

**COMMUNITIES' PERCEPTIONS AND ASSESSMENT OF  
BIODIVERSITY CONSERVATION STRATEGIES: THE CASE  
OF PROTECTED AREAS IN KENYA**

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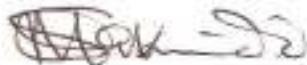
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**March 2010**

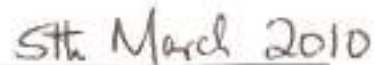
## DECLARATION

Submitted in fulfilment/ partial fulfilment of the requirements for the degree of PhD in Geography in the Graduate Programme in the School of Environmental Sciences, University of KwaZulu-Natal, South Africa.

I declare that this dissertation is my own unaided work. All citations, references and borrowed ideas have been duly acknowledged. I confirm that an external editor was/ was not used and that my Supervisor was informed of the identity and details of my editor. It is being submitted for the degree of PhD in Geography in the Faculty of Humanities, Development and Social Science, University of KwaZulu-Natal, South Africa. None of the present work has been submitted previously for any degree or examination in any other university.



Stanley Maingi Makindi



Date

## **DEDICATION**

To

My daughter **Cherry** (who represents the future) and to the memory of my late grandmother  
**Kalee** (who represents the past)

and

All participants in the quest for a sustainable society.

## ACKNOWLEDGEMENTS

I wish to acknowledge the following for their invaluable contribution in one way or another towards my success in the production of this thesis:

First is my heartfelt gratitude to **God**, who gave me the opportunity, grace and victory through **Jesus Christ** to undertake the study, and:

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## ABSTRACT

Protected areas in Kenya constitute 7% of the total land area with over 75% of wildlife in the country being found on private or communal land. With one of the highest population growth rates in the world and facing a range of development issues with limited resources, one of the greatest challenges in Kenya is reconciling and sustaining economic development with biodiversity conservation and sharing the costs and benefits of conservation between individuals, state and the general community. The study was informed by the relevant literature and the researcher's fieldwork which was conducted in 2008 in three categories of protected areas under different governance types and primary management objectives in Kenya (Lake Nakuru National Park – government managed, Kimana Community Wildlife Sanctuary – communally managed, and Kedong Game Ranch – privately managed). The research examined the general issues of how local communities in Kenya have embraced different biodiversity conservation strategies. A major emphasis was on identifying those factors influencing their attitudes towards conservation approaches and their participation in conservation management institutions. At issue was whether support for a particular conservation strategy is primarily a function of communities' experiences with biodiversity decline or their relationship with the conservation authorities. The research employed both qualitative and quantitative techniques in gathering the data. A total of 270 community respondents and 45 staff respondents were interviewed. Several demographic and socio-economic characteristics of the local people that include age, gender, educational level and location, amongst others, were found to significantly influence the attitudes of the local people towards the protected areas conservation activities. The direction of the influences (whether positive or negative) depended on the management category of the particular protected area. The general findings of the study suggest that although local people appreciate the crucial value of biodiversity and the role of protected areas in conserving it, there is some evidence of resentment towards some management activities of the protected area regulators. Negative attitudes were attributed to perceived problems of living next to the protected areas such as lack of involvement of the local people in the management of the protected areas, restrictive access to and use of resources from the protected areas, harassment by the conservation enforcing agents, conflicts with wildlife and lack of compensation for damages and losses incurred. Widespread support for the management activities was associated with perceived benefits to the local populations such as support for educational programmes, social amenities, employment and business opportunities. It is clear from this study that different rationales of conserving biodiversity need to address the issue of protected area management in the context of sustainable development through a combination of conservation strategies.

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## LIST OF ABBREVIATIONS

ASAL:	Arid and Semi-Arid Lands
ATBA:	Australian Terrestrial Biodiversity Assessment
AWF:	African Wildlife Foundation
BSP:	Biodiversity Support Programme
CAMPFIRE:	Communal Area Management Programme for Indigenous Resources
CBD:	Convention on Biological Diversity
CBO:	Community Based Organisations
CBS:	Central Bureau of Statistics
CCA:	Community Conserved Areas
CCDP:	Community Conservation and Development Programmes
CIPEV:	Commission of Inquiry into Post Election Violence
CORE:	Conservation of Resources through Enterprise
DBNEA:	Dryland Biodiversity Network for Eastern Africa
DRSRS:	Department of Remote Sensing and Regional Surveys
ELI:	Environmental Law Institute
EMCA:	Environmental Management and Co-ordination Act
EPC:	Environmental Protection Council
ES:	Extreme Safaris
FAN:	Forest Action Network
GoK:	Government of Kenya
GDP:	Gross Domestic Product
ICDP:	Integrated Conservation and Development Projects
TIES:	The International Ecotourism Society
IIED:	International Institute for Environment and Development
IISD:	International Institute for Sustainable Development
ILO:	International Labour Organisation
ILRI:	International Livestock Research Institute
IPA:	Indigenous Protected Areas
IUCN:	International Union for the Conservation of Nature
KARI:	Kenya Agricultural Research Institute

KEFRI:	Kenya Forestry Research Institute
KEMRI:	Kenya Medical Research Institute
KLCT:	Kenya Land Conservation Trust
KNBS:	Kenya National Bureau of Statistics
KWS:	Kenya Wildlife Service
LWF:	Laikipia Wildlife Forum
MENR:	Ministry of Environment and Natural Resources
MDG:	Millennium Development Goals
NEMA:	National Environmental Management Act
NGOs:	Non-Governmental Organisations
NLP:	National Land Policy
NPNP:	National Policies for National Parks
ODA:	Overseas Development Assistance
OECD:	Organisation for Economic Co-operation and Development
PA:	Protected Areas
PAC:	Problem Animal Control
PPA:	Private Protected Areas
SAP:	Structural Adjustment Programmes
SMMEs:	Small, Medium and Micro Enterprises
UNCBD:	United Nations Convention on Biological Diversity
UNCED:	United Nations Conference on Environment and Development
UNCSD:	United Nations Commission for Sustainable Development
UNEP:	United Nations Environmental Programme
URT:	United Republic of Tanzania
US-UCEA:	United States Uniform Conservation Easement Act
WCED:	World Commission on Environment and Development
WCMA:	Wildlife Conservation and Management Act
WCMC:	World Conservation Monitoring Centre
WCU:	World Conservation Union
WDF:	Wildlife for Development Fund
WDPA:	World Data on Protected Areas



WRI: World Resources Institute  
WSP: Water Sanitation Programme  
WWF: World Wide Fund for Nature

## CHAPTER ONE

### STUDY ORIENTATION

#### 1.1. Introduction

Biodiversity broadly refers to the variability among living things and the ecosystems that support them. According to McNeely (1990), it is an umbrella term for all of nature's variety. McMichael *et al.* (1999) observe that biodiversity is the fundamental base upon which human civilizations have been built. Similarly, the Biodiversity Support Programme (BSP, 2001) and the World Resources Institute (WRI, 2005a) highlight the importance of biodiversity to human well-being by maintaining that it provides subsistence and economic goods for local people as well as the underlying conditions necessary for the delivery of ecosystem services to people living in and around them, and to the society as a whole. The Millennium Ecosystem Assessment (WRI, 2005b) identifies four categories of these services. The first category, "provisional services", includes the services that yield natural products such as food, fresh water, fuelwood and herbal medicines that have direct use to rural communities. However, legally these products would only be accessible to local people living in and around those protected areas that allow the sustainable harvesting of such resources (WRI, 2005b). The other three categories of ecosystem services include: regulating services (that is, benefits from ecosystem services such as climate regulation, watershed protection, coastal protection, water purification, carbon sequestration and pollination); cultural services (for example, religious values, tourism, education and cultural heritage); and supporting services (for example, soil formation, nutrient cycling and primary production).

Biodiversity conservation, construed as preservation of wildlife, was not known in pre-colonial African societies (Kameri-Mbote, 2005a). According to Ntiamoa-Baidu (2001), conservation concerns were introduced into Africa by colonial administrators in the beginning of the twentieth century in response to the rapid destruction of forests and

declining wildlife populations. The introduction of conservation strategies in Africa, as indicated in Hulme and Murphree (2001), gave rise to a policy shift in favour of protecting selected wildlife areas. One of the most notable international agreements cited by Boardman (1981: 148) applicable to conservation in Africa is the International Union for the Conservation of Nature (IUCN), originally the International Union for the Protection of Nature, that was premised on a commitment to setting or demarcating conservation areas. Mulholland and Eagles (2002: 42) further confirm the essence of this policy shift in favour of wildlife conservation by indicating that “in Africa, vast tracts of land have been set aside as national parks, game reserves, and other forms of protected area that cover over 25% of several countries’ total area”.

According to Kameri-Mbote (2005a), African countries rely more on biological resources to a far greater extent for their subsistence and economic survival. This situation is echoed by Mulholland and Eagles (2002) who maintain that Agriculture and wildlife-based tourism is, for instance, a significant foreign exchange earner for countries such as Kenya. A report by the World Conservation and Monitoring Centre (WCMC, 1992) estimates the African continent to hold at least 25% of global biodiversity with Eastern Africa having the highest number of endemic species of mammals, birds, reptiles and amphibians. However, both Barrow *et al.* (2000) and Brandon *et al.* (1998) contend that Africa’s biological diversity is under threat from population pressure and migration, land use changes and over-harvesting of biological resources.

Adams (2004) and Igoe (2006) observe that one of the greatest challenges facing conservationists in Africa is how to balance nature conservation and the needs of an ever-increasing human population and related activities in wildlife areas. Barrow *et al.* (2000) and Brandon *et al.* (1998) further note that the population pressure and scarcity of basic resources like good arable land has forced people to expand into marginal lands more often inhabited by wildlife, leading to not only increased human-wildlife conflicts, but also habitat fragmentation and conversion of land to other uses incompatible with wildlife. This situation, according to Ndeng’*e et al.* (2003), is of concern since most people who live in

these areas are generally poor and depend on natural resources for their livelihoods. Hulme and Murphree (2001), Muruthi (2005) and Western *et al.* (1994) further maintain that wildlife conservation imposes significant costs on these people through crop damage, livestock predation and human deaths, and restriction of access to natural resources. Similarly, Mulholland and Eagles (2002) state that with little or no corresponding benefits this situation compromises people's livelihoods and reduces their willingness to support conservation efforts.

Sustainable use of biodiversity evolved with time. The motivation for protecting natural areas has ranged from religious to resource or species management. Elaborate indigenous conservation systems prevailed among indigenous African people before colonisation. For example, Gatua (2006) and Ntiamoa-Baidu (2001) observe that small patches of wilderness in Africa were designated and set aside as sacred groves and shrines (mountains, rocks, rivers, forests and others) that were strictly protected by customary laws; often through religious, spiritual and cultural practices. Such practices limited access to these sites and prohibited the exploitation of particular species in certain areas. However, Brandon *et al.* (1998) emphasise that with the increase in developmental needs of the people and an insatiable demand for natural resources, the changing patterns of land use became a threatening challenge to the traditional conservation strategies. The importance of this challenge was universally acknowledged at the Earth Summit held in Rio de Janeiro in 1992 by the United Nations Conference on Environment and Development (UNCED, the Earth Summit) from which the Convention on Biological Diversity (CBD) was initiated. The CBD sets out broad commitments by governments to take action at the national level for the conservation and sustainable use of biological diversity. The objectives of the Convention (UNCED, 1992: 5) were:

- the conservation of biological diversity;
- the sustainable use of its components; and
- the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

According to Kameri-Mbote (2005a), resource planning and development with regard to wildlife management revolve around the arrangements for the protection, conservation and sustainable use of any wild plant or wild animal within a given area. The approach taken by most African countries to wildlife management is conservation through the creation of protected areas (Adams and Hulme, 2001; Wells *et al.*, 1992), a model introduced by colonial authorities in the nineteenth century. The protectionism approach of biodiversity conservation has been challenged on the basis that it was based on Western knowledge and values. For instance, Ntiamoa-Baidu (2001: 385) argues that this approach pursued a “policy of externally enforced exclusion with no serious attempts made to involve the local communities in the management of the protected areas”. This argument is further supported by Gillingham and Lee (1999), Hough (1988), Machlis and Tichnell (1985) and Mulder and Coppolillo (2005). They recognise that the conservation agencies have remained militant with a sizeable amount of their budgets devoted to law enforcement and policing of the conservation areas to ensure that local people do not encroach on them or poach on their resources, a strategy that almost always heightens conflict. Similarly, Gatua (2006) and Kameri-Mbote (2005b) further contend that the enclosure of land for wildlife use infringes upon the rights of communities to use land in areas around or in close proximity to them.

As human societies continued to expand, the limits of the protected areas in conserving biodiversity in Africa started to be exposed. Adams and Mulligan (2003) and Ntiamoa-Baidu (2001) observe that local people surrounding the protected areas, highly vexed by their exclusion from consumptive use of the resources in the protected areas, began to harbour significant grievances against the conservation authorities. Consequently, this situation generated into conflicts in resource use and management between the local people and the conservation authorities. According to Barrow *et al.* (2000), the heightened tension expressed by the local communities to the conservation authorities made it also difficult for the government agencies to manage natural resources outside national protected areas.

The need to demonstrate that conservation can contribute to livelihoods and local economic development therefore was imperative in order to enlist the support of the rural people in

conservation. To address this need, conservationists increasingly proposed and engaged new categories of protection that integrated local communities into the management of protected areas (Salafsky and Wallenburg, 2000; Wells *et al.*, 1992). Barrow and Murphree (2001) and Brown and Wycoff-Baird (1992) refer to this paradigm shift in conservation practice as the panacea to the emergence of community-oriented conservation approaches that stressed the need to decentralise natural resource management and to invite the participation of local people. The Kenya Wildlife Service (KWS, 1990; 2005), Michelle (2005) and Sindiga (1999) further indicate that the introduced integrated conservation and development strategies were advanced on the main premise that if local people can receive benefits that improve their livelihoods from a viable development project linked to biodiversity in their area, the people will act to conserve and sustainably use these resources. The principle aim advanced here has been to initiate alternative institutional arrangements besides strict protectionism approaches, which promote and maintain the dual goal of wild biodiversity conservation and improving the livelihoods of neighbouring local communities.

Kenya is rich in protected areas where biodiversity conservation is enhanced. It is noteworthy, for instance, that protected areas in Kenya constitute 7% of the total land area with over 75% of wildlife in the country being found on private communal land (Omondi, 1998). Sustaining biodiversity in the face of considerable threats from human activities constitutes one of the greatest challenges in Kenya. With one of the highest population growth rates in the world, Kenya's population density has been increasing at above 3% per year as observed by the Central Bureau of Statistics of Kenya (CBS, 2007; CBS, 2002). Wishitemi and Okello (2003) observe that the expansion of the human population has resulted in reduced farm land per capita and consequently, expansion of agricultural and development activities into more marginal lands. According to Borrini-Feyerabend *et al.* (2004), it is in such remote areas where high levels of biodiversity persist.

The theory and conceptual approach of community conservation initiatives has been widely embraced in Kenya with dozens of biodiversity conservation approaches that try to

integrate conservation with rural development. Western (1982), for example, states that from the 1950s conflicts in Amboseli in Kenya between the local people (Maasai) and conservation agencies led to the development of an approach to its conservation that built in an element of concern for and consultation with local residents. Subsequently, various community-oriented conservation initiatives were developed, for example, the African Wildlife Foundation's Tsavo Community Conservation Project launched in 1988 (Western 1982) and the Kenya Wildlife Service Community Wildlife Programme launched in 1991 (Barrow *et al.*, 1995). Nonetheless, achieving an effective conservation strategy is confronted with many challenges. Kisee (1995), Mehta and Kellert (1998) and Sonam *et al.* (2006) observe that the perception among some people still lingers that conservation initiatives are at conflict with the needs of local communities. The challenge for conservation authorities in Kenya has therefore been to design and implement institutional arrangements that use the tools of participation to achieve diverse objectives of conservation that promote the aspects of biodiversity conservation, socio-economic circumstances of the local people, and equitable resource use and distribution (Barrow *et al.*, 2000; Campbell *et al.*, 2000; Coupe *et al.*, 2002; KWS, 1992b). Mburu (2002), Mburu and Birner (2002) and Western (1982) contend that such a conservation strategy entails an establishment of a conservation framework that identifies the underlying factors causing threats to biodiversity, promotes collaborative relationships between conservation officers and local people, and provides incentives that foster the attitudes of the local communities to conserve.

Against this background, this study is informed by the researcher's fieldwork which was conducted in 2008 at the Lake Nakuru National Park, Kimana Community Wildlife Sanctuary and Kedong Game Ranch as examples of protected areas under different management categories in Kenya. The research examines the general issues of how local communities in Kenya have embraced biodiversity conservation strategies. A major emphasis is on identifying those factors influencing their perceptions of the conservation approaches and their participation in conservation and management institutional arrangements. At issue is whether support for a particular conservation strategy is primarily

a function of communities' experiences with biodiversity decline or their relationship with the conservation authorities. The research addresses a currently important issue in the quest for sustainable development, which is the decline of biodiversity and other environmental components resulting from the pursuit of different paths of development and natural resource management. As presented in this research, biodiversity conservation is but one of several possible strategies of achieving sustainable natural resource development.

## **1.2. Significance of the Study**

Protected areas are established with several objectives or functions, amongst them biodiversity conservation. According to the CBD (2004b) and the Organisation for Economic Co-operation and Development (OECD, 2004), the effective management of protected areas is recognised as an important pillar of sustainable development and a vital mechanism for meeting the targets of the CBD and the Millennium Development Goals (MDGs) that advance significantly reducing the rate of loss of biological resources and enhancement of rural development enterprises. Biodiversity conservation therefore remains a major tool for enhancing socio-economic development and environmental sustainability, and particularly in marginal areas where few other opportunities exist. For example, Dieke (2001) observes that wildlife-based tourism is one of the most important export industries in Africa. In Kenya, for instance, wildlife-related tourism is one of the most successful in the developing world (Ogutu, 2006; Western, 1992), contributing about 13% to the overall gross domestic product (GDP) of the country (GoK, 2002c). However, the breakdown of infrastructure and environmental degradation in tourism areas (Sindiga and Kanunah, 1999), recent events of civil unrest in the country (Waki Report, 2008) and the decline in global economy (Mulholland and Eagles, 2002); have created a tourism crises contributing to a national decline in tourism. Rise in global terrorism and in particular, terrorist attacks on the American Embassies in Kenya and Tanzania in 1998 and an Israel owned hotel in Mombasa in 2002, followed by travel advisories by the western governments to their citizens wishing to travel to Kenya have also served to compound the problem (GoK, 2003). Furthermore, the current global economic crisis has also impacted on conservation priorities and ecotourism travel/ demand. In particular, the decline in global markets has



resulted in a decline in contributions from donors, agencies and foundations towards community conservation and ecotourism initiatives that are largely considered non-profit activities. According to Bob and Moodley (2003), the impact of global forces and processes has impacted negatively on the livelihoods of local people dependent on access to natural resources, for instance, local communities living adjacent to protected areas who are dependent on tourism-related enterprises, consequently affecting conservation initiatives.

Facing a range of development challenges with limited resources, one of the main concerns for action in Kenya as outlined by Kiss (1999), KWS (2005) and the Kenya Ministry of Environment and Natural Resources (MENR, 2000) is reconciling economic development with biodiversity conservation and sharing the costs and benefits of biodiversity conservation between individuals, state and the general community. The available data on the status and trends on protected areas in Kenya provided by the World Research Institute (WRI) in collaboration with the Department of Remote Sensing and Regional Surveys (DRSRS), the Central Bureau of Statistics (CBS) and the International Livestock Research Institute (WRI/DRSRS/CBS/ILRI, 2007), indicate that the current institutional responses to biodiversity decline are not appropriate to effectively contribute to biodiversity conservation. There is therefore an urgent need for the Kenyan government to take action to improve the coverage, representativeness and management of protected areas nationally; and identify, target and prioritise sustainable conservation strategies that protect biodiversity components, improve local people's livelihoods and foster positive attitudes of local communities to conserve.

In the recent past, biodiversity conservation has received a more prominent position on the national agenda in Kenya. The government and conservationists have tried strategies ranging from establishing, and maintaining at certain circumstances strict protected areas (Wildlife Conservation and Management Act - WCMA, 1976), to promoting sustainable conservation initiatives through integrated community-oriented conservation and development programmes that provide long-term protection to biodiversity without compromising the livelihoods and conservation attitudes of the local people (KWS, 2004).

However, Ashley and Roe (1997), Kiss (1999), Sibada *et al.* (1996), and Wells and Brandon (1993) demonstrate that it is difficult to find successful examples where local peoples' anticipated needs have appropriately and effectively been reconciled with biodiversity conservation. This argument is further supported by Coupe *et al.* (2002) and Kiss (2004) who maintain that with evidence of continued gradual erosion of biodiversity components and persistent conflicts between the local people and conservation authorities, it will still remain elusive to strike a balance between the rival claims of biodiversity with economic and social development in these areas. It is therefore imperative to identify and monitor the factors that have limited the overall success of biodiversity conservation strategies.

Many studies have been undertaken on local perceptions and effectiveness of protected areas at local and national levels (Baral and Heinen, 2007; Bauer, 2003; Bruner *et al.*, 2001; Caro *et al.*, 2000; De Boer and Baquete, 1998; Gadd, 2005; Gillingham and Lee, 1999; Hill, 1998; Picard, 2003; Weladji *et al.*, 2003) that show protected areas do a good job protecting biodiversity. However, a big limitation of most of these studies is that they focus on the performance of parks as a conservation strategy (Mulder and Coppolillo, 2005). Few studies exist which compare parks with other categories of protected areas under different kinds of management. From past studies, it is assumed that local communities and their livelihood practices contribute much of the principle threats to biodiversity (Hughes and Flintan, 2001). Nevertheless, as noted in Brown and Wycoff-Baird (1992) and Hough and Sherpa (1989), this conclusion does not provide insight into the underlying factors motivating these local people into carrying out these activities. Moreover, Kiss (2004), Wells (1994) and Wells *et al.* (1992) point out that it has remained unclear as to what kinds of incentives would motivate local communities to collaborate with conservation authorities in biodiversity conservation arrangements and maintain their enthusiasm throughout. This research addresses some of these issues or concerns.

Taking three protected areas under different categories of governance and management in Kenya (Lake Nakuru National Park which is government managed, Kimana Community

Wildlife Sanctuary which is communally managed and Kedong Game Ranch which is privately managed) as illustrative examples, this research therefore assesses and compares the performance of the protected areas underscoring the perceptions and responses of local communities on conservation systems and, the relationship between local people and the conservation authorities. In focus is the critical issue highlighted by Coupe *et al.* (2002) regarding why biodiversity conservation efforts have been disappointing in Kenya with the local people becoming less enthusiastic than expected and, though appreciative of the values of the components of biodiversity, continue to unsustainably exploit the resources while resenting the systems that seek to conserve those resources. Thus the question is, for the long-term solution of biodiversity decline, should the government conservation institutional arrangements rely on the ultimate proximate threats, or should the initiatives address the factors threatening biodiversity that are beyond the influence of local communities, or should there be a combination of approaches? To address these issues, this research therefore examines the performance of different categories of protected areas in an attempt to determine where and when they are more effective by considering the suitability of each to the specific conflict at hand. As Bruner *et al.* (2001: 125) note:

*If parks are failing despite best efforts, then better options should be sought. If, on the other hand they are performing relatively well in a context of serious threats and limited resources, or are simply performing better than the alternatives, their level of support should be increased.*

The above discussion informs the overall aim and objectives of the study which are presented in the next two sections.

### **1.3. Aim of the Study**

The success of biodiversity conservation depends on the acceptance and performance of the conservation strategies. Reviewing three protected areas under different primary objectives and management categories in Kenya (Lake Nakuru National Park, Kimana Community Wildlife Sanctuary and Kedong Game Ranch), the aim of this study is to examine the perceptions and responses of the local communities on biodiversity conservation strategies, threats to the strategies and factors causing those threats. This assessment is therefore used

to critically analyse and compare the different approaches of conservation in an attempt to propose mechanisms through which the conservation strategies could be integrated to develop a system that meets the conservation agenda as well as fosters positive conservation attitudes among the local communities and addresses local needs and developmental aspirations.

#### **1.4. Research Objectives**

The research objectives guiding this study are:

- a. To describe the demographic and socio-economic characteristics of the local communities to determine how they have influenced their attitudes towards biodiversity conservation.**

By determining the nature and direction of the socio-economic characteristics of the local communities the study attempts to expose their influence on biodiversity conservation attitudes.

- b. To examine the attitudes of local communities towards local biodiversity conservation systems in the study areas.**

This objective will include an examination of the levels of interactions of the local people with the conservation institutions and how their relationship with the conservation authorities affects their individual responses to conserve.

- c. To examine the factors threatening biodiversity conservation strategies and their underlying causes.**

The causes of biodiversity decline are rarely if ever exclusively local. This objective seeks to try and expose the factors that cause threats to biodiversity conservation strategies and particularly those which are beyond the influence of the local people.

- d. To determine the level as well as type and degree of participation of individual and community involvement in biodiversity conservation within the study areas.**

The aim of this objective is to analyse the extent to which the local communities are involved in biodiversity conservation, their degree of participation in resource management and their relationships with relevant conservation authorities.

- e. To propose ways of developing mechanisms through which inclusive sustainable biodiversity conservation strategies can be realised.**

The increase of the perceived and real pressures on biodiversity components makes the quest for appropriate responses to the perceived and actual decline in biodiversity critically imperative. The main focus of this objective is an attempt to provide mechanisms from the study findings and related literature on how to establish and manage alternative conservation strategies that are sustainable and acceptable to all.

### **1.5. Scope and Limitations of the Study**

The scope of this study is to examine the perceptions and attitudes of local residents on biodiversity conservation institutions and efforts. It is geared towards understanding the influence of the management institutions of protected areas on the perceived state of local biodiversity components and the conservation attitudes of local people. The study adopts a case study approach and is limited to three categories of protected areas, namely, Lake Nakuru National Park (government managed national park), Kimana Community Wildlife Sanctuary (communally managed wildlife sanctuary) and Kedong Game Ranch (privately managed game ranch). All these conservation sites are located in the Rift valley province in Kenya (see Map 4.1 in Chapter Four). The Rift Valley province is the largest and most populated in the country, and hosts a vast number of protected areas that are managed by the government, local communities and private holdings. The province is home to different rural tribal identities that include the Kalenjin and particularly the Maasai community that has one of the most recognisable cultural identities in Africa.

The study respondents comprised the local communities living within and adjacent to the boundaries of the study sites and the management staff working in the protected areas under study as well as government and other conservation agency officials in the areas. Due to constraints in time and finances it was not possible for the researcher to make comparisons with the entire network of protected areas in Kenya.

### **1.6. Thesis Chapter Outline**

The first chapter served as an introduction to, and presented an orientation towards the study. It provided an overview of background information on the principal shifts in conceptual approaches of biodiversity conservation in Kenya, and how the concept of protected areas has changed over time. The chapter then presented the background to the problem defining the significance, aim, objectives as well as scope and limitations of the study. The second chapter details an in-depth review of literature in the field of biodiversity conservation in Kenya with references made to other countries. The chapter explores the concept of protected areas, community conservation and private protection; outlining the achievements made and the challenges that remain in the quest for sustainable conservation strategies. The analysis of this information reveals the gaps that need further research which reinforce the importance of the objectives of this study.

The third chapter presents the theoretical framework within which the concept of conservation is proposed, formulated and discussed. The chapter is devoted to a discussion of the concepts and theories of protectionism, natural resource management and methodological approaches of community conservation as well as the underlining factors threatening their success. Chapter four provides an outline of the methodological procedures and techniques employed during the study outlining the research questions guiding the research. The background information and description of the case study areas as well as the research instruments employed are presented in this chapter. Chapters five and six present a comprehensive analysis and discussion of the data for the community and management staff respondents, respectively. This includes data computation and scoring, descriptive analysis and discussion of the study results to explain the research findings by

referring to the research objectives and key questions. Furthermore, relevant literature and secondary data sources are integrated into the discussion, where appropriate. Chapter seven draws together the conclusions of earlier chapters summarising the key findings of the research. The chapter highlights the implications and contribution of the study results to the conservation and resource management framework, outlining the challenges identified and making general observations and recommendations.

## **1.7. Conclusion**

The Kenyan government has passed conservation laws, established institutions and created protected areas to address the problem of biodiversity decline. The relationships between socio-economic and demographic dynamics in the quest for a sustainable society have been well documented in conservation literature. Communities' perceived experiences with local biodiversity decline and the conservation initiatives determine how they will respond in an attempt to sustain and enhance their livelihoods. This is usually framed in the context of conflicting interests between conservation and development.

Conflicts between local people and conservation institutions can erode local support for conservation when the relationship between them is not understood. The differences in the institutional responses to the perceived pressures and decline in the local biodiversity components by the government, communities and individuals in an effort to reconcile biodiversity conservation with the anticipated needs of the local residents has prompted this study. This research endeavours to provide a critical analysis of institutional frameworks and management relationships of conservation approaches in Kenya, based on the perceptions of the local residents living within and adjacent to the study sites. The key focus is whether the conservation strategies are meeting the conservation agenda of enhancing biodiversity components and improving the livelihoods of local people.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1. Introduction

According to Mugenda and Mugenda (1999: 29), “the review of literature involves the systematic identification, location and analysis of documents containing information related to the research problem being investigated”. The review of literature in this study broadens further the research by incorporating other studies on various issues including protected areas, ecotourism, environmental policy and community conservation that are relevant to biodiversity conservation practice. This chapter therefore reviews the current emerging shifts in the concept of protected areas and the new paradigm of community conservation and their implications on biodiversity conservation and conservation attitudes of local people living adjacent to the conservation sites. The focus is on Kenya with references made to existing work and lessons learnt from other parts of the world.

#### 2.2. Key Concepts

This section examines some of the major definitional and conceptual perspectives of key concepts which shape the practice of biodiversity conservation. These include biodiversity, community, conservation, tenure, participation and sustainable development.

##### ***Biodiversity***

Biodiversity, shorthand for *biological diversity*, broadly refers to the variability among living things and the ecosystems that support them (Brown, 1998). Caalders *et al.* (2000) indicate that biodiversity encompasses diversity within and between species, genes and ecosystems. The concept thus covers variation and variability of living organisms at the genus, species and community levels, and includes the variety of all living beings and their lifestyles, the genetic variability among the population, the diversity of the complex of associated species and their interactions, and the relevant ecological processes (Mendes, 1997).



Biodiversity is also reflected in the wide range of different uses and values. Biodiversity plays a critical role in meeting human needs directly while maintaining the ecological processes that sustain the underlying ecosystems. Different groups of people perceive differently the value of the components of biodiversity and how it can be conserved leading to different management options and conflicts between uses. For example, Brown (1998) indicates that global existence values may be privileged against local ones or market values take precedence over non-market uses.

The measures of biodiversity emphasise different components. Species richness is the most often used measure for biodiversity. The International Union for Conservation of Nature (IUCN, now World Conservation Union - WCU) estimates that 5-15 million species exist on the earth (IUCN, 2006). Much of this biodiversity as noted by Ndeng'e *et al.* (2003), Cincotta *et al.* (2000) and Ottichillo *et al.* (2000) is largely found in developing countries, where conservation resources are scarce, human population is high, poverty is more pervasive, and the threat to biodiversity is greatest.

The conservation of biodiversity appears clearly in the IUCN World Strategy for Conservation where the objectives of biodiversity conservation are: the maintenance of essential ecological processes, the preservation of genetic diversity, and the sustainable use of species and ecosystems (IUCN, 1980). The erosion of biodiversity (in particular loss of species, populations, and their habitats), according to Mulder and Coppolillo (2005), is associated with changes in the global environment. McMichael *et al.* (1999) observe that whereas the loss of biodiversity takes place as a result of natural events, it has been accelerated in the recent past by human impacts on the natural biophysical systems. According to Mendes (1997), the leading cause for the reduction of biodiversity is human population growth and related activities that include overgrazing, deforestation, uncontrolled burning, and pollution amongst others. Consequently, the conventional perspective to protect biodiversity, according to Brown (1998), is to separate people and biodiversity. McNeely (1995) similarly indicates that the designation, implementation and

effective enforcement of protected areas is the primary means to conserve habitats and their associated species.

### ***Community***

In a study of community approaches to wildlife management by the International Institute for Environment and Development (IIED, 1994), the concept of community is explained in spatial, socio-cultural and economic terms as groupings of people physically living in the same place, deriving a unity from common history and cultural heritage, and sharing interests and control over particular resources. Barrow and Murphree (2001: 25) derive a model of community as “an entity socially bound by a common cultural identity, living within a defined spatial boundary and having common economic interest in the resources of this area”. Considering the heterogeneity in composition and dynamics of the community due to relocation, migration and changing resource use practices, the term “communities” is used in this study to denote all the local people (indigenous people, resident people and mobile communities) living within or adjacent to the conservation sites whose interests are directly infringed upon or affected by the conservation strategies in the study area and whose activities directly impact on the protected areas.

According to Western (1992), the exclusion of rural communities in protected areas from ecotourism benefits in Kenya resulted in animosity from the local people and negative attitudes towards wildlife and conservation agencies. Wells *et al.* (1992) assert that the successful long-term management of protected areas depends on the involvement and support of local people. The authors further observe that it is “neither politically feasible nor ethically justifiable to exclude the poor who have limited access to resources from parks and reserves without providing them with alternative means of livelihoods” (Wells *et al.*, 1992: 2). It is therefore important to understand the complex and variable relationships between protected areas and surrounding local communities.

### ***Conservation***

The IUCN in collaboration with the United Nations Environmental Programme (UNEP) and the World Wide Fund for Nature (IUCN/UNEP/WWF, 1991: 210) has used conservation to refer to “the management of human use of organisms and ecosystems to ensure such use is sustainable”. Further, this document states that “besides sustainable use, conservation includes protection, maintenance, rehabilitation, restoration and enhancement of populations and ecosystems” (IUCN/UNEP/WWF, 1991: 210). The concept of conservation can then be construed to mean the maintenance of essential ecological processes and life-support systems, the preservation of biodiversity and the sustainable use of wildlife and ecosystems. Mulder and Coppolillo (2005: 19), considering the management of forests, for example, imply that “the practice of conservation” entails not only “preserving the forest but also enhancing or improving the forest itself”. Conservation of biodiversity can therefore be construed as the protection, maintenance, sustainable use, restoration and enhancement of the components of biological diversity.

Conservation is often seen as a government sector activity in Kenya, confined to protected areas, mainly national parks and reserves. Damania and Hatch (2004 cited in Bob *et al.*, 2008: 30) state that the majority of species classified as ‘threatened’, ‘endangered’ or ‘vulnerable’ by the IUCN are found in government controlled parks and legally protected areas in developing countries. McNeely (1989) asserts that the establishment of protected areas, mainly national parks and game reserves, has helped protect and sustain some wildlife threatened with extinction. However, Damania and Hatch (2004 cited in Bob *et al.*, 2008: 30) maintain that the government managed protected areas have failed to protect endangered species with more species increasingly becoming ‘threatened’, ‘endangered’ and ‘vulnerable’ as a result of human activities. Hough (1988) further observes that in certain cases, the perception still lingers that the protectionism system of conservation has alienated local people who traditionally depended on these resources from accessing them. Muruthi (2005), Wells *et al.* (1992) and Western *et al.* (1994) further reinforce this view by indicating that the protected areas systems have followed mainly a strict preservation approach that advances a centralised management that excludes the local people from their

subsistence dependence on natural resources. In this study the concept of conservation is limited to the human dimensions of biodiversity conservation and draws from the efforts that foster local resource-use practices that encourage sustainable use rather than the destruction of natural resources in the broader landscape.

### ***Tenure***

According to Barrow and Murphree (2001: 29), tenure can be described as “the rights of secure, long-term access to land and other resources, their benefits, and the responsibilities related to these rights”. Alcorn (1997: 7) illustrates tenure as “who can, and can’t, do what with which resource”. Related to tenure rights are ownership, proprietorship and entitlement. For example, Alcorn (1997) notes that within a given community, some rights to resources may be close to individual ownership (for example, they may include right of inheritance) while at the same time, rights to other resources may be shared within the community; a form of communal property. Okoth-Owiro (1988) further observes that the rights of tenure are determined by the conditional ties attached to them and can be conferred by the government or through social interaction by customary laws. The effectiveness of tenure systems depends on their widespread acceptance and adherence to rules governing access, on the strength of local institutions and organisations that administer local justice, and on the guidance of local leaders committed to the values of the system (Alcorn, 1997; Payne, 2003). Barrow and Murphree (2001) indicate that tenure rights confer authority and responsibility and the strength of tenure acts as an incentive for the community to conserve resources. Where the local people lack strong tenure rights they may not support conservation initiatives (Waiganjo and Ngugi, 2001). This position is echoed by Ogolla and Mugabe (1996) who contend that when tenure rights are certain, they provide incentives to utilise natural resources sustainably or invest in resource conservation.

Kenya has recently experienced intensifying political tensions and conflicts over land ownership and access to water resources between different ethnic communities. Campbell *et al.* (2000) observe that in the past, British colonial rule alienated land for European

settlement and demarcated areas for wildlife conservation restricting control and access to these areas for the native African people. After independence, however, gross corruption in the acquisition, resettlement, and administration of land matters has been a major problem in Kenya (Waki Report, 2008). The report asserts that frustrated by the failure of institutions which could have been used to resolve land tenure disputes, individuals have been encouraged to take matters into their own hands and to use violence to resolve them. Politicians in Kenya have capitalised on the emotive issues surrounding land to encourage violence during elections (Wakhungu *et al.*, 2008). A Commission of Inquiry into the illegal/ irregular allocation of Public Land in 2004 (Ndungu Report) found out that past and current governments in power used illegal and irregular allocation of public land for political patronage coupled with creation of new districts along ethno-specific dimensions “in total disregard of the public interest and in circumstances that fly in the face of the law” (Ndungu Report, 2004: 8). Subsequently, the Commission of Inquiry into Post Election Violence (CIPEV) in 2008 (Waki Report) also highlighted that the “creation of ethnically homogenous ‘native reserves’ have in turn created the notion of ‘insiders’, who are native to a place and ‘outsiders’ who have migrated there” (Waki Report, 2008: 31). This argument is further echoed by Southgate and Hulme (2000) and Wakhungu *et al.* (2008) who contend that long-standing chronological conflicts and competition for resources have intensified and assumed an ethnic dimension between the “insiders” (who claim customary rights of access to key resources) and the “outsiders” (whose claims are supported by legislation).

### ***Community involvement (participation)***

There is an overwhelming emphasis on the importance of integrating human dimensions into biodiversity conservation programmes (Adams and Hulme, 2001; Barrow and Murphree, 2001; Curran and Tshombe, 2001; Hulme and Murphree, 2001); Ntiamoa-Baidu *et al.*, 2000). According to Wells (1994) and Wells *et al.* (1992), the response of local communities towards any proposed or implementing conservation regime will be influenced by many interacting factors, including their individual attributes, their cultural background, their social and economic setting and the governmental policies in place. In

the face of complex global socio-economic and political changes, Adams and Mulligan (2003) point out that the current discourse about conservation needs to become much more inclusive, and more dynamic.

The concept of participation, as indicated in Barrow and Murphree (2001: 28), reflects broadly the “differing interests people have in who is involved, for what purpose and on what terms”. Local participation has been described as “empowering people to mobilise their own capacities, be social actors rather than passive subjects, manage the resources, make decisions, and control the activities that affect their lives” (Cernea, 1985: 10 cited in Wells *et al.*, 1992: 42). Participation ranges from approaches which merely entail receiving information, to empowering approaches that involve the creation of institutions operated by the community. For example, Mulder and Coppolillo (2005) illustrate that the extent to which community conservation initiatives are participatory is highly variable with some cases where the community members are managers, in others temporary employed as guards or tourist guides or yet in other cases the involvement is limited to occasional handout of services generated by the revenues of conservation. The critical role played by local communities in the management of protected areas has been broadly acknowledged by the conservation community (McNeely, 1993; Phillips, 2003; Wells *et al.*, 1992; Western *et al.*, 1994), with the recognition that local communities must be involved, and their needs and aspirations considered if biodiversity conservation is to succeed (Adams and Hulme, 2001; Barrow and Murphree, 2001; Ntiamoa-Baidu *et al.*, 2000).

### ***Sustainable development***

The concept of sustainable development was introduced into the international community by the World Commission on Environment and Development (WCED) in 1987, otherwise known as the Brundtland Report, *Our Common Future*. The term sustainable development was then defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987: 43). The concept of sustainable development is one of the best known and most commonly cited idea of linking the environment with development (UNEP, 2000; WRI, 2001). It has

emerged as the preferred way of dealing with the rapid degradation of the natural environment.

High-level legal and political commitments worldwide have been made to sustainable development and the focus now is on how to put it into practice (CBD, 2004a; IISD, 2004; UNEP, 2000; WCED, 1987; WRI, 2001). Meeting the needs of present and future generations form the bedrock of sustainable development and implies satisfying the economic, social, cultural and political needs; minimising use or waste of non-renewable resources; and sustainable use of renewable resources (Bramwell *et al.*, 1998; Murphy, 1994; Wood *et al.*, 2000). Part of the challenge lies in the question: Can development be truly sustainable? At present, it is observed that the world appears to be moving away from, rather than towards, sustainability (Balmfold *et al.*, 2001; White *et al.*, 2009). According to Wells (1994) and Wood *et al.* (2000), the roots of this trend are associated with market failures where economic transactions fail to take into account of social and environmental costs as well as policy failures, where governments inadvertently encourage environmental degradation, for instance, by subsidising agricultural practices in rural areas. Brandon and Brandon (1992) argue that the best way to achieve sustainable development involves trade-offs between potentially opposing goals, such as between economic growth and resource conservation or between modern technology and indigenous practices. The Brundtland Report points out that sustainable development is a dynamic approach by maintaining that it is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations (WCED, 1987). The fundamental issue is therefore achieving a quality of life that can be maintained for many generations.

Richards and Parsons (2004) assert that sustainable development is crucial to conserving biodiversity. The authors contend that many of the most acute conservation problems occur in biodiversity-rich developing countries that are also facing pressing human development needs. It is clear therefore that the challenge of sustainable development is to alleviate

poverty in these countries while sustaining the environmental foundations of their economies for, as Rodrigues *et al.* (2003) observe, without economic development there can be no poverty reduction or successful improvement in environmental protection.

The mechanisms and strategies for achieving sustainable development are greatly influenced by factors such as peace and security, prevailing economic interests, political systems, institutional arrangements and cultural norms (Smith, 1996; Wood *et al.*, 2000). For example, the role of women and ability to participate in development programmes and decision-making may be restricted in certain communities. Sustainable development should therefore be defined to meet and respect the particular needs and circumstances of individual countries, societies, and cultures (Smith, 1996). The International Institute for Sustainable Development (IISD, 2004) and the CBD (2004a) suggest that this can be achieved through an adaptive process of integration that recognises different perspectives on environment and development. For instance, there could be different environmental priorities involving a wide range of stakeholders such as aid donors, recipient governments, local communities and the private sector. Developing and using participatory techniques will therefore be an important element of sustainable development (Richards and Parsons, 2004). The development of national strategies for sustainable development should therefore aim to foster consensus among different strata and groupings in society.

The above definitions of key concepts pertinent to the study indicate that they are complex and multidimensional. The study attempts to examine issues related to protected areas management in Kenya by embracing the multiple aspects of the various definitions discussed above.

### **2.3. The Rise of Modern Systems of Protected Areas**

Protected areas are represented in all shapes and sizes with a variety of management systems, ownership and governance patterns. Based on their establishment and management objectives, they operate within diverse national and local legislation and other initiatives. Many terminologies such as ‘national park’, ‘nature reserve’, ‘game reserve’,



‘game ranch’, ‘nature conservancy’ and ‘wildlife sanctuary’ have been used in many local circumstances to designate conservation units (Mulder and Coppolillo, 2005: 28; Wells *et al.*, 1992: 1).

From a historical perspective, conservation strategies have been dominated by attempts to reserve places for nature, and to separate humans and other species. According to Hulme and Murphree (2001) and Mulder and Coppolillo (2005), modern protected areas emerged in the nineteenth century in the United States of America. The first true national park came in 1872 with the dedication of Yellowstone by United States law as a “public park or pleasuring ground for the benefit and enjoyment of the people” (Chase, 1987: 5). This model of protected areas was extended to Africa and Asia with the main premise of protecting larger mammals and attracting international tourism (Hales, 1989). Ntiamoa-Baidu *et al.* (2000) observe that in sub-Saharan Africa, the failure of colonial authorities to understand local customary rules and cultural values set the stage for the introduction of new sets of regulations for nature conservation. According to McNeely (1993), the local people were believed to be destroying their resources through mismanagement and this formed the basis to gazette forests, national parks and reserves, such as the Sabie Game Reserve (subsequently Kruger National Park) in South Africa (1892), a game reserve enclosing the present Amboseli National Park in Kenya (1899) and the Parc National Albert (now the Virunga National Park) in Congo (1925) (Boardman, 1981 cited in Adams and Hulme, 2001: 11).

In 1978 the World Conservation Union (then IUCN) introduced ‘protected area’ as a cover term and developed a typology of internationally recognised categories that are ranked with respect to the number of restrictions on human activities (Mulder and Coppolillo, 2005: 28). In 1994, IUCN and the World Conservation Monitoring Centre (WCMC) published “Guidelines for Protected Areas Management Categories” (IUCN/WCMC, 1994) that emphasised the importance of protected areas and encouraged governments to develop systems of protected area with the management aims tailored to national and local

circumstances. To reduce the confusion around the use of many different terms in use to describe protected areas, a protected area was thus defined as:

*... an area of land or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.*

(IUCN/WCMC, 1994: 261)

This means that protected areas need not be limited to government public managed reserves, but can include those owned and/ or managed by other entities, such as non-governmental organisations (NGOs), industrial holdings, private individuals, local communities, and indigenous people. Consequently, based on the definition of a ‘protected area’, the guidelines set out the foundation of categorising any area that met this definition to be assigned to one of the six revised and simplified systems of management categories of protected areas (Table 2.1), developed primarily to acknowledge different categories of owners and managers. The categories show a graduated scale with respect to the extent that management objectives that allow some degree of human use and controlled exploitation are combined with biodiversity conservation. Protected areas that were established mainly to maintain biological diversity and natural formations are emphasised in categories I-III, while direct human manipulation of the environment is allowed in IV-VI. Only in category Ia is human modification strictly restricted.

**Table 2.1: Protected area categories and management objectives**

Category	Type	Primary Management Objective of Protected Area
<b>Ia</b>	Strict Nature Reserve	managed mainly for science
<b>Ib</b>	Wilderness Area	managed mainly for wilderness protection
<b>II</b>	National Park	managed mainly for ecosystem protection and recreation
<b>III</b>	Natural Monument	managed mainly for conservation of specific natural features
<b>IV</b>	Habitat/Species Management Area	managed mainly for conservation through management intervention
<b>V</b>	Protected Landscape/Seascape	managed mainly for landscape/seascape conservation and recreation
<b>VI</b>	Managed Resource Protected Area	managed mainly for the sustainable use of natural ecosystems

*Source: IUCN/WCMC (1994: 261)*

From the issues that necessitated the development of the categories of protected area systems, it is recognised that protected areas (IUCN/WCMC, 1994: 261):

- have been set up for different reasons deriving from national legislation or international agreements of many kinds;
- are present in diverse ecosystems like in forests, savannahs, grasslands, mountains, deserts, wetlands, ice caps, lakes and at sea;
- vary greatly in size and are designated with many different names at the national level; and
- are owned by different kinds of organisations through various types of governmental and other initiatives.

The system of protected area management categories is now widely used and has been endorsed by various parties in terms of the CBD. Establishment and management of systems of protected areas and various measures to conserve and sustainably use biological diversity are central to Article 8 on “in-situ conservation” of the CBD (UNCED, 1992: 8). Mulder and Coppolillo (2005: 28) indicate that this 1992 agreement, reached at the UNCED in Rio de Janeiro, “requires that signatory parties establish a system of parks and protected areas, and promote appropriate development policies in and around these areas that will contribute to the conservation of biological diversity”. Many organisations in the public, private, community and voluntary sectors became active in creating areas for protection with as many different terms used to describe the protected areas such as National Park, Nature Reserve, Game Reserve and Wildlife Sanctuary amongst others (Chape, 2004; Mulder and Coppolillo, 2005; Wells *et al.*, 1992).

The 7<sup>th</sup> Conference of the Parties of the CBD endorsed protected area coverage as a key indicator for global commitments to conservation and environmental sustainability by integrating the principles of sustainable development into country policies and programmes and reducing the rate of biodiversity loss (CBD, 2004b). At the beginning of the twentieth century, nearly every country had adopted protected area legislation and designated sites for protection. Some examples of data of selected protected area (PA) category assignment

for countries by the IUCN World Database for Protected Areas (WDPA, 2005) are presented in Table 2.2 below. It is clear that many countries have assigned categories to their protected areas. Chape (2004: 53) states that of all the protected areas held in the WDPA, 67.2% have been assigned categories. The author maintains that this relatively high percentage appears to indicate widespread support for the categories, with the difference between number and area categorised most evident at the country level. In Kenya, for instance, only 19.5% of the number of protected areas (68 of 348) is assigned categories (Table 2.2).

**Table 2.2: Examples of selected IUCN status protected area category assignment by country**

Country	PAs in WDPA	PAs assigned categories	Percent total number of PAs
Afghanistan	7	7	100%
Angola	16	14	87.5%
Australia	5 655	5 653	99.9%
Botswana	71	12	16.9%
Brazil	1 281	804	62.8%
Canada	5 357	4 567	85.6%
Congo	22	13	59.1%
Germany	7 242	7 241	99.9%
Ghana	321	16	5%
India	661	612	92.6%
<b>Kenya</b>	<b>348</b>	<b>68</b>	<b>19.5%</b>
Mozambique	42	12	28.6%
Namibia	173	21	12.1%
South Africa	565	355	62.8%
Tanzania	810	98	12.1%
Uganda	747	54	7.2%
United kingdom	7 723	571	7.4%
United states	7 883	3 493	44.3%
Zambia	683	77	11.3%
Zimbabwe	249	68	27.3%

*Source: WDPA data for countries at February 2005*

Nearly half the world's total area under legal protection is in the category of national parks, common in New Zealand, Australia, North America and sub-Saharan Africa. The most strictly protected area (Category I) is more prominent in North Eurasia. Relatively, densely populated parts of the world, such as Europe, East Asia and Southeast Asia, tend to have

relatively extensive areas in Categories IV or V (McNeely, 2004; 1990). Sites in these categories tend to be much smaller than national parks. According to data from the United Nations Environment Programme's World Conservation Monitoring Centre (UNEP-WCMC), by the year 2002, some 44 000 sites met the IUCN definition of a protected area worldwide covering nearly 10% of the land surface of the planet. Almost 42% (18 400 sites) are in developing countries, including some of the most biologically rich habitats on earth (WCMC, 1992). The Fifth World Parks Congress in Durban, South Africa announced that in September 2003 the global network of protected areas covered 11.5% of the world's terrestrial surface.

