well managed could bring benefits to the community because above all tourism, both domestic and international would be encouraged.

Most of the benefits derived from the park are not monetary. Such benefits include bio-diversity conservation; recreation whereby the park is a place for activities like hiking; educational value both for researchers and primary and secondary schools; scenic value which attracts both local and international tourists; watershed value where clean water seeps through the ground and provides water for rivers downstream; and historical and cultural values. The park also provides employment for local people if and when it is available.

However the community wants tangible goods and in this case goods that will improve their livelihood. They also expect KWS to initiate projects that will help them improve their standards of living. The current project initiated though KWS by the EU is an effort to raise their status although it is till in its early stages.

5.5.2 Community Participation

Conservation depends on how much people participate and participation on the other hand depends on how much they benefit or have the potential of benefiting. The level of local participation in the area is non-existence. The KWS management does not do any consultation with the local and this is clearly stated by 100% of the respondents. Although KWS is not involving the people in its operations, it realizes that there is a need to do so, as this will be the only way to minimize if not end the existing conflicts. Local involvement is very challenging because it is hard to decide at what stage to involve the community land whom among the community to involve. The process of involving the community in conservation issues and especially when major decisions need to be

reached at particular time is viewed as inappropriate because different people have different ideas and this process consumes extra time and money. Like the KWS the local people also feel that this is one of the ways to effectively manage wildlife.

5.5.3 Challenges to Effective Integration of Perceptions in Conservation

The need to integrate the local community to feel like they belong and own the resource is greatly felt but the park experiences various challenges that hinged it from integrating their perceptions and attitudes. Participatory approach aimed at bringing the local community into the central stage of conservation and conflict resolution around the park has been hindered by the fact that majority of them are illiterate. They actually do not understand the meaning and importance of conservation and thus convincing them is hard and fruitless. Their idea that wildlife is a menace has been fixated in their minds and due to their lack of formal education, they still do not see the value of wildlife as long as they are not benefiting from it. Lack of awareness campaigns to sensitize them on the value of wildlife has also not taken place in the area and this dwindle any chances of them ever changing their perception as long as the status quo between them and the animals remains constant.

The park has a very limited number of visitors per year. According to the KWS Annual Report of 2004, the park has received visitors as follow. In 1998 there were 896, the number increased to 1212 in 1999. Again in 2000 it rose to 1518 and in 2001 it went up to 1650. The number continued rising up to 2104 in 2002 and lastly in the year 2003 there were 2412 visitors. This number has continued to rise and it has potential of even raising

further. This is because the park is next to the famous fourteen falls, which is an attractive tourist site. Many local tourists and especially schools, youth groups and even organized groups from companies frequent the area. This opportunity has not been utilized. This number of visitors according to the warden cannot even sustain the day-to-day activities in the park. The revenue collected from them is not even enough to pay the park workers let along sharing with the locals.

The visitors are mostly locals (Kenyan) and international tourists hardly visit the area. According to the warden the park can go for weeks without receiving any foreign tourists, while local tourists mainly visit over weekends. During weekdays, there are hardly any visitors received. The charges for a Kenyan student are Ksh 50 per head and for a Kenyan adult Ksh 100 per head. Foreign tourists charges normally depend on the value of the Kenyan shilling at that particular time and they are normally sent from the KWS headquarters every month. The park is supposed to contribute 80% for its day-to-day activities from the revenue collected. The revenue collected from gate charges hardly reaches this target.

The park has no tourist hotel lounge where tourists can reside as they adventure. The nearest town also has no tourist hotels, as the economic capacity of the people is low. Most parks in the country have big tourist hotels where their visitors reside as they tour the parks. ODSNP has no such facility. According to some residents such facilities can offer employment to locals and thus they would feel like they are benefiting from wildlife although not directly.

The park also lacks publicity and it is hardly known by many people including Kenyans and non-Kenyans. This is even proved by the little study that has been done in the area. Even the KWS resource center does not have any recent documented data of the park. There is no signboard of the park at the Thika Matuu highway where one turns to the route that leads to the park. The only signpost is at the park entrance as shown in plate 5 and it contains no park rules. The only warning given is that "you enter the park at your own risk". The researcher feels this is a put off to any visitor willing to tour the area.