Recommendation V 17 (No.3) of the 2003 IUCN Vth World Parks Congress recognises at least four broad governance types applicable to all IUCN protected area categories relevant to the pursuit of equity in conservation (IUCN, 2003d: 178):

- a. *Government managed protected areas*: a government body (such as a Ministry or Park agency reporting directly to the government) holds authority, responsibility and accountability for managing the protected area, determines its conservation objectives, subjects it to a management regime, and often also owns the protected area's land, water and related resources.
- b. *Co-managed (that is, multi-stakeholder management) protected areas*: shared management authority and responsibility among a plurality of actors – from national to sub-national (including local) government authorities, from representatives of indigenous, nomadic and local communities to user associations, private entrepreneurs and land owners. Decision-making is carried out by consensus.
- c. *Privately managed protected areas*: areas under individual, cooperative, corporate for-profit and corporate not-for-profit ownership. Examples are when non-governmental organisations (NGOs) buy areas of land, which in some cases are large, and dedicate them to conservation. Authority for managing the protected land and resources rests with the landowners, who determine a conservation objective,

impose a conservation regime and are responsible for decision-making, subject to applicable legislation and usually under terms agreed with the respective governments.

- d. *Community managed protected areas (Community Conserved Areas)*: authority and responsibility rest with indigenous, nomadic and local communities voluntarily through a variety of ethnic governance or locally agreed organisations and customary rules. Some communities may organise themselves in various ways, including legal forms such as NGOs, to manage their resources.

Protected areas have been a major vehicle for conserving biodiversity. However, in most cases, the creation of a protected reserve may not automatically convey full protection as legal protection rarely translates into protected area security (Coupe *et al.*, 2002; O'Riordan and Susanne, 2002; Stolton and Dudley, 1999). This is true especially in those instances where the responsible national authorities are not capable of protecting the area because of inadequate training, staff, motivation, equipment or financial means (Mulder and Coppolillo, 2005). Some of the challenges of protection are discussed below.

### **2.3.1. The limits and critique for strict protectionism**

Critics of the conventional park system claim that in the face of growing human pressures and development needs, the current systems of protected areas are somehow inefficient in protecting the biodiversity within their borders (Berkes and Folke, 1998; Tanya, 2006; Weber and Vedder, 2001). They argue that perhaps most important they often alienate local communities that have long standing legitimate claims to resources. Dr. Western, a pioneer of wildlife conservation in Kenya and a former director of the Kenya Wildlife Service has set out convincingly the case that for any conservation policy to be effective, it has to take into account the influence of communities living near the protected areas in conserving biodiversity, and strive to give these communities economic incentives for doing so (Western, 1989). Through his policy of “parks outside parks”, he recommended that pastoralist communities which host wildlife on their group ranches and other such land

should be encouraged to formalise structures which would enable them to reap economic rewards from the presence of these animals on their land. He instituted the Community Wildlife Service which encouraged the Maasai and other nomads and farmers to turn to what he calls "conservation for profit" (Western, 1989). The problem facing conservationists, he maintains, is that more than 75% of Kenya's wildlife ranges outside the public reserves and wreak havoc on farms and ranches near the parks. Stevens (1997) goes further and makes the case for a synergistic relationship between local cultural and environmental diversity, which should be preserved and encouraged in protected areas, allowing communities to exercise their own knowledge and institutions in environmental management. For instance, Okello *et al.* (2003) observe that the establishment of community wildlife sanctuaries which confer to communities the rights to manage and benefit from wildlife and contribute to wildlife conservation in dispersal areas adjacent to protected areas is one way of addressing the disparities among the stakeholders.

It is important to note that both the supporters and critics of strict protection justifiably recognise that for most species, protected areas will be the single most important way to ensure their long-term survival. Moreover, Coupe *et al.* (2002), Curran and Tshombe (2001) and Homewood *et al.* (1997) indicate that in certain cases strict protection is justifiable, particularly where only small populations of rare or endangered species remain. In conducting specific assessment and evaluation studies between the different categories of protected areas, one can conclusively come up with a framework where each of the IUCN categories of protected areas would work better. A study by Bruner *et al.* (2001) showed that though protected areas are subject to human pressure, they suffer less degradation than the surrounding undesignated areas with the most effective parks being those with clearly marked boundaries and close relations between authorities and local communities. Kramer and van Schaik (1997) further suggest that rather than using conservation areas and conservation funds to support rural livelihoods in such areas, a better alternative for reducing pressure on biodiversity and protected areas may be to promote development far from the conservation sites. Similar sentiments are echoed by Parks *et al.* (2002) who contend that protected areas that are set up in remote areas, with

little productive potential, low population pressure, and minimal political representation are the most likely to prosper. It is therefore important for conservation strategies to reconcile the competing interests in order to succeed.

### **2.3.2. Categorising protected areas in Kenya**

Wildlife as a resource plays an important role in the economic development of Kenya. It is the main basis of the tourism industry, which contributes greatly to the country's gross domestic product (GDP). The Kenya Wildlife Conservation and Management Act (WCMA, 1976) indicates that Kenya's wildlife is preserved in protected areas in which human settlement is prohibited and land use restricted to biodiversity conservation. With just over 8 000 plant species, more than 1 000 bird species, and over 350 species of mammals (WCMC, 1992; WRI/DRSRS/CBS/ILRI, 2007), Kenya is a country exceptionally endowed with immense biological diversity. The country hosts important populations of rare, endemic and endangered species such as the Hirola antelope and Bongo the forest antelope. Despite the ecological richness, the country's biodiversity faces serious pressure from human activities (Kisee, 1995; KWS, 1995), a position echoed in the 1989-1993 Kenya National Plan (Government of Kenya - GoK, 1989) that showed that wildlife population was on the decline.

The government of Kenya is committed to the protection of the country's biodiversity being a signatory of the CBD, and has set up a substantial number of protected areas, some of which are of global significance (IUCN, 1994; IUCN, 1992). The first attempt at a comprehensive policy on wildlife management in Kenya is construed in Sessional Paper No. 5 of 1975 (GoK, 1975). This policy recognised the value of wildlife both within and outside protected areas and identified the primary goal of wildlife conservation as the optimisation of returns from wildlife defined broadly to include aesthetic, cultural, scientific and economic gains. The primary operative law concerning the management of wildlife today in Kenya is the Wildlife (Conservation and Management) Act, of 1976 (WCMA, 1976) that established the legal provisions for the 1975 policy paper. An amendment of the Act, in 1989 created the parastatal Kenya Wildlife Service (KWS), under



which the powers of management and control of protected areas was vested. The principal goals of KWS are (KWS, 1990; 1991):

- to conserve biodiversity for the benefit of the people of Kenya and as a world heritage;
- the formulation of policies regarding the conservation, utilisation and management of all types of flora and fauna (excluding domestic animals);
- advising the government on the establishment of protected areas and preparing and implementing management plans for the same;
- conducting and coordinating research activities in the field of wildlife conservation and management;
- administering and coordinating international wildlife protocols, conventions and treaties; and
- rendering services to the farming and ranching communities in Kenya necessary for the protection of agriculture and animal husbandry against destruction by wildlife.

Other Acts and national policies that impinge in one way or another on biodiversity in Kenya include those relating to Forests, Fisheries, Mining, Lands, Water, Industry, Rural Development, Agriculture, Local Government, National Security, National Museums and the research programmes under the Kenya Forestry Research Institute (KEFRI), the Kenya Medical Research Institute (KEMRI) and the Kenya Agricultural Research Institute (KARI). For example, the Agriculture Act (Cap 318 of 1963) and the Forests Act (Cap 385 of 1962, revised in 1982 and 2005) are relevant in wildlife conservation and management since wildlife found on agricultural land and forests is under the control of the Agriculture and Forests departments respectively. The Forests Act (GoK, 2005) provides the legal framework for the conservation of forests. It governs the conservation, management and utilisation of forests and forest products. The Act prohibits the killing of wild animals in a nature reserve unless in accordance with the conditions of a valid licence or permit issued under the Wildlife (Conservation and Management) Act (WCMA, 1976). Under the Agriculture Act (GoK, 1963), the Minister is authorised to make preservation rules that can play a crucial role in ensuring that wildlife on such land is conserved. Similarly, the land

policy regulates issues of land use and planning activities on recognition that land forms the foundation upon which wildlife is built. The Environmental Management and Coordination Act (EMCA, 1999) provides guidelines on cross-sectoral issues of wildlife conservation and has conferred to the KWS general responsibilities for conserving biodiversity by designating it a 'Lead Agency' for this purpose.

Kenya's protected area systems are still evolving in terms of representativeness, coverage and institutional arrangements. The Kenya National Bureau of Statistics (KNBS) Economic Survey of 2007 indicate that protected areas designed for the protection of wildlife constitute 8% of the country's total land area (Map 2.1) and harbour about 25% of total wildlife populations (CBS, 2007). They have varying levels of protection and permissible land uses (GoK, 1975). Data from the WRI/DRSRS/CBS/ILRI (2007) show that, overall, national trends of wildlife populations are declining. However, local gains have been registered in several areas. The factors driving these gains vary from place to place and species to species. In general, many different organisations and initiatives play a role, from national-level policies, to community-based efforts and changes in local land-use patterns. For example, in Lake Nakuru National Park, according to Kamadi (2009), the number of wild animals (particularly herbivores) are noted to have increased tremendously in the recent past; an issue attributed to the presence of few predators, favourable conditions like water and grazing resources and sound management practices like security surveillance.

At present, institutionalised protected areas categories in Kenya include (KWS, 2005; WCMA, 1976):

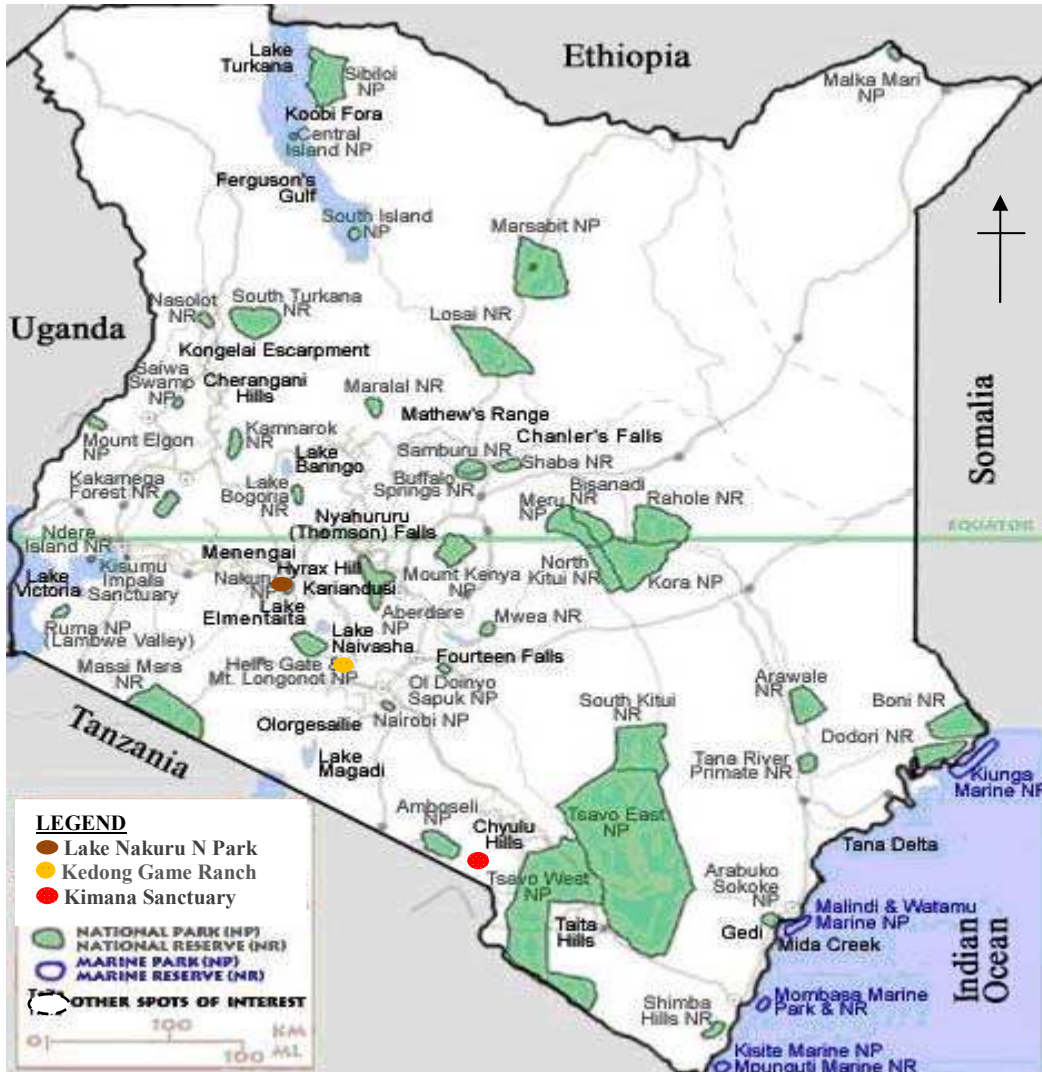
- National parks: set aside to protect natural scenic areas with prohibited activities like hunting, cutting, injuring or setting fire to any vegetation, clearing or cultivating of any land, harvesting fish, honey and the introduction of any animal or vegetation, for example, Lake Nakuru National Park, Amboseli National Park, Tsavo West National Park, Hell's Gate and Mt. Longonot National Park.
- National reserves: controlled land uses other than conservation may be specifically allowed like seasonal water rights and grazing by pastoralists, for example,

Samburu National Reserve and Masai Mara National Reserve (note that the Reserve is called Masai while the indigenous people are called Maasai).

- Marine National parks: protect sea biodiversity and areas close to the shores, for example, Malindi and Watamu Marine National Parks.
- Marine National reserves: specified traditional fishing methods allowed, for example, Kiunga Marine National Reserve and Mpunguti Marine National Reserve.
- Wildlife sanctuaries: protect important species from extinction and disturbance, for example, Kisumu Impala Sanctuary.
- Forest (nature) reserves: consumptive uses and killing of wild animals prohibited, for example, Kakamega Forest National Reserve.
- Protection areas/ controlled areas: areas adjacent to National parks and reserves or wildlife sanctuaries with security provided for animals, for example, Kimana conservancy between Amboseli and Tsavo West National parks.
- Historical sites/ world heritage sites: protect natural features with outstanding national significance, for example, Fort Jesus in Mombasa, Lamu old town and Mt. Kenya National Park.
- Ramsar sites: wetlands of international importance, for example, Lake Nakuru and Lake Naivasha.

The largest proportion of these categorised protection areas (74%) in Kenya are found in the arid and semi-arid regions of the country which constitute 80% of Kenya's total land area (GoK, 2002c), and also support approximately 25% of the Kenyan human population and over 50% of the country's livestock population (Gitahi, 2005a: 121). Moreover, the above categorisation by the Kenya Wildlife Act (WCMA, 1976) does not include areas that are managed under governance and ownership arrangements that do not rely heavily on the role of the state, such as private reserves and community-owned areas that are discussed later in this report. Map 2.1 shows the location of National parks, National reserves and other nature spots in Kenya.

**Map 2.1: National Parks, Reserves and other Nature Spots in Kenya**



*Source: Modified from Kenya Safari Guide (2007)*

**2.3.2.1. The Kenya Land Conservation Trust**

In Kenya, land can be owned by the government, an individual or the community (Ondiege, 1996), with different legal instruments governing different entities. Gitahi (2005a) points out that while the government has set aside a lot of protected land, there has never been a legal framework to encourage individuals and communities to put their land under protection until the African Wildlife Foundation (AWF) in consultation with the Kenya Wildlife Service (KWS) and the Ministry of Lands, designed an innovative mechanism for

conservation of land outside protected areas in Kenya, that led to the establishment of the Kenya Land Conservation Trust (KLCT) in 2005. The KLCT, according to Gitahi (2005b), is a charitable organisation designed to support land conservation with willing landowners with its main aim to supplement government PAs and enable landowners to access a wide variety of options for conservation and sustainable natural resources utilisation in targeted bio-diverse areas. The mechanisms of the Land Trusts include (Gitahi, 2005b: 2):

*a. Land Purchase*

In various parts of Kenya, critical pieces of land that contain fragile ecosystems come up for sale. Sometimes these parcels are purchased by entities that manage them for conservation. More often these parcels are purchased and converted to agricultural use or other uses that degrade important ecosystems. The trust seeks to purchase such critical parcels of land and conserve them.

*b. Easements*

The Trust seeks to use easements as another option for land conservation. A landowner may opt to conserve their land by placing an easement on it granted in favour of the Trust. The easement limits the type and intensity of land use. The landowner retains ownership of the land and may receive direct payment for the value of the easement.

*c. Leases*

The Land Trust seeks to lease land from willing landowners and to manage it for the duration of the lease for conservation purposes agreed with the landowner.

*d. Profits*

A profit is a right granted by a landowner allowing the grantee to obtain a specific substance from that land, for example, soil, grass and trees. The Land Trust seeks to use this innovative mechanism with landowners to conserve wildlife habitat, especially for grazing ground and water points.

e. *Management Agreements*

The Trust seeks where necessary to undertake management of land and resources. The role of the trust in such an arrangement is provided for in a management agreement with the landowner.

## **2.4. Threats to Protected Areas**

The distribution of people and biodiversity highlights the potential for conflict between human development and the environment. A threat is defined in the context of conservation as:

*... any activity or event, of human or natural origin that cause significant damage to park resources, or is in serious conflict with the objectives of park administration and management.*

(Machlis and Tichnell, 1985: 13)

While natural forces such as severe prolonged drought and other climatic changes have been identified as major causes of habitat change and environmental degradation (Mulder and Coppolillo, 2005; Mwamfupe, 1998), “their effect on biodiversity is not as alarming as that caused by human activities” (Gitahi, 2005a: 123). Similarly, Esikuri (1998) asserts that human-induced causes of biodiversity loss are recognised to be more persistent as opposed to natural ones. This argument is further illustrated by Barrow *et al.* (2000), Hulme and Infield (2001), Kangwana and Ole-Mako (2001) and Wells *et al.* (1992) who contend that the population dynamics of the surrounding settlements of protected areas have adverse impacts on biodiversity. Many of the protected areas are experiencing serious and increasing threats of degradation as a result of large-scale development projects, expanding agricultural frontiers, illegal hunting and logging, fuelwood collection, and uncontrolled burning.

Studies by Brandon *et al.* (1998) and Bruner *et al.* (2001) indicate that the immediate threats to protected areas and biodiversity are growing in both scale and scope, particularly in tropical regions. This is also relevant to the Kenyan situation as well. Already constrained with limited management resources, protected areas have come under increasing pressure from expanding and intensive human activities outside and sometimes

inside their boundaries. Local threats to protected areas in developing countries have been reported to usually arise from unsustainable exploitation through hunting, agricultural encroachment, burning, logging, the collection of forest products, or a combination of these (Ntiamoa-Baidu, 2001; Wells *et al.*, 1992) all of which are human-induced causes. Carey *et al.* (2000 cited in Mulongoy and Chape, 2004: 231) summarised significant proximate threats to protected areas, in increasing order of importance, as:

- Individual elements removed from the protected area without alteration to the overall structure (for example, animal species used as bush meat, exotic plants or over-fishing of specific species).
- Overall impoverishment of the ecology of the protected area (for example, through encroachment, long-term air pollution or persistent poaching pressure).
- Isolation of protected areas (for example, through major conversion of surrounding land).

The underlying causes of these threats are complex, rooted both in our expanding society as well as the unfair ways that we share our resources (Hughes and Flintan, 2001; Mulder and Coppolillo, 2005). As Wells *et al.* (1992: 11) observe, the causes of threats “vary greatly from one protected area to another or even within a single protected area”. Developing countries host the great majority of the world’s globally threatened species and are therefore placed with a special responsibility for global biodiversity conservation (WCMC, 1992). Already confronted with imbalances in global trade arrangements and technology access as well as a range of severe social and demographic pressures including widespread poverty, high densities or growth rates of human population, war and resource use conflicts, inequality, corruption, and, increasing flows of migrants and refugees; conservation has become more challenging for them. In Kenya, like many other developing countries struggling with economic crises, Kameri-Mbote (2005a) notes that government budgets are usually reduced and this has often decreased the ability to enforce environmental laws. This trend has eroded the legislative basis, political will, managerial capacity and financial resources for biodiversity conservation.

#### **2.4.1. Human-wildlife conflicts**

According to the IUCN (2003d), human-wildlife conflict occurs when the needs and behaviour of wildlife impact negatively on the goals of humans or when the goals of humans negatively impact on the needs of wildlife. These conflicts may result when wildlife damage crops, injure or kill domestic animals, threaten or kill people. Human-wildlife conflicts are prevalent in Africa and have been defined to include “any and all disagreements or contentions relating to destruction, loss of life or property, and interference with rights of individuals or groups that are attributable directly or indirectly to wild animals” (KWS 1995 cited in Kameri-Mbote, 2005a: 12). These conflicts have been extensively documented and include, for example, predation of livestock by carnivores (Frank, 1998; Ogada *et al.*, 2003), crop damage by elephants (Kangwana, 1993; Kikoti, 2000; Thoules, 1994; Thoules and Sakwa, 1995), competition for access to water and grazing, fear of dangerous wildlife, injuries and death (Campbell *et al.*, 2000; Kameri-Mbote, 2005a), and spread of diseases (Norton-Griffiths, 1996).

In the developed world potentially dangerous wildlife have largely been exterminated as a result of the spread of agriculture, growth of human populations and increased urbanisation (Muruthi, 2005). In much of Europe, for example, Kirby (2005) observes that species such as wolves that once roamed widely across the continent have been eradicated along with the habitat in which they lived with tiny remnant populations clinging on in very few remote, sparsely populated areas still under great threat, while in Africa, Muruthi (2005) points out that large numbers of big mammals, including several hundred thousand wild elephants and more than 20 000 lions still roam freely, particularly in rangeland areas or in protected areas. Muruthi (2005), Norton-Griffiths (1996) and Norton-Griffiths and Southey (1995) further indicate that the people who live in these regions and adjacent to the protected areas have to cope with the consequences: crop damage, livestock predation, competition for grazing and water, increased risk of some livestock diseases, various inconveniences such as loss of sleep due to protecting crops at night, and even direct threats to human life.



Conflict between people and wildlife today undoubtedly ranks amongst the main threats to conservation in Africa, alongside habitat destruction, and have adverse impacts on wildlife and humans alike. As human population in Africa rapidly increased, settled agriculture spread to more marginal rangelands inevitably increasing conflicts between wildlife and people (Okello *et al.*, 2003). These conflicts, as Conover (2002) and Kangwana (1993) state, represent a real challenge to local, national and regional governments, wildlife managers, conservation and development agencies and local communities. In Kenya, for instance, with much of the wildlife living outside protected areas (Kock, 1995; Western and Pearl, 1989), the fundamental question is whether it is reasonable to expect people, many of them amongst the poorest on the planet, to co-exist with wild animals such as large predators, elephants and herds of antelope, and absorb the ensuing economic losses as well as tolerating the resultant inconveniences and threats to their lives and livelihoods. The former KWS director David Western in an opening address on the national debate on the Wildlife-Human Conflict in Kenya (August 3, 1995) noted that “wildlife is widely reviled in Kenya and few landowners see wildlife as anything but a threat to life and property” (Western, 1995: 2). The main wildlife problems in the Kenyan rangelands are crop damage, competition for water and grazing, killing of livestock and risk of disease transmission, and human fatalities (Campbell *et al.* 2000; Frank, 1998; Kangwana, 1993; KWS, 1992b; Muruthi, 2005; Thoules and Sakwa, 1995).

#### ***2.4.1.1. Approaches to managing human-wildlife conflicts***

Most wildlife resources in Africa are regarded as trust property publicly owned and vested in appropriated authorities as trustees on behalf of the citizens and there is no compensation for land declared to be a wildlife conservation area (Makaramba, 1998). In addressing resource use conflicts, wildlife legislation and regulations attempt to make provisions for community participation, land use and land tenure systems, income generation opportunities, compensation, tourism development, and access to dispute resolution mechanisms.

Lessons learnt from the African Wildlife Foundation (AWF) heartlands (Muruthi, 2005) elicit two basic approaches of managing human-wildlife conflicts: prevention and mitigation. Preventive measures are the ones that can prevent or minimise the risk of conflicts arising between people and animals and include the extreme one of completely removing either the people or the animals, physically separating the two by the use of barriers, managing by a variety of means the numbers of animals to reduce the risk of conflict, and employing a variety of scaring and repelling tactics (Muruthi, 2005). Campbell *et al.* (2000) identify some physical mechanisms applied in human-wildlife conflict resolution such as regulated harvesting, fertility control, fencing, fear-provoking stimuli, guarding crops and livestock, chemical repellents, use of diversion and land use modifications. Muruthi (2005) observes that although prevention is clearly the best option, at times reactive approaches are required after human-wildlife conflicts have occurred. The main approach here is mitigating known as Problem Animal Control (PAC), most often undertaken by the national wildlife authority. The “problem animal” can either be killed or captured for translocation.

A rather different approach to dealing with conflicts between local communities, wildlife and conservation authorities involves changing the attitudes of affected communities to wildlife and the conservation institutions (Muruthi, 2005; Wells *et al.*, 1999; Wells *et al.*, 1992). This can be achieved by ensuring that the affected communities and individuals are active participants in, and enjoy tangible benefits from, wildlife management (Adams and Hulme, 2001; MacKinnon, 2001; Western, 1989). Such initiatives, according to Hulme and Murphree (2001) and Mulder and Coppolillo (2005), may include education programmes, consolation payments and broader sharing of benefits associated with the presence of wildlife. The Kenya Wildlife Act provides for the compensation to landowners who support wildlife on their land and for properties destroyed by wildlife (KWS, 2004; WCMA, 1976). The compensation may only be obtained for loss of life or personal injuries made under Section 62 of the Kenya Wildlife Act. No compensation is claimable where the injury or death occurred in the course of an unlawful act by the person concerned or in the course of normal wildlife utilisation activities. The maximum compensation for loss of human life or

injury by wildlife in Kenya has been Ksh 30 000 (about US\$ 400). According to Sindiga (1995), this amount is usually insufficient or not proportional to the loss. Similarly, Campbell *et al.* (2000) note that the policy of non-compensation for individual losses and damage to property, such as predation of livestock or destruction of crops, goes against the demands of conflict prevention.

Furthermore, Kenya Wildlife Service (KWS) implements a scheme for sharing revenue generated from park entrance fees with neighbouring rural communities as a way of encouraging those communities to take part in wildlife conservation (Leakey, 1990). The funds provided are channelled to local community level benefits, such as the construction of amenities like hospitals, water supply, cattle dips and classrooms for schools (KWS, 1992b). This is another potential source of conflict for, as KWS (1995) observe, there is lack of transparency in actually constituting equitable distribution of wildlife benefits. For instance, Sindiga (1999) indicates that while provisions are made for a part of wildlife revenue to go to local communities in Kenya, KWS is given authority to meet its financial needs first, thus making implementation almost impracticable. Similarly, Kiss (2004) also contends that it is open to question whether such benefit sharing programmes affect attitudes of affected communities to co-exist with wildlife.

#### **2.4.2. Poverty and inequality**

Poverty and inequality is a major driver of biodiversity loss that undermines biodiversity conservation (Stolton *et al.*, 2003). Most poverty is rural, as are most protected areas. This argument is echoed by Swanson (1991) who indicates that areas that have rich and irreplaceable biodiversity often support the impoverished and marginalised segments of human populations in developing countries. Lea *et al.* (2004) similarly state that some of the world's poorest countries have a significant proportion of their territories designated as protected areas in the most remote parts where the rural poor often live. As noted earlier in this study, in many circumstances conservation cannot and will not happen without the support of the relevant communities. Field studies have suggested that conventional conservation initiatives have harmed the world's poorest and most marginalised societies

living on the frontiers of protected areas where they come into conflict with biodiversity objectives (Borrini-Feyerabend *et al.*, 2004). At the same time it has been demonstrated that poverty often has a deleterious effect on protected areas (Lea *et al.*, 2004). In sub-Saharan Africa, for example, Wilson and Wilson (2004) present the top threats to protected areas as poverty related that include unsustainable resource extraction (for example, illegal hunting or fishing and fuelwood collection) and encroachment for agriculture.

According to Lea *et al.* (2004) and Stolton *et al.* (2003), the rural poor people largely depend directly on natural resources to sustain their livelihoods, but are forced for survival to use them unsustainably. They may have little voice in decision-making (Franks, 2003; McNeely, 2004), and are all too often displaced or dispossessed by political instability or armed conflicts (Oglethorpe *et al.*, 2004). The strict historical colonial model of protected areas introduced in most African countries made some communities to be expelled from newly protected territories and involuntarily resettled, with sometimes appalling socio-cultural and economic consequences. To add injury to insult, Lea *et al.* (2004) point out that communities adjacent to protected areas may suffer from crop-raiding animals or predators that kill their livestock or even family members, the results in many cases being ill-feeling and resentment, and increasing threats to the survival of the protected area through illegal incursions to collect fuelwood or to hunt, or through encroachment by agriculturists or pastoralists. Esikuri (1998) and Okello *et al.* (2003) further note that some traditionally mobile communities have been forced against their wishes to abandon their nomadic existence and adopt a sedentary lifestyle, with similarly tragic results, including for the ecology of the settlement areas. Communities in many countries have been disrupted and impoverished by being forced to abandon the use of resources upon which their livelihoods depend, action often taken without any redress through compensation (Borrini-Feyerabend *et al.*, 2004). Under such circumstances, they have no choice but to use what marginal resources remain, including areas 'protected' for biodiversity conservation. Swanson and Barbier (1992) indicate that such a setting has forced the poor to become both the victims and the agents of environmental degradation for they are too often forced to meet short-term survival needs at the cost of long-term sustainability.

### **2.4.3. Inappropriate conservation policies**

In many cases, the problem of biodiversity decline and threats to protected areas management can be traced to government policies or their application (Brandon *et al.*, 1998; Wells *et al.*, 1999). Mulder and Coppolillo (2005) and Wells *et al.* (1992) point out that often perfectly legal and government-sponsored development activities (including new roads, logging concessions, agricultural subsidies, among others) are a much greater threat to conservation areas than small-scale illegal actions perpetrated by local communities. Policies exist that force the poverty-stricken segments of human societies onto lands at the fringe of these societies, and into competition with all of the other species that must exist there (IUCN, 2003a; Production Commission, 2001; Swanson, 1991). Such fragile marginal areas are left with least management and development as they are treated as wastelands. Moreover, Mulder and Coppolillo (2005) indicate that policy challenges to protected areas are further compounded by a general lack of political commitment to conservation, reflected in the weakness of many conservation agencies and the lack of adequate financing for park management.

Often the conservation of biodiversity is regarded as being less important than the short-term economic or social interests of the sectors that influence it. Mulder and Coppolillo (2005) point out that the institutional framework within a protected area will determine strongly the effectiveness of protectionism. For example, in Kenya, certain government policies have favoured agricultural activities creating an impression that agriculture is more profitable a venture than wildlife conservation and reducing the viability of wildlife-based economic activities (Kameri-Mbote, 2005a; 2005b). Kenya's wildlife diversity is mainly found in the arid and semi-arid areas of the country which are ecologically fragile and susceptible to frequent droughts. Strangely, in the National Development Plan (2002-2008) these areas were earmarked for irrigation farming and other agricultural activities such as development of crops that could resist drought at the expense of wildlife keeping (GoK, 2002c). The net effect of these measures was to promote agriculture as a more viable land use option than wildlife in the arid and semi-arid areas. This position is echoed by Gitahi (2005a) who indicate that in an effort to promote agriculture for food production in the

country, the government introduced policies that provided great incentives for agriculture in the country. These included tax exemptions on selected farm machinery and equipment, fertilizers, and most agricultural chemicals. Similarly, the KWS and the AWF further contend that the government also provided subsidised credit facilities to farmers and invested heavily in research and development and protection of the sector from competition from imported commodities (KWS and AWF, 1995). It is worth noting that similar facilitative policies and subsidies were not put in place to encourage wildlife keeping as a land use.

Wells (1994) explains that in an unfavourable policy environment, the small-scale community development activities initiated through integrated conservation and development approaches are unlikely to achieve conservation success beyond the most local scale. Conservation policies that restrict traditional land uses and/ or increase losses of livestock, crops and human life to wildlife are elicited to cause antagonistic feelings and negative attitudes towards wildlife conservation in the very people who once were stewards of the land (Conover, 2002; Mehta and Kellert, 1998; Mordi, 1991; Western, 1989); potentially compromising the future of conservation and protected areas (Bhatnagar *et al.*, 1999; Naughton-Treves, 1998; Straede and Helles, 2000; Wang *et al.*, 2006). Similarly, Leader-Williams and Milner-Gulland (1993) observe that harsh penalties like the traditional military style anti-poaching strategies endorsing such policies as shoot-to-kill are probably much less effective in reducing poaching compared to when funds are directed towards patrols as well as increased involvement of the local communities in policing the protected areas. Western (1989: 161) has expressed the conviction that you could not have an effective conservation policy without taking into account “the human side of the story”. Norton-Griffiths (1995) convincingly sets out the case that just as governments can influence farmers into taking up one crop and discarding another by their agricultural policies, so should it be possible for governments in countries like Kenya to influence communities living near the protected areas to conserve biodiversity, by giving these communities economic incentives for doing so through favourable conservation policies. Therefore, as noted in UNEP (1999), for any protection initiative to be effective in meeting

conservation goals, a major requirement is to incorporate biodiversity concerns into other policy areas.

## **2.5. Community Conservation**

Although protected areas are a crucial part of any country's biodiversity conservation efforts, rarely are protected areas enough to conserve many important elements of biodiversity and ecosystem function. Conflicts in resource utilisation have severely hampered development of a protected areas system, as highlighted in the discussion above. Wells (1994) and Wells *et al.* (1992) show that in some regions, patchy resources and seasonal shifts in resource availability result in many species of wildlife having migratory patterns covering areas much larger than the size of any realistic protected area. Historically, conventional protected area approaches were initiated with little regard or no regard for local people and tended to see people and nature as separate entities (Adams and Hulme, 2001; Kangwana, 1993), often requiring the exclusion of human communities from areas of interest, prohibiting their use of natural resources and seeing their concerns as incompatible with conservation, a model called "fortress conservation" (Adams and Hulme, 2001: 10) and the "fences and fines" approach (Wells *et al.*, 1992: 1). Since most protected areas in the world have people residing within them or dependent on them for their livelihoods, the conventional exclusionary approaches, according to Wells *et al.* (1999), were perceived by the communities to be a liability. As the local people became increasingly alienated, their support for nature protection waned and conflicts escalated.

In the mid 1980s, conservationists began realising that government protected areas were failing in conserving biodiversity effectively. As Barrow and Fabricius (2002) explain, wildlife numbers were declining, land was being converted, and resource use and management conflicts were increasing around the protected areas where government authorities and local people fought for control and access. The failure of the state-based models of managing biodiversity and other natural resources to successfully fulfil goals of conservation and meet the socio-economic needs of the local communities is regarded by Coupe *et al.* (2002) and Kiss (1999) as the impetus for the evolution of community

conservation initiatives. Community conservation initiatives have been initially defined as “natural resources or biodiversity protection by, for and with the local community” (Western and Wright, 1994:7). The emphasis here is participation of the local people rather than exclusion in decision-making about natural resources. Barrow and Murphree (2001: 31) state that community-oriented conservation strategies have “the sustainable management of natural resources through the devolution of control over these resources to the community as its chief objective”. Basically this concept refers to policies, practices and approaches that give those who live in rural environments greater involvement in managing the natural resources in these areas and/ or greater access to benefits derived from those resources. According to Adams and Hulme (2001), this includes participatory approaches such as collaborative management, community-based natural resource management, community wildlife management and integrated conservation and development projects.

The notion that communities should, and could, satisfactorily manage their own resources according to their local custom, knowledge and technologies has a long history. For example, the resolutions of the 1982 World Congress on National Parks in Bali (IUCN, 1982), recommended the need to link protected areas management with the economic activities of local communities. This discourse is echoed in Hulme and Murphree (2001) and Western *et al.* (1994) who recognise that for long-term management of protected areas to be successful, there is a need to provide the local people who are either excluded physically from the areas or politically from the conservation policy process, with alternative means of livelihoods. Indeed many in the conservation community contend that biodiversity conservation and protected areas in poorer countries are doomed unless local communities become an integral part of conservation efforts and benefit economically from those efforts (Coupe *et al.*, 2002; MacKinnon, 2001; Western, 1982). Western and Wright (1994) observe that unless the culture, insights, livelihoods, participation, and aspirations of the local people are known and considered, any long-term conservation activities are likely to fail. Similarly, the Vth World Parks Congress in Durban (IUCN, 2003a) broadly embraced and adopted the concept of community conservation by advocating for increased



support for local communities through education programmes, revenue-sharing schemes, participation in the management of reserves, and the creation of appropriate development schemes around protected areas. Many new categories of protection have therefore been proposed including the concept of buffer zones (Oldfield, 1988; Sayer, 1991) where multiple uses have been advanced that allow local populations to exploit resources in a sustainable manner, and a whole generation of community conservation approaches born (Adams and Hulme, 2001; IUCN, 2001; Mulder and Coppolillo, 2005; Stuart *et al.*, 1990; Western *et al.*, 1994; Western and Wright, 1994) that ensure local communities derive benefits from protected areas.

The concept of community involvement in conservation activities gained support in Kenya in the 1980s (Western, 1982). The focus here has been the institution of new approaches to protected areas management and policy options targeting specific problems, regions or resource users that enhance the objective of biodiversity conservation, improve livelihoods and foster support for conservation from local communities. Such measures include compensation systems (KWS, 2005; Yoder, 2002), forest and wildlife user rights (Forest Action Network - FAN, 2007), and integrated conservation and development approaches (Conover, 2002; Ministry of Environment and Natural Resources - MENR, 2000; Norton-Griffiths, 1995; Sutherland, 2000; Wells, 1994; Wells *et al.*, 1992). Several options have been highlighted for transforming wildlife into an economically useful resource and bridging the gap between community interests and wildlife conservation. These include (Okello *et al.*, 2003: 62):

- providing consumption user rights to the local community;
- designing a proper land-use plan to allow multiple land uses that maximise community benefits; and
- encouraging communities to tap into the lucrative tourism industry by establishing their own community wildlife sanctuaries.

Community conservation initiatives provide a way of addressing key threats to wildlife, conserving biodiversity while at the same time contributing to rural poverty reduction

through benefits that improve livelihoods. According to Adams and Hulme (2001), they entail a wide range of different initiatives that forge a link between conservation and development by allowing local residents living in and around protected areas to have some stake in the management of protected resources. There is already in place a network of programmes supporting conservation that enhance private and community involvement in the management of natural resources in Kenya, most of them outside officially recognised protected area systems. For example, for decades, local communities adjacent to protected areas such as the Maasai in the Tsavo-Amboseli ecosystem felt that their value as stakeholders, their lives, livelihoods and aspirations were ignored in the management of the lucrative tourism industry in this area. Wildlife-induced damage to human property and life were neither controlled nor compensated, bringing losses to the local people rather than benefits; leading to strong negative attitudes towards wildlife conservation (Western, 1982). To address these disparities, “community wildlife sanctuaries” (Okello *et al.*, 2003: 62) were established which confer to communities the rights to manage and benefit from wildlife and contribute to wildlife conservation in dispersal areas adjacent to protected areas. This model has been embraced in other areas such as the Laikipia Wildlife Forum (LWF) (KWS, 2005; LWF, 2006), the Kitengela Wildlife Conservation Lease Programme (Gichohi, 2003), African Wildlife Foundation’s Heartland Strategy (AWF, 2003), Wildlife Foundation’s Tsavo Community Conservation Project and the Kenya Wildlife Service Community Wildlife Programme (Barrow *et al.*, 2000; KWS, 2005; Western, 1982). Key conservation enterprises supported include tourism-based ones like ecolodges, campsites, cultural villages and non-tourism-based ones such as harvesting and processing of natural resource products.

### **2.5.1. Integrating conservation with rural development**

Efforts to link conservation and development have featured prominently in the discussion of sustainable development since the 1980s (Wells *et al.*, 1992). Local people living in rural areas face a set of factors that pose major challenges and constrain development efforts by governments, non-governmental organisations and other development agencies. Such challenges, according to Mulder and Coppolillo (2005), include spatial dispersion of rural

population that often increases the cost and difficulty of providing rural goods and services effectively, limited opportunities for resource mobilisation, pervasive poverty, discriminative policies and political marginalisation. Wells (1994) observes that rural development encompasses projects that use social and economic incentives to enhance biodiversity conservation and involve activities that aim at eliciting local participation, intensifying land use and increasing local employment, productivity and incomes. However, the author notes that there are relatively few convincingly successful rural development projects in developing countries, attributing the failure of many rural development projects to the issues of inadequate local capacity and the excessive centralisation of decision-making.

In an effort to promote development activities that extend the benefits of development to rural people as well as conserve biodiversity, a new set of initiatives referred to as integrated conservation and development projects (ICDPs) has blossomed. ICDPs attempt to address the conflicts of interest between protected areas and local people. According to Wells *et al.* (1999), the term ICDPs applies to a diverse range of initiatives with a common goal of linking biodiversity conservation in protected areas with local social and economic development. The goals of these initiatives include compensating local people for lack of access to protected areas and providing alternative income sources that would allow people to benefit economically from conservation while refraining from environmentally destructive practices (Abbot *et al.*, 2001; McNeely, 1988). Mulder and Coppolillo (2005) and Wells *et al.* (1992) further demonstrate that most ICDPs have been local efforts geared towards taking off pressure on parks and reserves by offering small-scale development activities that seek to improve social and economic conditions for natural resource dependent surrounding communities while protecting ecologically valuable habitats. They are based on the perception that most threats to protected areas are local and that local development opportunities will reduce these pressures.

Proponents of the ICDP approach reason that local communities will degrade protected areas less if they are organised to take action, have control and access to the natural

resource base, possess adequate information and knowledge, and believe that their economic and social situations will improve (WWF-US, 1995). Fundamental to the ICDP strategy is the notion that by seeking to provide local communities with adequate livelihoods, and by involving them to varying degrees in protected areas management, they will have a greater stake in protecting or sustainably using the resources within the protected area (Hughes and Flintan, 2001). Nevertheless, early enthusiasm for ICDPs is now being questioned with more critical examination of their impact on both conservation and development goals (Brandon *et al.*, 1998; Hackel, 1999; Oates, 1999; Kramer *et al.*, 1997; Kiss, 2004; Noss, 1997; Wells *et al.*, 1999). The critical question is how compatible is conservation with development and under what circumstances are ICDP approaches effective in reconciling the conflicting agendas of conservation and development. Barrow and Murphree (2001), Jones (2001) and McShane and Wells (2004) explain that the success of community conservation initiatives can only work better when supported by a national policy and legislative environment that enables devolution of meaningful authority and responsibility for natural resources. Fundamental to this concern is clarity over tenure (of land and natural resources) arrangements, both in terms of conservation of biodiversity and in the fair and equitable sharing of its benefits (United Nations Convention on Biological Diversity [UNCBD] - CBD, 2004a).

Reconciling the needs of conservation and local communities has been found to be a complex and difficult task (Wells *et al.*, 1992; Newmark and Hough, 2000). Hughes and Flintan (2001) observe that it is often especially difficult to be fair and effective when targeting communities and individuals with different resource user needs and rights for development activities. Kiss (2004; 1999; 1990) further contends that many ICDPs have a tendency to overemphasise development activities that alleviate poverty in the community and provide benefits to the local people in the naive assumption that this will foster their conservation attitudes and hence remove threats to protected areas. Many in the conservation community are concerned that ICDPs, which were offered as a panacea for conservation problems, have often failed to live up to the expectations (McShane and Wells, 2004; Wells *et al.*, 1992). Studies in south-East Asia and sub-Saharan Africa

(Brandon *et al.*, 1998; Coupe *et al.*, 2002; Jepson *et al.*, 2001; Wells *et al.*, 1999) have shown that not only have many ICDP initiatives failed to limit unsustainable resource use or change conservation attitudes of local communities, on the whole they have not led to demonstrate improvements in peoples' livelihoods. Other authors like Barret and Arcese (1995) have suggested that enhanced rural development and livelihoods standards adjacent to protected areas can stimulate demand for meat and other wildlife products, and thus undermine conservation management objectives. Kiss (1990) and McShane and Wells (2004) have attributed some of the shortcomings of the ICDPs to the hijacking of conservation efforts by the social agenda (especially when the development options on offer have no direct linkages to conservation), the perceived or actual bias towards the interests of either the protected area management agency or an environmental NGO, and the tendency of addressing local symptoms while ignoring underlying policy constraints and local realities. Similarly, Alpert (1996: 852) looking primarily at ICDP initiatives in Africa, concluded that these projects yield "tangible benefits for communities" but fewer clear successes for conservation.

Although most ICDPs seek to change behaviour at the local level, there is a growing awareness that often it is not the small-scale illegal activities of local communities that are the greatest threat to protected areas. Moreover, as documented by Mungatana (1999), the very limited development opportunities that ICDP projects provide to local communities are generally inadequate incentives for those communities to change their behaviours and stop exploiting natural resources or encroaching on protected areas. External trends (such as expanding market demand or improved market access for forest or wildlife products and demographic pressures among others) and the role of other social and political actors are rarely commented upon in the literature reviewed. For example, a recent review of the range of ICDP initiatives around 24 protected areas in Indonesia (Wells *et al.*, 1999) suggests that most have met with only limited success because they are often not addressing the main threats to protected areas. The study found that direct threats from local communities ranked well behind road construction, mining, logging concessions and sponsored immigration. In conclusion, the study highlighted that ICDPs work best where

conservation and development are explicitly linked and there is strong local support (at government and/ or community level) for the protected area. It is therefore imperative to approach conservation and development initiatives within and beyond proximate threats to biodiversity components and extend to the broader context of institutional, legal and tenurial constraints to securing rights and access to resources.

### **2.5.2. The concept of sustainable use**

With increasing pressure on land and natural resources in many parts of the tropics, it is probably unrealistic to hope that many more large areas will be designated purely for conservation. Swanson (1991: 198) observes that the global contest for resources has created “ecological refugees” through displacement of the rural people from the resources and relationships on which they have depended. Consequently, this makes local people lose contact with a system in which they were effectively integrated and also become integrated within a system they do not understand. This position is further echoed by Swanson and Barbier (1992) who contend that this is destructive for both the people and their new environment. At the heart of many community conservation initiatives today is the premise that articulates the concept of sustainable use as a conservation strategy and development as a conservation tool (IUCN/UNEP/WWF, 1991; Wells *et al.*, 1992; Wells *et al.*, 1999). Opportunities are being sought to extend conservation practices within and beyond park borders through promoting sustainable use in the broader landscape.

Sustainable use is defined in the CBD as: “the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations” (UNCED, 1992: Article 2: 6). According to Freese (1997: 7), use can either be consumptive, defined as “when the entire organism or any of its parts is deliberately killed or removed or non-consumptive when no such removal occurs (such as wildlife viewing)”. Sustainable use movement is based on the view that biodiversity must be valuable if it is to be conserved, and that value is often derived through utilisation (Mulder and Coppolillo, 2005; Freese, 1998; Swanson and Barbier, 1992). Both the consumptive and non-

consumptive approaches to sustainable use, as noted in Campbell (2002) and Freese (1997), have different implications for conservation practice. For example, Grootenhuis and Prins (2000) demonstrate how utilisation through game ranching in South Africa has provided strong economic incentives for biodiversity conservation, while Boss *et al.* (2000) and Norton-Griffiths (1998) indicate that the restriction of consumptive use of wildlife in Kenya is an obstacle to successful wildlife management systems.

Throughout the tropics many forest products have been harvested for hundreds of years, both for subsistence and sale (MacKinnon, 1998). In a study in the forests of south-east Asia by Wells *et al.* (1999), it is recognised that there is increasing pressure to establish protected areas on a multiple-use basis, aiming to conserve habitats and wildlife while allowing local communities to harvest forest products. According to Oldfield (1988) and O’Riordan and Susanne (2002), the multiple-use concept is based on the rationale that sustainable use within protected areas can justify the conservation of areas of natural habitat rather than conversion to other alternative forms of land-use, and that sustainable harvesting of biological resources in buffer zones can provide communities with alternative livelihoods that reduce destructive and exploitative practices within conservation areas. Some of the proven methods of getting local support are permitting controlled grazing and collection of water and firewood where it does not have a negative impact on the reserve (Mulholland and Eagles, 2002). Such scenarios require the active and willing cooperation of local communities. However, Swanson and Barbier (1992) observe that whether they help to conserve biodiversity may still depend on the way biological resources are valued, on the balance between benefits that accrue to local communities or to central government and/ or big business interests and on issues of ownership.

Biodiversity conservation areas have been a major avenue for tourism activities with ecotourism emerging as a key sector of linking the demands and interests of local communities with the tourism industry. However, there still remains a range of challenges and issues that need to be addressed that include the inequitable distribution and access to

benefits as well as the negative impacts of ecotourism. Some of these issues are discussed below.

### **2.5.3. Ecotourism**

Tourism is one of the most important export industries in Africa which is mainly based on the renewable resources, most notably the continent's impressive wildlife (Dieke, 2001; Wade *et al.*, 2001). Blangy and Mehta (2006 cited in Bob *et al.*, 2008: 31) maintain that the fast pace of tourism around the world has caused untold damage to some of the most ecological systems. The notion held by some local communities in the past that wild animals cannot earn their keep and are only profitable when dead (Thatiah, 2008), has been reversed by the birth of nature-based tourism or simply ecotourism. Ecotourism has become one of the fastest growing sectors of the tourism industry (Cater, 1994), illustrating the demand for nature as a commodity as well as the desire for people to experience nature (Blangy and Mehta, 2006). The International Ecotourism Society (TIES) has defined ecotourism as responsible travel to natural areas which conserve the environment and sustains the well-being of local people (Ecotourism Society, 2000). Similarly, Wallace and Pierce (1996: 846) have outlined the principles of ecotourism to entail:

- minimising negative impacts to the environment and to local people;
- increasing the awareness and understanding of an area's natural and cultural systems and the subsequent involvement of visitors in issues affecting those systems;
- contributing to the conservation of and management of legally protected and other natural areas;
- maximising the early and long-term participation of local people in decision-making process that determines the kind and amount of tourism that should occur;
- directing economic and other benefits to local people that complement rather than overwhelm or replace traditional practices, for example, farming, fishing, social systems, among others; and



- providing special opportunities for local people and nature tourism employees to utilise and visit natural areas and learn more about the wonders that other visitors come to see.

It is recognised from the above that there is a great deal of emphasis on local management, education and on minimising the physical, social and cultural impacts of tourism. Similarly, Bob *et al.* (2008) contend that ecotourism incorporates sustainability principles that encompass the broad spectrum of diversity. They observe that ecotourism integrates biodiversity conservation with the sustainability of human communities. According to Tubb (2003 cited in Chellan and Bob, 2008: 290), ecotourism development is recognised as a major contributor to enhancing sustainable natural environmental conservation and economic development, particularly in developing countries.

Nature and culture-based tourism is promoted through many community conservation approaches with varying success. Mulder and Coppolillo (2005) and Mulholland and Eagles (2002) point out that it is one of the few alternative livelihoods based on sustainable use of protected areas that does have clear conservation benefits and indeed relies on the maintenance of habitats and species. Similarly, Myers *et al.* (2000) further observe that ecotourism appears to present a significant potential opportunity of mobilising resources and generating revenue to fund biodiversity conservation and associated community development initiatives. This position is echoed by the Kenyan government who contends that ecotourism has the potential of becoming a moderately useful tool for locally directed and participatory rural development based on a rational utilisation of tourism-based environmental and cultural resources (GoK, 1994). Kenya's *Economic Recovery Strategy for Wealth and Employment Creation, 2003-2007* (GoK, 2003) identifies ecotourism as a key sector for poverty reduction and employment creation through increasing community involvement in tourism development. Tourism activities from non-consumptive utilisation of wildlife in Kenya contribute about 70% of the total earnings from the tourism sector (Emerton, 1997; Norton-Griffith, 2006; Sindiga, 1999). There are over 40 conservancies engaged in ecotourism activities spread around Kenya which are owned and managed by

local communities (KWS, 1994; Thatiah, 2008). The Kenya Wildlife Community Service trains the managers and community scouts and also implements a revenue sharing programme with the communities using park entry collections (KWS, 1990). However, there is no fixed proportion of revenues from a park that a local community is expected to get for the KWS “reserves the right to decide who receives what from revenue sharing” (KWS, 1990: 51). In an effort to directly participate in tourism activities in view of earning greater incomes, Sindiga (1995) observes that the local people have organised themselves in collaboration with other partners such as tour companies as well as lodge and hotel operators to create income generating activities through providing camping concessions and exclusive camp sites, ecolodges for tourists, guiding tours, and supplies and services to lodges.

Nevertheless, there is still a significant gap between the potential of ecotourism and its actual contribution to protected area financing and local community livelihoods. For example, Brandon (1996) indicates that although ecotourism may generate revenues and support for biodiversity conservation and benefits to rural communities, such benefits are not automatic. The author explains that they will be site-specific and dependent on unique visitor experiences, and communities will need investment and capacity building to provide and market visitor services. This argument is further presented by Bonner (1993), Kock (1997) and Mulholland and Eagles (2002) who contend that many of the economic benefits of tourism tend to be captured by commercial operators, mainly foreign companies that run organised tourism activities. They therefore point out that the majority of tourism income stays with the foreign company far from the remote rural areas where the nature tourism destinations are located. Mulder and Coppolillo (2005) and Worah (2002) point out that for ecotourism to be justified, tourists should bring direct benefits to the destination area and there must be a mechanism for the money to stay in, or at least trickle down to, the local area. The above authors observe that it is therefore imperative to enhance legislation to ensure that local communities benefit directly from revenues collected by protected area authorities, for example, through tourist entry fees or hotel levies, and provide employment opportunities such as guides, rangers, hotel employees or in other related services.

#### 2.5.4. Community Conserved Areas (CCAs)

The V<sup>th</sup> IUCN World Parks Congress (IUCN, 2003d: 202) recognised that “a considerable part of the earth’s biodiversity survives on territories under the ownership, control or management of indigenous peoples and local (including mobile) communities”. Such sites, referred to as Community Conserved Areas (CCAs), are recognised as:

*... natural and modified ecosystems, including significant biodiversity, ecological services and cultural values, voluntarily conserved by indigenous and local communities through customarily laws or other effective means.*

(IUCN, 2003d: 202)

This implies that CCAs are extremely diverse in their governance institutions, management objectives, ecological and cultural impacts, and other attributes. Two primary characteristics of CCAs, according to the IUCN (2003d) and Kothari (2006), are:

- predominant or exclusive control by the communities as major players in decision-making and implementing actions related to ecosystem management, implying that some form of community authority exists and is capable of enforcing regulations; and
- commitment to conservation of biodiversity, and/ or its achievement through various means.

Community Conserved Areas (CCAs) have been hitherto unrecognised in formal national and international conservation systems, perhaps because their “resource management systems are often based on customary tenure, norms and institutions that are not formally or legally recognised in many countries” (IUCN, 2003d: 202). The IUCN (2003d) further notes that CCAs, as they exist today, serve the management objectives of different protected area categories, a position echoed by Kothari (2006) who states that CCAs would fall within Categories V and VI of the protected area systems. Kothari (2006: 3) further points out that CCAs are found in both terrestrial and marine areas and can be of a range of sizes and many kinds including:

- indigenous peoples’ territories managed for sustainable use, cultural values or explicit conservation objectives;

- territories over which mobile or nomadic communities have traditionally roamed, managing the resources through customary regulations and practices;
- sacred spaces ranging from tiny forest groves and wetlands to entire landscapes often left completely or largely inviolate;
- resource catchment areas from which communities derive their livelihoods or key ecosystem benefits, managed such that these benefits are sustained over time;
- nesting or roosting sites, or other critical habitats of wild animals, conserved for ethical or other reasons explicitly oriented towards protecting these animals; and
- landscapes with mosaics of natural and agricultural ecosystems, containing considerable cultural and biodiversity value, managed by farming communities or mixed rural-urban communities.

While many community conserved areas are usually based on customary law and traditional practice, Lockwood *et al.* (2006) observe that in some circumstances they are legitimised through some form of collaborative management agreements with the government, or with non-governmental organisations, or even with the private sector. Similarly, the international recognition given to CCAs at the IUCN World Parks Congress (IUCN, 2003d) and within the Programme of Work on Protected Areas of the CBD (CBD, 2004a) has also mandated a number of countries to explore ways to provide legal backing to CCAs. This has resulted in a growing number of initiatives aimed at conserving these areas and ensuring that rural people in these areas can benefit directly from good stewardship of their resources. For example, according to Okello *et al.* (2003), Western (1982) and Wishitemi (2002), the indigenous Maasai people in Kenya and Tanzania living around Tsavo, Amboseli and Kilimanjaro National Parks have developed community wildlife sanctuaries that benefit from wildlife dispersal areas around the protected areas, with the local communities involved at all levels of management of the conservation and ecotourism enterprises.

Nevertheless, the IUCN (2003d) and Kothari (2006) observe that CCAs everywhere are facing threats and some challenges that limit their success as conservation areas, including:

- erosion of traditional institutions by colonial or centralised political systems;
- unclear and insecure tenure arrangements as most of the communal areas are on lands on which the community does not have ownership or tenurial security, or other forms of control;
- lack of governmental support;
- internal conflicts, economic inequities and social injustices among communities; and
- commercialisation of resources in response to the expanding human population and their economies.

#### ***2.5.4.1. Indigenous conservation systems***

Protected areas evolved with time and the concept is entwined with human civilisation. Martin (1993) indicate that in most traditional societies, the Earth is understood to be the source of life and local folktales warn of the misfortunes that befall those who fail to respect the Earth and its resources including water, wildlife and trees. These values and beliefs are passed from relatives and neighbours as part of childhood experience and are embedded in the local language, including songs and stories, and reflected in art (Alcorn, 1997). Simbotwe (1993) notes that resources in traditional Africa were harvested in accordance with tribal laws that were reinforced by the authority of indigenous religious sanctions expressed through a combination of historical legends and charismatic myths.

Notably in the preamble to the CBD (UNCED, 1992), the international community recognises the close and traditional dependency of many indigenous and local communities on biological resources and the contribution that traditional knowledge can make to both the conservation and the sustainable use of biological diversity, two fundamental objectives of the Convention. Protection of “associated cultural resources” in the IUCN definition of a protected area (IUCN/WCMC, 1994: 261) recognises a human component to the natural world; and the words “other effective means” implies that protected areas do not necessarily need be legally established by the government. In this definition there is international recognition that indigenous resource use and customary land management can

be in harmony with, and contribute to, biodiversity conservation objectives in protected areas. Article 10 of the CBD adopted at the 1992 Earth summit in Rio de Janeiro (UNCED, 1992), acknowledged the need to protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements.

In the past, elaborate conservation systems prevailed among most indigenous people. Such systems comprised various areas like rivers, mountains, wetlands, springs and sacred forests, once widespread across India, Africa and Europe. These systems were strictly protected by customary laws. For example, in colonial Africa, some wilderness areas were specifically set aside by royal decree as hunting preserves (Fabricius *et al.*, 2001), just like in Europe and North America where protected sites became hunting grounds (Adams, 1996). In Asia the landscape was spotted with areas protecting natural features (Grove, 1995; Holdgate and Phillips, 1999), often incorporating a temple or shrine. Among the traditional communities in parts of Africa, certain areas were set aside as sacred sites for religious and cultural activities such as the sacred or fetish groves (shrines, ancestral forests, burial grounds) in Ghana (Ntiama-Baidu, 1991), the royal hunting preserves among the amaZulu and amaSwazi people (Fabricius *et al.*, 2001), the Kaya sacred forests along the coast of East Africa (Githitho, 1998; Robertson, 1987) and the Mount Kenya sacred sites (single trees, rock cliffs, caves, rivers, swamps, hills and waterfalls) in Kenya (Gatua, 2006).

A report prepared for the Environment Protection Council (EPC) of Ghana (EPC, 1976 cited in Ntiama-Baidu, 2001: 386) indicate that several categories of indigenous protection systems exist ranging in size from a small object (such as a tree, stone or rock) considered to be a 'god' and its immediate surroundings to larger ecosystems like rivers, forests and mountains. More commonly, where a patch of forest was used as a burial ground, Ntiama-Baidu (2001: 386) illustrates that such an area was protected because of "respect for the dead and the belief that ancestral spirits live there". Many rivers and streams that provided the main source of drinking water for a village were considered sacred. The surrounding

forest lands were protected in the belief that the spirit of the river resided in the forest. Restrictions on access to, and use of natural resources from these sites were sanctioned by fear of religious or social retribution and by taboos. Taboos associated with such sites included outlawing of hunting, prohibition of cultivation of forest lands on the river banks, prohibition of use of fisheries resources within the river, and restrictions on access to the river on certain days (Ntiamoa-Baidu, 2001; Wild and McLeod, 2008). These taboos protected the forests and prevented defilement of the river. Although protection of these sites was based on religious and cultural beliefs with a variety of explicit reasons why such taboos existed, it served as an unintentional nature conservation and natural resource management strategy (Ntiamoa-Baidu, 2001).

Sacred groves and sites were and still are an important component of certain local people's culture and history serving as places for sacrifice to god in the event of calamities: sacrificing for rain, peace-making and conducting certain traditional rites (Gatua, 2006; Githitho, 1998; Kenyatta, 1965; Wild and McLeod, 2008). Historically, patches of forests in Kenya were protected because they supported sacred, totem or tabooed species that were believed to have special spiritual or cultural values and associations (Gatua, 2006). Many tribes in Kenya have a wild animal or plant species as their symbol. An example is the fig tree (*mugumo*) which is respected in all communities in Kenya as a tree of god (Kenyatta, 1965). Traditionally such species were protected. In the legend of the Kaya sacred forest in Kenya, it was believed that there existed a big snake (python) which came in the way of those who trespassed into the Kaya sacred forest (Githitho, 2006). The history behind the legend was a testimony to strengthen the local culture and beliefs amongst the Mijikenda people of the coastal region in Kenya where most of the Kaya forests are still in existence today (Githitho, 2006; 1998). The legend says that the elders upheld and enforced the protection of the Kayas so that they could perform ceremonies and rites in seclusion. It is also intended to guard or protect the sense of secrecy or mystery about the Kaya; thus the disturbance of the trees and other forest vegetation is discouraged. This was a conservation mechanism using cultural sanctions.

Another important sacred site in Kenya is Mount Kenya, a cradle of many beliefs, customs, myths, legends and folksongs. The landscape is surrounded by five major cultural groups: the Agikuyu, Aembu, Ameru, Maasai and Samburu. These groups believe that it is the mountain of god. As Kenyatta (1965: 16) notes, the Agikuyu believe the peak is the “seat” of ‘god’ (*ngai*) and therefore, all traditional prayers are conducted as people face the sacred peaks. Most of the indigenous forest surrounding the mountain is protected within the government forest reserves, with some forest sections falling within the Mount Kenya National Park established in 1949. Communities living around the mountain have other sacred sites that define their spirituality and attachment to their natural environment. Gatua (2006) observes that these sites are revered and protected by traditions and still stand as living cultural symbols of great historical and ecological importance.

Sacred sites were controlled by traditional authorities (usually the ‘priest’ in charge of the ‘god’ of the grove, the chief of the village, and heads of relevant clans) (Ntiamoa-Baidu, 2001: 387). The conservation strategy, which is one of preservation, was enshrined in taboos and numerous cultural and religious rites and was maintained through reverence for the ‘gods’ and ancestral spirits (Kenyatta, 1965). Ensuring that the regulations governing the sacred sites were strictly adhered to was the responsibility of the clan elders and their protection was vested in the entire community (Githitho, 2006; 1998). A select group of traditional guards regularly patrolled the periphery of the sites and arrested intruders, who were sent to the chief or clan elders for the necessary customary sanctions. The sanctions, which were exacted for the purpose of pacifying and purifying the ‘gods’ and spirits, varied depending on the gravity of the offense. However, they usually consisted of a cash fine, traditional brews and animals for sacrifice to the ‘gods’. Githitho (2006) further observes that the groves were not demarcated, and the rules governing access and usage were unwritten and had no legal backing. They were strictly observed, however, and most people believed that something dreadful would happen to them if they disregarded any of the rules or refused to offer sacrifices to pacify the ‘gods’ and purify themselves. The traditional guards received no remuneration for their work but considered it their honourable duty.



Sacred sites have survived purely because of the strong traditional beliefs upheld by the local people, and the spiritual, religious, and cultural attachments to the groves (Gatua, 2006). The major virtue of this strong culture-based practice is that it encourages community participation in natural awareness of nature and the linkages between people and nature. The survival of these sacred sites is threatened by the erosion of the traditional beliefs that have sustained the system. The European colonialists in Africa and Asia largely destroyed many sacred groves when they converted village forests to state property and introduced western religion to the seemingly pagan local people (Wild and McLeod, 2008). Gatua (2006) and Ntiamoa-Baidu (2001) contend that a number of sacred sites have been gradually encroached and lost as a result of expansion of surrounding farms as well as urban and infrastructure development. The remaining sites, still under pressure, are of critical ecological importance (Ntiamoa-Baidu, 2001; Wild and McLeod, 2008). They buffer against the depletion of local species variants and keystone species and provide corridors between dispersed protected areas. Some of the challenges identified threatening the survival of indigenous protected areas and the conservation of biodiversity in Kenya like in other regions include (Gatua, 2006; Ntiamoa-Baidu *et al.*, 2000; Wild and McLeod, 2008):

- over-exploitation of forest resources
- population pressure and encroachment
- introduction and invasion of alien species
- decreasing cultural attachment and values
- extensive logging and charcoal burning
- conflicting land tenure systems
- tourism impacts and market forces

### **2.5.5. Critique of community conservation**

The involvement of local people in conservation has become a major feature of conservation policy. A change of perspectives that juxtaposes the conventional and the emerging approach to protected area management, labelled by Phillips (2003: 4) as a “paradigm shift”, has occurred with greater attention now being given in most regions to

alternative management approaches in categories IV and V of protected areas that tend to give greater emphasis to the needs of traditional agriculture and local people, an emphasis which is carried a step further in Category VI. However, some critics to the paradigm shift in light of the main purpose of protected areas which is to protect wild biodiversity like Locke and Dearden (2005), claim that only IUCN categories I-IV should be recognised as protected areas arguing that the new categories, namely, culturally modified landscapes (V) and management resource areas (VI) will devalue conservation biology, undermine the creation of more strictly protected reserves, inflate the amount of area in reserves and place people at the centre of the protected area agenda at the expense of wild biodiversity.

Critiques on community conservation initiatives focus on the argument that community conservation has not succeeded in meeting the conflicting objectives of biodiversity conservation and local development (Coupe *et al.*, 2002; Fabricius *et al.*, 2001; IUCN, 2003a; Kiss, 2004; Neumann, 1997; Wells, 1994). For example, Barrow *et al.* (2000) and Fabricius *et al.* (2001) indicate that there is still a number of emerging challenges to advancing community conservation in Eastern and southern Africa. They observe that though community conservation remains the most effective and viable option in Africa, it remains also elusive. Members of local communities rarely have adequate education or training, and they lack appropriate resources to manage protected areas without external assistance. In this respect, Wells *et al.* (1992) explain that when conservation and economic development objectives are combined in integrated projects the focus geared at securing sustainable local livelihoods may fail to enhance biodiversity conservation. This is evident, according to Kiss (1990), especially where some projects have a tendency to overemphasise rural development aspects at the expense of core conservation objectives. Similarly, Coupe *et al.* (2002) and Homewood *et al.* (1997) argue that even where community development projects are implemented, the local people though positive about them, may still fail to support the conservation initiatives. Notwithstanding, studies of certain rural communities in developing countries have found that under some circumstances access to conservation-related benefits can positively influence local attitudes (Saharia, 1982; Infield, 1988; Lewis

*et al.*, 1990). For example, Infield (1988) in a study of attitudes of a rural community towards conservation and a local conservation area in KwaZulu-Natal, South Africa found out that households which had experienced direct benefits from the conservation area were more positive than those that had not indicated the importance of allowing local people access to wildlife resources and of encouraging structures to integrate conservation areas within local economies. Similarly, Lewis *et al.* (1990) in a study on the lessons from an experiment on wildlife conservation outside protected areas in Zambia observed that when the local community received financial benefits from safari concessions, local economies improved and village attitudes toward wildlife management and conservation became more positive, evidenced by a dramatic drop in poaching. Mearns (2003) and Watkin (2002) suggest that sharing of conservation benefits with the rural communities are the best options in wildlife rich areas to achieve conservation-led development. However, if benefits are perceived as small in relation to losses or inequitably distributed, as Coupe *et al.* (2002) and Homewood *et al.* (1997) point out, they may not achieve this required effect.

## **2.6. Private Protected Areas**

Privately owned protected areas have existed in various forms for centuries, dating back to hunting reserves used by large landowners in most parts of the world and private “land trusts” in the USA since 1891 (Alderman, 1994). At the 1<sup>st</sup> IUCN World Congress on National Parks in 1962, it was acknowledged that many nature reserves throughout the world are owned by private individuals, but are nevertheless dedicated in perpetuity to the conservation of wildlife and of natural resources. Recommendation No. 10 of the Congress stated that such areas should be increased in number and diversity and commented that “individuals and institutions involved in such actions be commended for their activities and that others be urged to do likewise” (IUCN, 1962: 379). Private protected areas have undergone dramatic expansion over recent years. The trend reached a new peak in 2003 with the creation of the Private Protected Area Action Plan at the Vth IUCN World Parks Congress in Durban, South Africa (IUCN, 2003a; Langholz and Krug, 2004). A second high level mandate quickly ensued, when parties to the United Nations Convention on

Biological Diversity (CBD, 2004a) adopted a Programme of Work on Protected Areas that included specific measures to improve and expand private protected areas. A private protected area was thus defined at the Vth IUCN World Parks Congress as:

*... land parcel of any size that is predominantly managed for biodiversity conservation, protected with or without formal government recognition, and is owned or otherwise secured by individuals, communities, corporations or non-governmental organisations.*

*(IUCN, 2003c: 275)*

This means that tenure of private protected areas (PPAs) can be held by different entities and characterised by different management objectives, sizes and land tenure arrangements. However, as Mitchell (2005) notes, the four kinds of governance as highlighted in the definition (individuals, communities, corporations or non-governmental organisations) are not as distinct as implied for there is an overlap with two (co-managed and community conserved areas) of the four governance types articulated in the recommendations of the Durban congress (IUCN, 2003d). Incidentally, the majority of private protected areas are not owned by a single individual but an overlap of several partnerships. For example, Jones *et al.* (2005b) describe an overlap of community ownership on private game reserves from a case study in South Africa that entails ownership of private game reserves by registered companies with multiple shareholders that include individual land owners in cooperative partnerships with the community neighbours. Therefore, as Mitchell (2005: 1) observes, categorising protected areas as “either private” or “public” implies more of a management objective than exists in practice. This is true, for instance, when private ownership is retained and the PPAs are truly managed as protected areas, they have public benefits - either direct (for example, immediate public access) or indirect (biodiversity conservation or ecological services). Indeed, the majority of privately conserved areas occur directly adjacent to or within larger government reserves (for example, a national park). For example, Jones *et al.* (2005b) describe systems in which government reserves form core wildlife areas, while privately conserved areas provide seasonal dispersal ranges in vital corridor areas connecting government-run parks. Integration therefore emerges as a key theme when considering the role of private reserves in biodiversity conservation. This requires close individual landowner-government working relationships.

There is a strong need for private lands conservation initiatives in the world today as reported by the Environmental Law Institute (ELI, 2003) from a study on private lands in Latin America, with the recognition that private lands constitute critical sites for protection of biodiversity, especially the buffer zones of public parks and productive ecosystems where there are typically few public protected areas. The Institute further notes that a private lands conservation strategy is attractive to governments with limited financial resources where high resource commitment is required to put large-scale lands to conservation, for in many cases private landowners contribute their own resources for the implementation of conservation practices. Similarly, Barborak (1995) and the IUCN (1994) observe that in many cases PPAs are afforded better protection management than similar areas in government hands. This situation is echoed by Langholz (1996) who contend that the PPA personnel have better training, equipment, and salaries than their national park counterparts that puts them in a better position to conduct superior community outreach and development, and other activities such as habitat restoration.

### **2.6.1. The importance of private conservation initiatives**

The conservation of private lands is an important component of any national strategy for the protection of nature and sustainable use of natural resources. Over 80% of the land in most countries is privately owned (ELI, 2003) and protect a variety of viable populations of species (Jones *et al.*, 2005b). The increasing engagement of the private sector in conservation landholding has been driven in part by growing dissatisfaction with the effectiveness of government managed protected areas (Kramer *et al.* 1997), and the fact that most biodiversity exists outside formally protected land, much of it private (Langholz and Krug, 2004). It is therefore recognised that for conservation efforts to fully succeed, the public parks systems must be complemented by private conservation initiatives. Private lands conservation can therefore contribute meaningfully to conservation goals in various ways discussed below.

### *Conserving critical sites for biodiversity in threatened ecosystems*

According to Jones *et al.* (2005a), many privately conserved areas protect a variety of natural habitats that would otherwise be converted to other forms of land use, and many are trying to restore degraded land. Both ELI (2003) and Jones *et al.* (2005a) point out that private conservation initiatives are important in order to save endangered ecosystems in fragmented landscapes where almost all land is privately owned. This is the case for most areas identified by IUCN as the most endangered biodiversity hotspots in the world like the Atlantic Forest and the Amazon Forest of Brazil (Mittermeier *et al.*, 2002; Rambaldi *et al.*, 2005), the coastal forests of Ecuador and Colombia, and the Mediterranean ecosystems of Central Chile (Conservation International, 1999).

### *Protecting buffer zones*

Private reserves play a number of important roles when located within buffer zones of public parks. As ELI (2003) observe, they directly protect lands outside the park, expanding the core area of protection and helping to conserve the park's resources, and also help protect park boundaries by establishing a conservation presence at key access points, particularly in less developed countries which may lack funding for adequate protection of national parks. Similarly, Mulder and Coppolillo (2005) note that buffer zones insulate protected areas from potential destructive activities on reserves by tolerating less destructive activities and seasonal regulated access to resources. Brandon (1997) further notes that by integrating rural development approaches relating to the park, such as ecotourism, private conservation efforts help to foster critical local support for the public protected areas through mitigating the costs to local communities of biological conservation within protected areas by providing local people with alternative and improved livelihoods.

### *Linking parks through conservation corridors*

Public protected areas often include private lands within their boundaries. Western (1989) asserts that government reserves often form core wildlife areas of larger systems while the privately conserved lands provide inholding or migration corridors important as seasonal dispersal areas for species such as elephants that need to move between dispersed areas for

survival. For example, the Longido plains in Tanzania, Amboseli National Park and Tsavo West national Parks in Kenya are all linked by land that provides migratory routes for elephants between the parks (Western, 1997). In essence, the Environment Law Institute (ELI, 2003) observes that applying conservation tools to these private lands strengthens and reinforces the conservation of the publicly protected areas as the natural corridors help unite two or more official conservation units or private protected areas. This position is further emphasised by Jones *et al.* (2005b: 73) who recognise that “many government protected areas are not sufficient in size to provide adequate protection to many species, while at the same time it is often not politically possible (particularly in developing countries) to formally proclaim more land as national parks or game reserves”.

#### *Links for government conservation efforts*

The government can leverage its resources by working in partnership with private actors such as conservation non-governmental organisations. The ELI (2003) points out that such private organisations can act in a more rapid and flexible manner than government bureaucracies and can contribute to fundraising, outreach, lobbying and education activities that are difficult for governments to undertake. Overall, according to the IUCN (2003c) and Figgis *et al.* (2005), there is a fundamental recognition that PPAs serve as increasingly important components of national conservation strategies, providing valuable additional funds and capacity at a time when many governments are slowing the rate at which they establish new protected areas due to over-stretched governments. However, Jones *et al.* (2005b) observe that government support is critical to effective public-private conservation partnerships. Such support may include formal measures such as recognising private reserves, providing financial incentives, and supporting private conservation initiatives through technical assistance. In such circumstances, Mitchell (2005) notes that private reserves reflect the social and economic conditions in which they are found. Generally they are most developed in countries with secure land tenure systems that allow private ownership.

### *Promoting the sustainable use of natural resources*

Private lands conservation efforts can protect natural resources on a wide variety of lands, including productive lands that are unsuitable for strict protection, but nevertheless have resources important for sustainable development. Mulder and Coppolillo (2005) indicate that by creating legal methods to balance conservation with extractive uses, private lands conservation tools are used to ensure the sustainability of practices such as forestry, grazing, watershed protection, and recreation, as well as their compatibility with conservation objectives.

#### **2.6.2. Creating incentives to maintain wildlife on private lands**

Private protected areas provide a highly desirable land-use option in areas where no other better options exist in relation to other land uses in such areas. Among the diverse types of private protected areas in existence worldwide, ecotourism-based private game reserves rank among the most common and lucrative (Langholz and Krug, 2004; Langholz and Brandon, 2001). These are privately owned natural areas where tourism serves as the primary business activity. Conservation is another principal objective of private protected areas. Given that natural features (scenery and landscapes) are among the top attractions to private protected areas, Sims-Castley *et al.* (2005) observe that it is not surprising that conservation is a concern here as an intact landscape provides both the resource base to support wildlife, as well as the scenic backdrop to provide a wilderness experience, both of which attract tourists.

According to Chacon (2005), most landowners create private protected areas because they strongly believe in the important values and benefits associated with nature conservation. However, Gitahi (2005a) points out that it requires some big steps from believing that nature conservation is important to making the decision to actually protect land and to sign a written commitment to do so. Chacon (2005: 45) elicits some considerations that landowners take when making these types of decisions including:

- their personal understanding of the importance of protecting nature and their potential role as a private landowner;



- their socio-economic profile;
- the opportunity/ cost of implementing conservation practices in their land instead of continuing with their traditional land use practices;
- scientific knowledge about the conservation value of their land;
- technical support available for sustainable development activities; and
- official support/ recognition obtained from governmental agencies and/ or NGOs.

Though all these variables are very important, Kameri-Mbote (2005b) reports that it is still actually very difficult to convince a significant number of landowners to commit their lands to private protection. The author further asserts that in order to conserve wildlife areas outside protected areas, landowners need to set aside their land for wildlife use and guard it against conversion to uses that are incompatible with wildlife conservation. Consequently, they have to forgo certain economic activities that might be more economically rewarding. In the absence of any compensation for the opportunity foregone, Kameri-Mbote (2005a) highlight that the burden of wildlife conservation outside protected areas would rest primarily on the landowner. This raises the need for a mechanism to compensate the landowner in return for setting aside land. For this reason, it is very important to create incentives to make the protection of private lands more attractive. These incentives may take forms such as tax relief and exemptions, compensation, payment for ecological services, and jurisdictional incentives that increase the security of land tenure (IUCN, 2003c). For example, Chacon (2005) states that in Costa Rica, landowners implementing conservation practices in their land receive an annual payment in cash per hectare they conserve, usually for a period of five years.

Kameri-Mbote (2005a; 2005b) argues that there are few, if any, incentives for wildlife conservation outside protected areas in Kenya. This position is further echoed by Gitahi (2005a) who contend that other sectors of the economy in Kenya such as agriculture receive state subsidies to encourage landowners to invest; but none are given for wildlife conservation. Consequently, this condition results in the loss of wildlife habitat as land is converted to uses that are more lucrative for the landowner. Receiving benefits from nature

conservation is often cited as a primary motivation, especially from tourism activities in private reserves (Mburu and Birner, 2002). For example, the Kitengela Wildlife Conservation Lease Programme in Kenya has demonstrated that appropriate economic incentives can be highly effective in promoting peaceful co-existence of people, livestock and wildlife (Gichohi, 2003; Mburu, 2002). Established in April 2000, the programme provides monetary compensation to land owners in the Kitengela area between Nairobi National Park and Amboseli National Park who agree to keep their fallow land unfenced; refrain from cultivating, building on, or selling the designated land; and actively manage their land for wildlife protection and sustainable livestock grazing. The programme payments to participating households average Kenya Shillings (Ksh) 28 000 (US\$ 400) to Ksh 56 000 (US\$ 800) annually (Gichohi, 2003), a figure close to the income that households earn from rearing livestock. Gichohi (2003) further indicates that since the inception of the programme, the land area covered by conservation leases in the Kitengela has grown from 89 hectares in 2000 to more than 3 500 hectares in 2003 with local landowners offering an additional 5 800 hectares for conservation leasing waiting to join. Partnering with the International Livestock Research Institute (ILRI), the Kitengela conservation leasing programme has empowered the local Maasai community to understand their economic options and see wildlife in a more positive light and to share in the economic benefits that wildlife bring to Kenya as a whole. Moreover, education levels have risen significantly among local children (Gichohi, 2003).

In other instances, Mburu and Birner (2002) show that landowners are also motivated to engage in private protection because their involvement enables them to protect their own property rights, and derive non-cash benefits from infrastructural developments in co-management arrangements with the state and non-governmental conservation organisations. Similarly, Borrini-Feyerabend *et al.* (2000) observe that the co-management approach has increasingly become important because it seeks to create negotiated agreements between the protected areas' managers and local resource users and, therefore, offers a possibility to overcome conflicting interests over resource exploitation. However, according to Kangwana (1993), achieving successful co-management is confronted with many

challenges, one of the most pressing being achievement of effective participation of the landowners or resource users in the management process. Moreover, it has remained unclear as to what kinds of incentives would motivate landowners to become stakeholders of co-management arrangements in nature conservation and maintain their participation throughout the process (Wells, 1994; Wells *et al.*, 1992).

Incentives to create a private protected area need not be financial. This position is echoed by Mitchell (2005: 5) who states that though economic incentives may be essential to motivate people involved in private conservation, “such incentives may never be enough without an ethical inclination or irrefutable imperative to conserve”. The author further observes that many NGOs are known to be motivated by their goal to preserve biodiversity, nature or heritage. Krug (2001) further indicates that some NGOs may derive profit from compatible activities in some reserves and apply the funds to support conservation in other less privileged reserves. Similarly, Rambaldi *et al.* (2005) assert that the creation of a private reserve enables owners to prohibit certain activities like hunting on their property, while in other situations, as Mitchell (2005) indicates, creating a private protected area may entitle the owner to receive technical or other assistance from conservation agencies. Even though incentives have been successful in making private land conservation more attractive for investors and landowners as exemplified in many good examples in the world (Gichohi, 2003), there have been examples where the incentives actually promoted the degradation of natural areas (Coupe *et al.*, 2002). Similarly, Mitchell (2005) observes that in areas of high development pressure, landowners often face negative incentives for conservation, for example, in the United States where high property taxes have forced landowners to develop land against their preference just to meet their tax obligations.

### **2.6.3. Management challenges of private protected areas in Africa**

Private reserves in Africa face potential dangers associated with their vulnerability to local resentment and their fragile legal and political position. Most private protected areas have put in place elaborate and active programmes to address proximate threats to their

management and meet their objectives. Such programmes may include (Sims-Castley *et al.*, 2005: 12):

- establishing anti-poaching monitoring units at the boundaries and gates;
- wildlife-proof fencing to largely contain ‘problem’ animals like jackal, leopard and the monkey;
- removing and eliminating alien invasive vegetation such as prickly pear, jointed cactus, blue gums, lantana, agaves and exotic acacias;
- long-term rehabilitating of previously eroded and degraded areas; and
- preventing soil erosion in areas disturbed by infrastructure development.

Goodwin and Leader-Williams (2002) and Kerley *et al.* (2003) highlight that one of the key challenges affecting the management of private protected areas in Africa is the immense pressure to stock wildlife that tourists expect to see during a trip to Africa, namely charismatic mammals like the “Big five” (lion, leopard, elephant, rhinoceros and buffalo). Therefore, in an attempt to boost the ecotourism potential of the game reserve, the managers are faced with a situation to introduce certain species for the purpose of increasing visibility and diversity of wildlife. This normally involves the introduction of non-native species which are either exotic or extra-limital in their distribution (Castley *et al.*, 2001). The author further points out that inappropriate introduction of species can result in changes of the abundance of native species, as well as modification of vegetation structure all of which have adverse effects on ecosystem function and biodiversity. There is a strong case, therefore, for some kind of conservation entity to set and enforce standards of practice.

Other constraints to the establishment of private protected areas as cited by Sims-Castley *et al.*'s (2005: 13) study on private game reserves in South Africa and relevant to Kenya are:

- *Government regulations and bureaucracy*: This is especially with regards to obtaining building permission and proclamation as a private reserve (as defined by legislation). Private reserves must be recognised by a government entity as having special value for conservation, which provides government endorsement but also

limits the opportunity to create them. The government approval process can be burdensome and time-consuming, potentially discouraging anyone but the most determined conservation owner from gaining this status.

- *Volatility of the tourism market:* Where tourism sustains these reserves, their well-being is easily affected by global and local events, disasters and politics that might affect tourist numbers.
- *Relations with neighbours:* Maintenance of good relations with local communities is important to sustaining any conservancy. Where the relations are poor, it threatens long-term development and success of private protected areas.
- *Lack of institutional support:* While some national assistance is provided in the form of tourism promotion abroad, it is felt that national governments need to acknowledge private protected areas as *bona fide* role players in the regional economy in terms of wealth generation, job creation, poverty alleviation, foreign exchange earnings and biodiversity conservation. This will be an added motivation of establishing protected areas.

#### **2.6.4. Common myths about private conservation**

The IUCN (2003c) suggests that private parks number in thousands and protect several million hectares of biologically important habitats across the world. They continue to proliferate bringing more land under conservation management. Despite this expansion, Langholz (1996 cited in Sims-Castley *et al.*, 2005: 14) highlights some myths about PPAs that limit their support from various actors which are indicated below.

##### *Private protected areas are too small and isolated*

This myth suggests that spatial factors severely limit private protected areas' ability to protect biodiversity over the long-term. The ELI (2003) indicates that private lands conservation actions tend to address areas that are smaller in size than a national park. Studies in Latin America (ELI, 2003; Langholz, 1996; Langholz and Lassoie, 2002) and Africa (Alderman, 1994) have shown that private protected areas tend to be smaller than national parks and other publicly protected natural areas with the African reserves being

much larger than their Latin American counterparts. However, several exceptions exist where many PPAs are larger than nearby national parks. Under these circumstances, Mulder and Coppolillo (2005) observe that government initiatives are typically needed for the conservation of large tracts, where social legitimacy, greater potential for financial resources, and state enforcement capacity may be required.

*Private protected areas depend on tourism revenues*

This myth persists that the world's most viable private protected areas happen to be the ones that host nature tourists. Langholz (1996) asserts that to most private protected areas, there is typical orientation towards meeting the recreational needs of the tourists. Mulholand and Eagles (2002) further observe that this may lead to the development of more physical facilities that may not be in concert with conservation objectives. However, Langholz and Lassoie (2001) point out that not all PPAs are engaged in tourism. For example, the authors highlight privately owned biological stations that focus primarily on long-term research rather than tourism and hunting reserves that protect habitat in the context of sustainable wildlife utilisation schemes.

*Private protected areas are temporary*

It is often argued that private protected areas may be less stable and are likely to have less guarantee of permanence given that the decision to set them up maybe voluntary and depend on the motivation of individual landowners, who may or may not be located in the most important sites for conservation of biodiversity or other natural areas (ELI, 2003; Langholz, 1996). Mitchell (2005) observes that the risk is that land ownership can change, and if it changes, so will the land use. For example, a change of ownership or a change in market conditions could mean a change in use, or changes in government policy could reduce the incentives to keep land under wildlife.

Expanding human populations and increased demand for land could lead to pressure for areas protected for conservation activities to convert to other uses. To alleviate such concerns there is a growing tendency of PPA owners to make formal long-term

commitments to conservation through, for example, entering the private protected area into official government incentive programmes that lasts 15 or 20 years (Langholz, 1996). In such circumstances, the actions of conservation NGOs as well as of international funding agencies tend to focus on priority sites with government incentives limited to areas of conservation importance (ELI, 2003).

#### *Private protected areas do bad conservation*

This myth persists on the reasoning that you cannot trust the private sector. Historically, the private sector has not only failed to conserve its lands but has even contributed to its degradation through extractive practices of a short-term economic nature and habitat fragmentation (ELI, 2003). Many privately protected areas combine conservation with profit. Where the management objective is not conservation, then there is little guarantee that using the area for economic gain will promote biodiversity. Langholz (1996) highlights that there are questionable conservation practices that has emerged over time with activities designed to enhance short-term financial profits at a cost to conservation. Langholz (1996) observes that areas set aside primarily for reasons other than conservation (tourism, hunting or game farming for instance) may help protect wildlife and wild habitats as a side-effect but not as a primary aim. If the objective is not conservation, then there is little to guarantee that using the area for economic gain will promote biodiversity. For example, Jones *et al.* (2005b) explain that in Namibia some game ranches have introduced exotic species from South Africa to increase the number of species available to trophy hunters. Similarly, Sims-Castley *et al.* (2005) mention cases of non-native species introductions motivated by economic gain, with some game ranchers known to reduce predators that prey on game animals that have been bought and introduced to the ranch. Nevertheless, Mulholland and Eagles (2002) point out that even where mostly the drive is profit-making, there is strong recognition that private protected areas must maintain sufficient habitats and species required to attract tourists.

*Private protected areas are owned by rich people*

This myth, according to Langholz (1996), alludes that PPAs tend to be owned by large landholders who are typically more affluent than people who own little or no land. However, there is a rapid rise of community owned private protected areas run in coalitions of small landowners who join forces for conservation and development purposes (Brown and Wycoff-Baird, 1992; Langholz and Brandon, 2001). The benefits to the community include cash payments to community members, while proceeds from ecotourism activities are used to protect wildlife, build schools, provide water and other local projects. An example is the Kitengela Wildlife Conservation Lease Programme cited earlier in this report (Gichohi, 2003) and the Kimana Community Wildlife Sanctuary in Kenya which is owned and operated by local community members that won the Tourism Project of the Year Silver Otter Award under the British Guild of Travel Writers in 1996.

**2.6.5. Private conservation experiences in selected countries**

While the importance of land outside protected areas in maintaining the integrity and viability of protected areas in meeting the conservation agenda has been widely observed by the conservation community around the world (Hulme and Murphree, 2001; Kameri-Mbote, 2005b), Adams and Mulligan (2003) and Barrow *et al.* (2000) observe that the continued availability of wildlife areas outside protected areas boundaries is threatened by the pressures of growing populations and unsustainable land use practices that frequently lead to illegal and destructive encroachment exacerbating further the looming conflicts between wildlife, local people and conservation authorities. These conflicts undermine and threaten the management and effectiveness of the protected areas in meeting the conservation goals.

With over 70% of wildlife in Kenya being found outside protected areas, in private adjacent lands (Kameri-Mbote, 2005a), the following sections highlight and provide lessons from references drawn from Africa, as well as Australia, Brazil and the United States of America on the management of biodiversity components outside government managed protected areas.



### **2.6.5.1. East and southern Africa**

African customary tenure was historically the dominant mode of rights and obligation to land and its resources until colonialism transformed and alienated the shared “commons” into systems of “native trusts”, state and private tenure (Kameri-Mbote, 2005b). These three systems have persisted under African nationalist governance with the general tendency toward the erosion and privatisation of customary tenure. As observed in Quan (2000), classically, the areas with best cropping potential were privatised and allocated to colonial elites. In both East and Southern Africa there has been considerable growth in private area managed for conservation over the past 20 years or more. This growth driven partly by economic forces such as developing markets for wildlife, wildlife products and nature tourism has supported the establishment of privately conserved areas (private parks, private game ranches and community conservancies) characterised by different management objectives, sizes, land tenure arrangements and types of land holders. Below is a typology of terrestrial private conservation areas with their management objectives in East and southern Africa (cited in Jones *et al.*, 2005b: 68).

#### **a. Private game ranches**

*Suggested definition:* Ranches that maintain a viable population of free-ranging, native wild species in extensive natural conditions, and use these as the basis for profit activities.

*Incentive:* Mainly economic including consumptive (for example, safari hunting and meat) and non-consumptive (for example, wildlife-viewing tourism).

*Management:* Run by individual owners or private companies. The areas are usually fenced to ensure animals remain within the ranch and stocked animals remain within the farm.

#### **b. Private conservancies**

*Suggested definition:* Groups of commercial farms, livestock farms, mixed wildlife-cattle ranches or game ranches, where neighbouring landowners (either individual

or communal landowners) pool natural and financial resources for the purpose of conserving or sustainably utilising wildlife.

*Incentive:* Conservation and economic (consumptive and non consumptive tourism).

*Management:* Conservancies have their own constitutions containing a set of legally binding wildlife management and conservation objectives. In recent years conservancy members are increasingly abandoning livestock rearing.

c. ***Private nature reserves***

*Suggested definition:* Areas managed by private individuals, trusts or companies with the primary objective of conserving wildlife and natural habitats.

*Incentives:* Conservation and/ or economic (non-consumptive tourism).

*Management:* management objectives vary from strict protection (non-consumptive use) to the sustainable use of wildlife; the main focus is typically on wildlife-viewing tourism. Usually, these reserves no longer have any livestock on their land and may have removed fences to ensure that wildlife is free ranging.

d. ***Community conserved areas***

*Suggested definition:* Natural and/ or modified ecosystems containing significant biodiversity values, ecological services and cultural values, voluntarily conserved by indigenous, mobile and local communities through customary laws or other effective means.

*Incentives:* Conservation, cultural, economic (consumptive and/ or non-consumptive tourism).

*Management:* Management objectives vary from non-consumptive use (for example, in sacred areas) to the sustainable use of wildlife and other natural resources with management decisions taken by community leaders or specially formed management bodies. Wildlife often moves between state-run protected areas and neighbouring community conserved areas. Often wildlife is managed alongside livestock and crop farming, and sometimes in areas specifically set aside

for wildlife and tourism. Wildlife often moves between state-run protected areas and neighbouring community conserved areas.

In both East and southern Africa, Jones *et al.* (2005b) note that conservation cannot divorce itself from broader political issues such as poverty, population growth, hunger, land reform and land redistribution. Similarly, Gitahi (2005a) and Kameri-Mbote (2005b) further recognise that conservation has to compete with other forms of land use like agriculture that provide food, jobs and livelihood security. This realisation has led governments across the two regions to introduce policies and legislation that enable local communities to use wildlife sustainably and reap economic benefits that make wildlife an attractive form of land use. However, Jones *et al.* (2005b) note that the issue of equity in land distribution remains an important challenge to privately conserved areas in East and southern Africa where land reform and redistribution is crucial. Some of these issues are discussed below.

### ***East Africa***

The Dryland Biodiversity Network for Eastern Africa (DBNEA, 2006) points out that East African countries share a common natural resource heritage of vast dryland areas that covers about 60% of the region. These areas hold a quarter of the regions human population, and support half of livestock and the bulk of the celebrated wildlife resources. Kameri-Mbote (2005a) and Muruthi (2005) similarly highlight that dryland communities rely on biodiversity particularly wood and non-timber goods and services for livelihoods, poverty reduction and development. Despite this important role, Gitahi (2005a) and Kameri-Mbote (2005b) observe that these areas have not attracted commensurate investment or attention in national development or foreign assistance. Information and knowledge on sustainable natural resource management are often incomplete or at times lacking (DBNEA, 2006). Of particular concern is the lack of a strong base for promoting training and capacity building of scientists and institutions on sustainable natural resource management through transboundary research networking and partnerships among the countries of East Africa.

Classical natural resource management systems in East Africa have collapsed, exposing biodiversity to plunder and waste (DBNEA, 2006; Kameri-Mbote, 2005b). This has led to unsustainable resource use, biodiversity erosion and environmental degradation. Muruthi (2005), Hulme and Murphree (2001) and Western *et al.* (1994) observe that wildlife stray from degraded parks into community ranches, competing with domestic animals, thus forcing communities to bear a heavy brunt of biodiversity conservation without accessing benefits. These factors have in turn heightened the state of poverty, famine, food insecurity, social unrest, growing incidences of human deprivation, environmental degradation and widespread loss of lives and animals, compromising rural people's livelihoods and reducing their willingness to support conservation (Coupe *et al.*, 2002). The DBNEA (2006) states that the Eastern African drylands have the highest incidences of poverty that range from 50-80% in drylands, compared to below 40% in wet areas, portraying a bleak future that continues to be exacerbated by in-migration from crowded wet areas and inappropriate land use practices.

According to Kameri-Mbote (2005a), wildlife laws and policies offer few or no incentives to the custodians of biodiversity in the East African countries, and thus provide limited tools for achieving the broader goals of conservation and promotion of sustainable development and equitable sharing of the resulting benefits. The author further points out that the general approach of protection and management of wildlife resources is through "legislation that takes a command and control approach entailing heavy presence of the government to ensure compliance with the set standards" (Kameri-Mbote, 2005a: 2). Similarly, Odhiambo (1996) contends that conservation agencies for both wildlife and forests in most of Africa have indeed remained paramilitary and uniformed with a sizeable amount of their budgets devoted to law enforcement. Jones *et al.* (2005b) indicate that most privately conserved areas in East Africa are in Kenya and Tanzania, where partly large areas of suitable wild habitat, although under threat, still exist outside protected areas. The author similarly observes that in these countries, the implementation of policies and legislation enabling local communities to benefit from wildlife use is the furthest developed. In response to declines in wildlife population and also due to economic

opportunities through wildlife-based tourism, community and individual land holders in East Africa have embraced private conservation and allocated land for wildlife and wild habitats.

### ***Kenya***

Kenya's wildlife, as observed earlier in this study, is preserved in protected areas in which human settlement is prohibited and land use restricted to wildlife conservation (WCMA, 1976). The conservation of wildlife outside national parks and reserves is critical to biodiversity conservation in Kenya and of major importance to the Kenya Wildlife Service. Unlike its East African neighbours, Barrow *et al.* (2000) observe that Kenya allows individuals and non-governmental organisations to own large chunks of wilderness land, whether in the shape of private ranches, or more recently as wildlife conservancies belonging to non-profit Trusts. The GoK (1975), Kock (1995), the Laikipia Wildlife Forum (LWF, 2006) and Western (1997) point out that over 70% of wildlife in Kenya is found outside the state-run protected areas, in adjacent lands. Strategically, these lands provide habitat for wildlife as well as connectivity routes between various protected areas in their seasons. Examples of such areas that affirm the importance of lands outside protected areas for wildlife conservation include the Amboseli National Park where wildlife species such as wildebeest, zebra and African buffalo move within the park and adjacent group ranches between the wet and dry seasons (Western, 1983). This position is further echoed in Western (1997) where it is contended that in the absence of these adjoining ranches, the Amboseli National Park would not survive.

The KWS (2005) and Western (1989) indicate that one of the biggest challenges facing wildlife conservation in Kenya is how to encourage private landowners to manage rangelands in ways that allow seasonal migration of grazing animals while also providing local income and livelihoods. Gitahi (2005a) points out that wildlife is the lifeblood of the tourism industry in Kenya, one of the country's largest earner of foreign exchange, but detested by the local people for wreaking havoc on farms and ranches near the public reserves (Muruthi, 2005). Hulme and Murphree (2001) and Western *et al.* (1994) observe

that the presence of wildlife often creates uncompensated financial losses for local people, who share few if any tourist revenues or other wildlife-related benefits. According to Gitahi (2005a: 122), Kenya does not have a comprehensive policy regarding land use, and “the existing legislation is disjointed and poorly enforced”. Consequently, there is little to ensure that land outside protected areas is used in ways that allow wildlife conservation. Muruthi (2005) and Okello *et al.* (2003) further observe that increased settlement activities have extended into land that used to be part of national parks and reserves, seasonal migratory paths and game corridors leading to intense conflict between wildlife and the surrounding communities. Similarly, Kristjanson (2002) and Okello *et al.* (2003) further point out that these lands are rapidly being subdivided, fenced and converted to other uses such as agriculture and urban development. Other factors contributing to habitat conversion include sub-division and fencing of land coupled with inequality in land distribution (Rutten, 1992) as well as inadequate alternatives to agricultural activities for an increasing human population (Esikuri, 1998). In light of government policies and changing environmental as well as socio-economic conditions that discourage nomadism and encourage sedentary lifestyles in the rangelands (Gitahi, 2005a), these circumstances have resulted in drainage of wetlands, irrigation, farming along riverbanks, conversion of forest into farmland, overstocking and overgrazing in pastoral areas creating competition for pasture between livestock and wildlife. Esikuri (1998) states that habitat loss in the arid and semi-arid areas in Kenya destroys dry season fallback zones for wildlife and limits survival options of wildlife populations, consequently, forcing wildlife to migrate to other areas or even become extinct. It is therefore important to find mechanisms to conserve critical wildlife areas found outside protected areas.