The road leading to the area as shown in plate 6 is in a dilapidated state. No efforts either by the Ministry of Roads and Public Works, the KWS or the Constituency Development Committee has been made to improve its status into ka all weather road. According to the respondents, the road is impassible during wet seasons and vehicles always get stuck. The only mode of transport from the bus park to the park that is two kilometers away, are bicycles.

Plate 5: Sign Post at Park Entrance

Source: Field Survey, 2005

The park does not have electricity and thus facilities for instance computer, fax and machine for recording number of visitors electronically cannot be used. If the park had electricity, they would improve and enhance their operations and the local community believes that it would be cheaper to access electricity from a transformer put under KWS. There is only one four-wheel drive vehicle that serves the whole park. If it breaks down operations that need its use have to be suspended. Housing for staff is also in adequate and in poor conditions.

There are no outside agencies that partner with the park to enhance its management and development. Parks for instance Nairobi National Park has development and support partners for instance the Friends of Nairobi National Park and other volunteer groups, which support its effective running. ODSNP does not enjoy such support and it is all on its own.

Like all other parks in the country under the KWS management ODSNP suffers from the policy framework, which is complex and has forces that influence conservation and development of parks. The KWS game wardens are usually transferred to different parks within the country without much notice and with no regard to development projects that they have started. According to the warden of ODSNP one may have wonderful ideas on conservation and improvement of the park but transfers always come before the ideas get a chance to be implemented.

For effective integration of the community and the KWS to ensure mutual understanding the above challenges have to be eliminated or minimized. The two (KWS and local community are the main stakeholders and their coming together will ensure effective conservation. Recommendations to mitigate these challenges are given in this study.

Plate 6: Dilapidated Road to the Park

Plate 6. Source; Field Survey, 2005

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 SUMMARY AND CONCLUSION

The study has examined various factors that contribute to the prevailing human perceptions on wildlife and their implications on conservation of the ODSNP It has also reviewed the existing policy framework on wildlife and the extent to which it addresses community needs.

6.1 Wildlife Policy

The Wildlife Conservation and Management Act in Kenya has formulated policies which exclude man from national parks. This has been done with the aim of maintaining the parks in the exact form they had at the time of establishment. In addition it also aims at managing the national parks as zoos such that tourists and scientists may view the maximum number of wildlife in their natural habitat. The framework is biased towards preservation of wildlife resource with no consideration of the local people, yet the local communities are the ones who live with the wildlife. This creates a lot of conflicts between the wildlife and the local people.

The policy framework fails to provide compensation for loss and damage of crops and property. Only loss of human is compensated at Ksh. 30,000. This figure abuses human rights and it is insufficient to cover medical bills and take care of the victims' dependants. This has resulted to hostility between the people and the government. Wild animals have

consequently turned enemies of human beings. This issue will always cause problems unless remedial measures are put in place.

Policy issues can only improve if the current policies governing wildlife management are reviewed. The Wildlife Act was formulated on laws that were used by whites during colonialism and they need to be reviewed to fit in the independent Kenya. The current board at KWS is preparing and reviewing the Act in readiness to present it to the Minister who will in turn present it to parliament. People in charge of policy excitement are in parliament. Politics is always a major problem in trying to make changes as the parliament is composed of politicians some of whom do not understand the meaning of conservation while others have their personnel interests to serve and they do not conform with wildlife conservation.

6.1.2 Prevailing Perceptions and Impacts on Wildlife Conservation

The Ol Donyo Sabuk community feels that benefits derived from the park do not benefit them. Their basic economic activity is farming which is done in small scale. The farmer faces low production potential due to the fact that wild animals especially the buffalos, monkeys and warthogs from the park always destroy their crops. At times the buffalos can destroy an entire farm leaving the families starving. The park animals including hyenas and mongoose usually kill and injure domestic animals. These losses aggravate the level of conflict between the two and humans always view the animals as their enemies.