Private and community conservation initiatives have been part of a larger effort by Kenya Wildlife Service officials (often accused of overlooking the needs of impoverished landowners in favour of conservation) to reverse the decline in wildlife by persuading rural people that they have more to gain by protecting the animals than by killing them (KWS, 2004; 1994; 1992b). To facilitate conservation of biodiversity outside protected areas, and involve local communities in wildlife management in communally owned areas, a

Community Wildlife Service department was established in 1992 and incorporated within the organisational structure of KWS (KWS, 1990, 1992b). This initiative of turning community lands into for profit game parks was an approach championed by David Western, the then director of Kenya Wildlife Service. The problem facing conservationists, he maintains, is that with more than 70% of Kenya's wildlife ranging outside the public reserves, “the biggest ignored issue is the cost of wildlife to the landowner” (Western, 1997: 22). The Community Wildlife Service department was charged with ensuring good management of wildlife outside protected areas for the benefit of communities who interact with wildlife, to create trust and dialogue between KWS and those communities, help communities benefit from wildlife and protect them against losses caused by wildlife, and also initiate collaboration with other sectors concerned with land use (KWS, 2005; 2004; 1992b).

The most common form of tenure arrangement for privately conserved areas in Kenya, according to Jones *et al.* (2005b: 69), is the “group ranch”. A number of group ranches have adopted various forms of conservation management on all or part of their ranches. Some have formed Wildlife Associations in recognition of the need for extensive range areas to make wildlife a sustainable form of land use (Barrow *et al.*, 2000). Such associations have been successful in halting habitat loss and in demonstrating that wildlife can earn significant incomes as part of an integrated land use approach. The Laikipia Wildlife Forum (LWF, 2006), a non-profit organisation provides a good example where 36 large-scale ranches, 47 community group ranches, and a number of tour operators, individuals and interest groups have come together with the primary objectives of maintaining ecosystem integrity and processes, the establishment and development of community conservation projects in wildlife dispersal landscapes, and the development of wildlife enterprises. Jones *et al.* (2005a) point out that other group ranches in Kenya have set aside parts of their land as wildlife sanctuaries. An example is the Kimana group ranch which set aside an area known as the Kimana Community Wildlife Sanctuary located in a critical wildlife corridor between the Amboseli and Tsavo West National Parks. According to Barrow *et al.* (2000), this sanctuary was established to help generate tourism revenues

for the local community, as a better option to use land that was unsuitable for agriculture and to maintain an important wildlife corridor.

Another mechanism for enlisting community and land owner support for wildlife management outside government protected areas was through “granting wildlife use rights in a pilot wildlife utilisation scheme started in some areas in 1992” (Kameri-Mbote, 2005a: 8). To obtain wildlife use rights, the KWS and AWF (1995) state that one had to be a private landowner or a community having rights to a piece of land, provide KWS with a wildlife management plan, a map of the ranch and results of a recent game count and indicate the quota applied for. Possible proposed uses for wildlife in the ranch included cropping, hunting for home consumption, live animal capture for translocation, bird shooting, and game farming. Use rights were granted to individual ranches or associations of ranches for an initial five years and could be renewed (KWS, 1992a). This project was terminated ten years later in 2002 without alternative incentives being provided to communities and landowners. Consequently, the landowners and communities have since been clamouring for changes in the law to allow them to benefit from wildlife resources on their land. A policy review of wildlife conservation completed in 2004 (KWS, 2004), accepted in principle that some form of consumptive utilisation of wildlife needs to be provided for as a way of devolving user rights and giving incentives to property holders to participate in wildlife management activities. Similar recommendations are made in the KWS Strategic Plan, 2005-2010 (KWS, 2005), Okech (2007) and Sindiga and Kanunah (1999) that sustainable utilisation and regulated use of some resources be allowed in the protected areas.

### ***Tanzania***

Tanzania is noted for its biological diversity and extensive system of protected areas featuring savanna grassland ecosystems and tropical moist ecosystems. It is noteworthy that wildlife resources traverse terrain that is owned by different entities (Kameri-Mbote, 2005a). For example, the wildlife dispersal areas adjoining Serengeti National Park in Tanzania and Masai Mara National Reserve in Kenya that is famous for the annual



migration of wildebeest and attendant predators; and the Longido plains in Tanzania, Amboseli National Park and Tsavo West National Parks in Kenya that are all linked by land that provides migratory routes for elephants between the Parks (Douglas-Hamilton, 1998; Gitahi, 2005a; Western and Ssemakula, 1981). Accordingly, Kameri-Mbote (2005a) asserts that such transboundary resources require that each country's ownership and governance rights be taken into consideration when developing wildlife resource management legislation and policy.

Wildlife in Tanzania occupies over 25% of the country's total land area with 12.1% of it under protected status (WDPA, 2005; Table 2.2). From the 1970s, Tanzania's protected areas have come under increasing threat from a combination of human activities, particularly the human population which has been changing in terms of its size, density and livelihood strategies. Mwamfupe (1998) notes that these threats are observed among the pastoralists who occupy much of the fragile semi-arid parts of Tanzania, and also the cultivators who have been expanding their activities into more marginal lands in response to land shortages.

The government policy in Tanzania encourages the establishment of wildlife conservation outside government conservation areas and the transfer of management to local communities in corridors, migration routes and buffer zones (Barrow *et al.*, 2000). The United Republic of Tanzania's (URT) National Environmental Policy (URT, 1997) seeks to ensure protection and utilisation of wildlife resources is in a sustainable manner. Among the stated objectives of the more specific Wildlife Policy of Tanzania (URT, 1998) are the continuance and establishment of protected areas, promotion of conservation outside the core areas, the devolution of wildlife management roles to local communities and the prevention of illegal use of wildlife. Other policies relevant to wildlife conservation in Tanzania include National Policies for National Parks (NPNP) and the National Land Policy (NLP).

One of the most innovative concepts introduced by the NPNP policy document is the integration of the communities surrounding wildlife areas in the planning and benefit sharing of wildlife resources (Makaramba, 1998). The NLP (URT, 1995) addresses matters of land use and tenure. This policy also deals with the question of overlapping land uses in wildlife conservation areas and the conflicts between wildlife, human settlements and agriculture. The policy for Wildlife Conservation was put in place in 1998 to form the basis for reforming wildlife laws. One of the core policy objectives of wildlife protection contained in the document as pointed out above (URT, 1998) is to transfer the management of wildlife management areas to local communities and thereby ensure that the local communities obtain substantial tangible benefits from wildlife conservation. A revised Wildlife Act (URT, 2004: 308) makes provision for the devolution of wildlife management tasks from the central state to communities and the private sector with Section 3 of the Act providing that the ownership of wildlife is vested in the government “on behalf of and for the benefit of the people of Tanzania”.

Tanzania appears to rival Kenya in relation to wildlife conservation and management legislation with a successful integration of the state, local communities and the private sector in ecotourism activities (Kameri-Mbote, 2005a; Okech, 2007). Given the transboundary linkages of biodiversity between the two countries, Kenya has benefited from conservation lessons in Tanzania, for instance, the Kenya Land Conservation Trust was modelled with reference to the successful Tanzania Land Conservation Trust (AWF, 2003; Gitahi, 2005b).

### ***Southern Africa***

In most southern African countries like Botswana, Namibia, South Africa, Zambia and Zimbabwe, Jones *et al.*(2005b) point out that dual tenure systems are in place with large areas of land under communal tenure (usually state-owned land to which residents have user rights), and large areas of land also under freehold title. The author further points out that in these countries much of the freehold land was historically developed for cash crop farming and/ or livestock ranching. However, Bond *et al.* (2004) observe that driven largely

by market forces, many freehold farmers have moved from livestock to both mixed livestock and wildlife, or exclusively to wildlife, with other large tracts of freehold land developed by ecotourism companies for wildlife and wilderness-based tourism. Similarly, Jones *et al.* (2005b) contend that some freehold farms are now operated as game ranches where the land is used exclusively for production of wildlife for consumptive and non-consumptive use, while others are combined into large units called conservancies, where land owners pool their land and other resources for the conservation and sustainable use of wildlife.

### ***South Africa***

South Africa enjoys a vast diversity of natural resources and a well-developed network of protected areas (Dieke, 2001; WDPA, 2005). Chellan and Khan (2008) point out that during apartheid, the majority of people were prevented from enjoying the benefits of formal conservation areas, often bearing the costs associated with removal and exclusion from parks. With the advent of democracy in 1994, Holden *et al.* (2006) observe that institutional restructuring was undertaken at the level of the national parks agency and innovative legislation introduced that was geared towards achieving the dual goals of biodiversity conservation and social justice. In particular, the government has attempted to ensure that those communities that were subjected to vicious social injustices and exclusion from land ownership and rights have these restored (Department of Land Affairs, 1994 cited in Chellan and Khan, 2008: 269). The Protected Areas Act of 2003 makes provision for the development of local management capacity, implementation of co-management agreements, a consultation process, delegation of powers to local communities, benefit sharing and sustainable natural resource use.

The principal motive and incentive of private game reserves in South Africa is tourism activities with the main attractions being wildlife, the scenery and landscapes, and the accommodation and hospitality service. Van der Waal and Dekker (1998) note that South Africa's wildlife industry has developed into a multi-million dollar industry, a position echoed by Eloff (1996) who contend that the industry has become a major foreign currency

earner with positive opportunities for employment creation, ecotourism and biodiversity conservation. Goodwin and Leader-Williams (2000), Kerley (2003) and Hulme and Murphree (2001) point out that the conservation policies and the tourism market in most private game reserves in South Africa have focussed on the more charismatic species exemplified by the “Big five” (lion, elephant, rhinoceros, leopard and the buffalo) which are used as the top attraction to the private game reserves.

A survey carried out by Sims-Castley *et al.* (2002) on private game reserves in South Africa indicates that ownership of private game reserves in the country is mainly in the form of registered companies with multiple shareholders. In some instances, individual landowners have formed co-operative partnerships with their neighbours. Previous land uses on the private game reserves include livestock farming (beef, dairy), small stock farming (sheep, goats) or a combination with a minimal amount of cultivation. The study further points out that setting up a private game reserve in South Africa is a costly undertaking, requiring an initial outlay of anywhere from US\$ 1.3 million to as much as US\$ 7.8 million (on average US\$ 4.6 million). Capital expenditures associated with establishing a private game reserve as noted in the survey include: land acquisition, construction of buildings (for example, offices, hotels and lodges), wildlife management (for example re-introduction of species), infrastructure development (for example, roads, water provision and fencing), acquisition of equipment (for example, vehicles and radios), landscaping (for example, rehabilitation of eroded areas and removal of alien species), and costs of the transition and marketing.

Supported by a strong economy and sophisticated transportation network, private game reserves in South Africa have significantly contributed to improved local economic empowerment through increased on-site employment opportunities with an average annual salary of US\$ 4 064 per employee (Sims-Castley *et al.*, 2002: 10). Employees also receive additional benefits such as modern accommodation, food, training, children transport to school and grazing locations for their livestock.

### ***Botswana, Namibia, Zambia and Zimbabwe***

In Botswana, Namibia, Zambia and Zimbabwe, dual tenure systems are in place with most of the land under communal customary tenure. The African Wildlife Foundation (AWF, 2003) observes that customary authorities can provide private access to community land but should the investor desire formal legal protection, the customary right of access can then be processed to leasehold status.

Colonial southern Africa favoured the private settler farmer and the countries with most settlement witnessed the greatest alienation of customary lands. In both Zimbabwe and Namibia, communities were left with some 45% of the less productive land area (Lahiff, 2003). Botswana and Zambia endured far less alienation and local communities retained more land under customary tenure, albeit under colonial and later state regulatory control (Cassidy, 2000). The establishment of the Communal Area Management Programme for Indigenous Resources (CAMPFIRE) in Zimbabwe ensured more effective local management of natural and wildlife resources, whilst providing tangible benefits to communities (Dieke, 2001). However, the lack of secure property rights and land seizure programmes of wealthy commercial farmland in Zimbabwe in 2000 that was pursued as a means to address wealth and social inequities have had devastating impacts on the economy and biodiversity conservation (Craig, 2004). In Botswana, Holden *et al.* (2006) highlight that the Policy on Wildlife Conservation of 1986 calls for local people to gain benefits from wildlife use and to be more involved in wildlife management, while the Wildlife Conservation and National Parks Act of 1992 provides for the declaration of Wildlife Management Areas and Controlled Hunting Areas, providing for permission for wildlife use on communal land.

Dieke (2001) recognises that South Africa and other southern African countries that include Zambia and Botswana are endowed with considerable natural landscapes and a well-developed infrastructure and support services. Such strong support and a relatively more organisationally developed and financially supported infrastructure, has resulted in greater success in conservation efforts in these countries. In a reflection of the Kenyan situation, it is therefore imperative for the government of Kenya to adopt and develop strong local

institutions and generate support for both economic development and environmental conservation.

#### ***2.6.5.2. Private conservation lessons from other countries outside Africa***

##### ***Australia***

Australia is largely an arid continent of poor soils subject to variable climatic events, and, due to its long isolation, vulnerable to invasive plant and animal infestations which undermine biodiversity in even the most remote areas (Commonwealth of Australia, 1996). An assessment by the Australian Terrestrial Biodiversity Assessment (ATBA) in 2002 (Commonwealth of Australia, 2002) highlighted that since European settlement, Australia has been responsible for a third of the mammal extinctions worldwide with many other organisms listed as threatened and many different types of ecosystem considered at risk.

In the beginning of the 1990s, the government and non-government conservation agencies in Australia like other parts of the world realised that the much adored traditional protected areas alone could not achieve the formidable task of biodiversity conservation (Figgis *et al.*, 2005). Private land conservation in Australia was boosted largely by the increasing realisation that biodiversity existed across tenures and the threats to its integrity did not respect boundaries. Several aspects highlighted by Figgis *et al.* (2005: 19) that reinforce this reality include:

- 70% of Australia is in private lands, either as freehold, leasehold or aboriginal-owned;
- many of the most threatened ecosystems exist only on private lands; and
- the threatening processes which are propelling the biodiversity crisis are not confined to protected areas and cannot be addressed in parks alone.

It has therefore become important to find better and more innovative ways to protect biodiversity across all land tenures. Binning and Feilman (2000) observe that all three levels of government in Australia (national, state/ territory, local) have produced a range of

initiatives to encourage conservation on private land. The approaches range from voluntary programmes for retaining vegetation and wildlife, to contractual agreements to protect ecologically important sectors of a property, to binding covenants on land title. Figgis (2004) further points out that incentive methods and market based instruments are also emerging to encourage land holders to conserve particular areas of native vegetation on their lands. Most states in Australia have set up some mechanisms for private land owners to declare their land wildlife refuges. A model which has proliferated in the last decade is “Land for Wildlife”, a voluntary scheme which encourages landowners to conserve their land and foster wildlife protection (Figgis *et al.*, 2005).

Smyth (2006) indicates that indigenous protected areas (IPAs) are also a highly significant area of private lands in Australia that operate within the internationally recognised IUCN protected areas guidelines. For example, the author notes that 20% of the terrestrial protected areas in Australia comprise IPAs. Similarly, Figgis *et al.* (2005) observe that in the Northern Territory alone some 43% of land is indigenous Aboriginal title. The IPAs are attractive to the Aboriginal land owners because they bring management resources without a loss of autonomy, provide public recognition of the natural and cultural values of aboriginal land, and recognise the capacity of indigenous people to protect and nurture those values (Smyth, 2001). Figgis *et al.* (2005) observe that Aboriginal land management such as patch burning and maintenance of water holes is increasingly understood as integral to maintaining biodiversity, while the ecological importance of indigenous protected areas is enhanced by their large-scale and relative lack of disturbance.

### ***Brazil***

Brazil is among the richest countries for biodiversity, sheltering two global hotspots: the Atlantic Forest and Savanna, and a wilderness area, the Amazon Forest (Mittermeier *et al.*, 2002). The country has a number of strong laws regarding private lands conservation that are both of a mandatory and voluntary nature. The Brazilian Forestry Code (Rambaldi *et al.*, 2005: 30), promulgated in 1934, mentioned the establishment of private protected areas, or “protection forests” and defined them as preserved forest areas in private lands.

According to Rambaldi *et al.* (2005), land in the protection forests was restricted and property rights could not be transferred to others, which made this instrument unattractive to landowners. The ELI observes that in 1965 the Forestry code was reviewed and the protection forest arrangement was replaced by legislation that requires rural private landowners to keep at least a certain percentage of private property as a Nature Reserve, where economic uses are permitted but vegetation must be kept (ELI, 2003).

The precursor of the current private reserves existing in Brazil was the proposal by private landowners from southern Brazil in 1977, to designate private lands to be protected from hunting, a common problem in the entire country (Diegues, 2000). The federal government created the Private Wildlife Refuge, a private property where hunting is prohibited by the landowner through a specific Act of the government. Later, in 1990, the Brazilian Environment Agency developed the designation of Private Natural Heritage Reserve (Rambaldi *et al.*, 2005), establishing regulations as well as restrictions on land use and benefits to landowners. The main innovation on private reserves in Brazil, according to the ELI (2003) and Young (2005), was a land tax exemption status over the protected area and priority on bank loans and agricultural credits; with the property rights now transferable to others, through succession rights, purchase or donation. After 1996, the concept and principles of private reserves in Brazil became more formalised, accessible and clear to the landowners, the federal and state governments and to conservationists at large.

The Brazilian National System of Protected Areas (NSPAs) was officially established in 2000 by federal law (Rambaldi *et al.*, 2005). Here, protected areas were classified into two groups: strict protection and sustainable use. Areas of strict protection have preservation as the main purpose, and few uses are allowed while those under sustainable use category are designed to balance nature conservation and sustainable use of part of the natural resources. Under the NSPAs, private reserves belong to the sustainable use category. The designation is defined as “a private area, protected in perpetuity, with the objective of conservation of biological diversity” (Mendes, 1997: 16). The activities allowed within these reserves are scientific research and public access for tourism, recreation and education. However,



designation does not mandate such activities, which is the prerogative of the landowner, who maintains full membership and may keep the area private or provide public access (Rambaldi *et al.*, 2005). Mendes (1997) asserts that an area may be recognised by the government as a private reserve in whole or in part, at the discretion of the landowner. According to Schneider and Diewald (2008), there are no limits on the size of the area to be recognised for in practice, they vary from less than one hectare to thousands of hectares depending on the representativeness of the area, the legal situation concerning property rights, and ultimately, the owner's wishes. The area can also be in different states of conservation and land use is also defined by the owner but within the government conservation legal framework (Mendes, 1997). If the rules established by the National System of Protected Areas are violated by the landowners and conservation of natural resources are at risk, the protected area can be expropriated by the government and the landowner may be subject to penalties or even criminal prosecution (Rambaldi *et al.*, 2005).

### ***United States***

The US system of national parks is well recognised around the world, with the Yellowstone National Park created in 1872 often cited as the world's first national park (Bernstein and Mitchell, 2005; Mulder and Coppolillo, 2005). An extensive network of private, non-governmental protected lands evolved in the United States over the same period towards the end of the 19<sup>th</sup> century. Both the public and private protected area initiatives began as efforts to preserve special areas for the benefit of the public. Aldrich (2003 cited in Bernstein and Mitchell, 2005: 49) points out that most of the private land conservation arrangements were negotiated and initiated by specialised charitable associations called 'Land Trusts'. Brewer (2003) further observes that these Land Trusts and related private conservation initiatives developed in parallel with public conservation efforts, mainly in the east where most land was privately owned, while national parks and reserves were first formed primarily in the west, where the majority of land was held by government. Private reserves were created either through purchase or donation of the land. Typically, Aldrich (2003) states that Land Trusts and similar organisations purchase property and either manage it themselves, or donate or sell it to a government entity for conservation purposes.

Another approach to private land conservation in the United States is through ‘conservation easements’ (Bernstein and Mitchell, 2005). This involves securing partial legal interest in the land, rather than full ownership, for purposes of nature conservation and heritage preservation. The United States Uniform Conservation Easement Act issued in 1981 (US-UCEA, 1981: 5) defines a conservation easement as:

*... a non-possessory interest of a holder in real property imposing limitations or affirmative obligations to protect natural, scenic, or open-space values of real property, assuring its availability for agricultural, forest, recreational, or open space use, protecting natural resources, maintaining or enhancing air or water quality, or preserving the historical, architectural, archaeological or cultural aspects of real property.*

Public agencies in the United States are heavily involved in private land conservation with many state environmental agencies acting just like Land Trusts in purchasing and holding easement over private lands (Aldrich, 2003). Also, there are many concrete instances of public-private collaboration, especially at the local level to preserve open space, landscapes and rural lands. Major economic incentives for private lands conservation in the United States, as noted in the ELI (2003), include federal and state funds for land purchase and conservation, often financed by public bond issues, land ordinances, tax laws and bond initiatives to purchase open space.

## **2.7. Conclusion**

Where and when the concept of protected areas works best is still largely debatable. As a party to the CBD, the Kenyan government has recognised the need to conserve natural resources for the benefit of present and future generations. Like in most developing countries, protected areas in Kenya remain the strongest tool for managers interested in conserving biodiversity. However, the conviction for linking protected areas with socio-economic rural development to a level that can benefit both the rural people and enhance biodiversity still remains elusive. In most cases the protected area systems initiated inevitably favour some individuals or groups of people more than others, and the rural communities have tended to be among those who are most strongly disadvantaged. A

concerted effort by the government of Kenya is required to address this challenge through the realisation that no protected area is an island, and people and conservation cannot be separated. Fundamental changes in government policies and institutional frameworks need to focus on integrating socially responsible management approaches of protected areas in biodiversity conservation with improvement of local communities' livelihoods.

In certain circumstances, rigorous strict protection remains a critical conservation strategy essential to achieving conservation goals, particularly where and when increased human pressures are found to significantly threaten biodiversity. However, this may not be feasible in areas where human settlements and other activities are long in place. Such areas have to adopt conservation measures that foster local residents' attitudes to conserve and categorise protection that allows some degree of multiple utilisation and promote measures which safeguard species that qualify as globally threatened with extinction. Privately conserved areas are forming important components of broader landscape conservation approaches in the world. Many have viable populations of species and protect a variety of natural habitats that would otherwise be converted to other forms of land use as well as trying to restore degraded land. Within the current trend of liberalisation and formalisation in land tenure systems around the world it is envisaged that private protected areas establishment will expand.

In many cases, privately conserved areas have been established adjacent to government reserves. This is because many such reserves are unfenced and wildlife roams freely across neighbouring land, and also because proximity to government reserves provides opportunities to take advantage of existing tourism routes and destinations. Although there is a favourable policy environment for privately conserved areas that provides incentives to keep land under wildlife, policy and legislation are often not fully implemented by officials, many of whom believe that wildlife belongs to the state. For instance, the land seizure policy adopted by the Zimbabwean Government in recent years and the recent political tensions and violence over land ownership in Kenya discussed earlier in this study illustrates some of these issues.

## CHAPTER THREE

### CONCEPTUAL AND THEORETICAL FRAMEWORK

#### 3.1. Introduction

Biodiversity has become a prominent term in the discourse of sustainable development. The conservation of biodiversity, particularly through the creation and management of protected areas is now considered a key issue that is inherently dictated by a complexity of dynamic institutional rules, norms and policies that are both formal and informal (Geoghegan and Renard, 2002). Gibson *et al.* (2005) and Ostrom (1999) observe that these institutions and organisations regulate and guide the interactions between people as well as their uses of and relations with natural resources and prohibit or restrict access to, and use of certain resources. Similarly, Adams and Hutton (2007) maintain that the relationship between people and nature particularly in the context of protected areas is highly political, embracing issues of rights and access to land and resources, and the role of the state and other non-state actors such as non-governmental organisations (NGOs) and the private sector.

Although biodiversity conservation issues are generally embedded in ecological, economic, political and social contexts, in most cases, reported studies often focus only on one of these aspects (Brown, 1998). In an attempt to understand and conceptualise the interactions of humans and nature, Schubert (2005) asserts that scholars in different disciplines such as development studies and conflict management studies have produced a variety of approaches each with different results and, ultimately policy recommendations, without a theoretical consensus. The author notes that the multitude of different theories on human-environment interactions call for a review to facilitate research on sustainable development, natural resource management and resource conflicts. This chapter looks at the emerging principles in the conceptual framework for conservation of biodiversity. The thesis is conceptualised within the context of political ecology as articulated by Adams and Hutton (2007) which has emerged as one of the promising approaches in analysing the interactions

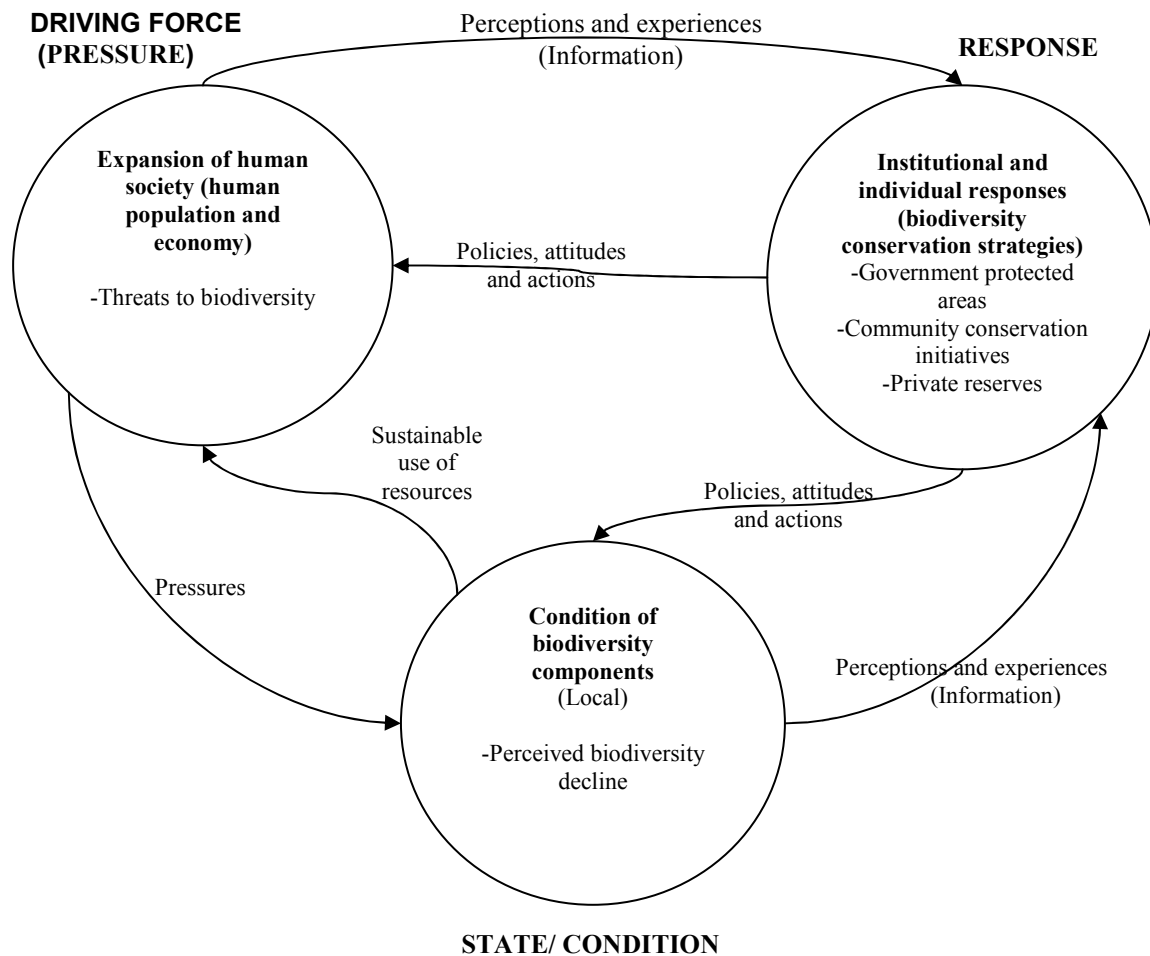
between humans and the environment (Schubert, 2005), and draws from the Driving force (Pressure)-State-Response (DSR) theoretical variant model developed by the Organisation for Economic Cooperation and Development (OECD, 1993) and used by the United Nations Commission for Sustainable Development (UNCSD, 1995) to explore the state of local biodiversity and conservation strategies, the relationship between biodiversity conservation institutions and the local communities, the critique to the conventional protected areas, and the shifts in conservation practice, particularly towards private and community conservation. The stakeholder approach is also discussed in relation to the perceptions of different interest groups to understand the underlying social, economic and environmental dimensions with regard to the concepts of biodiversity conservation and sustainable development.

### **3.2. The Driving force-State-Response (DSR) Framework**

The main drivers of biodiversity decline and related conflicts vary across sites and communities and are characterised by different degrees of attitudinal, behavioural and response-related indices. Brown (1998: 82) observes that different perspectives, interests and influences of various groups produce a number of different responses that affect the “scale of influence” on conservation and development policy. For instance, citing a case of resource utilisation in Nepal, the author argues that those with greater scale of influence have the greatest input into policy formulation while local users (with narrow scales of influence) have negligible input into these policies which directly impact on their livelihoods. Similarly, Bob and Moodley (2003) assert that the impact of global forces and processes on the natural resource base, particularly in the developing countries, has profound impacts among households whose livelihoods are dependent on access to natural resources. Thus, competition for resources among individual users, divergent perceptions and institutional responses can influence the sustainable management of natural resources.

The DSR framework (Figure 3.1) conceptualises that human activities exert pressures on the environment bringing changes that alter the state or condition of the environment. The human responses to these changes include any organised behaviour which aims to reduce,

prevent or mitigate undesirable changes. The focus of biodiversity conservation strategies is therefore to relieve perceived pressure on resources by encouraging the more sustainable use of resources in line with the new conservation paradigm which sees conservation and development as synergistic (Wells, 1994).



**Figure 3.1: The Driving force (Pressure)-State-Response Framework**  
*Source: Modified from the OECD (1993) and UNCSD (1995) DSR model*

The flow chart shows the relationships between the perceived state of the local biodiversity, pressures on the biodiversity components, perceptions of the state of biodiversity, and responses by society to those perceptions. The chart illustrates that, *resources* from the environment flow into the pressure component. According to Swanson (1998) and Wells *et*

*al.* (1992), pressures are human induced resulting from the expansion of human society (human population and economy). Examples are land conversions, mining, hunting, logging and grazing (categorised as threats to biodiversity) and drivers of the threats such as the socio-economic situations of the local people and government policies (Salafsky and Wallenberg, 2000). This argument assumes a neo-Malthusian explanation of global loss of biodiversity by associating it with pressure on resources from the increasing human population that consequently leads to scarcity of resources (Brown, 1998; Schubert, 2005). *Information* (human perceptions and local experiences) about the pressures and state of biodiversity components determine the type of *responses* to take in addressing the perceived problem. Aboud (1992) maintains that human experiences with environmental degradation and depletion of resources will produce a heightened awareness of environmental problems, which will in turn encourage them to make decisions regarding the adoption of one or a combination of response strategies to address the resource loss.

The perceived state and condition of local biodiversity components reflect pressure and the effectiveness of responses. Such perceptions influence the response of society to the state of biodiversity components. Borrini-Feyerabend and Brown (1997) assert that groups within society will respond differently through policies, attitude and actions. Salafsky *et al.* (1999) notes that conservation projects can be thought as one or more interventions designed to counter threats to the biodiversity at a given site. Well-designed conservation projects use a mixture of different strategies or interventions to combat the threats. The model (Figure 3.1) indicates that institutional and individual responses to biodiversity decline include the establishment of protected areas by the state or private sector and community conservation initiatives. Societal response in turn influences both the state of biodiversity and the pressures that act upon the biodiversity components. An inappropriate human response or lack of action can be a pressure while appropriate responses will reduce pressures (Environment Australia, 1997).

### **3.2.1. Driving forces of biodiversity decline**

Driving forces include the economic, social and institutional aspects of sustainable development and may reflect either positive or negative impacts. Bond *et al.* (2004) and Murphree (1991) observe that human activities exert pressure on the environment, changing the quality and quantity of natural resources. Similarly, Swanson (1998) points out that inappropriate government, social, political and economical policies that have allowed the opening of ecologically unviable areas for human resettlement and farming, contribute immensely to habitat degradation and fragmentation. Swanson (1998) associates biodiversity losses with the enhancement of development programmes in and around protected areas, and underdevelopment of certain segments of the surrounding communities.

#### ***3.2.1.1. Economic driving forces***

Economic processes are fundamental to understanding resource degradation. Krautkraemer (1998) asserts that natural environments are converted either to enhance production and consumption of material goods and services, or as an alternative asset that earns a greater return to the party responsible for the conversion. Economic growth can have both positive and negative effects on environmental preservation. Common economic problems pertain to the type of products to be produced, the means of production and the distribution of the products. Campbell *et al.* (2000) observe that over the past 20 years, growth in opportunities for international tourism and trade in agriculture have grown more rapidly in developing countries resulting in increased pressures and competition with other land use systems like pastoralism. Trends in local income generation, agricultural expansion, fragmentation of ecological units, fencing, and decline in water and grazing resources, pose problems for biodiversity conservation (Campbell *et al.*, 1999). For example, Gitahi (2005a) asserts that in Kenya, irrigated horticulture has expanded rapidly in riparian zones in the arid and semi-arid lands (ASALs) stimulated by economic liberalisation and improved access to markets in big cities like Mombasa and Nairobi. Such economic activities are promoted at the expense of wildlife conservation.



Kameri-Mbote (2005a) asserts that trade in natural resources, specifically wildlife products such as skins, meat and trophies threaten wildlife conservation. For instance in Kenya, the author maintains that exploitation of *Prunus Africana* for trade purposes is threatening its sustainability. According to Esikuri (1998), inadequate alternatives to agriculture and livestock keeping as the main economic activities in Kenya pose a challenge for an increasing population and labour force, contributing further to habitat loss. Gitahi (2005a) observes that most agricultural activities encourage the cultivation of one type of crop, thereby simplifying the landscape and causing local depletion of some species. Similarly, overstocking and overgrazing in pastoral areas create competition for pasture between livestock and wildlife.

### ***3.2.1.2. Political, policy and institutional driving forces***

The economic opportunities of protected areas are related to the policy and institutional environment of the local areas as well as national and global conditions. Global initiatives, as Campbell *et al.* (2000) indicate, include conservation of biodiversity, sustainable development and Structural Adjustment Programmes (SAPs). These have combined with national initiatives and land tenure regulations to create a policy context that stimulates land use change and/ or conflicts in resource use. SAPs have focussed on privatisation, market liberalisation, removal of subsidies, and promotion of exports (Dieke, 1994; Juma *et al.*, 1995). Local institutions mediate these external policies. However, Brown (1998) argues that such policies and proposals focus on enhancing market policies that benefit the world's core and not the majority of the local people who are politically and economically marginalised. The author asserts that the costs and benefits of conservation have often been shown to be skewed in favour of the rich in developed countries, and against the poor in developing countries. In addition, such policies often consider market values as being of greater importance than non-market ones. This has implications for who benefits and who loses from conservation initiatives.

Biodiversity conservation programmes seek to maintain characteristics of the landscape that foster wildlife management. While the protected areas offer a measure of security, many of

the wildlife species disperse seasonally over other areas (Western, 1983), while others reside permanently on communal lands (Kock, 1995; Western and Pearl, 1989). For instance, after independence in Kenya, some lands outside parks was adjudicated as group ranches (Olang, 1982), and later, following considerable tension over insecurity of land tenure (Ole Pasha, 1986), further demands for subdivision of the lands to individual ownership was created. Similarly, colonial interventions and policies on land use in Kenya, many of which have been reinforced since independence, altered local human society and production systems (Kituyi, 1990). In response, in the ASAL regions of the country where the dominant economic activity was livestock keeping, some cultivation and trade has emerged that have changed local people's livelihood strategies and led to land use conflicts between agriculture and wildlife. Conservationists are concerned that subdivision of ranches and expansion of cultivation will disturb migration patterns of wildlife and access to water, and encourage habitat fragmentation (Western, 1997).

### ***3.2.1.3. Demographic, social and cultural driving forces***

The human population around most protected areas in the developing countries has, over the years, been changing in terms of its size, density and livelihood strategies (Mwamfupe, 1999), resulting in significant social and cultural changes in these areas (Campbell *et al.*, 2000). The loss and fragmentation of habitat due to human settlement and cultivation has serious implications for the viability of some biodiversity. Southgate and Hulme (1996) maintain that population growth has increased the demand for resources such as land for cultivation and grazing, fuelwood and other forest products, consequently leading to deforestation and encroachment into protected areas. This has affected the ecological balance and environmental services, such as regulation of water flows and loss of biological diversity.

Carew-Reid (2003) observes that there is a direct correlation between population density and the level of community pressure on protected areas. Similarly, Mwamfupe (1999) maintains that the impact of demographic factors on protected areas is manifested in the manner in which humans utilise the resources. The socio-economic situation in the lands

surrounding many protected areas in the sub-Saharan Africa, according to Adams and Hutton (2007), depicts a feature of high incidence of poverty. Poverty does not work well for conservation of natural resources since, as Mwamfupe (1999) asserts, the state of destitution of the population prompts it to exert growing pressure on its environment either by clearing fresh tracts of land or by occupying marginal land that is not particularly suitable for agriculture or livestock keeping. Under such circumstances, protected areas are subjected to resource use and management conflicts which is a classical aspect of political ecology.

### **3.3. The Political Ecology of Conservation**

Political ecology represents a multidisciplinary research approach to society-nature relations that seeks to understand how local resource use and perceptions are mediated by a combination of biophysical characteristics and processes, and power manifestations (Offen, 2004). According to Adams and Hutton (2007), political ecology is a field of study that embraces the interactions between the way nature is understood and the politics and impacts of environmental action. Similarly, Blaikie and Brookfield (1987) refer to political ecology as an approach broadly referring to the political economy of human-environment interactions. Thus, political ecology reflects on how economic, political and social forces influence environmental issues and policies (Offen, 2004). It can therefore be used to understand the role and interests of different actors in environmental management. The major elements that characterise a political ecology approach, according to Bryant (1992 cited in Brown, 1998: 74), are:

- the contextual sources of environmental change;
- conflict over access to resources; and
- the political ramifications of environmental change.

Schubert (2005) further highlights that political ecology deals with how both nature and societal structures influence each other and shape access to natural resource and the connections between the access to, and control over, resources and environmental change. Blaike and Brookfield (1987) assert that the political ecology perspective is oriented

towards political economy and human ecology to assess the uneven power relations between actors as regards distribution and access to environmental resources between the exploited poor in a given locality and the normally distant exploiters. Bryant (2001) maintains that the field of political ecology analyses the impacts of national or global economic or legislative processes upon local environmental practice.

There is a growing attention on the implications of conservation policy on the traditional wildlife conservation approaches in colonial and post-colonial contexts (Campbell, 2002; Neumann, 1992), the role of the state as the central agent in the management of protected areas (Neumann, 2004) and the role of NGOs, community and private actors in conservation (Bryant, 2002). The political ecology of conservation is now recognised as important in a variety of ways. A key issue is the social impacts of protected areas (Campbell *et al.*, 2000), particularly on people displaced (either through physical removal or denial of access), and the impacts of the ways such displacements are organised, particularly the issue of involuntary displacement and coercion (Adams and Hutton, 2007; Peluso, 1993). A related set of problems concerns the social impacts of conservation regulations (such as controls on hunting, fishing or forest use) and the way the economic benefits of conservation activities (for example, the revenues from tourism) are shared between people (Emerton, 2001; Wells, 1994; Wells *et al.*, 1992). According to Adams and Hutton (2007), conservation has become a powerful political force, at least in the rural districts of poor developing countries where large international NGOs wield considerable influence with governments and donor organisations. The authors maintain that NGOs can both initiate and drive forward conservation programmes on the ground with profound social and economic significance for rural people.

The political ecology of conservation offers a way of considering the subjective location of the human society within, and not outside, nature (Toly, 2004). Political ecology helps to overcome some of the pitfalls of conventional conservation policy. For instance, Brown (1998) observes that in analysing the threats to biodiversity, it is able to help formulate policy which can overcome the criticism that conservation approaches tend to focus on

combating proximate causes of biodiversity loss, rather than addressing underlying causes (Wells, 1995). Similar to stakeholder analysis, political ecology examines differing narratives that address the political strategies of different stakeholders and identifies possible conflicts between values, uses and interests (Adger *et al.*, 2001). In recognising the complexity of biodiversity conservation in ecological and social dimensions, this study focuses on the factors that influence the use, perception and management strategies of biodiversity. The study seeks to examine the paradigm shift in conservation practice from the traditional conservation approaches to the emerging principles of sustainable management of the values associated with biodiversity, whilst recognising the conflicts of interest of the various stakeholders involved in its management.

### **3.3.1. The traditional narrative of conservation**

The traditional conservation narrative promotes protection approaches that exclude people from parks and protected areas and prohibit their use of resources (Adams, 2004; Wells *et al.*, 1992). Adams and Hutton (2007) indicate that the exclusion of people from protected areas reflects a conceptual division between nature and human society. The premise here, according to Campbell (2002), is that local people do not value wildlife, and wildlife populations particularly in the developing countries is threatened directly with extinction by human exploitation, and indirectly by habitat degradation and fragmentation that results from increased human populations and their demands for development (Southgate and Hulme, 2000). To address this crisis leads to solutions which separate people and biodiversity, providing wildlife with protection. The protection is imposed and enforced by the state. Campbell (2002: 30) observes that “local people are removed and, if they do not respect the conditions of their removal, they are labelled ‘poachers’ and ‘encroachers’”.

The first and most influential model for conservation in the twentieth century was the US Yellowstone National Park founded on a notion that nature is something pristine that could be distinguished and physically separated from human-transformed lands (Adams and Hutton, 2007). In colonial Africa, the establishment of PAs for conservation has had inevitable social and economic impacts (Adams and Hulme, 2001; Emerton 2001; Igoe

2006: McNeely, 1993) that include problems such as crop damage by wild animals like elephants, physical injury and death, harassment by protected area staff on infringements of park conservation regulations among others. Adams and Hutton (2007) assert that the greatest social impacts of protected areas relate to displacement of human communities that includes loss of rights to residence, loss of non-consumptive use values, for example, access to places of religious or cultural value. Moreover, the economic costs to local or national economies of protected areas such as agricultural benefits forgone are considerably significant (Norton-Griffiths and Southey, 1995).

### **3.3.2. Shifts in the conceptual framework for conservation**

Reflecting on conservation practice over the last two decades, significant shifts in the conceptual framework for conservation practice have become apparent (Mitchell *et al.*, 2002). Balmford and Whitten (2003) observe that whereas the costs of protected areas are mostly born locally, the benefits accrue globally. It is therefore widely argued within the conservation context that where people around protected areas face economic costs due to the park, they should clearly be fully compensated (Adams and McShane, 1992). The rights and needs of the many people resident in or around these parks should not be ignored. Consequently, another discourse that stresses the need not to exclude local people, either physically from protected areas or politically from the conservation policy process (Western and Wright, 1994) emerged to counter the traditional conservation narrative. Nature and wildlife conservation policies have therefore shifted towards attempting to reconcile conservation with development needs, with more inclusive values and ethical frameworks being incorporated into conservation. Some of the emerging principles are discussed below.

#### *A community-based approach*

The changing concepts of national parks and the new relationship between conservation and development set the scene for the emergence of community-based conservation (Western and Wright, 1994). The trend here is moving away from top-down management strategies towards decentralised, localised, place-based approaches with the devolution of

authority to local communities to manage their natural resources. The overriding assumptions to this trend, according to Mulder and Coppolillo (2005), was that local communities have more knowledge about local resource dynamics, and that they have greater incentives to manage the resources sustainably since they have lived and sustained themselves from these resources. Mitchell *et al.* (2002) similarly observe that there is more capacity at the local levels and significant devolution of local government roles need to be enhanced.

#### *Partnerships and collaboration*

There is an increasing realisation that in order to manage existing protected areas effectively and to create new ones, there needs to be an emphasis on working collaboratively with local communities and other actors through partnerships. Mitchell and Brown (2003) point out that protected areas can no longer be managed in isolation but must be seen in the context of overall land use. Mitchell *et al.* (2002) further assert that the protected area management can benefit greatly through collaboration and information exchange with other sectors interested in their wellbeing and also through partnerships with communities to yield greatest continuous benefits. Similarly, Tuxill and Mitchell (2001) maintain that effective conservation often works across sectors, on sustainable communities and sustainable economies, and is connected with democracy and civic life. This position is further echoed by Kameri-Mbote (2005a) who contends that partnerships in Kenya can include transboundary collaboration and interdisciplinary perspectives with government agencies; provincial or local government agencies; NGOs; community organisations; and, in some cases, individual holdings and businesses.

#### *Protected area outreach*

The approach of park outreach, according to Jones (2001), seeks to enhance the biological integrity of national parks and reserves by working to educate and benefit local communities and enhance the role of protected areas in local plans. The author highlights that, protected area outreach entails identifying the problems that people who live close to protected areas experience, and solving them by creating benefits that improve their

livelihoods using the protected area as a base. Park outreach, according to Mulder and Coppolillo (2005), are extremely broad and may include ecotourism, integrated conservation and development projects, education, direct payments and concessions among others. These aspects are important to consider in Kenya.

### **3.4. Stakeholder Approach**

Every protected area impacts on people, either as direct users of its resources, or as beneficiaries of the goods and services it provides (WRI, 2005a). A number of terms (stakeholders, interest groups and actors) are used when assessing the different groups of people involved in the use and management of biological diversity and its components. Borrini-Feyerabend and Brown (1997) observe that decisions and actions that affect the conservation of a given territory or set of natural resources are taken by different social actors at different places and levels. Such actors among others can include individuals, families and households, community-based groups, local traditional authorities, businesses and commercial enterprises, non-governmental bodies, local governance structures, national governments, international agencies and others.

Geoghegan and Renard (2002) recognise that the stakeholder framework identifies and defines those who have influence on, or can be affected by, the management processes of protected areas. The Overseas Development Agency (ODA, 1995) uses the term 'stakeholder' to indicate those individuals, groups and institutions that have an interest in a particular issue or project. According to Borrini-Feyerabend and Brown (1997), the term 'stakeholders' can be used to indicate those social actors who have a direct, significant and specific stake in a given territory or set of natural resources. The authors further point out that different stakeholders generally possess different interests, different ways of perceiving problems and opportunities about natural resources, and different approaches to conservation. Biodiversity conservation integrates the field of participation with stakeholder engagement in the management of resource use and conflicts among stakeholders (Allen and Kilvington, 2001). People will protect what they perceive to be of value to them. It is therefore important for the institutional framework of protected area



management that govern the relationships among and between stakeholders and their uses of and relations with natural resources, to recognise the complexity and coherence of existing institutions and the diversity of interests of the various stakeholders. They should all be equitably represented in developing an effective management system for the resources of common interest.

The most basic stakeholders in the conservation of a given area or set of natural resources are the people living within or close to them, usually grouped under the term “local community” (or communities). In many situations these people are directly and strongly dependent on the local resources for their livelihood, cultural identity and wellbeing. However, both Borrini-Feyerabend and Brown (1997) and Geoghegan and Renard (2002) assert that communities are complex entities, within which differences of ethnic origin, age, gender, profession and economic and social status can create profound differences in interests, capacities and willingness to invest for the management of local resources. In other words, local communities generally include a variety of stakeholders. As Borrini-Feyerabend and Brown (1997) observe, that which benefits one group and meets conservation objectives may harm another. For example, the authors point out that whereas park outreach programmes like benefit sharing of wildlife revenues may bring revenues to men, more abundant wildlife may create a cost to women through crop damage. Another example in the Kenyan context is the different interests between herders and crop farmers living around the Parks. For the purposes of this study, a stakeholder is considered to be any individual, group or institution with an actual or potential interest in economic, social, cultural, political and environmental interest in the use of resources, or whose interests affect or is affected by the processes of managing the resources. The stakeholders identified in the study include the local community, park personnel and regulators.

#### **3.4.1. Stakeholder analysis**

Allen and Kilvington (2001) indicate that stakeholder analysis entails the identification and assessment of the interests of key stakeholders in a project and how their interests influence the implementation of the project. The ODA (1995) distinguishes between primary and

secondary key stakeholders within a project or development context. Primary stakeholders are immediate communities while secondary stakeholders form the intermediaries in the process, and may include government agencies and other institutional bodies. The secondary stakeholders, as the ODA (1995) observes, may be more peripheral, involving those who have influence although they may not have direct interest themselves.

In relation to biodiversity conservation programmes, stakeholder analysis identifies groups and their main areas of interest and influence, relating their interests to the type of values they get or accrue from biodiversity and its components in the protected areas. For example, Brown (1998) in a study of biodiversity conservation in Nepal identifies interest groups and stakeholders such as indigenous people, migrant farmers, local entrepreneurs, tourist concessions, government conservation agencies and international conservation groups. Allen and Kilvington (2001) suggest three stages of conducting a stakeholder analysis that include: identifying major stakeholder groups; determining interests, importance and influence; and establishing strategies for involvement. The authors maintain that through stakeholder analysis it is possible to draw out the interests of stakeholders in relation to the issues under study and identify conflicts of interests between stakeholders. Adopting a stakeholder analytical approach will help assess the capacity of different stakeholders in order to engage them in the appropriate type of participation. Brown (1998) points out that in certain incidences, individuals can belong to more than one interest group, and groups exhibit significant internal conflicts. The author argues, as indicated previously, that local communities who are highly dependent on natural resources to support their livelihoods, their scale of influence is very limited compared to more influential and powerful groups, including conservation agencies and tourists. Sautter and Leisen (1999) observe that when considering the roles and responsibilities of different stakeholder groups, all stakeholders should be considered equally without giving priority to one stakeholder's interests over another, regardless of the relative power of interest held by each.

### **3.5. Conclusion**

An understanding of the politics of conservation is vital if policy is to be effective and any potential harm to stakeholders' interests is to be minimised. To achieve this, better dialogue is needed between conservationists and critics of conservation. The emphasis of political ecology on the links between political economy and the actual state of the environment offers some potential to improve the conservation of protected areas. There is no doubt that politics matters for conservation. The traditional government-based conservation approach has undergone substantial shifts in both the conceptual framework and conservation practice in the last decade. This study serves to illustrate the emergence of a holistic and more inclusive conservation paradigm of achieving effective and sustainable biodiversity conservation strategies. This can best be done through collaborative partnerships with substantial involvement of private agencies, local communities and government agencies. Adopting the DSR model in the theoretical framework, the study reveals the importance of integrating the discourses of conservation that include fortress conservation, community conservation and private reserves in the conceptualisation of biodiversity, the causes of its decline and the responses of conservation stakeholders in developing sustainable biodiversity conservation strategies that offer positive implications for conservation and the livelihoods of local people. The DSR model therefore highlights some of the different dimensions of biodiversity conservation strategies; the different perceptions of its uses, values and threats; and the response solutions proposed to address these issues.

Protected area management involves in one way the task of transforming conservation institutions to meet defined goals that integrate biodiversity conservation with social and economic aspects of the community. Within such a framework, the challenge for protected area managers is to design and implement institutional arrangements that use the tools of participation to achieve objectives as diverse as environmental sustainability and biodiversity conservation, poverty reduction and provision of basic human needs, equity and social justice. The emerging trends in conservation and protected areas management are creating new opportunities to engage local people in the stewardship of the natural and cultural heritage of landscapes, as illustrated in the case studies in this thesis. This

comparative collection of case studies on three different management categories of protected areas, illustrates many dimensions of conservation practice such as the evolving relationship between local communities and national parks, and between communities and adjacent Trust lands; the changing roles of park agencies; community-led conservation; and grassroots efforts to achieve national designation for conservation areas. In some cases, the initiative for collaboration comes from the communities, in others from the land management agency. Collectively, these examples represent a promising new direction in conservation. Although this collection of analysis is diverse, the overall unifying theme is the role of communities in the conservation of protected areas and the ways that leadership and vision can be effectively shared across boundaries and across sectors. In advancing these perspectives, this study explicitly addresses the approaches of conserving biodiversity by pinpointing the necessity for a critical approach to participation where social, economic and political dynamics, power, knowledge and influence are integrated.

## CHAPTER FOUR

### RESEARCH METHODOLOGY

#### 4.1. Introduction

Research methodology forms a contextual and an integral part of any research activity. According to Mouton and Marais (1996), research methodology focuses on the manner in which research is planned, structured and executed. This chapter discusses in more specific detail the research methodology applied to this particular study. The chapter therefore provides an overview of the procedures that were followed in conducting the research, focussing on different management categories of protected areas in Kenya represented here by the case studies of Lake Nakuru National Park, Kimana Community Wildlife Sanctuary and Kedong Game Ranch.

The research data was collected between March and July 2008. Both qualitative and quantitative research methods were used in this study. A preliminary study which included a literature survey, site visits, discussion with local residents and the conservation agents in the study areas was conducted to gain insight into the research problem. An outline of the key research questions guiding the study, a baseline description of the case study areas, and the researcher's experiences in the field are provided in the chapter. This methodology chapter therefore explains the nature of the data, and highlights the methods employed in the analysis, including sampling and data collection procedures, and specific research instruments adopted that leads to the generation of appropriate conclusions through applicable data processing.

#### 4.2. Key Research Questions

The key questions guiding this study derived from the research objectives presented in chapter one are:

- a. What natural resources do the local communities commonly use and what management systems govern their ownership and usage?

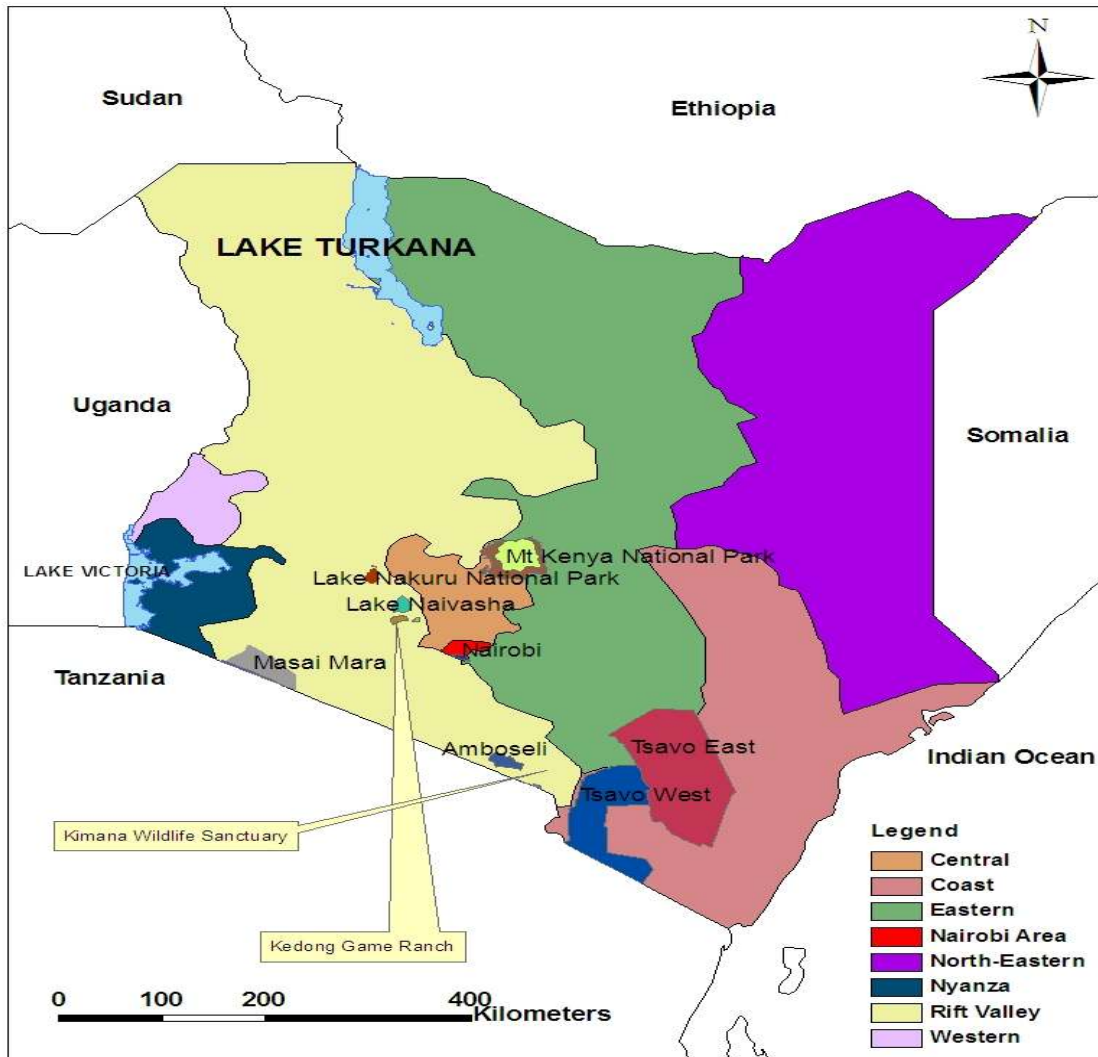
- b. What circumstances led to the establishment of the protected area?
- c. Was the protected area imposed over the will of the local communities or were the communities in agreement with the establishment of the protected area and its key management objectives?
- d. What tensions exist between the types of strategies and priorities advanced by the local community and those promoted by the conservation authorities in the management of biodiversity conservation approaches?
- e. How effective are private and community conservancies as compared to national protected areas in biodiversity conservation?
- f. What kinds of responses are appropriate for securing sustainable biodiversity conservation strategies?

### **4.3. Case Study Areas**

The research data was collected from the local people (at the household level) and the management staff (personnel) of three protected area conservancies: Lake Nakuru National Park, Kimana Wildlife Community Sanctuary and Kedong Game Ranch; each representing a government managed national park, a community managed wildlife sanctuary, and a privately managed game ranch, respectively. All three study sites are found in the expansive Rift Valley Province of Kenya (Map 4.1). The Rift Valley Province is the largest and one of the most populated in the country (CBS, 2002). It is one of the most economically and culturally vibrant provinces in Kenya, with many geographical features that are an attraction to tourists such as the Elgeyo escarpment, the extinct volcano of Mount Longonot, Lake Turkana, Lake Nakuru and Lake Naivasha amongst others, and highlands that provide adequate rainfall for farming and agriculture. Of particular importance is the Mau Forest Complex, the largest of all the watersheds in the country (MENR, 2000), situated in the Mau escarpment that forms the upper catchment of rivers Sondu, Mara and Ewaso Nyiro which drain into lakes Nakuru, Naivasha, Baringo, Victoria, Natron and Bogoria. Some of these lakes, such as Lake Victoria are transboundary which is shared by Kenya, Uganda and Tanzania, and is a source of the Nile River that drains into the Mediterranean Sea. The province is inhabited by a diversity of tribes including

Kalenjins, Kikuyus, Maasais, Turkanas and Pokots, amongst others. A detailed description of the study areas is presented in this section.

**Map 4.1: Kenya: Administrative provinces (study areas delineated)**



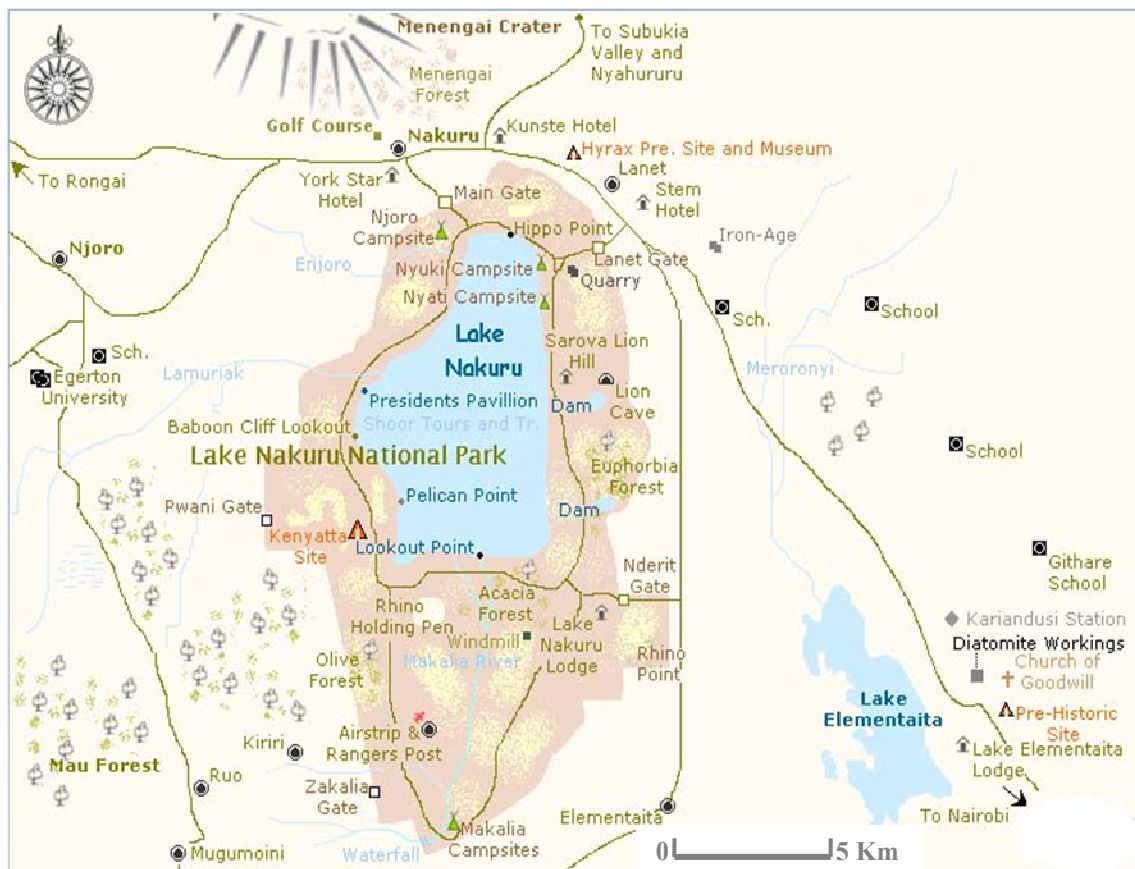
*Source: Author*

#### **4.3.1. Lake Nakuru National Park**

Lake Nakuru National Park is situated in Nakuru district approximately 164 kilometres from Nairobi, on the edge of the densely populated town of Nakuru at grid reference 0°19'-0°24'S 36°04'-36°07 E (GoK, 2002a). Nakuru District is an agricultural region and remains

one of Kenya's most cosmopolitan area where most of Kenya's ethnic communities are found though the dominant ones are the Kikuyu and Kalenjin with substantial numbers of Kisii, Luo and Luhya. However, the district has been synonymous with ethnic and political conflict over the years (Waki Report, 2008) that have been as a result of land tenure issues (Wakhungu *et al.*, 2008). The Lake Nakuru National Park covers an area of 188 km<sup>2</sup> square kilometres lying at an altitude of 1759 m above sea level with 27% of the park comprising the Lake Nakuru waters that cover 49,00ha (9 km long and 5.5 km wide) (Map 4.2).

**Map 4.2: Lake Nakuru National Park**



Source: Modified from Shoor Tours and Travel website (Shoor, 2007)

The lake water is highly alkaline but supports a habitat rich in biodiversity including a variety of aquatic flora and fauna, like water mammals mainly hippopotamus and clawless otters. According to Kisee (1995), in the 1950s, Soda fish (*Sarotherodon alcalicus graham*)



was introduced and the lake was used for bird viewing and bird shooting. In 1961, the lake was established as a National Park and is world famous as the location of the greatest bird spectacle on earth - myriads of bright pink flamingos whose numbers are often more than a million (KWS, 2009a; Plate 4.1). The lake has attracted other birdlife following the introduction and flourishing of a minute fish salt tolerant *Tilapia graham* in the early 1960s for mosquito control. The fish species opened the way for the colonisation of the lake by many fish eating birds like pelicans and cormorants.

**Plate 4.1: Flamingos: Lake Nakuru National Park**



*Source: KWS (2009a)*

Lake Nakuru National Park surrounds the lake and was first declared a bird sanctuary in 1960 to protect the estimated over 400 bird species and it only included the lake and its immediate shoreline (Kisee, 1995). Thousands of both little grebes and white winged black terns are frequently seen as are stilts, avocets and ducks. The bird sanctuary was extended to cover the whole lake and a small strip of land around it in 1964. In 1968, the lake and shore about 6 000 ha, was officially gazetted as a National Park and was expanded over the

years. In 1983, the park was declared a Rhino sanctuary (KWS, 2009a). The Rhino stocking programme which ensued received white rhinos from South Africa with successful breeding of black and white Rhinos. The lake was designated as a Wetland of International Importance (Ramsar site) in 1990, especially as a waterfowl habitat (Ramsar, 2002). The area around the lake is exclusively used for wildlife conservation while the land in the catchment area is intensively used for agriculture, forestry and ranching.

Lake Nakuru National Park is a protected area, placed under protected areas management category II by the IUCN categories of protected areas (IUCN, 1992). Dominated by a gentle undulating terrain with open grassland, bush, woodlands and rocky cliffs typical of the dry rift valley vegetation (GoK, 2002a), the park supports a large number of African plain animal species like Rothschild giraffes, lions, leopards, hyenas, cheetahs, wild dogs, baboons, impalas and large sized pythons that inhabit the dense woodlands, and can often be seen crossing the roads or dangling from trees. Waterbucks, warthogs and buffaloes are common at the water's edge. Between three and four hundred buffalo inhabit the park. About 550 different plant species are found within Lake Nakuru National Park including the biggest euphorbia (*Candelabra cactus*) forest in Africa (KWS, 2009a).

The park is an island since it is completely fenced with a chain link and an electric fence providing a perimeter buffer zone that protects it from poaching and encroachment by settlements as well as to minimise the impacts of urban and agricultural development in the immediate catchment (Kisee, 1995; KWS, 2009a). However, the park is threatened by human activities both from within and outside the area. The adjacent Nakuru town (Map 4.2) with approximately 212 000 inhabitants (CBS, 2002) has been growing at a very high rate while provision of basic facilities has not expanded at the same rate to serve the increasing population. The Nakuru District Development Plan for the period 2002-2008 (GoK, 2002a) indicates that already Nakuru town is a water deficit area with the water systems only meeting 50% of the water requirements. Most of the poor people are concentrated in the slum areas of Nakuru town which also host many people who have been displaced from neighbouring areas by perennial land clashes. Firewood and charcoal

constitute the greatest component of energy supplies accounting for 73% of the energy requirements in the district (CBS, 2007).

Siltation due to agricultural activities within the lake catchment is one of the major threats to the lake (KWS, 2009a). Similarly, Kisee (1995) in support of this conservation threat to the park points out that pollution from agricultural chemicals such as fertilizers, pesticides, herbicides as well as industrial and domestic effluent from Nakuru town enters the lake through surface inflows. Moreover, the past land practices are indicated by GoK (2002a) to be responsible for the introduction of the alien and invasive plant species which thrive in the park, and although these were accidental introductions, they are a threat to the natural plant communities. The KWS (2009a) indicates that about 200 000 tourists, both local and foreign visit the park each year. Kisee (1995) observes that besides the tourism benefits that accrue, the high number of tourists visiting the park and the development activities accompanying it have a negative impact on the integrity of the park, further threatening the park's biological resources through wildlife disturbance, habitat destruction and pollution. From historical records, the lake dried up between 1951 and 1953, and again in 1984 (Kisee, 1995).

The Mission of the Lake Nakuru National Park as stated in KWS (2009a) is to conserve and manage the biodiversity of the park for posterity through applying appropriate research to enhance the use of the resources therein, and the collaboration with the communities living in the catchment and organisations who have interest in the conservation of the catchment and the park. The latter is intended to assist local communities to realise the potential benefits of the park for socio-economic and sustainable development. The KWS (2005) cites examples of initiatives that have been undertaken by the park with local communities that include:

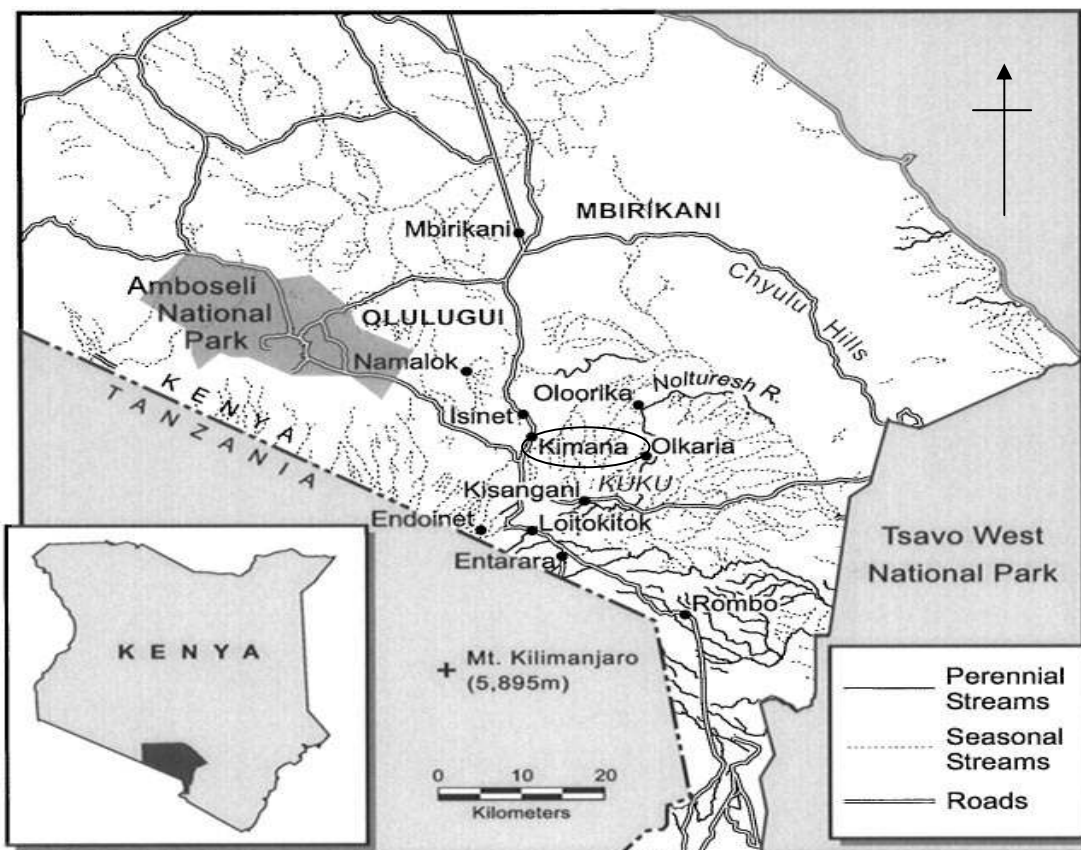
- Introduction of Kenya Wildlife Service revenue sharing programmes with the community neighbouring the park;
- Kenya Wildlife Service community bus that promotes a feeling of ownership of the park by the communities through park visits;

- Environmental education awareness programmes provided by the Lake Nakuru Field Study Centre; and
- Collaboration of the park management with conservation-oriented NGOs and some key government departments to foster the integrity of the Lake Nakuru catchment.

#### 4.3.2. Kimana Community Wildlife Sanctuary

Kimana Community Wildlife Sanctuary is a group ranch located on communal land belonging to the Kimana Maasai within the Kajiado District, Kenya (Wishitemi and Okello 2003). As illustrated in Map 4.3, the conservancy is located within the dispersal areas of Amboseli National Park to the east and Tsavo West National Park to the west.

**Map 4.3: Kenya: Kimana area, Amboseli National Park and Tsavo West National Park**



Source: Modified from Campbell et al. (2000)

According to the Conservation of Resources through Enterprise (CORE, 2001), the Amboseli/ Tsavo ecosystem is characterised with a semi-arid setting characterised by topography of plains and some volcanic hills and an isolated swampy area that is important as a water point for both humans and animals. The area has a bimodal rainfall pattern (GoK, 2002b), significantly influenced by its high altitude (1 100 m above sea level) and its proximity to Mount Kilimanjaro and receives 30% of about its 150-200 mm annual rainfall during the short rains (October – December) and 45% during the long rains (March – May). However, Ellington (2007) asserts that this does not take into account the prolonged droughts that frequently plague this semi-arid region.

The settlement patterns within Kimana and its environs is characterised by Maasai landowners who were mainly semi-nomadic pastoralists; the traditional Maasai mode of life practised on land that was communally owned (Western, 1982). However, Southgate and Hulme (2000) point out that the Maasai traditional lifestyle has undergone changes due to ongoing land adjudication and subdivision of group ranches leading to individual land tenure systems. McCabe (1992) further observes that the Maasai have historically co-existed with wildlife for decades, seasonally moving about with their livestock in search of pasture and water. With the rapid human population in the area, the CBS (2007) and Southgate and Hulme (2000) assert that the area is faced with the challenge of conserving wildlife amidst environmental concerns such as competition for resources, encroachment on water catchments and forest areas along the slopes of Mt. Kilimanjaro and the designated conservation areas like Amboseli National Park.

According to the Kajiado District Development Plan (KDDP) for the period 2002-2008 (GoK, 2002b), poverty is rampant within the local communities. The KDDP cites illiteracy as the number one root cause of poverty in the district. Some of the factors identified that contribute to poverty in the district include frequent droughts, which often wipe out large herds of livestock (Southgate and Hulme, 2000), coupled with the loss of productive time away from income-generating activities spent by the communities in trekking long distances in search of water (Western, 1997), and the destruction of crops by wild animals

and disease transmission from wildlife to livestock particularly in areas around the conservation areas and the migration corridors of the wild animals (Campbell *et al.* 2000; Western, 1995).

Campbell *et al.* (2000) and Southgate and Hulme (1996) assert that the group ranches between Amboseli and Tsavo National Parks have slowly changed from their original design of communal pastoralism to privately owned agro-pastoralism as a result of changing local culture and increase in human population. This argument is echoed by Okello *et al.* (2003) who contend that in the recent past, the Maasai have sought to subdivide their group ranches in their quest towards individual land ownership, an idea particularly popular with young, educated members of the group ranches. Similarly, Bonner (1993) and Campbell *et al.* (2000) indicate that a large number of the Maasai have leased and sold their land to emigrants with no cultural affinity for wildlife who certainly fence their plots and embrace agricultural practices. Consequently, Wishitemi and Okello (2003) maintain that many of the inhabitants of this area now practice pastoralism and agriculture, and only a few of them continue to practice solely pastoralism. According to MacKinnon (2001), the changing land use not only has threatened to fragment the ecosystem but has also insularised the parks, becoming detrimental to conservation in the neighbouring protected areas. Seno and Shaw (2002) assert that whereas the wildlife are generally protected while inside the designated conservation areas, they become vulnerable to conflicts with humans during annual migrations outside the boundaries of these areas.

According to Western (1983), the Amboseli National Park only accounts for about 10% of the greater Amboseli ecosystem that covers the Kimana conservancy and cannot sustain large quantities of wildlife on a permanent basis. This makes it vital that the migration corridors through Maasai lands remain open to maintain the entire ecosystem. During the 1980s and early 1990s, there was a booming tourist industry in this area. Western (1997) observes that the local Maasai and other tribes who lived in buffer zones around the national parks were excluded from tourism and wildlife affairs creating bitter resentment towards the conservation authorities. As a possible consequence, the killing of wildlife by

the local people escalated as their frustration grew over the damage of their resources by wildlife and the fact that they reaped little revenue from the booming tourist trade. Okello *et al.* (2003) maintain that it was during this time that 95% of the Amboseli rhino fell to poachers. According to the then Director of Kenya Wildlife Service (KWS), Dr David Western, the Maasai were destroying a very large number of animals in Amboseli to show that “the government might be able to take the land but that the fate of wildlife was really in their hands” (Western, 1982: 304).

Following persuasion by senior elders of the group ranches that were not comfortable with the killing of wildlife, eventually the Kimana Maasai began to look for an alternative strategy that could enable them co-exist with wildlife (Western, 1997). They approached the Kenya Wildlife Service to suggest an establishment of a wildlife sanctuary and ask for assistance in setting it up. Consequently, the Kimana Community Wildlife Sanctuary was initiated in 1994 through community mobilisation and sensitisation and was officially opened to visitors in 1996 (Okello *et al.*, 2003). Sixty five percent (65%) of the Kimana group ranch area was set aside for the sanctuary, covering 66 km<sup>2</sup> with 843 registered members. Significantly, whilst the Maasai were autonomous in their decision-making, the Kenya Wildlife Service provided consultancy, a road network around the sanctuary and trained local Maasai as Game Scouts, while a NGO from the United Kingdom donated funds for the construction of an entrance gate (Mburu and Birner, 2002).

According to Barrow *et al.* (2001), the Kimana Community Wildlife Sanctuary set a precedent in Kenya for being the first community owned and managed wildlife sanctuary and is heralded as a flagship for the involvement of local communities in their own tourism enterprises. A range of habitats is found within the Kimana Community Wildlife Sanctuary such as a swamp, savannah plains and *Acacia tortilis* woodlands. This range of habitat, as highlighted in Western (1997), provides a foraging area as well as a migration corridor for wildlife in the larger Amboseli-Tsavo ecosystem that supports a diversity of wildlife including plains game like elephants, buffalo, lions, leopards, giraffe, gazelles and hippos

that frequent the swamps and wetlands. During dry seasons the lush grass in the Kimana swamp has always attracted hundreds of these animals.

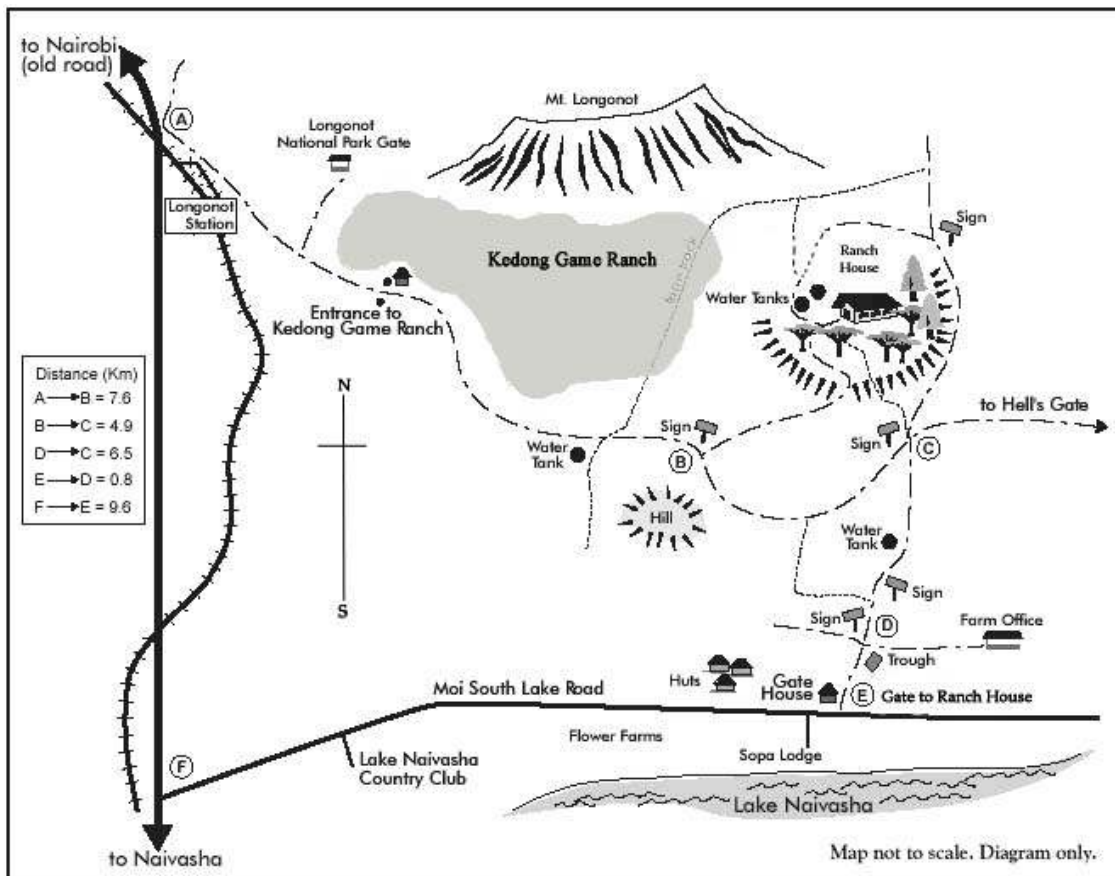
Legally, the Kimana sanctuary is a group ranch property. The management of the Kimana Community Wildlife Sanctuary is run in collaboration with the Kimana landowners, the Kenya Wildlife Service and the Amboseli/ Tsavo Group Ranches Association (Personal communication with the Warden in Charge of the Sanctuary, 2008). Similarly, Mburu and Birner (2002) note that in the established co-management arrangements of the sanctuary, Kenya Wildlife Service remains the custodian of wildlife while the landowners have the rights to derive cash and non-cash benefits from the presence of wildlife in their land, either through ecotourism or conservation-based enterprises. The Warden in charge of the sanctuary indicated that the sanctuary was managed up to March 2000 by a local management committee (appointed by the group ranch committee) and then leased for a period of ten years to a strategic partner, the African Safari Club (ASC). This type of co-management, according to Mburu and Birner (2002: 4), is considered as “delegated”, but one that is characterised by less involvement of the local landowners and increased integration of the private sector. Under this management arrangement, only a few members of the group ranch committee are directly involved in collecting lease fees and solving grazing disputes between ASC and the landowners. The Sanctuary charges US\$ 10 per visit, considerably less than the US\$ 60 entrance fee for non-resident visitors at Amboseli National Park (KWS, 2009b). It was hoped that the lower fees will entice visitors from Amboseli National Park which is fifteen miles away and hence take pressure off Amboseli which during the high season gets overcrowded. Each group ranch member receives an annual dividend, while some money is retained for joint community development projects. The Travel Africa Magazine (TAM) issue of 1998 indicated that the financial benefits to the Maasai received from the sanctuary acts as an incentive that in turn makes them more receptive to having wildlife on their land (TAM, 1998).



### 4.3.3. Kedong Game Ranch

Kedong Game Ranch, a private ranch of about 80 000 acres lies to the east of the straddling slopes of Mt Longonot, Hell's Gate National Park and Longonot National Park in Naivasha district (formaly a part of Nakuru District), 84 km from Nairobi (Map 4.4). Located at an altitude of 1 520-1 890 m above sea level in the south eastern part of the Mau escarpment, the area receives rainfall of less than 760 mm annually (GoK, 2002a). The Hell's Gate and Longonot National Parks and the adjacent greater Suswa ecosystem is endowed with a variety of plains game that spill over the dispersal areas of the ecosystem (KWS, 1991).

Map 4.4: Map of Kedong Game Ranch and environs



Source: Modified from *Extreme Safari* (ES, 2008)

Naivasha is a marginal area with a sparse population density (98 persons/km) where most of the people are found around urban areas (CBS, 2002). The sprawling Naivasha town is located on the shores of Lake Naivasha. The lake's name derives from the Maasai word *Nai'posha* (rough water) because of the sudden storms which can arise over the lake (Mireri, 2005). The area is well known for its population of European immigrants and settlers and is a popular tourist resort and also a weekend haunt for residents from other areas due to its proximity to Hell's Gate National Park, Longonot National Park, Mount Longonot and a host of large game ranches that are privately owned (Map 4.4). The GoK (2002a) identifies the main industry in Naivasha as agriculture, especially floriculture around the lake providing a source of employment and income for the local population. There are about 52 flower farms in the Naivasha area which account for almost 74% of all the flower farms in the country (Mireri, 2005). Within the Hell's Gate National Park is Kenya's Ol-Karia geothermal power plant where a significant component of Kenya's electricity generation is located representing the future of the geothermal industry in Kenya (CBS, 2007).

Kedong Game Ranch is among many private ranches in Kenya that tolerate wildlife with user rights controlled and coordinated by the Kenya Wildlife Community Service (KWS, 1990). Legally, the Kedong ranch is a private property owned by a shareholder company under the management of a board of directors. According to the Kenya wildlife policy (WCMA, 1976), wildlife user rights are given to a property and not to an individual and they cannot be transferred. The permit is only granted on condition of submitting a detailed five-year wildlife management plan of the ranch that contains amongst others, information on the land ownership and tenure, wildlife resources, current use of wildlife and wildlife management capabilities. Amongst the many species of game roaming freely over the open plains of this cattle and game ranch are eland, giraffe, zebra, impala, gazelle, kudu's hartebeest and bat-eared fox (ES, 2008). Similarly, horseback riding (see Plate 4.2) and walking are activities to be enjoyed on the ranch.

**Plate 4.2: Game viewing at Kedong Game Ranch (Mt Longonot in the background)**



*Source: Extreme Safari (ES, 2008)*

Neighbouring the ranch is mainly the Kikuyu community who are small-scale mixed farmers on private land holdings, and a minority semi-nomadic pastoralists Maasai with hundreds of livestock mainly cattle, goats and sheep extending from the neighbouring Narok and Laikipia districts (CBS, 2007). A substantial number of immigrant workers who are mainly Luo and Luhya supplying casual labour on the flower farms are also found in the area. According to the District's Development plan of 2002-2008 (GoK, 2002a), many of the residents live below the poverty line. The Waki Report (2008) observes that the area has recently experienced some ethnic violence pitting the Kikuyu on one hand and Maasai on the other. Similarly, the KWS (1995) report that perennial land tenure and resource use conflicts between the two main communities, the Kikuyu and the Maasai is a major threat to biodiversity conservation and management of the Kedong Game Ranch and the adjacent Hell's Gate and Longonot National parks who are often caught in the conflicts and have to at times provide refuge to the warring communities. These conflicts are also highlighted by the GoK (2002a) who indicate that as a result of frequent droughts and

overgrazing in the surrounding areas, the Maasai at times graze their livestock on the maize farms of the Kikuyus and encroach on the ranch resources.

In an effort to reinforce its conservation objectives and enhance its relationship with the neighbouring communities, Kedong Game Ranch maintains a guarded fence all round but incorporates rural development components, most importantly, employment for the rural people as day labourers, provision of water for domestic use as well as access to cattle dips within the ranch (Personal communication with Farm Manager, 2008). Mireri (2005) observe that through representatives of the community and the management of the adjacent Hell's Gate and Longonot National parks in collaboration with the other neighbouring private ranches and the Lake Naivasha Riparian Owners Association that constitutes all the stakeholders using the Lake Naivasha waters, community development activities, for example, agroforestry, crop protection from wild animals, and water points at community lands are identified, appraised and initiated for the benefit of the local communities.

#### **4.4. Research Techniques**

Crotty (1998) observes that research methods can be either qualitative, quantitative or both, depending on the nature of the study. The research approach applied in this study was a case study survey design. According to Yin (1994: 13), the methodological approach of case studies relies on “multiple sources of evidence”. De Vos *et al.* (2002: 79) describe qualitative approach as “research that elicits participant accounts of meaning, experience or perceptions”, while quantitative research methods on the other hand employ numbers (statistics) in order to describe variables and the relationship between the variables. Similarly, Rubin and Babbie (2001) indicate that qualitative research pursues a deeper understanding of the participants' experience, especially when observations and theories cannot easily be reduced to numbers. Yin (1998) therefore points out that the most desirable case studies are likely to use both types of qualitative and quantitative strategies. For instance, the author observes that a relevant place for quantitative data in a case study may be in “enumerating the outcomes of a particular intervention, while the qualitative data might then demonstrate a particular compelling explanation for the outcomes” (Yin, 1998:

245). Against this background and for the purposes of this study, both qualitative and quantitative methods were employed.

#### **4.4.1. Research Processes and Sampling Procedure**

According to Mason *et al.* (2000), surveying the entire population in a study is costly and often time consuming. Sampling entails the process of choosing from a much larger population from which a generalised statement is inferred, so that the selected part represents the entire group (Leedy, 1993). A sample is therefore a smaller group obtained from the accessible population with each member or case in the sample referred to as a subject or sometimes the term “respondent” or “interviewee” is used (Mugenda and Mugenda, 1999: 10). According to Neuman (2003), sampling if well executed, enables the researcher to measure variables on the selected sample cases and generalise results accurately to all cases.

The field study consisted of a survey focusing on three conservation sites under different governance type and management objectives: a government managed national park, a community managed sanctuary and a privately managed ranch. The activities started with sorting out and procuring administrative support, such as the mandatory research permit, transportation and importantly, involvement of the district and local administrative officials. This was followed by exploratory surveys of possible research sites in the south rift districts of the Rift Valley Province, in view of selecting sites which provided the most suitable conditions for addressing the research objectives. The sample criteria was restricted to conservation areas that are of significant size and those which have been established for at least a period of six years for management activities to be manifested in their performance. In consideration was a requirement that the institutional arrangements of the conservancies selected have biodiversity conservation as one of their principle objectives and share some common ecological, demographic and socio-economic characteristics. The three representative sites were ultimately selected and stratified based on the above criteria for this study.

Three research assistants were selected and were trained in natural resource management and community development with past experience in previous similar research enumeration activities. Besides past research experience, the other criterion used in selection of the research assistants was that they came from the neighbouring areas and were familiar with the research sites and the people, as well as being proficient in the language of the dominant groups in the respective areas of the study. The research assistants were given intensive training on the overview of the study, its research objectives, key research questions, and the general conceptual and theoretical framework adopted. The purpose and design of each section of the questionnaire was explained and discussed, detailing the meaning of each question and possible responses to each question with the likely misinterpretations and misunderstandings that might arise also being discussed. The training also covered administrative issues and enumerators' conduct and ethics in the field. The selected sample population for this study entailed the surrounding local communities living and working within the study sites.

#### ***4.4.1.1. Local communities***

In total, two hundred and seventy respondents (270) were sampled from the local communities (at the household level) living and working within and adjacent to the study area boundaries. The selection criterion for the community residence was that they should be within a distance of one kilometre from the park boundary, for their interaction with the park resources and authorities to be well manifested. A multistage cluster sampling design (Robson, 2002) was employed for Lake Nakuru National Park (100 respondents) and Kedong Game Ranch (70 respondents) where the population distribution is expansive. The communities in these two sites were divided into villages using census tracts, from which the households were stratified and randomly selected. In Kedong Game Ranch, the sample respondents were found to be fewer than envisaged because the population is scattered over a large area, with most of it failing to satisfy the set criterion for distance of residence from the park boundary. For the Kimana Community Wildlife Sanctuary, one hundred (100) respondents were identified from the sanctuary membership register (843 members)

procured from the community committee. Using their register numbers, the respondents were then randomly selected.

The unit of analysis was the individual household, with the head of the household, or a delegate representative responding to the questionnaire. In this study, the terms “household” and “head of household” are used in the context defined by the Kenya Central Bureau of Statistics (CBS, 2002). A household is therefore defined as:

*... a person or group of persons generally bound by ties of kinship, and who normally reside together under a single roof, or under several roofs within the same compound or homestead area, and sharing a community of life by their dependence on a common holding as a source of livelihood, and that the members are answerable to the same head.*

*(CBS, 2002: 8)*

The head of household is defined as “the senior member of the household resident in the household compound or through residing elsewhere returns at frequent intervals” (CBS, 2002: 5). The household head might be male or female. In cases where the head of the household is not resident, the position of household head was taken by the senior member of the household residing in the compound. In most cases, this was the spouse or the oldest adult child.

The communities’ responses were gathered through the use of questionnaires (Appendix 1). The questionnaire was both in English and Kiswahili with attempts made to translate the questions in the local language to ensure complete understanding and freedom during the interview. In order to determine the effectiveness of the research instrument, the questionnaire was pre-tested among thirty local community members, ten from each research site who were not included in the sampling frame. As a result modifications on several questions were made to clear up ambiguities and to make some questions more relevant to local situations and conditions.

#### ***4.4.1.2. Protected area staff***

Staff and personnel working for the protected study areas were interviewed. Appointments were made with the senior management officials for convenient times when the interviews could be conducted. A total of 45 respondents (fifteen in each study area) were selected through convenience sampling. This was achieved through obtaining a list of the entire personnel from each of the study areas from which the staff that were more linked with implementing the conservation objectives of the park were selected. The interviews took place at their working centres using a semi-structured questionnaire (Appendix 2) administered by the researcher to guard against any inconsistencies.

#### ***4.4.1.3. Key informants (regulators and resource persons)***

Three key respondents (one from each study site) were chosen purposively to be key informants on behalf of the overall management of each of the protected areas. These were either the manager or owner of the conservancy. The researcher administered semi-structured interviews (Appendix 3) with the regulators. Other resource persons consulted included directors of government and non-governmental organisations including the Kenya Wildlife Service (KWS), National Environmental Management Act (NEMA), and African Wildlife Foundation (AWF) at national, provincial and district levels in order to gather additional empirical data and insight on the management perspectives of various conservation agencies.

### **4.5. Data Collection Instruments**

Bickman and Rog (1998) observe that in order to conduct research thoroughly and provide reliable results, often, multiple techniques cutting across qualitative and quantitative boundaries are required. According to De Vos *et al.* (2002), a blending of qualitative and quantitative data can be regarded as a method of triangulation. Triangulation refers to the utilisation of different types of sources that provide insight into the same events (Bickman and Rog, 1998). This section discusses the data gathering instruments that were developed and utilised in this study. Both secondary and primary methods for collecting data were employed.



#### **4.5.1. Secondary data**

An in-depth study of relevant literature on the research topic was undertaken by the researcher (see Chapter Two) from the beginning of the research and continued throughout the research period. The information derived from the initial literature review and the preliminary study undertaken in the study sites was used to construct the research questions and generate guidelines for the interviews.

Data was collected from government offices, non-governmental agencies, libraries, teaching and research institutions, international organisations, and bookstores. Information was gathered through review of library books, maps, journal articles, general media, census data, meeting minutes, conferences and seminar proceedings, project proposals, progress reports, and evaluations of past and ongoing conservation oriented projects in the area and websites. Some of the institutions visited included the African Wildlife Foundation (Nairobi), the Kenya Wildlife Service headquarters, Ministry of Environment and Natural Resources, Institute of Development and Population Studies of the University of Nairobi, the Kenya National Archives, Kenya Central Bureau of Statistics library and the United Nations Environmental Programme (UNEP) in Nairobi.

#### **4.5.2. Primary data**

Two primary data gathering instruments were utilised in this study:

- an in-depth interview schedule was developed for the qualitative requirements of the study (Appendix 3); and
- survey questionnaires for the quantitative component of the study (Appendices 1 and 2).

##### ***4.5.2.1. Questionnaire survey***

Questionnaires formed the primary means through which data was collected (Appendices 1 and 2). This was designed along the lines of the specific objectives and the guiding questions of the research. The survey questionnaire was employed with the local communities living within the boundaries of the conservation study areas and the

management staff of the conservation agencies. According to Rubin and Babbie (2001), the questionnaire should have an introductory component and be supported by clear instructions. De Vos *et al.* (2002) indicate that such a component will make the respondents fully comprehend the study and be able to thoroughly and voluntarily decide about their participation. These requirements were addressed with an accompanying explanatory letter of introduction, adequately orienting the respondents towards the purpose of the study as well as an assurance of confidentiality. This letter was attached to every questionnaire.

The questionnaires included fixed-response questions on local conditions (size of the area, resource use and tenure patterns, and institutional arrangements) as well as cultural and socio-economic characteristics (ethnic origin, age, gender, educational level, income, occupation, length of residence in the area, household demographics) of the household respondents and local communities. Open-ended questions were included to elicit more extensive discussions of some of the issues raised and to enable the cross-checking of responses (Infield, 1988). These included perceptions and attitudes towards the government conservation institutions (experiences with introduced conservation systems compared to the traditional resource use and management strategies, level of community involvement, relationship with the conservation authorities and their suggestions for an effective sustainable conservation strategy) and threats to the conservation strategies and factors causing them.

The questions were formulated in such a way that some answers could be checked and related to basic demographic variables such as household size, education and economic activity. The utilisation and importance of the natural resources in the study sites formed the second part of the questionnaire, after which the problem of biodiversity loss was discussed. The last part of the questionnaire was directed at obtaining insight into the personal opinion of individuals regarding the protected area, as well as some topics addressing management, control and conservation. While the survey information was recorded on the survey forms, the qualitative responses were summarised in field notebooks. General observations were made of fields damaged by wild animals. Informal

conversations with key informants in villages were also undertaken when the opportunity arose.

#### **4.5.2.2. Interview schedules**

The study involved conducting in-depth interviews with key informants that included regulators and resource persons in government and non-governmental agencies to elicit information on the status of the resources and management styles of the conservation systems, perceived relationships between the local people and the conservation authorities, and suggested responses to the challenges to the conservation initiatives. The interviews were administered by the researcher in a semi-structured and open-ended manner providing the respondents an opportunity for elaboration and freedom of expression (Appendix 3).

The key informants included local leaders in government departments (representatives of government agencies charged with protected area administration and management like district officers and local chiefs, park managers, conservation officers, research officers amongst others), staff of non-governmental organisations affiliated in conservation-oriented projects, local community leaders, and private conservancy holdings managers.

#### **4.5.3. Data analysis procedure**

Data analysis involves an analytical process where factors or constituent variables of the study are isolated. Mouton and Marais (1996) refer to data analysis as the resolution of a complex into parts while De Vos *et al.* (2002: 339) describe data analysis as “the process of bringing order, structure and meaning to the mass of collected data”.

The qualitative data accumulated during the interviews in this study was categorised focusing on establishing links between the different data contexts in order to formulate themes as the desired outcome of the analytical process. In terms of quantitative data analysis, questionnaires were collected and afforded individual codes for the fixed responses while for the open-ended questions, the themes were coded and captured into digital format. Various tools were used to analyse the data. This involved descriptive and

inferential statistics using the Statistical Package for the Social Sciences (SPSS). The data was summarised in tables, charts and graphic presentations, and key trends discussed with reference to other related studies. Where multiple responses were elicited on open-ended questions, data is presented as percentage of respondents giving each response, and may sum to over 100%. Conclusions and recommendations pertaining to the research which were generated based on the results of the analysis are presented as the final chapter of this study.

#### **4.6. Field Experience**

The field survey of this study had several challenges and limitations. First, the research was conducted at a time when the country was experiencing post-election and ethnic tension and violence that was more evident in the Rift Valley Province where the study was undertaken. Given what some community members had gone through and the high levels of distrust and tensions, several respondents were suspicious of the intent of the researcher. With the legal permit and approval of the research by the government authorities, the Kenya Wildlife Service rangers and local security personnel were very cooperative and provided assistance in facilitating access to the communities and appeasing their fears when required. However, in some instances, for personal security, the researcher had to delay visits to some villages where the situations were still volatile until it was safe to visit the communities.

Secondly, in other instances, some community respondents were unwilling to cooperate arguing that from past participation in other studies, their concerns have not been addressed. The premise here was that the local people felt researchers have been using them for their own gain and not to improve their livelihoods. The researcher therefore had a difficult task to justify the aim of the research and its contribution to society. However, at all times it was emphasised that their participation was voluntary. In other cases, the respondents expected to be paid for their participation citing cases where some researchers have given handouts to them. The personnel and regulators of the study areas were very cooperative and most helpful to intervene when this occurred.

The third challenge had to do with transport around the study areas. The areas are very expansive and the roads very rough and dusty, making the movement within the areas quite nerve-racking. Notwithstanding, the support from the KWS staff was quite commendable even in assisting with transport at times.

#### **4.7. Conclusion**

The preceding discussion of the research methodology has provided an explicit framework for the gathering, processing and analysis of the data, outlining the research questions guiding the study as well as the specific research instruments and techniques utilised. The methodology of the research focussed on establishing an orderly sequence for conducting the study. As such, a logical process of conducting the study was followed that allows the reader to understand the methods applied. Detailed descriptions of the case study areas as well as the researcher's fieldwork experiences were provided. A detailed discussion and interpretation of the results of the analysis of the data is presented in the following chapters.

## CHAPTER FIVE

### DATA ANALYSIS AND DISCUSSION ON LOCAL COMMUNITIES

#### 5.1. Introduction

The methodological process of data analysis was comprehensively discussed in the previous chapter, and the results of this survey are subsequently presented and discussed in this chapter. Mugenda and Mugenda (1999) state that the main purpose of data analysis and discussion is to present the results in a systematic form.

In terms of orientation towards the contents of this chapter, the data is organised in a thematic manner. After coding the qualitative data, the researcher focussed on establishing links between the different data contexts, in order to formulate themes as desired outcomes of the analytical process. Subsequently, the data obtained through the quantitative data analysis process, is reported in relation to the contents of the qualitative results. A comparative analysis and discussion of the key trends and differences between study sites and among the respondents are provided. This is done within the context of the research questions and the study objectives.

#### 5.2. Local Communities

The survey interviewed a total of 270 local community households living adjacent to the protected areas (PAs) under study. Conceptually, these were the local people directly affected by the PAs or whose activities directly impacted on the PAs. The survey questionnaires were distributed as follows:

- One hundred respondents for Lake Nakuru National Park;
- One hundred respondents for Kimana Wildlife Community Sanctuary; and
- Seventy respondents for Kedong Game Ranch.