The national park should be able to generate sufficient revenue and share the benefit with the local community so that the latter can see the park as an asset rather than a burden. However, the park is not able to generate revenue due to lack of necessary infrastructure, lack of publicity, low number of visitors, hindering policies and lack of development partners.

Low literacy level influences the local community to disregard conservation and opt for measures such as having the animals transferred to other areas and the park being transformed to agricultural use. They also suggested that the park be permanently fenced with electric wire. They fail to understand that fencing is not advocated for by conservatisms because it denies the animal freedom to move to look for food, water and mating partners. Awareness and sensitizing of conservation issues is skewed towards younger age groups leaving the old generation uninformed about conservation issues

Wild animals are usually eliminated by KWS if they are termed as a threat to human life. This happens when the animals move from the park into the human settlement and puts the lives of the people in danger. Such cases are however rare. Small animals that invade farms are usually trapped by wires set in the farms by farmers. Farmers believe that animals that cause them misery should be killed and if they had the means and if there was no prosecution, they would go ahead and kill them.

6.1.3 Conclusion

The numerous perceptions that exist in this study together with the implications on conservation are negative because these attitudes make the local people feel like they are not part of the wildlife conservation system and thus disregard any measure to conserve wildlife. The residents however, appreciate the right of the wildlife to live so long as there are proper barriers to stop them from interfering with their lives. This permanent segregation would take time to be implemented as it is expensive to erect an electric fence and it would also interfere with the wildlife natural habitat.

Education in terms of creating awareness and sensitizing the locals on conservation issues would however be a major step in improving the park status. It is also important to consult the local people where possible and let them feel like they belong and own the park.

People should be made to understand that animals do not differentiate between parkland and private land when it comes to grazing. There needs to be a buffer zone between the two so as to avoid extensive crop destruction. Most of the farms that are just next to the park experience the worst crop destruction.

Previously the only and main challenges to managers might have been to understand ecosystem functions and discover how to manage wildlife habitats, today's challenge include how to incorporate local communities into planning and management and how to calculate an economic value for an area to gain support for its continual existence.

Understanding perceptions will allow the many institutional players to all participate in strengthening the network of protected area system in Kenya.

6.2 Recommendations

6.2.1 Review of Existing Wildlife Policies

Policies and legislations affecting wildlife management should be reviewed in order to identify their weaknesses and strengths. Finalization of policy review should be hastened. Policies and legislations affecting wildlife should be coordinated so as to avoid contradictions and overlaps. The new legislation should also allow sustainable wildlife utilization where local communities are empowered to understand the meaning of conservation and benefit from wildlife resources. Such legislation should facilitate maximum flow of wildlife benefits directly to the communities. The legislation should also provide for compensation for people killed or injured by wild animals. A scheme whereby damaged caused by wild animals, be it death, injury or loss of property should be provided and compensation made by the government, as soon as possible.

6.2.2 Distribution of Wildlife Benefits

Benefits derived from wildlife should be clearly defined and made accessible to local communities. Benefits from park revenue and other sources should be directed to benefit the local community since they are the ones who live alongside the wildlife. This can be done by initiating development projects in the area such as piped water, electricity, and construction of health centers, roads.

An independent institution should be established to deal directly with revenue collected from the park. Such an institution should be given mandate to determine the modalities of spending such revenues. This institution should be having representatives from the local community, KWS, the government and others who have an interest in conservation. Records of the revenue collected should be kept and made available to all stakeholders so as to remove any doubts of how revenue collected is being spent.

6.2.3 Park Publicity

The park should be advertised and the public made aware of its existence and location. An information center where the park materials can be displayed will be useful to those visitors who want to visit other parks away from Nairobi. This will be one strategy of improving tourism in the KWS Park. The Nairobi National Park is a central center and should be used as a selling point for the park and other parks located outside Nairobi.

6.2.4 Integrated Management Plan

There is need for an integrated management plan to link up social, economic, political and cultural activities with conservation and management issues. Such a plan would also define land use planning, human wildlife conflict and political goodwill to ensure its implementations.