The discussion, hereafter, makes use of the names Lake Nakuru, Kimana and Kedong to represent the three categories of protected areas under study for consistency in the analysis.

### 5.2.1. Demographic and socio-economic characteristics

The results of the gender distribution of the community household respondents (Table 5.1) indicate that overall, there were more male respondents (71.1%) than females (28.9%). However, there was unequal gender representation in the survey in the three study areas. The gender balance is virtually even in Lake Nakuru with 51% females and 49% males, while in Kimana and Kedong there were fewer females (8% in Kimana and 27.1% in Kedong) as compared to males (92% in Kimana and 72.9% in Kedong).

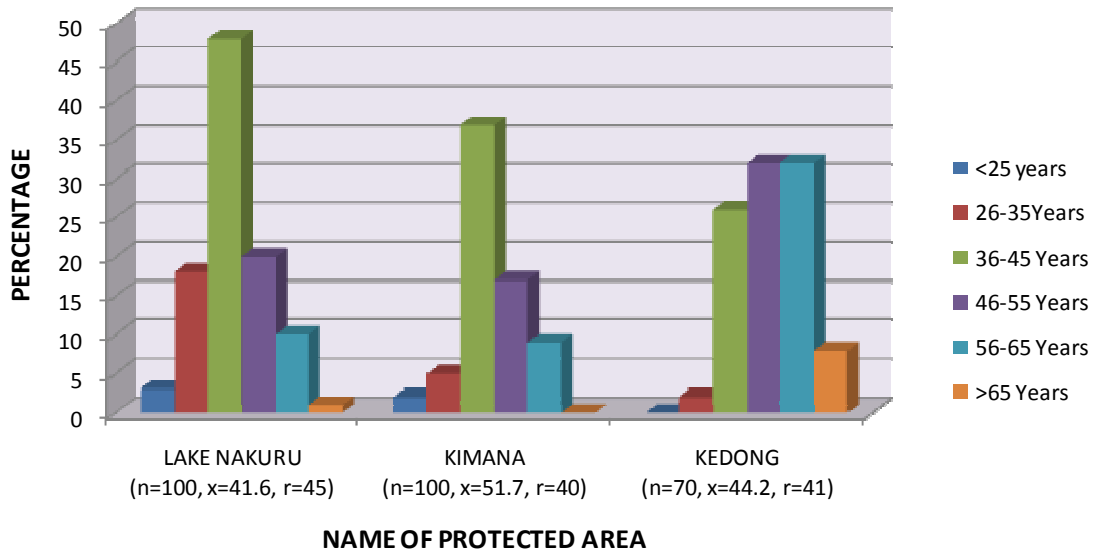
**Table 5.1: Gender distribution of community respondents (in %)**

<b>Gender</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Male	49.0	92.0	72.9	71.1
Female	51.0	8.0	27.1	28.9
Total	100	100	100	100

Gender issues in relation to biodiversity conservation cover the roles that male and female members of the household undertake in relation to access and use of biological resources. In different societies there are differences in responsibilities, user rights, legal status, division of labour and decision-making between men and women. While women's participation in biodiversity conservation is recognised as important, the Egerton University Participatory Rural Appraisal (PRA) Programme (PRA, 1999) reports that traditionally men are the most influential members in Kenyan rural families, and they are regarded as the heads of households and women or children head households only if the husband/ father is absent. The unequal gender representation in Kimana and Kedong can be explained by the fact that the majority of the community respondents in these two study areas were Maasai (Table 6.5). As explained by Bonner (1993), the Maasai society is male-dominated and organised by age sets, warriors and elders. A study by Southgate and Hulme (2000) in Kimana Group Ranch describes gender inequality among the Maasai as closely associated with resource ownership with a large proportion of the Maasai women denied group ranch membership and with it the opportunity to acquire property rights. A similar study by Coupe *et al.* (2002) indicates that women are sometimes even marginalised in conservation interventions, for example, through inequitable distribution of benefits from ecotourism

initiatives. This compares with a study by Baral and Heinen (2007) that indicate women had subordinate roles and less power in decision-making, and men are usually household heads.

With respect to age, the total sample was divided into six age groups due to the wide distribution of age categories (Figure 5.1). The overall average (x) age for the community respondents was 46 years, ranging from 21 to 71 years with the range (r) being 50 years. A study by Mburu and Birner (2002) in Kimana indicated a mean age of 45.09 for the household head in years, which is similar to the findings in this study.



**Figure 5.1: Distribution of community respondents according to age**

The age distribution among the three study sites (Figure 5.1) shows that the majority of the respondents in Lake Nakuru (48%) and Kimana (37%) were between 36-45 years while in Kedong the age groups 46-55 years and 56-65 years equally formed the majority representation of 32% each. Twenty percent and 17% of the respondents in Lake Nakuru and Kimana respectively, were between 26-35 years. Eighteen percent and 5% of the respondents in Lake Nakuru and Kimana, respectively, were between the ages of 26-35



years, with 2% in Kedong within this age group. All the respondents in Kedong were above the age of 25 years with 8% of them above the age of 65 years while in Lake Nakuru and Kimana, 3% and 2%, respectively, were found to be below 25 years. One respondent in Lake Nakuru was over 65 years old while there were no respondents above the age of 65 years in Kimana.

According to Southgate and Hulme (2000), the age group system historically played an important role in the ownership and management of natural resources among local ethnic institutions in Kenya, where customarily, elders remain leaders, with the youth having little independent authority until they inherit power and influence with maturity. However, Campbell *et al.* (2000) point out that this has come under considerable pressure from the formal institutions of resource management where local and national political leaders seek to install young and educated youth into leadership positions that convey considerable political and economic power. For instance, Southgate and Hulme (2000) observe that more young educated Maasai now hold leadership positions in group ranches, where authority to allocate land to individuals rests. Similarly, the KWS has aligned itself with younger people because it perceives them as having greater support for its wildlife management policies than older people (Campbell *et al.*, 2000). Southgate and Hulme (2000) further note that while older customary leaders remain highly respected, their authority and power is increasingly diminished as the influence of young leaders in decisions over resource rights become superior. The altered authority structure has provided opportunities for the powerful local community leaders and others from outside the areas to promote their interests with, for instance, the potential subdivisions of group ranches. The environmental implications associated with these age set dynamics may include land clearance, fencing and habitat fragmentation, with a potential to affect wildlife distribution and migration.

Results pertaining to the marital status (Table 5.2) indicate that 85.2% of the total community respondents were married with 80% in Lake Nakuru, 93% in Kimana and 81.4% in Kedong. Three percent and 2% of the respondents in Lake Nakuru were separated and divorced, respectively, while only one respondent in Kimana was divorced with none

separated or divorced in Kedong. Six percent of the respondents in Lake Nakuru and Kimana stated that they were widowed while in Kedong 14.3% were widowed.

**Table 5.2: Marital status of community respondents (in %)**

<b>Marital Status</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Single	9.0	-	4.3	4.4
Married	80.0	93.0	81.4	85.2
Separated	3.0	-	-	1.1
Divorced	2.0	1.0	-	1.1
Widowed	6.0	6.0	14.3	8.2
Total	100	100	100	100

In response to the educational background of the community respondents (Table 5.3), the majority of the respondents (95%) in Lake Nakuru had obtained formal education with 9% having attained some form of technical training (4% certificates and 5% diplomas), while 63.7% in Kedong had obtained formal education and 15.7% indicated some technical training (11.4% certificates and 4.3% degrees). The high literacy rate in Lake Nakuru and Kedong compared to the provincial average (56.9%, Kenya National Bureau of Statistics [KNBS], 2007) can be attributed to their close proximity to major towns like Nakuru and Naivasha. In Kimana, the level of formal education is lower (80%) and only one respondent reached high school and attained some technical training (certificate). This can possibly be explained by the traditional orientation of the Maasai people who form the majority of the respondents (99%) in the area (Table 5.5). According to Gichohi (2003), the Maasai community does not value education, especially for girls. For community conservation initiatives to be successful, the local people should be in a position to understand access issues and comprehend information on livelihood economic options. This position is echoed by Okello *et al.* (2003) who assert that where local communities are illiterate or have low levels of formal education, conservation outreach programmes through formal education will be less successful. It is therefore important for conservation strategies to intensify extension work and adult literacy programmes to the local communities as a vehicle to create awareness about the value of conserving biodiversity and improving

conservation attitudes (Infield and Namara, 2001). Moreover, Gichohi (2003) points out that whereas illiteracy is a hindrance for most people to take advantage of opportunities available, education is a critical development benefit widely considered to be the most powerful means of lifting communities out of extreme poverty, one of the driving forces of biodiversity decline (Ntiamoa-Baidu, 2001).

**Table 5.3: Educational level and technical training of community respondents (in %)**

<b>Highest level of formal Education</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
None	5.0	80.0	37.1	41.2
Lower Primary (Std 1-4)	10.0	14.0	7.1	10.7
Upper Primary (Std 5-8)	25.0	5.0	31.4	19.3
Junior High (Form 1-3)	26.0	1.0	4.3	10.7
Senior High (Form 4-6)	34.0	-	20.0	18.1
Total	100	100	100	100
<b>Technical training</b>				
Yes	9.0	1.0	15.7	7.4
No	91.0	99.0	84.3	92.6
Total	100	100	100	100
<b>Training qualification</b>				
Certificate	4.0	1.0	11.4	4.7
Diploma	5.0	-	-	1.7
Degree	-	-	4.3	1.1
Not Applicable (N/A)	91.0	99.0	84.3	92.5
Total	100	100	100	100

The study reveals that the majority of the community respondents were originally from either the local districts or the neighbouring districts (Table 5.4). Thirty six percent of the respondents in Lake Nakuru came from the local Nakuru district and 19% from the neighbouring Kericho district, while 99% of the respondents in Kimana came from the local district Kajiado. In Kedong, 12.7% of the respondents came from the local district Naivasha, while 44.1 % and 18.4% originated from the neighbouring Narok and Nakuru districts, respectively. The possible explanation to the differences in relation to the district of origin may be linked to the regulatory mechanisms imposed by the political units such as exclusion of outsiders, seasonal variations in land use and social pressure (Waiganjo and

Ngugi, 2001). For example, in Kedong, the majority of the respondents are from Narok District who are semi-nomadic Maasai and the migrant Kikuyu (Table 5.5) entrepreneurs (Bonner, 1993) who have migrated from other areas in their quest for business prospects as well as others who were displaced from the north and central rift districts by political and ethnic violence (Wakhungu *et al.*, 2008; Waki Report, 2008).

**Table 5.4: District of origin of community respondents (in %)**

<b>District of origin</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Machakos	1.0	-	-	0.4
Kiambu	3.0	-	2.7	1.8
Muranga	4.0	-	-	1.5
Nyeri	4.0	-	1.2	1.9
Kericho	19.0	-	-	7.0
Kisii	8.0	-	2.7	3.7
Nyandarua	4.0	1.0	-	1.9
Nakuru	36.0	-	18.4	18.9
Trans Nzoia	7.0	-	2.2	2.6
Thika	2.0	-	-	0.7
Naivasha	4.0	-	12.7	4.8
Uasin Gishu	8.0	-	11.4	5.6
Narok	-	-	44.1	11.5
Migori	-	-	4.1	1.1
Kajiado	-	99.0	-	36.6
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 5.5 shows that in Lake Nakuru and Kedong there are several ethnic groups (or tribes) with 41% and 34% of the respondents in Lake Nakuru being Kikuyu and Kalenjin, respectively, while in Kedong, 41.4% and 47.1% of the respondents are Kikuyu and Maasai, respectively. Ninety nine percent of the respondents in Kimana spoke the local language (Maasai) with only one respondent speaking Kikuyu. This is similar to a study conducted by Mburu and Birner (2002) which indicated that members of Kimana belong to one ethnic group (Maasai). Other ethnic groups indicated include immigrants from districts not neighbouring the study areas (one respondent was Kamba in Lake Nakuru, 6% and 2.9% Kisii, 5.0% and 2.9% Luhya, and 4% and 4.3% Luo in Lake Nakuru and Kedong, respectively). Two percent and 1.4% of the respondents in Lake Nakuru and Kedong,

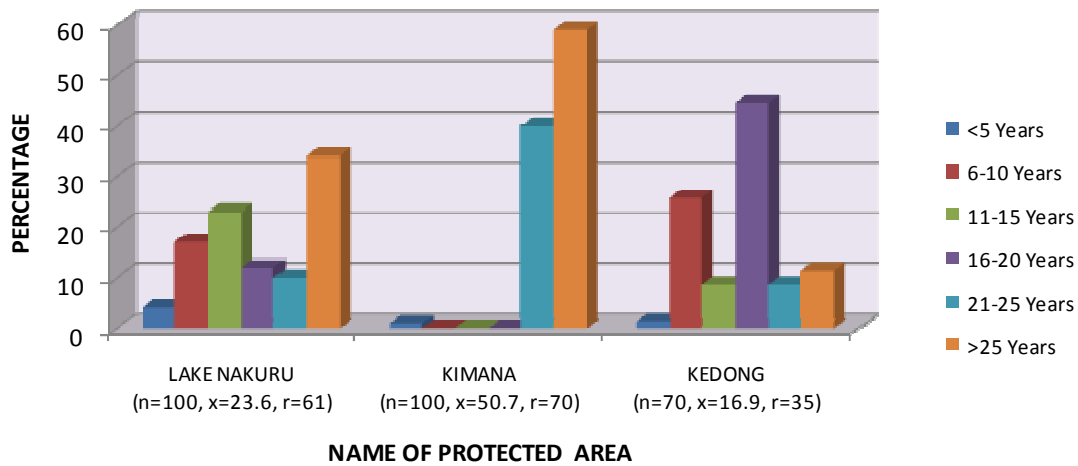
respectively, reported that they were not oriented to any native language but spoke Kiswahili which is the national language spoken in the country.

**Table 5.5: Home language of community respondents (in %)**

<b>Home Language</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Kamba	1.0	-	-	0.4
Kikuyu	41.0	1.0	41.4	26.7
Kisii	6.0	-	2.9	3.7
Kalenjin	34.0	-	-	16.2
Luhya	5.0	-	2.9	2.6
Maasai	7.0	99.0	47.1	48.9
Kiswahili	2.0	-	1.4	0.4
Luo	4.0	-	4.3	1.1
Total	100	100	100	100

Environmental education and development programmes in Kenya are conducted in the formal national languages Kiswahili and English (CBS, 2006). It is therefore important for the local communities to be oriented in these languages for them to participate in the programmes. Moreover, some community conservation and development programmes are sponsored and undertaken by foreign NGOs whose members may not understand the local languages. Gichohi (2003) notes that empowerment of the local people and integration of indigenous knowledge into the programmes will be facilitated by having formal education.

When asked for how long the community respondents had resided adjacent to the protected area boundaries, 34% of the respondents in Lake Nakuru, 59% in Kimana and 11.4% in Kedong reported to have lived there for more than 25 years (Figure 5.2). Twenty three percent of the respondents in Lake Nakuru indicated that they resided there for between 11-23 years, 40% in Kimana for 21-25 years and 44.3% in Kedong for 16-20 years.



**Figure 5.2: Period of stay in the area for community respondents**

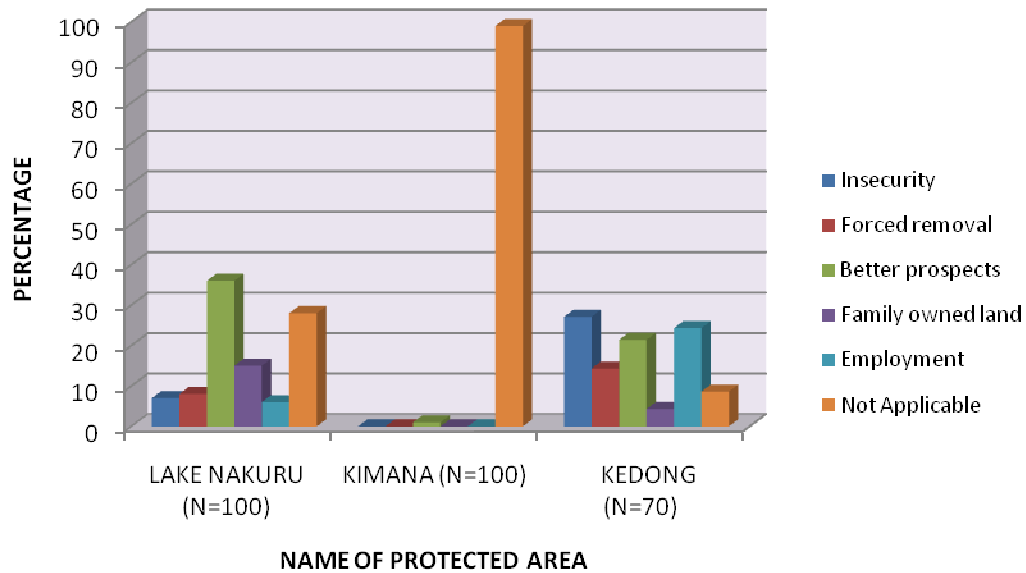
The long length of residence of the communities in their areas of origin shows that they are mostly established in the areas. The possible explanation to this may be that the attachment to the areas developed through individual, group or cultural orientation. Proshansky *et al.* (1983) state that place attachment is expected to develop through personal experiences and bonding with the physical environment. Vorkin and Riese (2001) point out that the use of different areas is usually strongly related to the distance from place of residence and local inhabitants most likely use local resources, developing attachment to the local areas to a larger degree. Similarly, Shumaker and Taylor (1993) observe that place attachment or belonging and dependency involve care and concern for the place. It is therefore expected that attachment to a place by certain groups of local communities would influence both the perception of and response to changes in the environment, and it could affect their attitudes toward any development including conservation initiatives.

Table 5.6 indicates that 72% of the respondents residing along the boundaries of Lake Nakuru and 91.4% along Kedong had previously lived elsewhere before moving into the study areas. Only one person from Kimana had resided elsewhere indicating a strong attachment of the local people (the Maasai) to this area.

**Table 5.6: Previous residence of community respondents (in %)**

Response	Lake Nakuru (n=100)	Kimana (n=100)	Kedong (n=70)	Total (n=270)
Yes	72.0	1.0	91.4	50.7
No	28.0	99.0	8.6	49.3
Total	100	100	100	100

Western (1982) explains that since independence, the Maasai around the Amboseli basin that covers Kimana, have tried to protect themselves from a new wave of agricultural encroachment into their land, lobbying strongly for land tenure which would guarantee their rights to the entire region. This supports the argument by Vorkin and Riese (2001) who indicate that place attachment may be an important factor in explaining opposition to environmental degradation among the inhabitants in the community where the degradation will take place. The reasons indicated by other community respondents for moving in the study areas are illustrated in Figure 5.3.



**Figure 5.3: Reason for moving into the areas**

Forty six percent of the respondents in Lake Nakuru, 21.4% in Kedong and one respondent in Kimana indicated that they migrated from their original areas to the present settlements primarily due to prospects for better opportunities. This entailed the necessity to move to

“greener pastures” in terms of employment and business opportunities, farm sizes, ecology, and productivity to provide for growing family needs (Southgate, 1998).

Constitutionally, individuals may own land in any place in Kenya and, in law, no part of the country belongs to an ethnic group (Waiganjo and Ngugi, 2001). Nevertheless, as stated in the Waki Report (2008: 31) of the Commission of Inquiry into Post Election Violence (CIPEV), “many of the newly created districts since the nineteen nineties have been ethno-specific, leading to the creation of ethnically homogenous effective ‘native’ reserves”. Fifteen percent of the respondents in Lake Nakuru and 4.3% in Kedong indicated that they bought the land they now occupy or moved into land inherited from their family, while another 6% in Lake Nakuru and 24.3% in Kedong stated that they moved into the area for employment (Figure 5.4). For instance, in Kedong, the immigrants provide casual labour in the neighbouring flower farms (GoK, 2002a). The possible implications associated with the movement of outsiders into the areas may include an increase in local population and diversification of the local economy, heightening pressure on local biodiversity components (Leach and Mearns, 1996; Western, 1982), and fuelling conflicts in resource use with the indigenous people (Campbell *et al.*, 2000).

According to the Akiwumi Report (1999), the genesis of ethnic and political conflict in Kenya revolved around the re-introduction of multi-party politics in 1991. Non-Kalenjin communities, especially the Kikuyu, supported the return of plural politics but the Kalenjin and Maasai communities, then supporters of the ruling Kenya African National Union (KANU) were opposed to any challenge on KANU. The report notes that the purpose of the ethnic clashes in 1992 and 1997 was to evict the so called non-indigenous communities who were perceived to be unsupportive of KANU. A Study by Southgate and Hulme (2000) on the Scramble for Wetlands in Southern Kenya reveals that conflicts between ethnic groups over customary rights of access to key resources was the result of the growing pressures on land and livelihoods, and the promotion of “*majimboism*” (regionalism). The CIPEV findings (Waki Report, 2008: 41) note that utterances made by politicians and their cronies during election campaigns incited people along ethnic lines



with the “*majimbo*” debate. Such a debate, while particularly assuming an overtly ethnic dimension, brought the issues of recovery of ancestral land by the natives and the removal of “outsiders” from these areas to the fore. Against this background, 7% and 27.1% of the respondents in Lake Nakuru and Kedong, respectively, reported to have moved out of their previous residences as a consequence of insecurity, while 8% percent and 14.3% in these same areas, respectively, indicated that they had been forcefully removed from their lands. There was no case of insecurity or forced removals recorded by the Kimana respondents. The possible reason for this may be because the area is occupied by mainly one ethnic group (99% Maasai - see Table 5.5), an argument supported by Kellert *et al.* (2000) and Southgate and Hulme (2000) who contend that Kajiado district is home to a predominantly Maasai population (78%).

Asked about their occupational economic activities, the majority of the community respondents indicated that they were involved in multiple occupations as summarised in Table 5.7.

**Table 5.7: Occupation of community respondents (multiple responses - in %)**

<b>Occupation</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Formal unemployed	21.0	98.0	62.9	60.4
Labourer	16.0	2.0	14.3	10.4
Domestic	24.0	6.0	27.1	18.1
Business	35.0	50.0	24.3	37.8
Civil Servant	10.0	-	15.7	7.8
Mixed Farming	76.0	1.0	67.1	45.9
Pastoralism	-	99.0	41.4	47.4
Pensioner	9.0	-	1.4	3.7
Mining	1.0	-	-	0.4

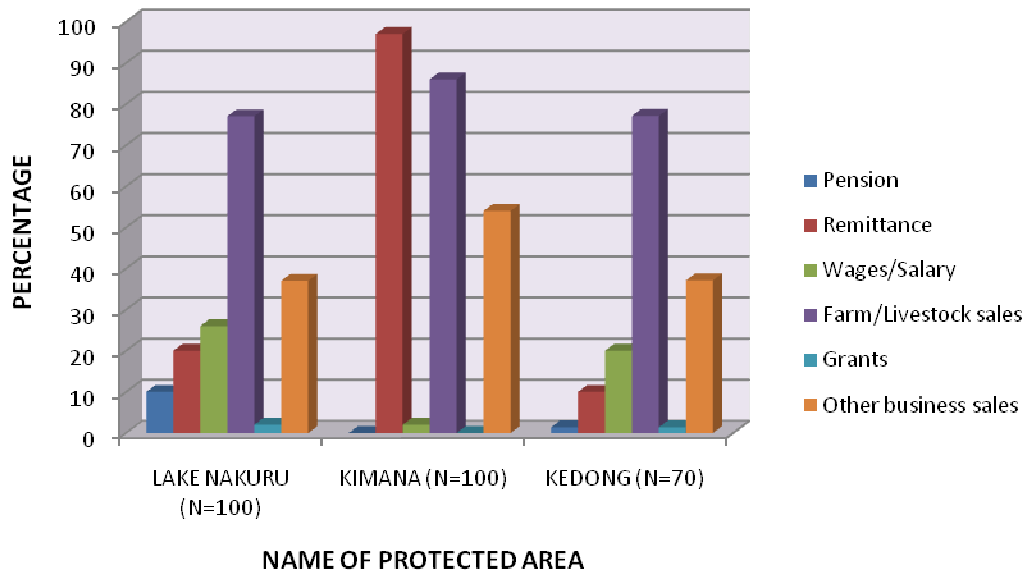
Twenty one percent of the respondents in Lake Nakuru, 62.9% in Kedong and 98% in Kimana said they were unemployed translating to 60% of the total respondents. This may be attributed to the low educational and technical skills levels noted in the study areas (Table 5.3). In all the three study areas, 45.9% of the respondents were practising mixed farming by integrating cultivation with livestock production on their own or on family

farms (Lake Nakuru 76%, Kedong 67.1% and one respondent in Kimana). The differences can be explained by the fact that in Lake Nakuru and Kedong, there is a large representation of the Kikuyu community (CBS, 2002; Table 5.5), who are cultivators (Southgate and Hulme, 2000) compared to the Maasai in Kimana who have a cultural affinity for livestock (Bonner, 1993). Moreover, Nakuru district is a high potential area suitable for crop production, while Kimana is a marginal area categorised as arid and semi-arid ecologically (GoK, 2002a). The noted farming was basically on small-scale growing of green vegetables, potatoes, maize, beans and livestock activities like poultry, sheep and dairy cattle around the homesteads. The lack of large-scale farming among the community respondents can be attributed to the expansion of population and reduced farm sizes (Southgate and Hulme, 2000). Mburu and Birner (2002) explain that livestock keeping is a major wealth determinant and a more important farming enterprise among the Maasai in Kimana. Pastoralism is the main occupation of the majority of the people (99%) in Kimana, while in Kedong 41.4% of the respondents are engaged in pastoralism. This entails keeping large herds of cattle, sheep and goats on free range grazing systems resulting in perennial conflicts with farm owners and protected area authorities for watering and grazing resources (Campbell *et al.*, 2000). According to the CBS (2007), there is a large representation of the Maasai community in Kimana and Kedong who are culturally semi-nomadic pastoralists (Barrow *et al.*, 1993; Kellert *et al.*, 2000; Southgate and Hulme, 1996). Campbell *et al.* (2000) observe that the expansion of cultivation and demarcation of areas for wildlife conservation altered access to water and grazing areas for the pastoral people intensifying competition and conflicts from different land uses.

A considerable number of respondents (37.8%) also indicated that they operate businesses (35% in Lake Nakuru, 24.3% in Kedong and 50% in Kimana). These included businesses linked to the tourism industry like selling curios to tourists and small income generating businesses like hawking farm produce in the local market or operating food “*kiosks*” (sheds) for company or farm workers (Sindiga, 1999). Other occupational economic activities noted include wage employment in casual and domestic labour. These entailed working on homes, private farms and protected areas as drivers, tour guides, herdsmen,

watchmen, farm labourers, waiters, and so on. Twenty four percent and 16% of the respondents in Lake Nakuru indicated that they are engaged in domestic and casual labour, respectively. In Kedong domestic and casual labour recorded 27.1% and 14.3%, respectively, while in Kimana only a few of the respondents engaged in these occupations (domestic 6% and labourer 2%). One respondent in Lake Nakuru reported to be engaged in sand mining. The results show that there is very minimal engagement in professional occupation in the civil service amongst the respondents, representing 7.8% of the total respondents interviewed with 10% and 15.7% in Lake Nakuru and Kedong, respectively, while in Kimana there was none. Nine percent and 1.4% of the respondents in Lake Nakuru and Kimana, respectively, receive government pensions. With low levels of opportunities for engagement of the local communities in employment in the protected areas coupled with lack of economic incentive for conservation (Gichohi, 2003), local people may not support conservation initiatives. Moreover, when the community experiences inadequate economic opportunities, there is an increase in unsustainable alternative livelihoods strategies like charcoal burning activities, sand harvesting and overgrazing that cause soil erosion and disruption of river and stream flows (Blaikie, 1985; Blaikie and Brookfield, 1987).

The findings illustrated in Figure 5.4 show that the community respondents' households had a variety of sources of monthly income. The results show that the respondents in all the case studies experience a high dependence on incomes from farm harvest and livestock sales (77% in Lake Nakuru, 77.1% in Kedong and 86% in Kimana) and business sales (37%, 37.1% and 54% in Lake Nakuru, Kedong and Kimana, respectively). Twenty six percent, 20% and 2% of the household respondents in Lake Nakuru, Kedong and Kimana, respectively, are on a monthly salary or wage income while 2% of household respondents in Lake Nakuru and 1.4% in Kedong receive grants in the form of food relief or social grants for the physically challenged from government and non-governmental institutions. Ninety seven percent, 20% and 10% of the households in Kimana, Lake Nakuru and Kedong, respectively, rely on remittances from relatives or contributory schemes.



**Figure 5.4: Source/s of monthly income for community respondents households (multiple responses)**

A study by Coupe *et al.* (2002) on livelihood strategies for park-adjacent communities in Kenya indicates that community members benefit from income from the KWS revenue-sharing scheme or earn profit bonuses from involvement in income generating and contributory schemes such as selling water and goat rearing, while others have adult children in employment who send remittances. Ten percent of the respondents' households in Lake Nakuru and 1.4% in Kedong receive government pensions, while none in Kimana receive pension or grants. The possible reason for the differences here can be attributed to the fact that some respondents in both Lake Nakuru and Kedong are pensioners (Table 5.7), while none in Kimana was a pensioner. Additionally, unlike in Kimana, for both Lake Nakuru and Kedong, there were cases of internally displaced respondents who had moved into the areas due to insecurity and forced evictions (Figure 5.3) that were on government grants. Other business sales amounted to 37% in Lake Nakuru, 54% in Kimana and 37.1% in Kedong. This included tourism-related business activities like firewood and charcoal sales to the camps and selling of curios, crafts and cultural artefacts to tourists.

The differences in the sources of income can be explained by differences in the level of education, infrastructural development, market availability and access to employment opportunities in the study areas. For instance, the low number of respondents on salary or wage employment in Kimana can be attributed to lack of formal education (Table 5.3), a critical avenue for development. An evaluation of the economic returns of various land-use options among the pastoral communities in Kenya, including conservation easements (Gichohi, 2003) revealed that the income available from livestock was low and unreliable, and the returns from cropping were even less profitable. Parks and reserves are important contributors to local economies and overall national income in Kenya where sources of income are limited (Emerton, 2001; WRI/DRSRS/CBS/ILRI, 2007). Payments to households that participated in conservation lease programmes were found to be close to the income that households earn from rearing livestock. This explains the high amounts of remittances in Kimana where many landowners have leased their land for conservation. Coupe *et al.* (2002) further indicate that leasing of land to private organisations for tourism ventures brings income to the community members. However, Emerton (2001) points out that most local communities surrounding parks engage in economic activities which threaten or deplete wildlife resources, for example, through resource over-exploitation, hunting and the clearance of habitat for agriculture. It is therefore critically important to create economic incentives to conserve wildlife that will ensure the local people are better off in financial and livelihood terms with wildlife than they would be without it.

The overall average total monthly household income for the community respondents was Kenya shillings (Ksh) 8 716.51 (Table 5.8). The majority of the respondents (51.4%) receive a monthly income of between Ksh 5 000-10 000 (Lake Nakuru 47%, Kedong 63% and Kimana 48%). This is similar to the average total income of Ksh 10 000 recorded for area around Amboseli National Park (including Kimana) by Okech (2007: 264).

**Table 5.8: Monthly total household income for community respondents (in %)**

<b>Amount of Income –in Ksh (1 US\$=Ksh 76)</b>	<b>Lake Nakuru (n=100)</b>	<b>Kedong (n=70)</b>	<b>Kimana (n=100)</b>	<b>Total (n=270)</b>
0-5 000	34.0	17.3	15.0	22.5
5 001-10 000	47.0	63.0	48.0	51.4
10 001-15 000	10.0	4.1	27.0	15.0
15 001-20 000	6.0	1.4	8.0	5.5
20 001-25 000	1.0	14.2	1.0	4.4
25 001-30 000	1.0	-	-	0.4
30 001-35 000	-	-	1.0	0.4
40 001-45 000	1.0	-	-	0.4
Total	100 x = 8 395 r = 38 500	100 x = 8 329.4 r = 23 000	100 x = 9 309 r = 30 500	100 x = 8 716.51 r = 40 500

Thirty four percent, 17.3% and 15% of the respondents in Lake Nakuru, Kedong and Kimana, respectively, had a monthly income of less than Ksh 5 000, while only 19%, 19.7% and 37% of the respondents in Lake Nakuru, Kedong and Kimana, respectively, had a monthly income of more than Ksh 10 000, with one respondent in Lake Nakuru reporting a monthly income of between Ksh 40 001-45 000 from a hardware business. It is worthy to note that incomes, particularly those derived from the sale of rain-fed agricultural produce and the informal sector, are extremely variable and difficult to quantify. The overall impression for the three case studies is that a large number of households are living close to or below the poverty line, estimated at 53% and 50% of rural and urban population, respectively (CBS, 2007). The low income levels can be attributed to few local economic opportunities indicated by the fact that over 60% of the respondents are unemployed whilst a considerable number are reliant upon the vagaries of the informal sector (Table 5.7). According to data from the WRI/DRSRS/CBS/ILRI (2007: 91), the size of the poverty gap (described as the amount that would be required to raise the income of every poor person to just reach the poverty line) in communities surrounding parks and reserves in Kenya is enormous; ranging between Ksh 4-6 million per month in the less densely populated areas, such as Kimana and Kedong, and Ksh 400 million per month for the densely populated communities near Lake Nakuru National Park. Poverty is cited as one of the underlying causes of biodiversity decline (Ntiamoa-Baidu, 2001; Wells *et al.*, 1992). For instance, it

pushes the local communities to undertake economic activities that are unsustainable (Emerton, 2001) such as overgrazing, poaching and encroachment on conservation areas for cultivation.

The number of people living in community respondents' households varied from one person to 14 with an average of 6 members per household (Table 5.9).

**Table 5.9: Number of people living in community respondents' households (in %)**

<b>Number of people</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
One	4.0	-	-	1.5
Two	2.0	7.0	-	3.3
Three	8.0	-	4.3	4.1
Four	10.0	8.0	34.4	15.6
Five	17.0	25.0	15.7	19.6
Six	22.0	16.0	28.6	21.5
Seven	20.0	9.0	12.8	14.1
Eight	13.0	8.0	1.4	8.1
Nine	2.0	16.0	-	6.7
Ten	2.0	-	-	0.7
More than ten	-	11.0	2.8	4.8
Total	100 x = 5.7 r = 9	100 x = 6.9 r = 12	100 x = 5.4 r = 10	100 x = 6 r = 13

More than half of the households had between 4 and 7 occupants (59% in Lake Nakuru, 50% in Kimana and 57.1% in Kedong). In Kedong, 34.4% of the households had four occupants and only 2.8% had more than 10 occupants, while 11% of the households in Kimana had more than 10 occupants. Four percent of the households in Lake Nakuru reported to have one occupant and none had more than 10 occupants. The household size results relate very closely with the Kenya National Development Plan (2002-2008) data on socio-economic indicators (GoK, 2002a) which indicates an average household size for Nakuru district (Lake Nakuru and Kedong) at 4 persons while for Kajiado district (Kimana) the average household size is indicated as 5 persons (GoK, 2002b). According to Makhanya and Ngidi (1999), a large household is a blessing in contributing towards labour for

household economic activities. However, this can lead to an increase in population and consequently high demand for resources meaning greater pressure on the natural resource base (Carew-Reid, 2003; Southgate and Hulme, 1996).

### 5.2.2. Social amenities and infrastructure development

From the results and discussion in the preceding section, it can be generally concluded that there has been an increase in some opportunities in the study areas, although limited. This is reflected in the change in social and infrastructural developments revealed in this section that shows some investments are taking place. The responses were taken for two periods (before and after the year 2000) in line with the sampling criteria where the selected study areas had to be in place for at least a period of six years for management practices to be manifested in their performance.

**Table 5.10: Type of dwelling for community respondents (in %)**

Type of dwelling	Lake Nakuru (n=100)		Kedong (n=70)		Kimana (n=100)	
	Before 2000	After 2000	Before 2000	After 2000	Before 2000	After 2000
Own formal house	19.0	52.0	7.2	8.5	1.0	1.0
Own traditional hut	38.0	21.0	47.3	60.0	99.0	99.0
Shack/Informal hut	4.0	4.0	-	2.8	-	-
Own formal farm house	39.0	23.0	30.1	12.7	-	-
Employer housed	-	-	15.4	16.0	-	-
Total	100	100	100	100	100	100

Before the year 2000, 19%, 7.2 % and 1% of the community respondents of Lake Nakuru, Kedong and Kimana, respectively, had their own formal house, while 38%, 47.3% and 99% of the respondents in these study areas, respectively, resided in their own traditional huts (Table 5.10). After the year 2000, there was an increase in the number of households owning formal houses (52%) and a decrease in those owning traditional huts (21%) in Lake Nakuru, while in Kedong the respondents who own formal and traditional houses increased to 8.5% and 60%, respectively. The improvement in the status of the type of dwelling may be attributed to improved livelihood strategies and economic opportunities (CBS, 2007). As



Francis (2000) observes, rural populations in Africa have become more reliant upon multiple livelihoods. This suggests that the respondents in this study have access to a range of social, human and physical capital that has enabled them to create more substantial livelihood strategies. This may include, for example, the provision of rural services through rural development projects by both public and private agencies that tend to increase the existing economic differentiation (Bernstein, 1994). Thirty nine percent and 30.1% of the respondents in Lake Nakuru and Kedong, respectively, reported to have dwelled in their own formal farm house prior to the year 2000, while after 2000, the number of formal farm house dwellings decreased to 23% in Lake Nakuru and 12.7% in Kedong. Four percent of the respondents in Lake Nakuru stated that they lived in informal huts (shacks) before and after the year 2000 while 2.8% of the respondents in Kedong indicated to have moved into informal huts (shacks) after the year 2000. A possible explanation for this decrease in status of type of dwelling in both Lake Nakuru and Kedong may be the fact that some of the respondents had been evicted from their former homes during the time of ethnic conflicts (Akiwumi Report, 1999) and had to start afresh in their new settlements. The results also indicate that only in Kedong there were respondents housed by their employer (15.4% before 2000 and 16% after 2000). Most of these respondents worked in flower companies which provided housing for their workers if their permanent place of residence was outside the local area (Table 5.4). There was no change recorded in Kimana with regard to the type of dwelling after the year 2000. This is possibly because the predominantly Maasai community in Kimana have maintained their cultural traditional nature of homesteads (*Manyattas*) surrounding the livestock shed which are constructed with local materials.

Table 5.11 indicates that the majority of the community respondents in the study areas use a pit latrine for sanitation purposes. This was reported by 87%, 84.3% and 78% (before 2000) and 90%, 84.3% and 87% (after 2000) of respondents in Lake Nakuru, Kedong and Kimana, respectively. This compares with the 82% national access to pit latrine sanitation facilities shown by the Kenya population and housing census (CBS, 2002). The slight increase in the use of pit latrines in Lake Nakuru can be attributed to the higher level of literacy (Table 5.3) that is associated with a high premium placed on health status, hygiene

awareness and demand for sanitation facilities (Water Sanitation Programme - WSP, 2004), while in Kimana there has been intensive campaigns on sanitation and hygiene education in communities and schools by the government and NGOs (Makama *et al.*, 2008). According to studies by Kabongo and Kabiswa (2008) in Uganda and Mwakio (1997) in Kenya, pit latrines are the key determinants to groundwater contamination. In most of the local households surveyed in this study, the communities relied on the groundwater supply and flowing streams for portable domestic water supply (Table 5.12). The WSP (2004) observes that the use of pit latrines causes pollution of the underground water regime when permeable soils of considerable depth exist below the pit. According to Dillon (1997), this leads to a high risk of microbiological and nitrate contamination of the water which can have serious and recurrent effects on the health of local communities. Additionally, the author contends that the pollutants may impair other beneficial uses of biodiversity, including the support of any ecosystem which is fed by groundwater (for example, increase in eutrophication by nutrients discharging into a stream, river or lake).

**Table 5.11: Type of sanitation for community respondents (in %)**

Type of sanitation	Lake Nakuru (n=100)		Kedong (n=70)		Kimana (n=100)	
	Before 2000	After 2000	Before 2000	After 2000	Before 2000	After 2000
Flush toilet	5.0	7.0	10.0	10.0	-	-
Pit latrine	87.0	90.0	84.3	84.3	78.0	87.0
None	8.0	3.0	5.7	5.7	22.0	13.0
Total	100	100	100	100	100	100

Before and after 2000 are used to assess whether changes have been experienced. Eight percent of the respondents in Lake Nakuru, 5.7% in Kedong and 22% in Kimana indicated they did not have any type of sanitation prior to the year 2000, while thereafter the number of respondents without sanitation facilities declined to 3% in Lake Nakuru and 13% in Kimana with Kedong remaining the same (5.7%). This applied more to low lying areas which were flood-prone and the latrines will fill up, such as around lake Nakuru and among the nomadic pastoralists in Kedong and Kimana where the people are always moving with their animals in search of new pasture. Under such circumstances the people prefer to use

the bush. In Lake Nakuru, 5% and 7% of the respondents reported using a flush toilet before and after the year 2000, respectively, while 10% in Kedong used a flush toilet prior to and after 2000. None of the respondents in Kimana indicated that they used a flush toilet. The possible reason behind these differences maybe the access to reticulated water in the households. In Lake Nakuru and Kedong, a considerable number of households have access to piped tap water and rain harvested water, while in Kimana the community did not have access to piped tap water or water tanks but relied on portable water from the flowing stream and community wells (Table 5.11).

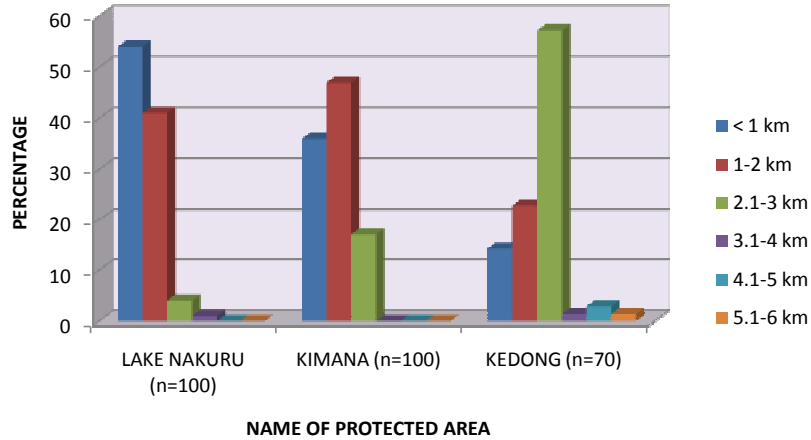
As shown in Table 5.12, the main source of water for the community respondents prior to the year 2000 was piped tap water in Lake Nakuru (26%), communal boreholes in Kedong (42.9%) and flowing streams or rivers in Kimana (59%).

**Table 5.12: Main sources of domestic water for community respondents (in %)**

Water source	Lake Nakuru (n=100)		Kedong (n=70)		Kimana (n=100)	
	Before 2000	After 2000	Before 2000	After 2000	Before 2000	After 2000
Piped tap water	26.0	33.0	37.1	45.6	-	-
Communal borehole	17.0	11.0	42.9	32.9	-	-
Rainwater tank	10.0	24.0	5.7	15.7	-	-
Flowing stream/river	24.0	16.0	7.1	2.1	59.0	60.0
Communal well/spring	16.0	13.0	4.3	1.3	37.0	39.0
Lake/Dam/Pool	7.0	3.0	2.9	2.4	4.0	1.0
Total	100	100	100	100	100	100

After 2000, the number of respondents relying on piped tap water in Lake Nakuru increased to 33% and those on flowing streams or rivers in Kimana to 60% while in Kedong the respondents relying on communal boreholes declined to 32.9%. Before the year 2000, 10% and 5.7% of the respondents in Lake Nakuru and Kedong, respectively, depended mainly on rainwater tanks, thereafter increasing to 24% and 15.7%, respectively. None of the respondents in Kimana had had access to piped tap water, communal boreholes or rainwater tanks. Seventeen percent and 11% of the respondents in Lake Nakuru had used communal boreholes while 37.1% and 45.6% in Kedong had access to piped tap water before and after

2000, respectively. Twenty four percent of the respondents in Lake Nakuru and 7.1% in Kedong used flowing streams or river water before the year 2000. After 2000, this declined to 16% and 2.1%, respectively. Sixteen percent of the respondents in Lake Nakuru, 4.3% in Kedong and 37% in Kimana relied on communal wells or spring water supply. After 2000, the number of communities that relied on flowing streams for water supply decreased to 13% and 1.3% in Lake Nakuru and Kedong, respectively, but increased to 39% in Kimana. Seven percent, 2.9% and 4% of the respondents in Lake Nakuru, Kedong and Kimana, respectively, relied on water supply from a lake, dam or pool before 2000, while after 2000, the respondents accessing water from the lake, dam or pool was 3% in Lake Nakuru, 2.4% in Kedong and 1% in Kimana, respectively. The possible explanation for the difference in water supply sources can be explained by the fact that in Lake Nakuru, many households have improved access to piped tap water distributed by the Nakuru municipality water and sanitation services, while in Kedong, the proximity to the fresh water Lake Naivasha has improved access to piped water coupled with rain harvesting techniques promoted by NGOs in the area such as the UNEP and World Agroforestry Centre (UNEP, 2005). In Kimana, it was noted that the community relied more on flowing streams or rivers and communal wells or spring water supply. This can possibly be explained by the proximity to Mount Kilimanjaro and swamps in the larger Amboseli ecosystem that provide the communities access to flowing streams and springs.



**Figure 5.5: Average distance to the nearest water point during times of scarcity**

Figure 5.5 illustrates that during times of water scarcity, 46% of the community respondents in Lake Nakuru walk for about 1-4 km to the nearest water source while 64% in Kimana and 85.8% in Kedong cover between 1-3 km and 1-6 km, respectively.

According to the Kenyan government socio-economic survey in 2002, the average distance to the nearest potable water point is 2 km for Nakuru District (GoK, 2002a) and 10 km for Kajiado District (GoK, 2002b). According to the United Nations Environment Programme and the World Agroforestry Centre (UNEP, 2005), the change in land tenure, persistent droughts and encroaching desertification process has exacerbated the water deficiency problem in Kenya. For instance, encroachment of riparian zones around Lake Naivasha and the swamps in Kimana for irrigated agriculture causes siltation of the water points. Water scarcity leads to loss of productive time as communities spend many hours trekking long distances for water, which affect their overall concentration and performance in other socio-economic and development activities, thus a contributing factor to local household poverty (ILRI and WRI, 1999). In most cases, the water points are shared with livestock and wild animals increasing conflicts over water use and compromising the water quality.

Clustering of livestock and wildlife at watering points causes environmental degradation. Consequently, the altered water availability and quality leads to overexploitation and depletion reducing production capacities and affecting overall biodiversity.

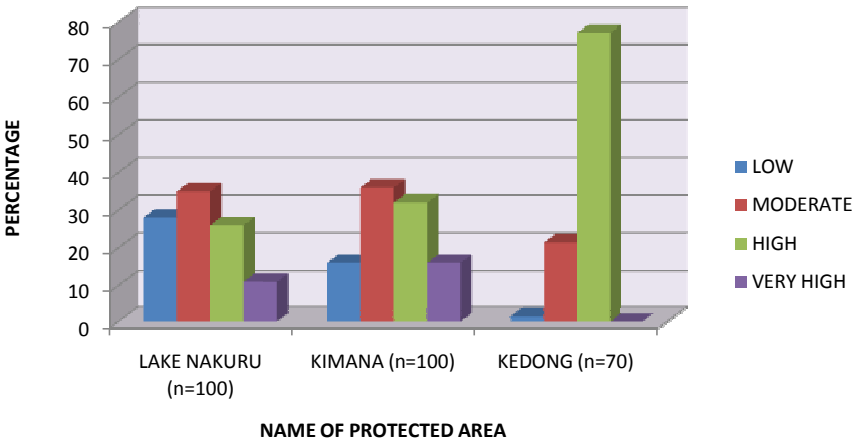
According to the study results in Table 5.13, fuelwood (firewood and charcoal) is indicated as the main source of energy for the community respondents. Sixty four percent and 51% in Lake Nakuru indicated using fuelwood before and after the year 2000, respectively, 45.7% before 2000 and 44.3% after 2000 in Kedong and 97% and 94% in Kimana before and after 2000, respectively.

**Table 5.13: Main sources of energy for community respondents (in %)**

Energy source	Lake Nakuru (n=100)		Kedong (n=70)		Kimana (n=100)	
	Before 2000	After 2000	Before 2000	After 2000	Before 2000	After 2000
Public electricity	8.0	12.0	4.3	7.1	-	-
Gas	3.0	7.0	-	12.9	-	-
Paraffin	21.0	17.0	37.1	33.1	3.0	6.0
Firewood/ charcoal	64.0	51.0	45.7	44.3	97.0	94.0
Solar	4.0	8.0	2.6	2.6	-	-
Total	100	100	100	100	100	100

The demand for fuelwood energy for rural households and for low income groups in urban areas in the form of charcoal presents an important cause of deforestation and consequent land degradation. Paraffin was the second most used source of energy with 21% in Lake Nakuru, 37.1% in Kedong and 3% in Kimana reporting to have used it before 2000. After the year 2000, the use of paraffin as a source of energy by the respondents declined to 17% and 33.1% in Lake Nakuru and Kedong, respectively, while in Kimana it increased to 6%. Eight percent and 4% of the community respondents in Lake Nakuru and 4.3% and 2.6% in Kedong, respectively, had access to public electricity supply and solar power before 2000. After the year 2000, the respondents with access to public electricity supply in Lake Nakuru and Kedong increased to 12% and 7.1%, respectively, and those with solar power in Lake Nakuru to 8% while in Kedong the results remained unchanged (2.6%). Three

percent and 7% of the respondents in Lake Nakuru indicated that they relied on gas as their main source of energy before and after the year 2000, respectively, while 12.9% in Kedong reported to use gas after 2000. The study findings indicate that none of the community respondents in Kimana had access to public electricity supply, solar energy or gas. The differences in the sources of energy between the case studies can be explained by the differences in economic and infrastructural development in the areas. In Lake Nakuru and Kedong, there are well established physical developments oriented towards the proximity to major industrial and commercial towns like Naivasha and Nakuru with a good road and rail network. National electricity supply is developed around Lake Nakuru and Kedong and distributed at subsidised connections through the rural electrification programme to rural households. In Kimana, the area is rural, underdeveloped, isolated from the major towns and deprived of good transport and communication network without public electricity supply (Makama *et al.*, 2008).