The integrated management plan should:

- Minimize human resource (wildlife) conflicts, threats and enhance compatible land use practices

- Provide a basis for diversification of tourism benefit sharing and poverty alleviation; promote sustainable land use practices, environmental conservation and natural resource management.
- Minimize threats and constraints that affect sustainable conservation and development in the region.
- Promote integration, collaboration and stakeholders participation in wildlife conservation
- Promote support for national and international institutions in conservation and development of the park
- Encourage conservation support agencies.

6.2.5 Conservation Awareness

Conservation could be achieved through responsible human behavior and a change of attitude towards the wildlife resource. There is need for people to live in harmony with the wildlife resource. This would ensure continuation of life and benefits for all and sustenance for future needs. Thus KWS should strengthen their educational awareness programmes among the local population. Intensive awareness campaigns should be conducted to help people understand the need for wildlife conservation. This will help in changing the attitude of the local population toward wildlife and may therefore help in conservation efforts. Understanding of the importance of wildlife will make the population practice measures, which will minimize conflicts. Conservation awareness is also important in the sense that KWS cannot effectively manage wildlife on its own without the support of the local community.

6.2.6 Consultation and Participation

Local communities should always be consulted and their ideas sought to be incorporated in planning and management issues. Participatory Rural Appraisal (PRA) through which the local communities identity their problems and make recommendations on how such problems can be solved should be formed. PRA should ensure that issues of wildlife management are identified, discussed and agreed upon by all the interested stakeholders. This should be achieved through an open and participatory dialogue especially through workshops and public hearings. Through this approach KWS is supposed to consult with community leaders, opinion leaders, local political representatives and the administrators. Non Governmental Organizations involved in wildlife conservation can also be contacted.

6.2.7 Networking

Efforts should be made to identify and strengthen activities that transfer or disseminate lessons learned for example, through regional sharing and information. The transfer of ideas and technologies is an important aspect of the challenge to strengthen the capacity of KWS to take responsibility of the management of wildlife resource in ways that are sustainable in the long term. The efficiency and effectiveness of communication and technology transfer can be enhanced through the use of computers, fax and Internet services. Sharing of research findings and other information should be an important aspect of park networking within the country and also with other international nations.

6.2.8 Creation of Buffer Zone

A relatively large zone consisting of trees and shrubs should be established next to the park to minimize the human-wildlife conflict. This area will be viewed as a forest zone by wild animals, thereby resisting any temptation of going further away from the park. Farmers should only be allowed to practice agriculture after establishing a good buffer zone. The community should also put up their houses a little distance from this zone.

6.2.9 Tourist Activities

The community around ODSNP does not enjoy any activities related to tourism. Tourism should thus be encouraged and a lounge or hotel put up to provide accommodation for tourists. Other multiplying effects of tourism are employment and creation of curio and gift shops around the park. This will improve the park status and it will also improve the local's standards of living.

6.2.10 Improve Park Status

There is need to introduce the use of electronics in the park. This can only happen if the park is connected with electricity. Electricity will enhance the running of activities in the park. Use of facilities like computers and fax will be introduced. With the changing of technology it is important to acquire such facilities. Internet use should also be encouraged so as to learn what happens in other areas of conservation all over the world. Communication will also be made easier and faster with the use of the email and fax. Tickets will also be issued electronically and this is an efficient way of keeping records compared to the current paper tickets.

The park has no form of database and it is hard to know what has been taking place since its establishment. It is also hard to compare studies done previously because they are scarce and outdated. With a computer, it will be easy and possible to create a database for future use and for monitoring purposes.

The road leading to the park should be upgraded to an all weather road so to ensure easy movement. The park should also acquire another vehicle as the one the available is not enough to help run all the park errands

6.3 Areas for further Studies

Further research should be done on the:

- Re-introduction of compensation scheme for crop, livestock and property destruction and address the human life compensation further.
- Alternative sources of funding for park management activities and community based projects.
- Estimating the individual's willingness to pay for the charge in the conservation of wildlife.
- Viability of acquiring land for creating a buffer zone.

BIBLIOGRAPHY

Anderson, D. and Richard, G, Eds. (1987) *Conservation in Africa: People, Policies and Practice.* Cambridge University Press. New York

Bell, C. and Robert, H. (1984) *Social Researching*. Rout ledge and Kegan Paul P.C. London

Berger, D.J. (1993*) Wildlife Extension.* Acts Press. Nairobi.

Berchin, S.R and West, P.C. (1990*) Protected Areas, Resident Peoples and Sustainable Conservation: The Need to link Top-Down with Bottom-Up Society and Natural Resources 39100, 77-79.*

Brown, M. Barbera Wyckoff – Baird. (1992) *Designing Integrated Conservation and Development Projects.* Biodiversity Support Programme. Washington D.C

Buencher, H and H. Dawkins, (1981) *Vegetation change induced by Elephants and Fire in Murchison Falls National Park, Uganda. Ecology 42(4): 752-66.*

Dasmann, R.F. (1984) Environmental *Conservation.* John Wiley Publications. New York

Fairburn, W.A. (1963) Geology of the Northern Machakos area. Ministry of Environment and Natural Resources. Nairobi.

Gartlan, S. (1992) National and Local factors in Rainforest Conservation. A comparison of the Korup and Kilum Projects. Wildlife Conservation International, Boston Massachusetts.

Georgian, D., Pearce, D., Moran D. (1997) *Economic Values and the Environment in the Developing World.* Edward Edgar publishing Ltd. London

Glover, J. (1983) *The Elephant Problem at Tsavo*. East Africa Wildlife. J. (1): 30-39.

Government of Kenya, (1970) *National Atlas of Kenya.* Government Printer. Nairobi

Hans, Gielen, (1986) *A Report on an Agro- forestry Survey of Three villages of Northern Machakos, Kenya.* ICRAF, Nairobi.

Kenya, Republic of, (1975) *Statement on future Wildlife Management in Kenya: Sessional Paper No. 3.* Government Printer. Nairobi.

Kenya Republic of, (1985) *The Wildlife Conservation and Management Act Cap 376.* Government Printer. Nairobi

Kenya Republic of, (1989) National *Development Plan. 1989- 1993.* Ministry of Planning and National Development Government. Printer. Nairobi.

Kenya Republic of, (2002) National *Development Plan. 2002-2008.* Ministry of Planning and National Development Government Printer, Nairobi.

Kenya Republic of, (2002) *Machakos District Development Plan. 2002-2008.* Ministry of Planning and National Development Government Printer. Nairobi.

Kiriro, A and Juma, C. (1991) *Graining Ground Institutional innovators in Land use management in Kenya.* Acts Press. Nairobi

Kiss, A. (1990) *Living with Wildlife. Wildlife Resource Management with Local Participation in Africa.* World Bank. Washington D.C.

KWS, (1995*) Policy statement and Operational summary for Revenue sharing and Wildlife Development fund.* KWS. Nairobi.

KWS, (2004) *Tourists Annual Report.* KWS. Nairobi.

KWS. (1996) *Parks Beyond People. Annual Report KWS.* KWS. Nairobi.

Lusigi, W. J. (1981*) New approaches to Wildlife Conservation in Kenya.* Vol. 10 Nos. 2-3

Marekia, E. N. (1991) ' Managing Wildlife in Kenya'. *In Gaining Ground: Institutional Innovations in Land use Management in Kenya,* edited by Kiriro, A and Juma, C. Acts Press. Nairobi

Ministry of Environment and Natural resources. (1979) *Wildlife Conservation and Management Department Newsletter. Vol. 2 No.2,* Nairobi. Kenya.

Morrison, M.L. (1992) *Wildlife Habitat Relationships, Concepts and Application.* University of Wisconsin Press, London.

Muthoka,M. (1998*) Environmental Education, Essential Knowledge for Sustainable Development.* Longman Kenya Ltd. Nairobi.

Nash, R. (1982) *Wilderness and the American Mind. Third Edition.* Yale University Press. New Haven, USA.