**Figure 5.6: Household poverty level of the community respondents**

When asked to assess their household poverty level, 28%, 16% and 1.4% of the community respondents in Lake Nakuru, Kimana and Kedong, respectively, assessed their household

poverty level to be low, while 35%, 36% and 21.4%, respectively, indicated it to be moderately poor (Figure 5.6). Twenty six percent in Lake Nakuru, 32% in Kimana and 77.1% in Kedong stated high poverty levels with 11% and 16% in Lake Nakuru and Kimana, respectively, recording very high poverty levels in their households. The Kenya National Development Plan (2002-2008) data on socio-economic indicators for Nakuru district (Kimana and Kedong) records absolute rural poverty level at 45%, citing landlessness and lack of basic services such as health, credit facilities as contributing factors (GoK, 2002a). For the Kajiado district (Kimana), absolute rural poverty is reported to be 28% with frequent droughts, destruction of crops by wild animals and lack of basic services like health, education and access to credit facilities elicited as some of the contributing factors (GoK, 2002b).

With high poverty levels it is worth noting that it is likely that communities will engage further in unsustainable resource extraction and protected area encroachment to sustain their livelihoods. A study by Ntiamoa-Baidu (2001) identifies poverty as among the main factors militating against protected area management, the continued pressure on resources and the conflicts between local people and conservation authorities. In their quest for survival, the poor often overexploit resources such as land, fisheries, water, flora and fauna. The overexploitation and depletion of resources reduces production capacities leading to low yields in agriculture and encroachment into marginal areas thus affecting food security and leading to economic decline and poverty. This affirms the assertion often stated that the poor are victims and agents of environmental degradation (Swanson, 1998).

### **5.2.3. Resource use and tenure issues**

Land and natural resource tenure provides the legal and normative framework within which all land use and economic activities are conducted. According to Campbell *et al.* (2000), there has been a shift in land tenure systems towards consolidation and individualisation throughout east and southern Africa. Mwau (1996) and Emerton (2001) contend that many wildlife areas and communally owned lands which were formally large have been subdivided into smaller individually owned farms and settlement schemes, for example, around



the Nairobi National Park dispersal area (Gichohi, 2003), the Maasai Mara National Reserve (Norton-Griffiths, 1996) and the Amboseli-Tsavo region (Southgate and Hulme, 1996) in Kenya. The preceding chapter discussed the ownership of the protected areas and indicated that Lake Nakuru is owned by the government, Kimana by the local community and Kedong by a private firm. This section discusses the resource tenure and use in the study areas.

Ninety eight percent and 92.1% of the respondents in Lake Nakuru and Kedong, respectively, reported they were not consulted or involved in the decision to establish the protected area, while all the respondents in Kimana indicated that they were involved in the initiation of the protected area (Table 5.14).

**Table 5.14: Community involvement in asking for the protected area (in %)**

<b>Response</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Yes	2.0	100.0	7.1	39.6
No	98.0	-	92.1	60.4
Total	100	100	100	100

Campbell (2002: 30) highlights four factors generally identified as contributing to social tensions arising from lack of consultation with local people in relation to the establishment of protected areas. Firstly, protected areas have often been created without prior consultation with local people. Secondly, compensation for lost land has often been inadequate, delayed or non-existent. Thirdly, demographic, economic and social pressures have increased encroachment on protected areas. Finally, restrictions on resource use in protected areas work against rural people. According to Kameri-Mbote (2002b) and Utting (1994), lack of consultation with and involvement of local people in the establishment of protected areas provokes social conflicts which often undermine and hamper their success in achieving conservation objectives. For instance, Western (1982; 1997) observes that when conservation initiatives were imposed on the local people around Amboseli National

Park in Kenya in the 1990s, massive killing of wild animals such as elephants took place in the park.

The results indicate that more than half the respondents in Lake Nakuru and Kimana resided within a distance of 400 m from the protected area boundary, while 61.4% of the community respondents in Kedong had their homesteads located at a distance of more than 400 m from the protected area boundary (Table 5.15). Location of the communities' residence in relation to the protected area boundary is important in determining the interactions of the local people with wildlife and protected area staff. For instance, Marquardt *et al.* (1994) observe that local people with households located close to park boundaries, express more negative attitudes towards the park than do more distant ones. This is in agreement with the study conducted by Weladji *et al.* (2003) on attitudes to wildlife conservation in Cameroon which found that local people living closer to the park were more negative about the conservation initiatives in the area.

**Table 5.15: Distances of community respondents' residences from the protected area boundary (in %)**

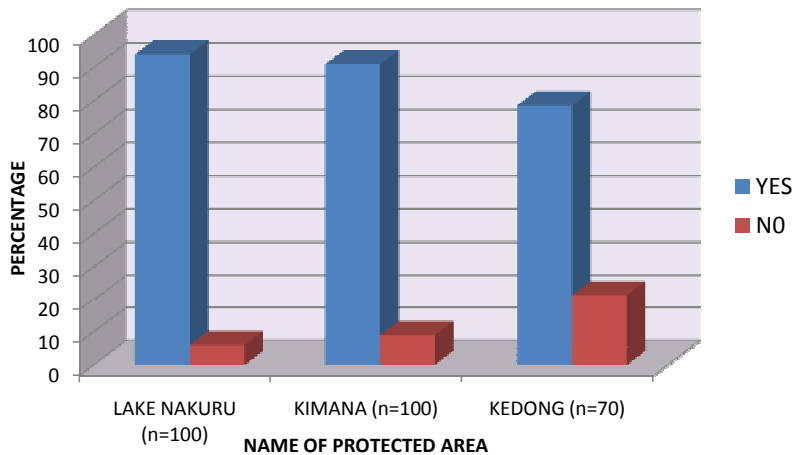
<b>Distance (meters)</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
1-100 m	9.0	8.0	4.3	7.4
101-200 m	26.0	9.0	5.7	14.4
201-300 m	18.0	16.0	12.9	15.9
301-400 m	21.0	30.0	15.7	23.0
>400 m	26.0	37.0	61.4	39.3
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 5.16 indicates that the average household land/ plot size for the whole survey was 3.9 acres, ranging from less than 50 acres. In Lake Nakuru, the average land size was 1.2 acres, 4 acres in Kedong and 6.5 acres in Kimana.

**Table 5.16: Land size (in %)**

Land size (Acres)	Lake Nakuru (n=100)	Kedong (n=70)	Kimana (n=100)	Total (n=270)
<5	99.0	62.0	88.6	83.0
6-10	1.0	18.0	2.9	7.4
11-15	-	11.0	2.9	4.8
16-20	-	1.0	1.4	0.7
21-25	-	8.0	-	3.0
26-30	-	-	1.4	0.4
31-35	-	-	-	-
36-40	-	-	1.4	0.4
46-50	-	-	1.4	0.4
Total	100 x = 1.22725 r = 10	100 x = 3.99643 r = 50	100 x = 6.52500 r = 24.5	100 x = 3.90361 r = 50

Ninety nine percent of the respondents in Lake Nakuru, 62% in Kedong and 88.6% in Kimana owned less than 5 acres of land, ranging in size from zero to 10, zero to 50 and 0.5 to 24.5 acres, respectively. These figures compare closely with the average land size per household indicated in the districts' development plans (GoK, 2002a; 2002b) of 2.5 acres in Nakuru (Lake Nakuru and Kedong) and 5.9 acres in Kimana. The smaller land sizes can possibly be explained by the relative increase in population densities in the case study areas, the subdivisions of group or communal lands that are leased or sold out (Campbell *et al.*, 2000; Okello *et al.*, 2003; Southgate and Hulme, 2000), and the practice of inheritance where normally a father shares his piece of land with his adult children, leading to subdivisions of family lands to smaller parcels (Waiganjo and Ngugi, 2001). The smaller parcels of land are often overexploited in an attempt to secure household livelihoods and push the local people to encroach on the protected areas, exacerbating conflicts with wildlife and protected area staff.



**Figure 5.7: Land ownership**

According to the results on land ownership illustrated in Figure 5.7, 94% of the community respondents in Lake Nakuru, 91% in Kimana and 78.6% in Kedong stated that they own the land the family occupies. Land tenure, according to Ogolla and Mugabe (1996), define the methods by which individuals or groups acquire, hold, transfer or transmit property rights in land. Land tenure systems operative in Kenya are characterised as private, communal (customary), public (state) and open access (Kameri-Mbote, 2005b).

According to the Land Titles Act Chapter 281 of the Laws of Kenya, the formal legal instrument that governs land tenure systems is the land title. Table 5.17 indicates that much of the land in the study areas is under private ownership. Ninety two percent, 51% and 67.1% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, legally own the land they occupy with a title deed, while one respondent in Lake Nakuru, 24% in Kimana and 11.5% in Kedong owned the land but without the legal entitlement. Twenty four percent of the respondents in Kimana reported to occupy the land under communal tenure, while 6% in Lake Nakuru were informally occupying the land. One respondent in both Lake Nakuru and Kimana, and 21.4% in Kedong indicated that they were occupying the land on tenancy leasehold arrangements.

**Table 5.17: Type of land tenure system (in %)**

<b>Tenure system</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Private with title deed	92.0	51.0	67.1	70.4
Private without title deed	1.0	24.0	11.5	12.2
Communal ownership	-	24.0	-	8.9
Tenancy leasehold	1.0	1.0	21.4	6.3
Informal	6.0	-	-	2.2
Total	100	100	100	100

Land tenure determines access to land for the management of biodiversity and natural resources. The insecurity of tenure regimes therefore undermines the effectiveness of protected areas in meeting conservation goals. Kameri-Mbote (2005b) and KWS (2004) point out that wildlife resources, wherever found in Kenya, are state property. This implies that for the communities in Lake Nakuru and Kedong, the resources that may have been previously available to them are now state and private property, respectively. In general, individual and community land owners have no ownership or user rights over the in-situ wildlife resources, unless transferred to them by the state (KWS, 1992a). Emerton (2001) asserts that lack of rights to own and use wildlife resources means that communities cannot legitimately benefit from wildlife or make decisions about its management on their lands. According to Waiganjo and Ngugi (2001), the tenures of land and natural resources should aim at providing security of tenure to the owners, sustain and improve the environment, be easily understood and acceptable to the communities as well as equitable. This position is echoed by Ogolla and Mugabe (1996) who maintain that when tenure rights are uncertain, there is no incentive to use land in a sustainable manner or invest in resource conservation whether for the individual or group of individuals.

The study results in Table 5.18 indicate that none of the respondents in Kimana and 70% of the respondents in Kedong (the rest indicated they did not know) expected to be moved from the land they occupy, while 4% of the respondents in Lake Nakuru reported to be expecting to be removed from the land they occupied. A higher number (30%) of the respondents in Kedong indicated that they did not know whether they were to be removed from the land they occupied. This can possibly be explained by the fact that some of them

were housed by their employers (Table 5.10) while others were on leasehold land tenancy system and without formal entitlement (Table 5.17). However, the results imply that there is generally a high level of tenure security among the household respondents.

**Table 5.18: Expected removal from the land occupied (in %)**

<b>If expected to be removed</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
No response	2.0	-	-	0.7
Yes	4.0	-	-	1.5
No	90.0	100	70.0	88.5
Don't know	4.0	-	30.0	9.3
Total	100	100	100	100
<b>Distance to be relocated</b>				
1-5 km	3.0	-	-	1.1
> 20 km	1.0	-	-	0.4
<b>Type of compensation</b>				
Money	2.0	-	-	0.7
Other land elsewhere	1.0	-	-	0.4
Don't know	1.0	-	-	0.4

Three percent of the respondents in Lake Nakuru reported that they were to be relocated to a distance of 1-5 km, while one respondent was to be relocated 20 km away from the protected area boundary (Table 5.18). Two percent and one respondent in Lake Nakuru indicated they will be compensated with money and allocation of land elsewhere, respectively, while one respondent did not know how he/ she will be compensated. Brechin *et al.* (2003) and McElwee (2006) note that population displacement from protected areas has direct impacts on livelihoods, including restrictions on the use of resources. Specifically, Cernea and Schmidt-Soltau (2006) point out that involuntary displacement and forced resettlement exposes displaced people and those in receiving communities to wider risks of impoverishment that can be manifested in landlessness, joblessness, economic marginalisation, food insecurity and loss of access to common resources.

Table 5.19 illustrates multiple community responses in relation to the need for access to the protected areas for various resources. The majority of the respondents (69% in Lake Nakuru, 99% in Kimana and 74.3% in Kedong) indicated that they required access to the protected area for fuelwood collection (firewood and charcoal). This compares with the results in Table 5.13 that indicate that fuelwood is the main source of energy for the community. Thirty one percent, 99% and 47.1% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, indicated a need for access to the park for grazing livestock.

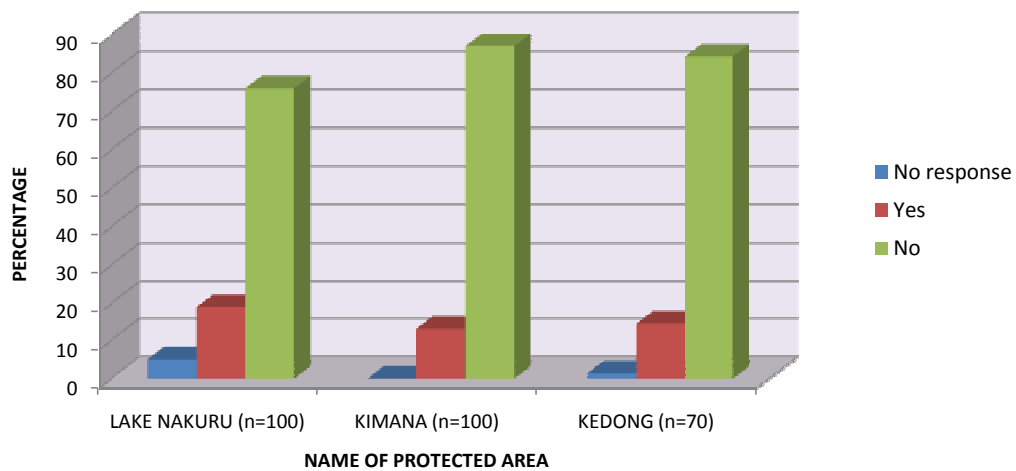
**Table 5.19: Access needed to resources in the protected area (multiple responses - in %)**

<b>Resource use needed</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Grazing	31.0	99.0	47.1	60.4
Recreation	42.0	3.0	14.3	20.3
Food gathering	13.0	2.0	1.4	5.9
Hunting	8.0	1.0	-	3.3
Cultivation	22.0	1.0	-	8.5
Wood collection	69.0	99.0	74.3	81.5
Religious and cultural activities	15.0	26.0	5.7	16.6
Water use	47.0	27.0	81.4	48.5
Total	100	100	100	100

These results tend to reinforce the occupation data of the respondents (Table 5.7) that shows mixed farming (farm/ livestock) and pastoralism being predominant among the respondents. Forty seven percent of the respondents in Lake Nakuru, 27% in Kidong and 81.4% in Kimana also stated that they required access into the protected areas for water use. This relates to the results on main sources of water in Table 5.12, where the respondents indicated that they rely on water supply from boreholes and springs. Forty two percent of the respondents in Lake Nakuru, 3% in Kimana and 14.3% in Kedong indicated that they needed access to the protected areas for recreation, while 15%, 26% and 5.7% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, stated they required access into the park for religious and cultural activities. Twenty two percent of the respondents in Lake Nakuru and one respondent in Kimana reported a need for access to the protected area for cultivation, while 8% in Lake Nakuru and one respondent in Kimana

indicated they need access to hunt for game meat in the park. This compares with the results in Table 5.5 on ethnic language of the respondents that indicate that the majority of the respondents in Lake Nakuru and one respondent in Kimana are Kikuyu who are mainly cultivators (Bonner, 1993), while the majority of the respondents in Kimana are Maasai who traditionally keep livestock and do not eat game meat (personal communication with respondents). Other community respondents said they require access to the park to gather food (13% in Lake Nakuru, 2% in Kimana and 1.4% in Kedong) such as wild fruits and vegetables, particularly during times of famine.

Although a significant number of the community respondents in the study areas indicated a need to access the protected area for certain resource uses (Table 5.19), the study results in Figure 5.8 indicate that the local communities are rarely allowed any access to the respective parks to either visit or harvest resources. Seventy six percent of the respondents in Lake Nakuru, 87% in Kimana and 84.3% in Kedong stated that they are not allowed into the protected area, while 19%, 13% and 14.3% in Lake Nakuru, Kimana and Kedong, respectively, indicated they are allowed access to the park but under certain conditions.



**Figure 5.8: Whether the community is allowed access into the protected areas**

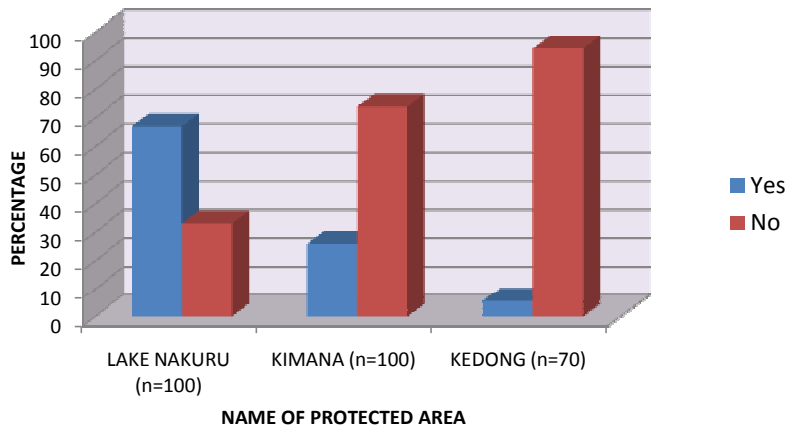


For the community respondents to access the protected area they must observe certain conditions as set out by the protected area management (Table 5.20). In Lake Nakuru, 27% of the respondents stated they were allowed access to the protected area under the supervision of the management for recreation during park use promotional days and at the peripheries of the park. In Kimana and Kedong, recreational use was recorded to be 15% and 55.7%, respectively. Forty one percent, 15% and 11.4% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, indicated being allowed access to the protected areas for educational tours with a guide from the PAs management, while 4% in Lake Nakuru, 15% in Kimana and 17.1% in Kedong reported to be allowed access for regulated water use only during times of drought. The respondents also indicated that they are allowed access into the park as domestic tourists on payment of the required gate fee (39% in Lake Nakuru, 2% in Kimana and 41.4% in Kedong).

**Table 5.20: Conditions under which access is granted into the protected area (multiple responses - in %)**

<b>Response</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Recreation fun days	27.0	15.0	55.7	30.0
Educational tours	41.0	15.0	11.4	18.2
Water use at times of drought	4.0	15.0	17.1	11.5
Domestic tourism	39.0	2.0	41.4	25.9

The practice of excluding local people from exploiting/ using natural resources within PAs has been widely debated (Adams and Hutton, 2007; Kiss, 1990; Wells *et al.*, 1992). According to Cernea and Schmidt-Soltau (2006), restrictions on the use of resources imposed on people living outside a protected area is a form of involuntary displacement. Where access to the PAs for use of certain resources is prohibited, there is an increase in conflicts between the local population and the protected area authorities, and negative attitudes towards the conservation status (Infield, 1988; Newmark *et al.*, 1993).



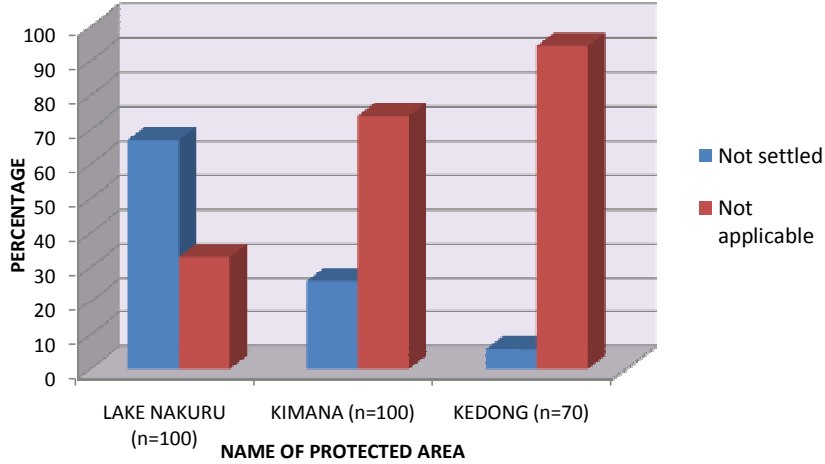
**Figure 5.9: Whether the community respondents have resource claims in the protected areas**

Sixty seven percent of the community respondents in Lake Nakuru, 26% in Kimana and 5.7% in Kedong indicated that they had claims over certain resources in the protected areas under study (Figure 5.9). The nature of claims indicated by the community respondents surveyed (Table 5.21) include 29%, 23% and 2.9% damage of property; 31%, 25% and 2.9% loss of livestock; and 45%, 2% and 2.9% destruction of farm crops in Lake Nakuru, Kimana and Kedong, respectively. Fifty percent and 21% of the survey respondents in Lake Nakuru and Kimana, respectively, recorded to have suffered injuries from wildlife attacks, while in Kedong 1.4% of the respondents reported to have a claim over loss of their land. The differences between the sites can be associated with the nature and type of biodiversity components conserved within the protected areas and their management activities. For instance, in Kedong there is minimal human-wildlife conflict compared to Lake Nakuru and Kimana possibly because the ranch is fenced and there are no problem animals like elephants, buffaloes and carnivores, which according to Adams and Hutton (2007), Emerton (2001) and Igoe (2006), cause direct costs to the local communities. Conover (2002), Kangwana (1993) and Western (1995) point out that these conflicts represent a real challenge to biodiversity conservation as they are a key ingredient to the negative impacts on the attitudes of local people toward wildlife.

**Table 5.21: Nature of claims by community respondents (multiple responses - in %)**

<b>Nature of claim</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Damage of property	29.0	23.0	2.9	20.0
Loss of livestock	31.0	25.0	2.9	21.5
Destruction of farm crops	45.0	2.0	2.9	18.1
Injury by wildlife attacks	50.0	21.0	-	26.3
Loss of land	-	-	1.4	0.4
Not applicable	33	74	94.3	64.1

According to Figure 5.10, none of the claims applicable to the community respondents have been settled or compensated for, despite the widely argued recognition within the conservation society (Adams and McShane, 1992; James *et al.*, 1999) that where people living with PAs face economic costs due to the park, they should be fully compensated. The compensation for damage to property, crops and loss of livestock by wildlife in Kenya was terminated in 1987 due to corruption in the implementation mechanisms where for instance, there was overestimation of the damage (personal communication with the KWS Director on July 2009). The conventional compensatory strategies include revenue sharing (Barrow and Murphree, 2001; Leakey, 1990) and community outreach activities such as construction of schools, hospitals, cattle dips and water supply (Infield and Namara, 2001; KWS, 1992b; Mulder and Coppolillo, 2005).



**Figure 5.10: Settlement and compensation for community resource claims**

#### **5.2.4. Perceived state of local biodiversity**

The community respondents were asked about their understanding of various concepts in natural resource management, namely, biodiversity, conservation, protected area and ecotourism. Additionally, they were asked about natural resource management and institutional practices existing in their community and the factors that threaten these strategies. This section examines these responses.

Generally, the overall level of understanding of the concepts related to natural resource management among the respondents was found to be very low (Table 5.22).

**Table 5.22: Level of understanding of natural resources management concepts by community respondents (in %)**

<b>Concepts</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
<b>Biodiversity</b>				
None	27.0	76.0	38.6	48.1
Vague	45.0	24.0	37.1	35.2
General	26.0	-	2.0	14.8
Detailed	2.0	-	4.3	1.9
Total	100	100	100	100
<b>Conservation</b>				
None	1.0	41.0	-	15.6
Vague	36.0	57.0	74.3	53.7
General	57.0	2.0	18.6	26.6
Detailed	6.0	-	7.1	4.1
Total	100	100	100	100
<b>Protected Area</b>				
None	3.0	32.0	-	13.0
Vague	47.0	67.0	74.3	61.4
General	43.0	1.0	17.1	20.8
Detailed	7.0	-	8.6	4.8
Total	100	100	100	100
<b>Ecotourism</b>				
None	28.0	2.0	40.0	21.5
Vague	51.0	64.0	37.1	52.2
General	17.0	34.0	15.8	23.0
Detailed	4.0	-	7.1	3.3
Total	100	100	100	100

Twenty seven percent, 76% and 38.6% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, indicated that they have no understanding of the concept of biodiversity, while 45% in Lake Nakuru, 24% in Kimana and 37.1% in Kedong reported to have a vague idea of the biodiversity concept. Twenty six percent of the surveyed respondents in Lake Nakuru and 2% in Kedong recorded that they have a general understanding of the concept of biodiversity while 2% in Lake Nakuru and 4.3% in Kedong reported to have a detailed understanding of the concept of biodiversity. One respondent in Lake Nakuru and 41% in Kimana said they did not understand what conservation entails,

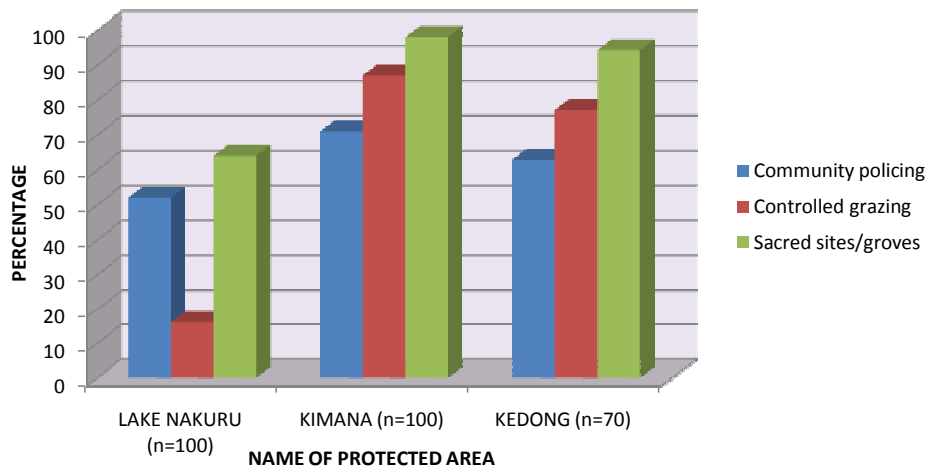
while 36%, 57% and 74.3% in Lake Nakuru, Kimana and Kedong, respectively, indicated to have a vague understanding of the concept of conservation. Fifty seven percent of the respondent in Lake Nakuru, 2% in Kimana and 18.6% in Kedong reported to have a general understanding of the concept of conservation. Only 6% of the respondents surveyed in Lake Nakuru and 7.1% in Kedong indicated that they understood what the concept of conservation entailed in detail.

Three percent and 32% of the respondents in Lake Nakuru and Kimana, respectively, indicated that they did not understand what a protected area is, while 47%, 67% and 74.3% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, reported to have a vague idea of what a protected area entailed. Another 43% in Lake Nakuru, one respondent in Kimana and 17.1% in Kedong reported to have a general understanding of the concept of protected area, while 7% in Lake Nakuru and 8.6% in Kedong said they have a detailed understanding of the concept of a protected area. In terms of the concept of ecotourism, 28%, 2% and 40% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, recorded to have no understanding of the ecotourism concept, while 51% of the respondents in Lake Nakuru, 64% in Kimana and 37.1% in Kedong indicated that they have a vague understanding of ecotourism. Another 17%, 34% and 15.8% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, stated that they have a general understanding of ecotourism, while 4% in Lake Nakuru and 7.1% in Kedong reported that they have a detailed understanding of what ecotourism entailed.

The results reveal some differences among the levels of communities' understanding of natural resource management concepts in the study areas that indicate a higher level of understanding in Lake Nakuru, followed by Kedong then Kimana. This tends to reinforce the overall impression that the surveyed community members in Kimana have low literacy levels, followed by Kedong with Lake Nakuru having the highest literacy levels (Table 5.3). For the local people to participate in long-term conservation initiatives they should possess adequate information and knowledge in basic conservation related concepts and frameworks. For example, Terry (2001) in a case study on the impacts of rural development

projects in Swaziland states that successful community participation in rural development requires rapid learning of new technical, organisational and financial management skills. Similarly, Goudberg *et al.* (1991) maintain that a better understanding of environmental concepts provides a better interpretation of conservation programmes. Thus, knowledge of key environmental issues and appropriate management mechanisms are known to influence local peoples' attitudes towards environmental management strategies (Wearing *et al.*, 2002).

A substantial number of community respondents provided multiple responses on indigenous resource management practices that existed in the study areas before the introduction of the modern protected area systems (Figure 5.11).



**Figure 5.11: Indigenous resource management practices (multiple responses)**

Fifty two percent of the respondents in Lake Nakuru, 72% in Kimana and 62.9% in Kedong indicated that they were aware of community policing as an indigenous traditional form of natural resource management that had been practiced in their areas before the protected area system was introduced, while 16% of the respondents in Lake Nakuru, 87% in Kimana

and 77.1% in Kedong indicated they knew about controlled grazing in zoned areas. A further 64%, 98% and 94.2% in Lake Nakuru, Kimana and Kedong, respectively, stated that they were aware of traditional sacred sites and groves (trees, mountains, rivers, rocks) where natural resources were conserved before the introduction of the modern protected area system.

**Table 5.23: Institutional arrangements of indigenous conservation practices (multiple responses - in %)**

<b>Nature of institution</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Village elders council/ committee	64.0	99.0	91.4	84.1
Religious/ cultural values	57.0	99.0	91.4	81.5
Fines/ penalties to offenders	58.0	98.0	91.4	81.5
Initiation of young ones	48.0	95.0	90.0	76.3

Sixty two percent of the respondents in Lake Nakuru, 99% in Kimana and 91.4% in Kedong indicated that a council of elders or group ranch committee was in charge of instituting the traditional natural resource management systems (Table 5.23). This was done through the initiation of young people by the elders as reported by 58% of the respondents in Lake Nakuru, 95% in Kimana and 90% in Kedong. Other mechanisms recorded included observing established religious and cultural values (57% in Lake Nakuru, 99% Kimana and 91.4% Kedong) as well as fining and penalising offenders (58%, 98% and 91.4% of respondents in Lake Nakuru, Kimana and Kedong, respectively). These responses are similar to those of Ntiamoa-Baidu (2000) on the management of sacred groves in Ghana where the traditional authority and responsibility for the protection of the groves is vested on the entire community under the control of the fetish priest, chief of the village and heads of clans; and the territorial levels of resource management among the Maasai in southern Kenya (Southgate and Hulme, 2000) where the use, regulation and management of water, pasture and other local resources is vested on a hierarchy of resource management organisations stratified along age set structures.



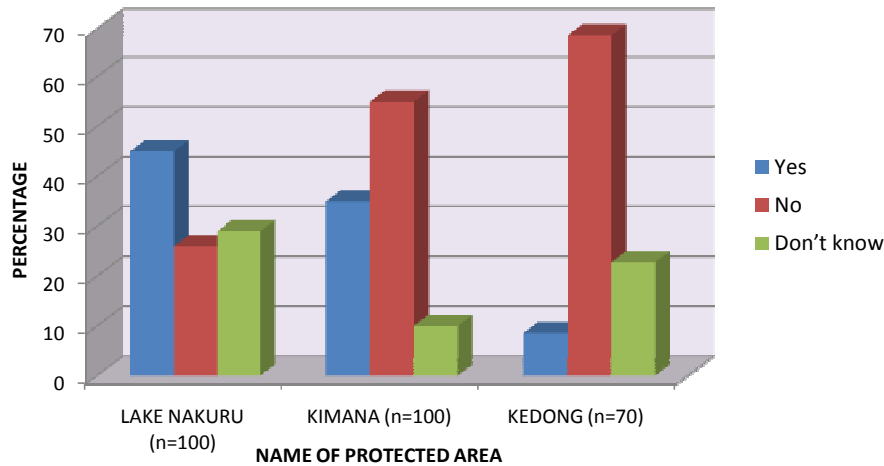
When asked about their perceptions regarding the state of biodiversity before the introduction of the modern conservation strategies (Table 5.24), 55% of the respondents in Lake Nakuru, 83% in Kimana and 60% in Kedong indicated that it was threatened. Seventeen percent of the respondents in Lake Nakuru, 3% in Kimana and 10% in Kedong stated that biodiversity was scarce, while 7%, 14% and 30% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, recorded it was abundant. Two percent and 4% of the respondents in Lake Nakuru indicated that some biodiversity had become extinct and rare, respectively, while another 15% did not know how the state of biodiversity was like before the introduced conservation strategies. The results indicate that the overall state of biodiversity in the study was under pressure (66.7% indicated threatened) implying that the traditional natural resource management practices were not effective in conserving biodiversity. This compares with the threats to indigenous protected area systems cited in Gatua (2006) and Ntiamoa-Baidu (2001) that include the increasing pressure from the demands of agriculture and forest products, conflicting land resource tenure systems as well as the decreasing cultural attachment to traditional resource management values.

**Table 5.24: Perceived state of biodiversity before introduction of modern conservation strategies (in %)**

Statue of biodiversity	Lake Nakuru (n=100)	Kimana (n=100)	Kedong (n=70)	Total (n=270)
Extinct	2.0	-	-	0.7
Threatened	55.0	83.0	60.0	66.7
Scarce	17.0	3.0	10.0	10.0
Rare	4.0	-	-	1.5
Abundant	7.0	14.0	30.0	15.6
Don't know	15.0	-	-	5.6
Total	100	100	100	100

A substantial number of community respondents in Lake Nakuru (45%) and Kimana (35%), and 8.6% in Kedong supported the perception that the decline of biodiversity was as a result of threats by activities of the local communities (Figure 5.12). The possible reason for the major difference, especially in Kedong where significantly lower responses are noticeable, may be attributed to the fact that a substantial number of the respondents are

from outside the area (Tables 5.4 and 5.6) and may not understand previous activities of the local communities that are a threat to the local biodiversity.



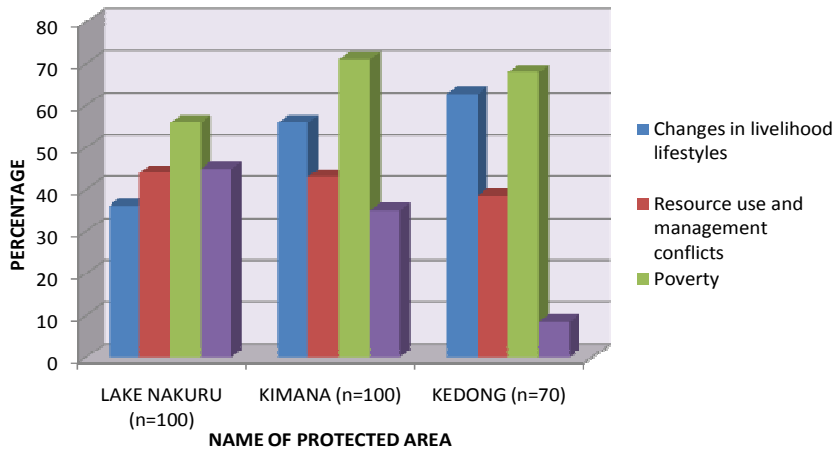
**Figure 5.12: Community respondents' views as to whether the decline of biodiversity is due to local communities' activities**

Among the community respondents who indicated that the local people were responsible for the biodiversity decline, 27% in Lake Nakuru, 34% in Kimana and 8.6% in Kedong stated illegal encroachment into the protected areas as one of the activity, while 42%, 47% and 25.7% in the same areas, respectively, cited pressure from the increase in human population (Table 5.25). Thirty six percent of the respondents in Lake Nakuru, 2% in Kimana and 4.3% in Kedong reported wildlife poaching by the local people as another threat to the local biodiversity, while over-reliance of the local people on natural resources for the provision of their basic goods and services was stated by 37%, 35% and 27.2% of the respondents in Lake Nakuru, Kimana and Kedong, respectively. Twenty seven percent of the respondents in Lake Nakuru and 2% in Kimana reported that unique cultural practices of some local tribes contributed to biodiversity loss, while 44% in Kimana and 20% in Kedong recorded individualisation of communal lands through sub-division of group ranches as one of the circumstances leading to the decline of local biodiversity.

**Table 5.25: Perceived characteristics of community respondents responsible for the decline of biodiversity (multiple responses - in %)**

<b>Characteristics</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Illegal encroachment	27.0	34.0	18.6	27.4
Increase in human population	42.0	47.0	25.7	39.6
Wildlife poaching	36.0	2.0	4.3	15.2
Over-reliance on natural resources	37.0	35.0	27.2	33.7
Unique cultural practices	27.0	2.0	-	10.7
Subdivision of group ranches	-	44.0	20.0	21.4
Not applicable	26.0	55.0	68.6	47.7

When the respondents who indicated that the decline to biodiversity was not as a result of the characteristics of the local people were asked what they perceived were the circumstances leading to the erosion of the indigenous conservation systems, 36% in Lake Nakuru, 56% in Kimana and 62.9% in Kedong stated changes in local livelihood lifestyles; 44%, 43% and 38.6% in Lake Nakuru, Kimana and Kedong, respectively, recorded resource use and management conflicts; while 56% of the respondents in Lake Nakuru, 71% in Kimana and 68% in Kedong associated the decline in indigenous conservation systems to high poverty levels in the community (Figure 5.13). These responses tend to reinforce the impression gained from the results in Table 5.25 above and compare with the causes of biodiversity loss identified by Ntiamoa-Baidu (2001) who lists poverty and conflicts due to exclusion of local communities from the management of protected areas, and Wells *et al.* (1992) who cite rapid human population growth as one of the most pervasive threats to protected areas worldwide. With the traditional dependency of many indigenous local communities on natural resources (Gatua, 2006; Githitho, 1998; UNCED, 1992), the major virtue of indigenous resource management practices is that they sustain the strong traditional beliefs, spiritual, religious and cultural attachments upheld by many local people that link people and nature (Ntiamoa-Baidu, 2001; Simbotwe, 1993). Thus, the importance of traditional knowledge to both the conservation and sustainable use of biological diversity is key to natural resource management (UNCED, 1992).



**Figure 5.13: Perceptions on circumstances leading to erosion of indigenous conservation systems (multiple responses)**

### 5.2.5. Impacts of community-oriented conservation and development initiatives

The literature review in chapter two revealed that the changing concepts of national parks and the new relationship between conservation and development has set the scene for the emergence of community-oriented conservation and development approaches (Barrow and Murphree, 2001; Kiss, 1990; Western and Wright, 1994). According to Abbot *et al.* (2001), development is offered as compensation for benefits foregone when protected areas are established or restrictions on resource use are introduced, and as an economic incentive for local people to manage and protect the natural resources. This section compares and discusses the influence and impacts of community conservation and related developments on the livelihoods of the local people in the study areas.

When asked about the existing community conservation initiatives in the study sites (Table 5.26), 44% of the respondents in Lake Nakuru and 2.9% in Kedong indicated that there were no community conservation activities evident in the study areas, while 31% and 61.4% of the respondents in Lake Nakuru and Kedong, respectively, stated community-based organisations (CBO) activities. These included mainly organised youth and women

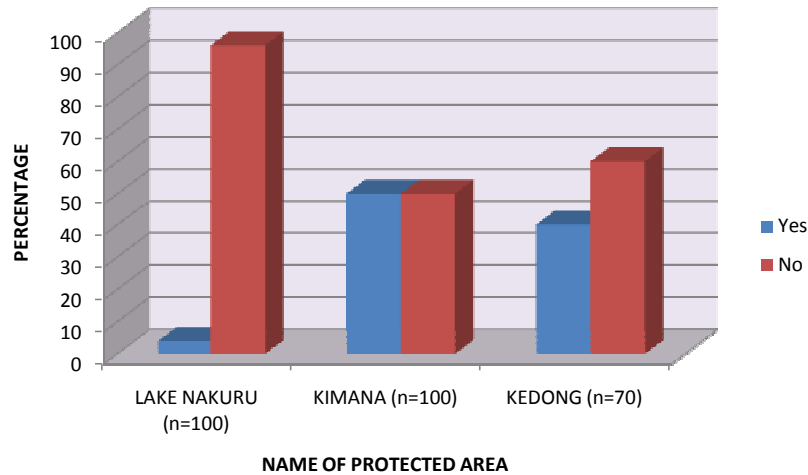
groups involved in soil and water conservation activities such as the construction of gabions and rain water harvesting.

**Table 5.26: Community respondents' views on whether community conservation initiatives exist in the area (multiple responses - in %)**

<b>Community conservation initiative</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
None	44.0	-	2.9	3.0
CBO group activities	31.0	-	61.4	27.4
Group ranches/ sanctuaries	3.0	100.0	55.7	52.6
Agroforestry approaches	38.0	70.0	71.4	58.5
Collaborations with other agencies	14.0	77.7	30.0	41.5

Thirty eight percent, 70% and 55.7% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, indicated agroforestry approaches such as tree planting and bee keeping. Three percent of the respondents in Lake Nakuru, all the respondents in Kimana and 55.7% in Kedong reported to be involved in group ranch and wildlife conservation sanctuaries, while 14%, 77.7% and 30% in Lake Nakuru, Kimana and Kedong, respectively, indicated to be in collaborative management with other conservation agencies operating in the areas. These results compares with a study by Coupe *et al.* (2002) who record women group activities and collaborative management activities affiliated to wildlife conservation among park-adjacent communities in Kenya. Different individuals within a community, as Hughes and Flintan (2001) observe, have different resource user needs and rights for development activities, which influence the effectiveness of implementing community conservation initiatives. This may possibly explain the differences between the case study sites and among the respondents that suggest that whereas some community members are aware of community conservation initiatives existing in the areas, others are not. Where local communities indicate limited community conservation initiatives, it implies there is generally inadequate incentives for those communities to embrace conservation efforts (Mungatana, 1999).

Figure 5.14 illustrates that 4% of the community respondents in Lake Nakuru, 50% in Kimana and 40% in Kedong had a member of their household working in the respective protected areas (PAs).



**Figure 5.14: Whether a member of the respondent’s household works in the protected areas**

The employment opportunities for the local people in the PAs may be determined by the management status of the PAs which differ according to the political and socio-economic settings (IUCN, 1994). For instance, in Lake Nakuru, the number of local people working in the park is low because this is a national park where the management is centralised and recruitment is done at the national level, while in Kimana and Kedong there is a higher employment of the local people, for example, game scouts drawn from the local communities unlike the KWS rangers in Lake Nakuru (KWS, 1990; 1992b). Additionally, Kedong and Kimana are located in areas where wildlife roam freely outside government parks to private and communal adjacent lands, thus the importance to enlist support of the local people in the management of these parks.

**Table 5.27: Job characteristics of community household members who work in the protected areas (in %)**

<b>Household member</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Son	3.0	33.0	11.4	16.3
Brother	1.0	9.0	28.6	11.1
Distant relative	-	8.0	-	3.0
Not applicable	96.0	50.0	60.0	69.6
<b>Type of job</b>				
Labourer	3.0	21.0	28.6	18.3
Driver	1.0	8.0	8.6	5.5
Security guard	-	21.0	2.8	6.6
Not applicable	96.0	50.0	60.0	69.6
<b>Nature of job</b>				
Permanent	2.0	10.0	-	4.4
Seasonal	1.0	19.0	1.4	7.8
Casual	1.0	21.0	38.6	18.2
Not Applicable	96.0	50.0	60.0	69.6
<b>Salary per month (Ksh)</b>				
2 001 - 4 000	3.0	21.0	37.2	18.5
4 001 - 6 000	-	1.0	1.4	0.7
6 001 - 8 000	-	26.0	1.4	10.1
8 001 - 10 000	-	2.0	-	0.7
>10 000	1.0	-	-	0.4
Not applicable	96.0	50.0	60.0	69.6
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

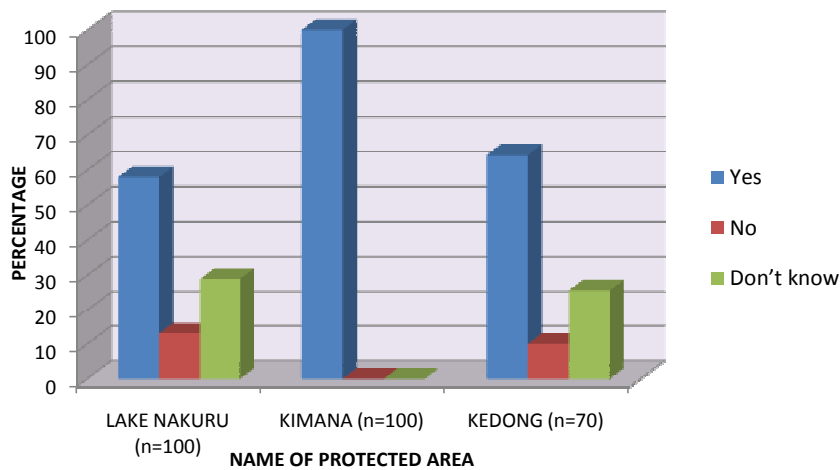
The job characteristics of household members working in the PAs are summarised in Table 5.27. Not applicable indicates those respondents who do not have jobs in PAs. According to their relation with the household respondent, the family members working in the PAs were identified as son (3% in Lake Nakuru, 33% in Kimana and 11.4% in Kedong), brother (one respondent in Lake Nakuru, 9% in Kimana and 28.6% in Kedong) and distant relative (8% in Kimana). Three percent of the workers in Lake Nakuru, 21% in Kimana and 28.6% in Kedong worked as labourers, while one respondent, 8% and 8.6% in Lake Nakuru, Kimana and Kedong, respectively, were drivers. Twenty one percent of the household members in Kimana and 2.8% in Kedong were working as security guards. The nature of the job included employment on permanent (2% in Lake Nakuru and 10% in Kimana), seasonal

(one respondent in Lake Nakuru, 19% in Kimana and 1.4% in Kedong), and casual (one respondent in Lake Nakuru, 21% in Kimana and 38.6% in Kedong) terms.

Three percent and one respondent of the community household workers in Lake Nakuru indicated that they earn between Ksh 2 001 - 4 000 and more than Ksh 10 000 salary per month, respectively. In Kimana, 21% of the workers recorded that they earn between Ksh 2 001 - 4 000, one respondent between Ksh 4 001 – 6 000, 26% between Ksh 6 001 - 8 000, and 2% between 8 001 – 10 000, while in Kedong, 37.1% of the workers reported that they earn between Ksh 2 001 – 4 000, 1.4% between Ksh 4 001 – 6 000 and another 1.4% between Ksh 6 001 – 8 000. These results indicate that the local people are not engaged in high salaried management positions in the PAs. This can be explained by the low education levels and lack of professional training among the community members (Table 5.3) that hinders them from accessing available employment opportunities (Gichohi, 2003).

Whereas all the community respondents in Kimana, 58% in Lake Nakuru and 64.3% in Kedong supported the view that the introduction of the protected area in their community had positively changed the state of local biodiversity, 13% and 29% in Lake Nakuru and Kedong, respectively, stated that there was no positive change in the state of biodiversity after the introduction of the protected area (Figure 5.15). Twenty nine percent in Lake Nakuru and 25.7% in Kedong indicated that they did not know whether there was any positive change in the state of biodiversity. The differences among the communities may be due to the communities in Kimana having open interaction with the PA which is not fenced while in Lake Nakuru and Kedong there is minimal interaction since the PAs are fenced.





**Figure 5.15: Community respondents' views of whether the introduction of the protected area has positively changed the state of biodiversity**

In relation to the question whether the introduction of the protected area had positively changed the state of biodiversity, the results in Table 5.28 show that 56% in Lake Nakuru, 64.3% in Kedong and all the respondents in Kimana explained that conflicts with wildlife has reduced and therefore the wildlife is safe, while 16%, 6% and 34.3% in Lake Nakuru, Kimana and Kedong, respectively, stated that the public was safe from threats by wildlife. Twenty five percent of the respondents in Lake Nakuru, 2% in Kimana and 51.4% in Kedong indicated that following the introduction of the protected area, damage to crops by wildlife had reduced.

**Table 5.28: Community respondent's response on positive impacts of the protected areas on the state of biodiversity (multiple responses - in %)**

Impact	Lake Nakuru (n=100)	Kimana (n=100)	Kedong (n=70)	Total (n=270)
Wildlife is safe	56.0	100.0	64.3	74.4
Public is safe	16.0	6.0	34.3	17.0
Crops are safe	25.0	2.0	51.4	23.3
Not applicable	42.0	-	35.7	24.8

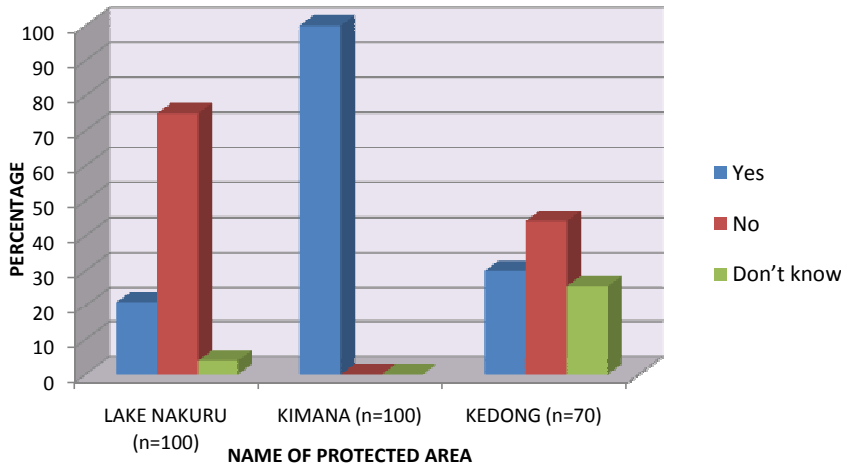
When the respondents were asked to estimate the amount of revenue per month generated by the PAs (Table 5.29), 4% in Lake Nakuru and 2.9% in Kedong stated that the park generated between Ksh 101 000 - 120 000 per month, while 91%, 65% and 32.9% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, reported that the protected area generated more than Ksh 120 000 per month. Five percent of the respondents in Lake Nakuru, 35% in Kimana and 37.1% in Kedong had no idea how much the respective protected areas generated in a month, while 27.1% in Kedong recorded that the game ranch generated between Ksh 81 000 - 100 000 per month.