Ndaruga, A.M and Irvin, P.R. (2003) Cultural Perceptions of Wetlands by Primary School Teachers in Kenya. *Journal of International Research and Environmental Education*: Vol. 12:3, pg 219-230

Nyeki, D.M. (1992) *Wildlife Conservation and Tourism.* Jacaranda Designs Ltd. Nairobi.

Omar, S.A., Razzaque, M.A and Alsdiwan, F. (1995) *Range Management in Arid Zones-Proceedings of Second International Conference of Range Management in Arabia.* Culture Legan Paul Ltd. London. UK.

Paul, S. (1987) *"Community Participation in World Bank Projects".* Finance and Development 124 (4): 20-23.

Renard, Yves. (1992) Popular *Participation and Community Responsibility in Natural Resource Management.* Caribbean Natural Resources Institute. USA

Tolba, M.K. (1989) '*Global Environmental Justice' Information Paper, No. 4.* UNEP. Nairobi.

UNEP, IUCN, WWF. (1980) World Conservation Strategy. Living Resource for Sustainable Development. Gland, Switzerland: IUCN

UNEP (2000) *People and Ecosystems. The Fraying Web of Life*. World Resource Institute Washington D.C.

UNEP and Kenya Wildlife Trustees. (1988) *People and Park. Guidelines for Public participation in Wildlife conservation. Case Studies in Kenya,* UNEP, Nairobi.

USAID. (1993) *African Biodiversity foundation for the future*. Biodiversity Support Programme. USAID, Nairobi.

Wells, Michael and Katrina, Brandon. (1992*) People and Parks: Linking Protected Areas Management with Local Community.* World Bank. Washington D. C

Williams, J. T. (1981*) National parks of East Africa. Incorporating nearly 400 Mammals and Birds.* Harper Collins Publishers. London.

World Bank. (1992) World Development Report. Washington D.C.

APPENDIX I

KENYATTA UNIVERSITY

DEPARTMENT OF ENVIRONMENTAL PLANNING AND MANAGEMENT

HOUSEHOLD QUESTIONNAIRE

The information that this questionnaire seeks to collect will be used for academic purposes. The responses will be treated with utmost confidentiality.

A. GENERAL INFORMATION

Q 1 Household Characteristics

	Age	Sex	Education	Occupation
1				
2				
3				
4				
5				

Q2 Household Monthly Income

Below 1000	
1001- 5000	
5001- 10000	
Above 10000	

Q3 Marital Status

i) Married [ ]

ii) Single [ ]

iii) Widowed [ ]

iv) Separated [ ]

B. LAND OWNERSHIP ISSUES

Q4 How long have you been living in this area?.....

Q5 a) Did you own land in Ol Donyo Sabuk park before it became protected?

Yes [] No []

b) If yes, was there any kind of compensation given to you for losing the park land?

Yes [] No []

c) If yes, what was the nature of the

compensation?.....

.....

Q6 a) Were you consulted in any way in the creation of the park?

Yes [] No []

b) If yes, how?.....

C. COMMUNITY WILDLIFE INTERACTIONS

Q 7) What interactions existed between the community and the wildlife before the establishment of the

park?.....

Q8 a) Traditionally, how did the park benefit you?.....

.....

b) Do you still continue to derive benefits from the park?

Yes [] No []

c) If yes, what are the

benefits?.....

.....

Q9 a) Have you had cases of animals escaping from the park to your farms or homes?

Yes [] No []

b) If yes, what animals are these?.....

c) What damages are caused by the animals?.....

d) How often do the animals escape from the park?.....

e) To whom do you forward your complaints?.....

f) What is the nature of action (s) taken?.....

g) Do you feel the action(s) are appropriate?.....

h) How do you feel such wild animals should be treated?.....

i) What would be your preferred compensation for damages?.....

Q10 a) Does the government through the KWS consult you in any decisions concerning management and conservation of the park? Yes [] No []

b) If yes, how is the consultation done?.....

c) Do you feel this is effective to ensure proper management and

conservation?.....

Q11 a) Has KWS assisted you in any development project within this area?

Yes [] No []

b) If yes, what are the projects?.....

d) Do you feel the projects are of any benefits to the community?

Yes [] No []

Q12a) In your own opinion, do you feel KWS is effective in managing wildlife in the park? Yes [] No []

b) If yes, where do you feel KWS has been effective?.....

c) If no, in what areas do you feel KWS has failed?.....

Q 13) Do you have any arrangement with KWS that allows the animals to benefit from your land e.g. grazing at certain periods of the year? Yes [] No []

b) If yes, what are the main benefits and problems with the arrangement?.....

c) How do you think you can improve this arrangement?.....

Q14) What do you perceive to be the major problem facing Ol Donyo Sabuk National Park?.....

.....

Q15) What are your suggestions towards an improved Ol Donyo Sabuk National Park management?.....

.....

.....

APPENDIX II

KENYATTA UNIVERSITY

DEPARTMENT OF ENVIRONMENTAL PLANNING AND MANAGEMENT

QUESTIONNAIRE TO KWS OFFICIALS

The information that this questionnaire seeks to collect will be used for academic purposes. The responses will be treated with utmost confidentiality.

Q1) The respondent's background information

Title .....

Sex .....

Age .....

Duration of stay in the park .....

Duration of service in current position .....

Q2) To what extent do you have knowledge of the park?

i) Very well

ii) Moderately well

iii) Little knowledge

iv) None

Q3) How big is the park in terms of acreage?

.....

Q4) Is the park fenced? Yes [] No []

b) If yes, what type of fencing has been used?

.....

.....

Q5) Are there communities living within the park?

Yes [] No []

If no, what happened to those who lived in the park before it became a protected area?

.....

Q6) How often have you had cases of animals destroying property, human life and crops?

.....

b) What is the extent of the damage caused?.....

c) Is there any form of compensation given to communities which have lost lives or property? Yes [] No []

d) If yes, what kind of compensation?

.....

Q7) Do you involve the community in any decision making on management and conservation of wildlife in the park? Yes [] No []

If yes, at what stage of decision making process are they involved?

.....

Q8) What benefits do you derive from the park?.....

.....

b) Is there any way the communities gain from these benefits?

.....

Q9) Where do you normally get most of your workforce?

(i) Local community []

(ii) Neighbouring community []

(iii) Elsewhere (specify) .....

Q10) In brief how does KWS manage the Ol Donyo Sabuk National Park?

.....

.....

Q11) Which Park regulations have you put in place to protect the park from bad practices and misconduct by local communities?.....

.....

Q12) Which agencies help in wildlife management in the park?.....

b) What is the role of these agencies?.....

.....

Q13) Have you had conflicts arising between the communities and KWS:

Yes [] No []

b) If yes, what kind of conflicts are these?

(i) Damage caused by animals from the park Yes [] No []

(ii) Inadequate compensation paid to communities Yes [] No []

(iii) Communities feeling that park land belongs to them Yes [] No []

(iv) Communities feeling that they do not gain from benefit developed from the park

Yes [] No []

(v) Any other (specify)

.....

c) How do you solve these conflicts?

.....

d) What problems do you experience in trying to solve these conflicts?

.....

.....

e) How do you ensure that no further conflicts arise?

.....

Q14) What is the current policy framework concerning community and conservation?

.....

.....

b) What are its implications on conservation?

.....

.....

c) In your view, is the current policy framework effective? Yes [] No []

d) If not, what suggestions would you make for its improvement?

.....

.....

15) Is there any form of community training and awareness done by the government through KWS to effectively manage wildlife?

.....

b) What is the response of the local community to this awareness campaign?

.....

c) What problems do you encounter during your awareness campaign?

.....

.....

.....

Q16) What future plans do you have to effectively manage wildlife at the park?

.....

.....

APPENDIX III

KENYATTA UNIVERSITY

DEPARTMENT OF ENVIRONMENTAL PLANNING AND MANAGEMENT

OBSERVATION CHECKLIST

ITEM	TICK IF APPROPRIATE	COMMENT
Damages on Crops		
Poor Infrastructure		
Trapping Wires		
Settlement Type		
Watering Point		
Farming Activities		