**Table 5.29: Community respondents' views on the amount generated by the protected areas (in %)**

Amount generated (Ksh per month)	Lake Nakuru (n=100)	Kimana (n=100)	Kedong (n=70)
81 000 - 100 000	-	-	27.1
101 000 - 120 000	4.0	-	2.9
> 120 000	91.0	65.0	32.9
Don't know	5.0	35.0	37.1
Total	100	100	100

Figure 5.16 shows that whereas all the respondents in Kimana, 21% in Lake Nakuru and 30% in Kedong indicated that the PA authorities supported local community development programmes, 75% in Lake Nakuru and 44.3% in Kedong reported that the PA authorities did not support any development projects in the community, while 4% and 25.7% in Lake Nakuru and Kedong, respectively, did not know whether the respective PA authorities supported any community development projects. Support for local community development programmes subscribe to the basic principle that conservation goals will succeed only if local people access alternative benefits to off-set the costs of their reduced access to resources in the PAs (Abbot *et al.*, 2001; Hughes and Flintan, 2001; McNeely, 1988; Wells *et al.*, 1992). The differences in responses in relation to the support of local development projects by the PA authorities may possibly be explained by the management objectives and strategies of the respective PA (IUCN, 2003d). For instance, Lake Nakuru which is categorised as a national park has no representation of local communities in its board of trustees to highlight the local peoples' aspirations compared to Kimana which is

communally managed. Additionally, Kimana and Kedong have more community members working in the protected areas compared to Lake Nakuru (Table: 5.14) which reflects some level of local representation in the management activities.



**Figure 5.16: Whether protected area authorities support local development programmes**

In relation to responses regarding whether PA administrative authorities supported development programmes in the community (Table 5.30), 17%, 83% and 11.4% in Lake Nakuru, Kimana and Kedong, respectively, mentioned that the support was via educational programmes. Three percent in Lake Nakuru, 26% in Kimana and 1.4% in Kedong stated health, while 15%, 99% and 14.3% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, indicated support in terms of job creation. Other supported development programmes mentioned include infrastructural developments (2%, 19% and 7.1% in Lake Nakuru, Kimana and Kedong, respectively), housing facilities (4% in Kimana), water provision (one respondent in Lake Nakuru, 85% in Kimana and 30% in Kedong) and livestock vaccination services (13% in Kimana and 11.4% in Kedong). The results indicate that there were more development programmes in Kimana than in Lake Nakuru and Kedong. This can possibly be because in Lake Nakuru, for instance, the KWS

implements a scheme for sharing revenues generated from park entrance fees with neighbouring rural communities (Leakey, 1990), but with authority to meet its financial needs first, thus not implementing the community development programmes adequately (Sindiga, 1999). Similarly, in Kedong, being a private company, support for community development projects is limited by the challenge of balancing conservation goals with profit making. In Kimana the land under conservation is community property in dispersal areas adjacent to national parks. According to Okello *et al.* (2003), the sanctuary was established to confer to the communities the rights to benefit from wildlife conservation through support of local development programmes such as boreholes for water supply (Wells *et al.*, 1992) in compensation for loss of access to watering points within the sanctuary and construction of hospitals, cattle dips and schools as well as opportunities for jobs as incentives to tolerate wildlife in their lands.

**Table 5.30: Type of support for community development programmes by the protected area management (multiple responses - in %)**

<b>Supported development programmes</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Educational	17.0	83.0	11.4	40.0
Health	3.0	26.0	1.4	11.1
Job creation	15.0	99.0	14.3	45.9
Infrastructure	2.0	19.0	7.1	9.7
Housing	-	4.0	-	1.5
Water provision	1.0	85.0	30.0	39.6
Livestock vaccination services	-	13.0	11.4	7.8
Not applicable	79.0	-	70.0	47.4

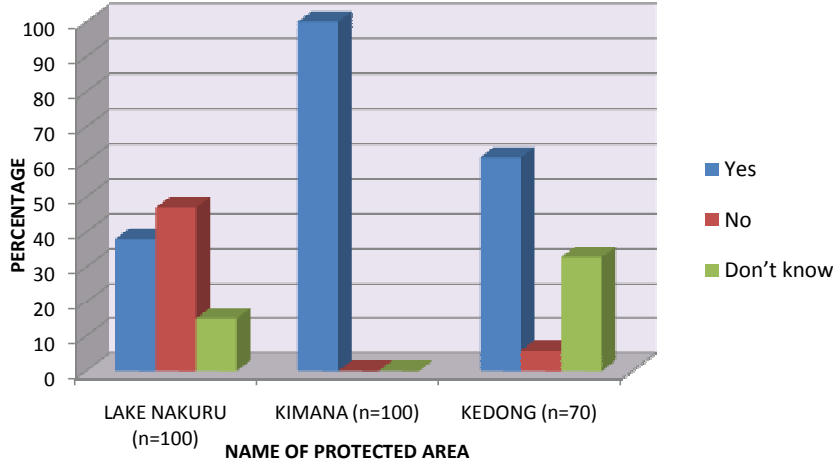
In relation to responses regarding the types of community development support respondents would like to see initiated by the protected area management authorities, 73% in Lake Nakuru and 51.4% in Kedong stated that they would like to see water supplied to the community, while 11% in Lake Nakuru and 64.3% in Kedong mentioned cattle dips and pasture for their livestock (Table 5.31). Others indicated that they would like to see employment opportunities (67% in Lake Nakuru and 70.0% in Kedong) and educational sponsorships (68% in Lake Nakuru and 44.3% in Kedong). According to Okech (2007) and

Wearing and Neil (1999), local communities differ in the types of development programmes they need to see implemented in their areas, while in other instances, different community groups may have conflicting interests.

**Table 5.31: Desired development projects (multiple responses - in %)**

<b>Desired development projects</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Water provision	73.0	-	51.4	45.1
Employment	67	-	70.0	43.0
Education sponsorships	68	-	44.3	36.7
Cattle dips and pasture	11.0	-	64.3	20.7
Not applicable	21.0	100.0	30.0	52.6

When asked whether the community conservation and development approaches had improved the conservation attitudes of the local people, all the respondents in Kimana, 38% in Lake Nakuru and 61.3% in Kedong responded in the positive while 47% and 5.8% in Lake Nakuru and Kedong, respectively, recorded there was no positive influence towards their conservation attitudes (Figure 5.17). The differences in response among the community respondents between the case study sites can be possibly explained by reflecting on the respondents' results in Table 5.30 that shows that there is a larger support for community development projects in Kimana as compared to Lake Nakuru. The study supports Baral and Heinen's (2007) conclusions in a study conducted in Nepal that greater socio-economic developments among the communities by the PA authorities resulted in a more favourable attitudes toward conservation. Fifteen percent of the respondents in Lake Nakuru and 32.9% in Kedong stated that they did not know whether there had been any influence on their conservation attitudes as a result of the introduction of the conservation and development approaches.



**Figure 5.17: Communities’ responses on positive influence of community conservation and development approaches on the conservation attitudes of the local people**

In relation to the respondents’ views on how community conservation and development approaches have improved conservation attitudes of the local people (Table 5.32), 27% in Lake Nakuru, all the respondents in Kimana and 48.6% in Kedong explained that there has been a decrease on the incidences of encroachment into the protected areas. Nineteen percent of the respondents in Lake Nakuru, 81% and 18.6% in Kedong reported that they now understood the importance of the protected areas to the local and national economy, while 14%, 95% and 14.3% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, indicated that there is a decrease in poaching incidences. Twenty three percent of the respondents in Lake Nakuru, 79% in Kimana and 61.4% in Kedong mentioned that there is a marked interest in biodiversity conservation activities. This compares with the results recorded by Weladji *et al.* (2003) in Cameroon which shows that local people recognise the importance of conserving wildlife for it is a source of income to the state.

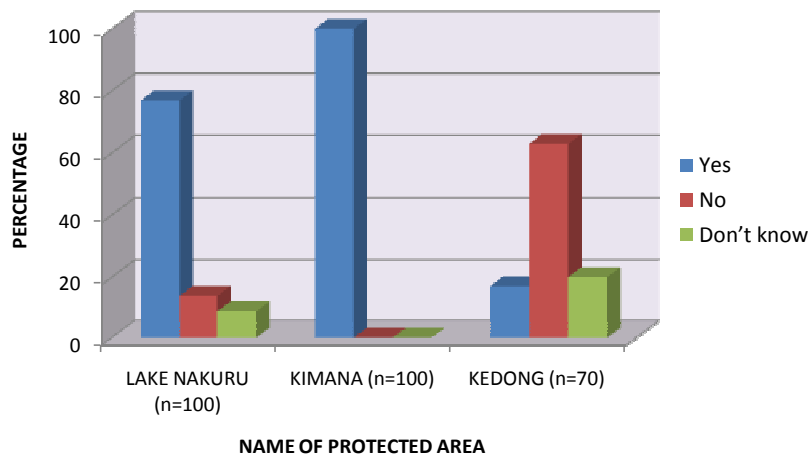
**Table 5.32: Community respondents’ responses on how community conservation and development approaches (if there) have improved conservation attitudes of the local people (multiple responses - in %)**

<b>Response</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Reduced encroachment	27.0	100.0	48.6	59.6
Understand importance of the PA	19.0	81.0	18.6	41.9
Decrease in poaching	14.0	95.0	14.3	44.1
Enhanced interest in conservation	23.0	79.0	61.4	53.7
Not applicable	62.0	-	38.6	32.9

### **5.2.6. Relationships with and attitudes towards conservation authorities**

The recognition of the importance of local community involvement in conservation has led to the initiation of several development programmes whose success depends on the understanding of the relationship between protected areas and various stakeholders (Baral and Heinen, 2007; Gillingham and Lee, 1999; Newmark *et al.*, 1993; Wang *et al.*, 2006; Weladji *et al.*, 2003). This section discusses the experiences, attitudes and relationship of the local people with the conservation institutions and PA authorities.

When asked whether anyone from the PA administrative authorities had visited their villages, all the respondents in Kimana, 77% in Lake Nakuru and 17.1% in Kedong stated they had received a visit, while 14% and 62.9% in Lake Nakuru and Kedong, respectively, indicated no one had visited (Figure 5.18). Nine percent of the respondents in Lake Nakuru and 20% in Kedong stated they did not know whether anyone from the respective protected areas had visited their village.



**Figure 5.18: Communities' responses on whether any one from the PAs had visited their village**

On enquiring about the purpose of the visits (Table 3.33), the responses were as follows: to educate villagers (13% in Lake Nakuru, 62% in Kimana and 4.3% in Kedong); to help with village development projects (4%, 24% and 11.4% in Lake Nakuru, Kimana and Kedong, respectively); to carry out research (5% in Lake Nakuru and one respondent in Kimana); to assess wildlife damage (9% in Lake Nakuru, 6% in Kimana and 8.6% in Kedong); to patrol (77% in Lake Nakuru, all the respondents in Kimana and 15.7% in Kedong); and to drive the wildlife back to the protected areas (37% in Lake Nakuru and 85% in Kimana). Nine percent of the respondents in Lake Nakuru and 20% in Kedong stated that they did not know the purpose of the visits. The overall impression of these results is that there is more community-oriented outreach in the community sanctuary (Kimana) as compared to national parks (Lake Nakuru) and private reserves (Kedong) with many of the visits focussed on the welfare of wildlife. This compares with a study by Weladji *et al.* (2003) that reported that park staff visited the villages only during patrols or to arrest suspected poachers and hardly to educate local people.



**Table 5.33: Purpose of visit by the protected area authority (multiple responses - in %)**

<b>Purpose of visit</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Educate villagers	13.0	62.0	4.3	28.9
Help with village projects	4.0	24.0	11.4	13.3
Carry out research	5.0	1.0	-	2.2
Assess wildlife damage	9.0	6.0	8.6	8.7
Patrol	77.0	100.0	15.7	69.6
Drive back wildlife	37.0	85.0	-	45.2
Don't know	9.0	-	20.0	7.8
Not applicable	14.0	-	62.9	18.5

Table 5.34 shows that the local communities and the PA staff of Kimana and Kedong interacted fairly well while in Lake Nakuru the relationship was wanting. One percent of the respondents in Lake Nakuru, 27% in Kimana and 5.7% in Kedong indicated that the relationship is very good, while 18%, 56% and 15.7% in Lake Nakuru, Kimana and Kedong, respectively, stated that the relationship is good. Kangwana and Ole Mako (2001) indicate that reports of assistance given to villagers by the park management point to an improved relationship between local people and the park staff. Six percent, 16% and 48.6% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, reported that the relationship with the PA staff is satisfactory, while 47% in Lake Nakuru, one respondent in Kimana and 28.6% in Kedong indicated it was poor. Twenty eight percent of the respondents in Lake Nakuru and 1.4% in Kedong recorded that the relationship was very poor.

**Table 5.34: Relationship between the community and PAs staff (in %)**

<b>Nature of relationship</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Very good	1.0	27.0	5.7	11.9
Good	18.0	56.0	15.7	31.5
Satisfactory	6.0	16.0	48.6	20.7
Poor	47.0	1.0	28.6	25.2
Very poor	28.0	-	1.4	10.7
Total	100	100	100	100

In Lake Nakuru, there is a very negative relationship with the PA staff possibly because the key stakeholder in the conservation process is KWS, who is generally considered by the local communities to be supporting wildlife at the expense of people's livelihoods, for instance, the non-compensatory policy for wildlife predation or crop damage (Campbell *et al.*, 2000; Coupe *et al.*, 2002; WCMA, 1976). The poor relationship between the PA authorities and the local communities has been highlighted elsewhere, for example, Southgate and Hulme (1996), Weladji *et al.* (2003) and Wang *et al.* (2005). The reasons for the nature of relationship among the respondents between the case study sites is highlighted in Table 5.35 below.

**Table 5.35: Reason for the nature of relationship (multiple responses - in %)**

<b>Reason for the relationship</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Provide help to the community	11.0	96.0	31.4	47.8
Respect the local people	7.0	96.0	15.7	42.2
Initiate development projects	7.0	95.0	27.1	44.8
Don't compensate damages/ losses	77.0	18.0	31.4	46.8
Distanced from the community	72.0	3.0	30.0	35.6
Harass the local people	67.0	1.0	28.6	32.6

Respondents' perceptions of the relationship with PA authorities depend on the management category of the PAs (IUCN, 2003d; IUCN/WCMC, 1994). When asked the reasons for nature of relationship with the PA authorities, 11% in Lake Nakuru, 96% in Kimana and 31.4% in Kedong mentioned that the PA staff provide help to the community when consulted (Table 5.35), while 7%, 96% and 15.7% in Lake Nakuru, Kimana and Kedong, respectively, stated that the PA staff respect the local people. Another 7% in Lake Nakuru, 95% in Kimana and 27.1% in Kedong reported that the PA authority has initiated development projects in the community. However, 77% of the respondents in Lake Nakuru, 18% in Kimana and 31.4% in Kedong indicated that their severed relationship with the PA authorities is because they do not compensate the local people for losses and damages caused by wildlife. Similar sentiments are reported in Baral and Heinen (2007) who maintain that those who suffer from wildlife damage without compensation are more likely to have unfavourable attitudes towards conservation agents. For example, Coupe *et al.*

(2002) indicate that lack of compensation for damage to crops caused by wildlife has made the local people to take the law into their own hands to kill the animals that invade their farms and Kangwana and Ole Mako (2001) observe that villagers request for compensation has not received much attention from park authorities. Other respondents recorded that the PA authority has distanced itself from the community (72% in Lake Nakuru, 3% in Kimana and 30% in Kedong) and at times are hostile and harass the local people (67%, in Lake Nakuru, 17% in Kimana and 28.6% in Kedong). This is similar to Fiallo and Jacobsen (1995) and Gillingham and Lee (1999) who observe that conflicts with park staff resulted in negative attitudes towards the park. Additionally, the findings reinforce the observation by Kangwana (1993 cited in Bonner, 1993: 227) that local people living adjacent to parks are not antagonistic to wildlife but negative about the park systems and the conservationists.

**Table 5.36: Benefits of living next to the protected areas (multiple responses - in %)**

<b>Benefits</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
None	25.0	-	10.0	11.9
See and know wildlife	72.0	87.0	70.0	77.1
Get game meat	-	-	27.1	7.0
Help with transport	-	77.0	70.0	46.7
Get firewood	2.0	1.0	-	1.1
Business opportunities	15.0	86.0	37.1	47.0
Interaction with tourists	10.0	56.0	17.1	11.9
Social amenities	5.0	97.0	17.1	42.2

The community respondents identified various positive experiences (benefits) of living next to the respective protected areas (Table 5.36). Twenty five percent of the respondents surveyed in Lake Nakuru and 10% in Kedong stated that they did not see any benefits linked to living next to the protected areas. This reinforces some of the results in Figure 5.17 that show that there was no support for community development projects by the PA authorities. Seventy two percent, 87% and 70% in Lake Nakuru, Kimana and Kedong, respectively, indicated that living next to the respective protected areas has given them an opportunity to see and know a variety of wildlife, while 77% of the respondents in Kimana and 70% in Kedong stated that they receive help with transport. The communities in

Kimana and Kedong have to walk through the PAs to access the nearby market centres because there is no public transport and at times they are assisted with transport by vehicles from the PAs. Two respondents in Lake Nakuru and one respondent in Kimana reported that they get firewood. These results compare with those indicated in Figure 5.9 that access to firewood collection points is not permitted in the PAs. In Kedong, 27.1% of the respondents indicated that they get game meat from the ranch, with none in Lake Nakuru and Kimana. This may be explained by the fact that there is game farming for meat in Kedong while hunting is prohibited in Lake Nakuru (KWS and AWF, 1995). On the other hand, the Maasai who are predominant in Kimana (Table 5.5) traditionally do not eat game meat (personal communication with respondents). Other benefits mentioned include business opportunities (15%, 86% and 37.1% of the respondents in Lake Nakuru, Kimana and Kedong, respectively), interaction with tourists (10% in Lake Nakuru, 56% in Kimana and 17.1% in Kedong) and access to social amenities (5%, 97% and 17.1% in Lake Nakuru, Kimana and Kedong, respectively). Access to these benefits depends on the management strategies of the PAs (IUCN/WCMC, 1994) where, for instance in national parks (Lake Nakuru) and private reserves (Kedong), there is restricted access.

**Table 5.37: Perceived problems of living next to the PAs (multiple responses - in %)**

<b>Perceived problems</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Restrictive access to and use of resources	66.0	33.0	68.6	54.4
Loss of land and livelihoods	24.0	38.0	21.4	28.5
Damage of property and crops by wildlife	93.0	87.0	11.4	69.6
Danger to people from wildlife	91.0	87.0	11.4	68.9
Wildlife disease transmission to livestock	88.0	87.0	22.9	70.7
Harassment by the PA staff	61.0	2.0	37.1	33.0

When asked about the negative experiences (problems) of living next to the PAs (Table 5.37), 66% of the respondents in Lake Nakuru, 33% in Kimana and 68.6% in Kedong reported restrictive access to and use of the natural resources, while 24%, 38% and 21.4% in Lake Nakuru, Kimana and Kedong, respectively, indicated loss of land and livelihoods. Other problems identified included damage of property and crops by wildlife (93% in Lake Nakuru, 87% in Kimana and 11.4% in Kedong), dangerous animals that threaten people's

safety (91%, 87% and 22.9% in Lake Nakuru, Kimana and Kedong, respectively), disease transmission from wildlife to livestock (88% in Lake Nakuru, 87% in Kimana and 22.9% in Kedong) and harassment from the PA staff (61%, 2% and 37.1% in Lake Nakuru, Kimana and Kedong, respectively). There were minimal problems reported in Kedong in relation to the presence of wildlife compared to Lake Nakuru and Kimana because the ranch does not host most of the problem animals such as predators, elephants and buffaloes. The communities in Lake Nakuru (61%) and Kedong (37.1%) also indicated an additional problem in relation to harassment by the PA authorities indicating a poor relationship between the PA staff and the community (Table 5.34).

**Table 5.38: Whether community members were consulted by the conservation authority to develop a partnership (multiple responses - in %)**

<b>Person consulted</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Nobody	33.0	-	10.0	14.8
Chief/ Sub-chief	11.0	17.0	20.0	15.6
Selected members of the community	7.0	92.0	27.1	43.7
Community-based organisation (CBO)	6.0	95.0	7.1	39.3
Councillor	-	23.0	-	8.5
Don't know	50.0	-	57.1	33.3

When asked whether the conservation authority had consulted anybody in the community to develop a partnership (Table 5.38), 33% of the respondents in Lake Nakuru and 10% in Kedong indicated that nobody had been consulted, while 11%, 17% and 20% in Lake Nakuru, Kimana and Kedong, respectively, mentioned that the local Chief or Sub-Chief was consulted. Seven percent of the respondents in Lake Nakuru, 92% in Kimana and 27.1% in Kedong indicated that the PA authorities had consulted selected members of the community, while 6%, 95% and 7.1% in Lake Nakuru, Kimana and Kedong, respectively, mentioned that the community-based organisation leaders were consulted. Twenty three percent of the respondents in Kimana stated that the park authority had consulted the local councillor, while 50% and 57.1% in Lake Nakuru and Kedong, respectively, indicated they did not know whether there has been any consultation with anyone in the community to develop a partnership. The results show that there have been some efforts to develop

partnerships with the community. This is particularly evident in Kimana, possibly because of the presence of dispersal areas for wildlife between the community lands and the sanctuary that require collaboration with the local people for their management.

**Table 5.39: Which community members were receiving development money from the conservation authority (multiple responses - in %)**

Person consulted	Lake Nakuru (n=100)	Kimana (n=100)	Kedong (n=70)	Total (n=270)
No response	6.0	5.0	5.7	5.6
Chief/Sub-chief	5.0	1.0	-	2.2
Community trust fund	9.0	94.0	10.0	40.7
Councillor	1.0	-	-	0.4
Don't know	76.0	-	84.3	50.0
Not applicable	33.0	-	10.0	14.8

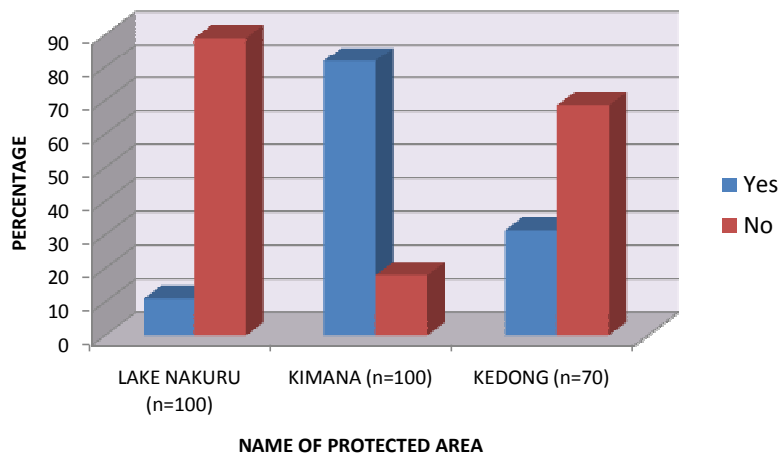
Five percent of the respondents in Lake Nakuru and one respondent in Kimana mentioned that the monies that were received from the conservation authority were given to the local Chief or Sub-Chief, while 9%, 94% and 10% in Lake Nakuru, Kimana and Kedong, respectively, indicated the monies are put into the community trust fund (Table 5.39). One percent of the respondents in Lake Nakuru stated that the money is given to the local councillor, while 80% in Lake Nakuru and 84.3% in Kedong indicated that they do not know who receives the monies.

**Table 5.40: Community respondents' views on government policies and institutions relating to biodiversity conservation (multiple responses - in %)**

Respondents view	Lake Nakuru (n=100)	Kimana (n=100)	Kedong (n=70)	Total (n=270)
Inadequate	35.0	76.0	65.7	58.1
Unfair (favour tourists and wildlife)	58.0	86.0	67.1	70.7
Enhance tolerance of wildlife	9.0	46.0	28.6	30.9
Need to be revised	36.0	81.0	35.7	52.6
Good but not effectively implemented	36.0	20.0	27.1	27.8

When asked about their views pertaining to government policies on biodiversity conservation (Table 5.40), the majority of the community respondents indicated that they

are inadequate (35% in Lake Nakuru, 76% in Kimana and 65.7% in Kedong) and unfair to the local people but biased towards the welfare of wildlife and foreign tourists (58%, 86% and 67.1% in Lake Nakuru, Kimana and Kedong, respectively). A similar study by Weladji *et al.* (2003) in Cameroon found out that the respondents had reservations on the wildlife policy because their present interests were not met and that the policy benefited mostly foreigners. Western (1992) also observes that wildlife management policies have a tradition of managing animals rather than people. Nine percent of the respondents in Lake Nakuru, 46% in Kimana and 28.6% in Kedong recorded that the institutional and policy framework enhanced tolerance of wildlife in private lands. However, 36% of the respondents in Lake Nakuru, 20% in Kimana and 27.1% in Kedong stated that the policies and institutions are good if effectively implemented, while 36%, 81% and 35% in Lake Nakuru, Kimana and Kedong, respectively, indicated that they need to be revised.



**Figure 5.19: Local community interaction with tourists**

When the community respondents were asked whether they interact with the tourists that visit the PAs (Figure 5.19), 11% in Lake Nakuru, 82% in Kimana and 31.4% in Kedong

responded positively, while 89%, 18% and 68.6% in Lake Nakuru, Kimana and Kedong, respectively, reported they do not interact with the tourists.

**Table 5.41: Communities' attitudes towards tourists (multiple responses - in %)**

<b>Attitude</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Euphoria (excitement)	23.0	100.0	42.9	56.7
Apathy (tourists taken for granted)	73.0	-	27.1	34.1
Annoyance (misgivings on tourism)	3.0	-	-	1.1
Antagonism (displayed irritations)	4.0	-	-	1.5
Don't know	2	-	30.0	8.5

The community respondents had various responses in relation to attitudes towards tourists visiting the area (Table 5.41). All the respondents in Kimana, 23% in Lake Nakuru and 42.9% in Kedong indicated that they are excited by tourists visiting the areas, while 73% and 27.1% in Lake Nakuru and Kedong, respectively, reported that tourists are taken for granted. Three percent and 4% of the respondents in Lake Nakuru stated that there was annoyance (misgivings on tourism) and antagonism (openly displayed irritations) towards tourists, respectively, among the local people, while 2% in Lake Nakuru and 30% in Kedong indicated they did not know what the attitudes of the local people were towards tourists. These results reinforce the irritation index of five stages of the social impacts of tourism presented by Lea (1993) which illustrates an increasing disillusion to host society, beginning with initial euphoria, then apathy, increasing irritation, outright antagonism and, finally, a stage when cherished values are forgotten and the environment destroyed by mass tourism.

The attitudes of the local communities towards the protected area management and conservation activities were found to be significantly influenced by several factors related to the socio-economic characteristics of the local people and the nature of their relationship with the protected area institutions and staff (Table 5.42).



**Table 5.42: Factors that influenced local people's attitudes towards the protected areas and community conservation and development projects (CCDPs) (in %)** \*=  $p < 0.05$ , \*\* =  $p < 0.01$ , \*\*\* =  $p < 0.001$

Factor	About the protected area (n=270)			About the CCDPs (n=270)		
	Positive attitude	Negative attitude	$\chi^2$	Positive attitude	Negative attitude	$\chi^2$
<b>Gender</b>						
<i>Male</i>	86.5	13.5	47.0***	75.5	25.0	35.8***
<i>Female</i>	47.4	52.6		42.3	57.7	
<b>Age</b>						
<25 years	33.3	66.7	38.0***	33.3	66.7	48.9***
26-35 years	88.0	12.0		52.0	48.0	
36-45 years	68.2	31.8		50.9	49.1	
46-55 years	76.8	23.2		85.5	14.5	
56-65 years	82.4	17.6		74.5	25.5	
>65 years	100.0	-		100.0	-	
<b>Formal educational level</b>						
None	93.7	6.3	70.2***	92.8	7.2	99.6***
Yes	62.3	37.7		46.5	53.5	
<b>Poverty level</b>						
Low	93.3	6.7	43.6***	60.0	40.0	14.3*
Moderate	86.0	14.0		65.1	34.9	
High	61.6	38.4		67.9	32.1	
Very high	66.7	33.3		66.7	33.3	
<b>Residence location</b>						
1-100 meters	20.0	80.0	48.1***	70.0	30.0	40.7***
101-200 meters	23.1	76.9		56.4	43.6	
201-300 meters	83.7	16.3		46.5	53.5	
301-400 meters	54.8	45.2		69.4	30.6	
>400 meters	82.1	17.9		73.6	26.4	
<b>Community involvement</b>						
Yes	99.1	0.9	54.3***	98.1	1.9	83.4***
No	59.5	40.5		44.2	55.8	
<b>Access to protected area</b>						
Yes	90.5	9.5	13.4**	61.9	38.1	12.8*
No	72.4	27.6		66.2	33.8	
<b>Employment opportunity</b>						
Yes	97.6	2.4	31.7***	97.6	2.4	53.7***
No	65.4	34.6		51.6	48.4	
<b>Relationship with staff</b>						
Very good	100.0	-	96.4***	90.6	9.4	94.1***
Good	96.5	3.5		90.6	9.4	
Satisfactory	50.0	50.0		55.4	44.6	
Poor	76.5	23.5		51.5	48.5	
Very poor	31.0	69.0		17.2	82.8	

Table 5.42 indicates that gender, age, educational level, household poverty levels, employment, household distance from the protected area, community involvement, access to the protected area for resource use and the nature of relationship with the protected areas significantly ( $\chi^2$  tests,  $p < 0.05$ ,  $p < 0.01$ ,  $p < 0.001$ ) influenced the attitudes of the local communities towards the protected areas and community conservation initiatives. A higher proportion of male respondents were more positive about the protected areas and community conservation (86.5%) and development programmes (CCDPs) (75.5%), respectively, compared to 47.4% and 42.3% of females. Similarly, the older respondents were more positive towards the protected area ( $\chi^2 = 38.0$ ,  $p = 0.001$ ) and CCDPs ( $\chi^2 = 48.9$ ,  $p = 0.001$ ) than young respondents, while a higher proportion of those without formal education were more positive towards the protected areas (93.7%) and CCDPs (92.8%). Households with lower poverty levels were more positive (93.3%) about the protected areas and substantially positive (60.0%) about the CCDPs, while those with higher levels of poverty were substantially positive (66.7%) about both the protected areas and CCDPs. Households closer to the protected areas boundaries were more negative (80.0%) about the protected areas but more positive (70.0%) about the CCDPs, while those far from the protected areas boundaries were more positive (82.1%) about the protected areas as well as the CCDPs (73.6%). The results also illustrate that where the local communities benefitted through access to the protected areas, employment and involvement in the management activities, they were more positive about the protected areas and the CCDPs. Similarly, where the relationship between the local communities and the protected area staff was favourable they were more positive about the protected areas as well as the CCDPs. These results explain the heterogeneous nature of the community in relation to their socio-economic characteristics and differentiation that influence their interests and attitudes toward the protected areas activities.

A substantial number of community respondents highlighted perceived problems associated with tourism activities in the study areas (Table 5.43). Twenty three percent, 81% and 40% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, mentioned that it had created a dependency syndrome among the local people for handouts, while 24% in

Lake Nakuru, 80.1% in Kimana and 42.9% in Kedong reported erosion of their indigenous cultural values. Twenty one percent, 80% and 41.4% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, mentioned misconduct by some tourists as having a bad influence on the youth, while 20% in Lake Nakuru, 13% in Kimana and 64.3% in Kedong complained that there was much focus directed towards tourism developments that favour tourists while neglecting the needs of the local people.

**Table 5.43: Problems associated with tourism activities (multiple responses - in %)**

<b>Problem</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
None	27.0	6.0	21.4	17.8
Dependency on handouts	23.0	81.0	40.0	48.9
Erosion of indigenous cultural values	24.0	80.1	42.9	49.6
Misconduct and bad influence	21.0	80.0	41.4	48.1
Focus on tourists than local problems	26.0	13.0	64.3	31.1

The findings show that some problems were more prominent in some areas than others. For instance, there were more problems mentioned in Kimana and Kedong in relation to the social impacts of tourism activities on the local communities than in Lake Nakuru. This can possibly be explained by the fact that in Kimana and Kedong there is a substantial population of the Maasai community (Table 5.5) who have a strong affinity to cultural identity (Bonner, 1993), as well as more incidences of interaction with tourists visiting the areas (Table 5.19). There is an expanding literature that documents the negative impacts of tourism in Kenya that include presumed degradation of the quality of the wildlife parks (Okech, 2007; Sindiga and Kanunah, 1999); cultural erosion and social impacts like prostitution, drug peddling, scant dressing and alcoholism (KWS, 1994; Sindiga 1995); uneven distribution of tourism benefits, poor employment opportunities for the local people; and foreign ownership and management of tourism enterprises leading to local resentment (Bonner, 1993; KWS, 1994; Migot-Adholla *et al.*, 1982; Sindiga and Kanunah, 1999).

### 5.2.7. Sustainable conservation strategies

The preceding section discussed the communities' attitudes towards conservation authorities and existing policies, a critical issue when designing new policies or sustainable conservation strategies (Weladji *et al.*, 2003). This section compares the perceived effectiveness of the conservation strategies and the community responses in the quest for a sustainable conservation strategy that is acceptable to all stakeholders.

Table 5.44 summarises the responses of the community respondents where they compared the effectiveness of the various categories of protected areas under study. Thirty six percent of the respondents in Lake Nakuru, 21% in Kimana and 15.7% in Kedong indicated that the indigenous systems of biodiversity conservation were excellent, while 21%, 57% and 65.8% in Lake Nakuru, Kimana and Kedong, respectively, recorded them as very good. Eighteen percent of the respondents in Lake Nakuru, 21% in Kimana and 17.1% in Kedong stated that the indigenous systems of biodiversity conservation were good, while 12% and one respondent in Lake Nakuru and Kimana, respectively, mentioned that the indigenous systems of biodiversity conservation was bad. Another 13% in Lake Nakuru and 1.4% in Kedong said they did not know which conservation system was more effective.

National parks were rated as excellent (5% of the respondents in Lake Nakuru, 2% in Kimana and 1.4% in Kedong), very good (18% in Lake Nakuru, 44% in Kimana and 30% in Kedong), good (56%, 54% and 52.9% in Lake Nakuru, Kimana and Kedong, respectively) and bad (10% in Lake Nakuru) in enhancing biodiversity conservation. Thirteen percent of the respondents in Lake Nakuru and 1.4% in Kedong stated that they do not know how effective national parks were in biodiversity conservation.

Community reserves on the other hand were identified as excellent by 8% of the respondents in Lake Nakuru, one respondent in Kimana and 7.1% in Kedong, with 39% in Lake Nakuru, 25% in Kimana and 11.4% in Kedong indicating that they were very good. Thirty six percent of the respondents in Lake Nakuru, 74% in Kimana and 77.1% in Kedong felt that the community reserves are good in conserving biodiversity, while 4% and 2.9% in

Lake Nakuru and Kedong, respectively, indicated that biodiversity conservation in the community reserves were bad.

**Table 5.44: Results of the effectiveness of various categories of protected areas (in %)**

<b>Conservation system</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
<b>Indigenous system</b>				
Excellent	36.0	21.0	15.7	25.2
Very good	21.0	57.0	65.8	45.9
Good	18.0	21.0	17.1	18.9
Bad	12.0	1.0	-	4.8
Don't know	13.0	-	1.4	5.2
<b>National parks</b>				
Excellent	5.0	2.0	15.7	6.7
Very good	18.0	44.0	30.0	30.4
Good	56.0	54.0	52.9	54.4
Bad	10.0	-	-	3.7
Don't know	13.0	-	1.4	4.8
<b>Community reserves</b>				
Excellent	8.0	1.0	7.1	5.2
Very good	39.0	25.0	11.4	26.7
Good	36.0	74.0	77.1	60.7
Bad	4.0	-	2.9	2.2
Don't know	13.0	-	1.4	5.2
<b>Private reserves</b>				
Excellent	24.0	10.0	8.6	14.8
Very good	31.0	29.0	-	22.3
Good	25.0	60.0	60.0	47.0
Bad	7.0	1.0	30.0	10.7
Don't know	13.0	-	1.4	5.2

Private reserves were found to perform excellently by 24% of the respondents in Lake Nakuru, 10% in Kimana and 8.6% in Kedong, while 31% and 29% in Lake Nakuru and Kimana, respectively, indicated that private reserves are very good in conserving biodiversity. Twenty five percent of the respondents in Lake Nakuru, 60% in Kimana and

60% in Kedong mentioned that the private reserves are good, while 7%, one respondent and 30% in Lake Nakuru, Kimana and Kedong, respectively, indicated that they perform badly.

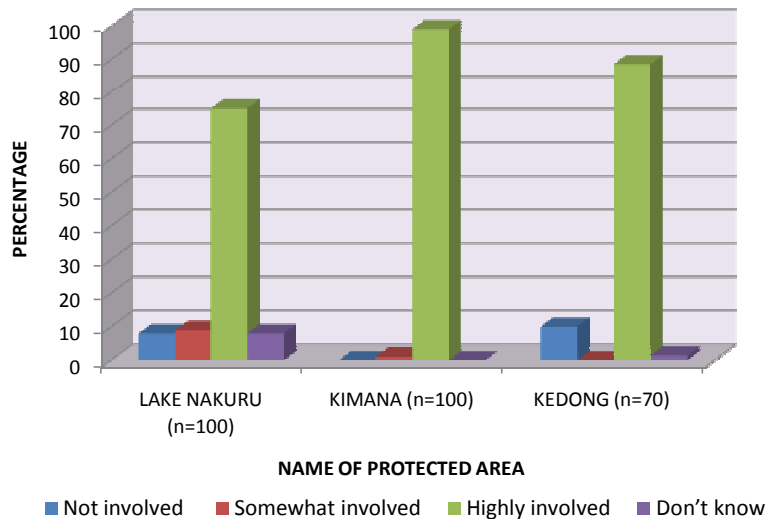
The results reveals an unclear comparison of the different strategies of conservation among the respondents in the case study areas as highlighted above. Generally, all the respondents indicated that all the conservation strategies under study were doing good conservation. The results compare with the discussion by Brandon (1998), Mulder and Coppolillo (2005) and Parks *et al.* (2002) that the answer to when and where different strategies of conservation works better is largely unclear, situational and dependent upon the specific objectives of management.

**Table 5.45: Situations when strict protection strategies should be adopted (multiple responses - in %)**

<b>Situation</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Wildlife injured and diseased	40.0	86.0	44.3	58.1
Increased encroachment into the PA	44.0	78.0	14.3	48.9
Increased poaching incidences	56.0	79.0	67.1	67.4
Increased human-wildlife conflicts	66.0	27.0	80.0	55.2
Threatened or endangered species	81.0	99.0	90.0	90.0

The majority of the community respondents supported strict protection of wildlife under certain situations (Table 5.45). Forty percent of the respondents in Lake Nakuru, 86% in Kimana and 44.3% in Kedong indicated that when there is an outbreak of disease or injury to wildlife it is critical to place the wildlife under strict protection, while 44%, 78% and 14.3% in Lake Nakuru, Kimana and Kedong, respectively, highlighted the situation when there is a threat to the wildlife habitat through increase in human encroachment into the protected areas. Other situations mentioned by the community respondents necessitating strict protectionism were increased poaching incidences (56% in Lake Nakuru, 79% in Kimana and 67.1% in Kedong), increased human-wildlife conflicts (66% in Lake Nakuru, 27% in Kimana and 80% in Kedong) and when a species of wildlife is categorised as threatened or endangered (81%, 99% and 90% in Lake Nakuru, Kimana and Kedong, respectively). These results are consistent with Mulder and Coppolillo's (2005) findings

which show instances where pure protectionism is essential to achieving conservation ends. These include where only a few fragments of intact habitat remain or when rapid growth in human population, market access and material aspiration puts an area of high biodiversity at significant risk.



**Figure 5.20: Extent to which the local community should be involved in the management of the protected areas**

When asked to what extent should the local communities be involved in the management activities of the PAs (Figure 5.20), the majority of the respondents (75% in Lake Nakuru, 99% in Kimana and 88.6% in Kedong) indicated that the local community should be highly involved, while 9% and one respondent in Lake Nakuru and Kimana, respectively, stated that the local community should be somewhat involved. However, 8% of the respondents in Lake Nakuru and 10% in Kedong indicated that the local community should not be involved, while 8% in Lake Nakuru and 1.4% in Kedong stated that they do not know whether it is important to involve them or not. According to Okech (2002), Scheyvens (2000) and Sindiga (1999), the involvement of the local people in the management

activities of PAs is fundamental to sustainable development and the conservation of biodiversity. This reinforces the findings of this study highlighted above on the importance of community involvement, for as Adams and Hulme (2001) note, if the local communities are alienated, they will not support conservation efforts and conflicts are likely to escalate.

**Table 5.46: Reasons why the local community should be involved in the management of the protected areas (multiple responses - in %)**

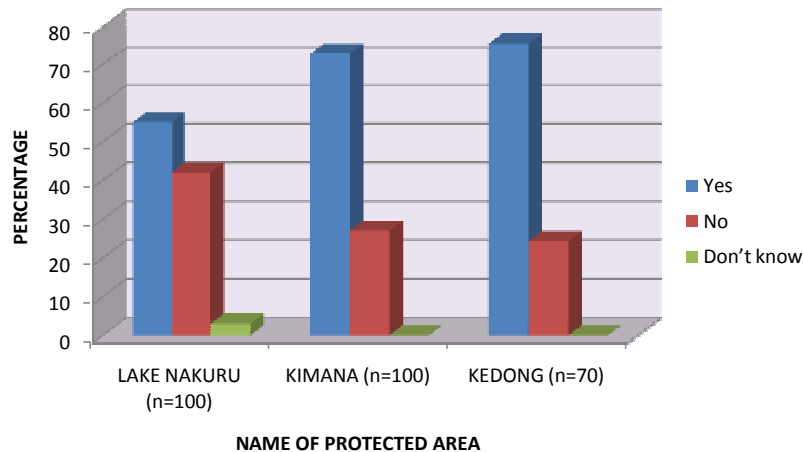
	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
<b>Why involved</b>				
Better understanding of the local resources	68.0	99.0	80.0	82.6
Cultural and religious attachment	23.0	98.0	72.9	63.7
Dependency on local natural resources	53.0	94.0	77.1	74.4
Improve relations with the management	77.0	97.0	71.4	83.0
Not applicable	8.0	-	10	5.6
<b>Why not involved</b>				
Demand access to the resources	5.0	-	10.0	4.4
Not make any difference	8.0	1.0	10.0	6.7
Not applicable	83.0	99.0	90.0	90.7

Among those who supported the involvement of the local people in the management of the PAs (Table 5.46), 68% in Lake Nakuru, 99% in Kimana and 80% in Kedong indicated that the local people have a better understanding of the local resources hence their indigenous knowledge will aid in the management of the protected areas, while 23% in Lake Nakuru, 98% in Kimana and 72.9% in Kedong stated that the local people have religious and cultural attachment to the protected natural resources. Fifty three percent, 94% and 77.1% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, mentioned that they depend on the natural resources for their livelihoods, while 77% in Lake Nakuru, 97% in Kimana and 71.4% in Kedong indicated that involving the local community will improve the relationship between the local people and the PAs authorities.

Table 5.46 also indicates that among the community respondents against the involvement of the local people in PAs management activities, 5% in Lake Nakuru and 10% in Kimana indicated that the local people if involved may demand access to use the resources which



may result in the resources being further diminished, while 8%, one respondent and 10% in Lake Nakuru, Kimana and Kedong, respectively, stated that the involvement of the local people will not make any difference since the PA authorities have always had an upper hand.



**Figure 5.21: Whether local communities should be allowed to extract resources from the protected areas**

When asked whether the villagers should be allowed to extract resources in the PAs (Figure 5.21), a substantial number of respondents supported it (55% in Lake Nakuru, 75.7% in Kedong and 73% in Kimana), while 42%, 27% and 24.3% in Lake Nakuru, Kimana and Kedong, respectively, were against it. Three percent of the respondents in Kedong stated they do not know whether they should be allowed to or not. These results are consistent with the results in Table 5.19 which show that a significant number of the community respondents indicated a need for access to the PAs for certain resources like grazing land (60.4%), water use (48.5%) and wood collection (81.5%). The results also reinforce the main sources of resources such as energy (fuelwood) and water (stream and spring) among the local communities (Tables 5.12 and 5.13, respectively) that are found in abundance in the protected areas.

**Table 5.47: Reasons why the local community should be allowed or not allowed to extract resources from the PAs (multiple responses - in %)**

<b>Reason for allowing extraction</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
During times of drought	49.0	27.0	77.1	48.1
To avoid strife with the local people	37.0	27.0	75.7	43.3
Cleaning by collecting deadwood	36.0	28.0	25.7	23.0
Controlled harvesting	48.0	62.0	70.0	58.9
Not applicable	45.0	27.0	24.3	32.9
<b>Why it should not be allowed</b>				
Will threaten the resources	42.0	33.0	22.9	33.7
Not applicable	55.0	73.0	75.7	67.0
No response	3.0	-	1.4	1.5

Respondents were asked to forward reasons pertaining to why local communities should be allowed or not allowed to extract resources from the PAs (Table 5.47). Forty nine percent of the respondents in Lake Nakuru, 27% in Kimana and 77.1% explained that they should be permitted to use resources during times of drought, while 37%, 27% and 75.7% in Lake Nakuru, Kimana and Kedong, respectively, responded that allowing them to use resources will reduce strife. Thirty six percent of the respondents in Lake Nakuru, 8% in Kimana and 25.7% in Kedong indicated that the local people should be allowed to clean the respective PAs through collecting deadwood, while 48%, 62% and 70% in Lake Nakuru, Kimana and Kedong, respectively, stated that they should be allowed to harvest the overpopulated species. Mulder and Coppolillo (2005) observe that selective extractive use is justified on the utilitarian rationale for conservation, particularly in relation to resources that are abundant. However, 42% percent in Lake Nakuru, 33% in Kimana and 22.9% in Kedong argued that if extractive use will be allowed it may lead to over-exploitation which can threaten endangered species with extinction. This is consistent with the concern whether extractive use of resources can be sustainable. For example, Peres *et al.* (2003) argue that even among the most well known harvesting of brazil nuts in Brazil's conservation strategy, it is unsustainable in several areas. Similarly, Jackson *et al.* (2001) attribute the collapse of numerous fisheries worldwide to unsustainable exploitation, while Barrett and Arcese (1998) argue that even on the African grasslands where there are huge productive herds of large mammals, meat harvesting can be unsustainable.

**Table 5.48: Ways in which the protected area management can improve the livelihoods of the local people without compromising the state of biodiversity (multiple responses - in %)**

<b>Response</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Development of local infrastructure	91.0	90.0	98.6	92.6
Sharing of revenue collected with the locals	79.0	78.0	78.6	78.5
Give the community part of the PA to manage	24.0	87.0	52.9	54.8
Compensating losses caused by wildlife	77.0	90.0	55.7	76.3
Fencing some areas to avoid conflicts	55.0	55.7	13.0	39.6
Involving the locals in the PA management	94.0	100.0	87.1	94.4

When asked about the ways the PA management authorities can improve the livelihoods of the local people without compromising the state of local wild biodiversity (Table 5. 48), 91% of the respondents in Lake Nakuru, 90% in Kimana and 98.6% in Kedong suggested that they should develop the local infrastructure, while 79%, 78% and 78.6% in Lake Nakuru, Kimana and Kedong, respectively, mentioned sharing of the revenue collected with the local people. Twenty four percent of the respondents in Lake Nakuru, 87% in Kimana and 52.9% in Kedong indicated that the PA authorities should consider allotting a part of the protected area to the local community to manage, while 77%, 90% and 55.7% in Lake Nakuru, Kimana and Kedong, respectively, recommended compensation for losses caused to the local people by wildlife. Other suggestions included fencing of some parts of the PAs (55% in Lake Nakuru, 55.7% in Kimana and 13% in Kedong) and involving the local people in the protected area management (94% in Lake Nakuru, 100% in Kimana and 87.1% in Kedong). The overall impression of these results generally is that the majority of the respondents across the case study sites were in agreement that in order to reconcile the conflicting interests of the local people and bioiversity conservation, it is imperative to develop structures that improve the livelihoods of the local communities as well as ensure the sustainability of the resource base.

**Table 5.49: Ways in which the local people can contribute towards promoting biodiversity conservation (multiple responses - in %)**

<b>Response</b>	<b>Lake Nakuru (n=100)</b>	<b>Kimana (n=100)</b>	<b>Kedong (n=70)</b>	<b>Total (n=270)</b>
Collaboration through community policing	91.0	100.0	94.3	95.2
Engaging in domestic tourism	66.0	73.0	78.6	71.9
Enhancing sustainable resource use lifestyles	57.0	15.0	68.6	44.4
Enhancing indigenous conservation systems	49.0	92.0	80.0	73.0
Tolerating wildlife in private lands	20.0	92.0	75.7	61.1

Table 5.49 indicates the ways in which community respondents felt local people can contribute towards promoting the conservation of local biodiversity. All the respondents in Kimana, 91% in Lake Nakuru and 94.3% in Kedong indicated that collaborating with the protected area management through community policing will enhance conservation efforts, while 66%, 73% and 78.6% in Lake Nakuru, Kimana and Kedong, respectively, recommended that the local people should engage in domestic tourism by visiting the protected areas. Other strategies outlined include enhancing sustainable resource use lifestyles (57% in Lake Nakuru, 15% in Kimana and 68.6% in Kedong), enhancing indigenous conservation systems (49% in Lake Nakuru, 92% in Kimana and 80% in Kedong), and tolerating wildlife in private lands (20%, 92% and 75% in Lake Nakuru, Kimana and Kedong, respectively). These results indicate that the local communities understand that collaborating with the protected area authorities will enhance the conservation of biodiversity and improve their relationship with the management. Similar sentiments are supported by Chellan and Bob (2008) in a study on community perceptions regarding sustainable ecotourism in the uKhahlamba Drakensberg Park, South Africa that identified good collaboration/ relationship with park authorities as a way in which the communities, as a stakeholder, could contribute towards local economic development and environmental sustainability within the park. By engaging in tourism-related economic opportunities, the communities expose themselves to the benefits accruing from the presence of tourists and conservation activities in the areas.

### **5.3. Conclusion**

The analysis and discussion of the results on community respondents indicated differences as well similarities between the case study sites in relation to their perceptions of the key issues in the management strategies of the respective protected areas. However, the overall impression generally is that the majority of the local community respondents were concerned about how they should be more involved in the management of the protected areas and how they can improve their livelihoods from benefits accruing from the protected areas. It is therefore important for all the stakeholders in conservation practice to enhance the development of structures that improve the livelihoods of the local communities and foster their attitudes towards conservation in concert as well as sustain the resource base.

## CHAPTER SIX

### DATA ANALYSIS AND DISCUSSION: PERSONNEL AND MANAGEMENT

#### 6.1. Introduction

As mentioned earlier, the three case study sites are under different governance types and management structures (government, community and private). This section looks at the demographic and socio-economic characteristics of the management personnel and their implications for biodiversity conservation strategies in the respective study areas. The researcher interviewed a total of 45 respondents from the management staff working in the protected areas under study. This was done through the administration of the personnel questionnaire (Appendix 2) as well as the semi-structured interview schedule for the regulators (Appendix 3).

#### 6.2. Staff Characteristics

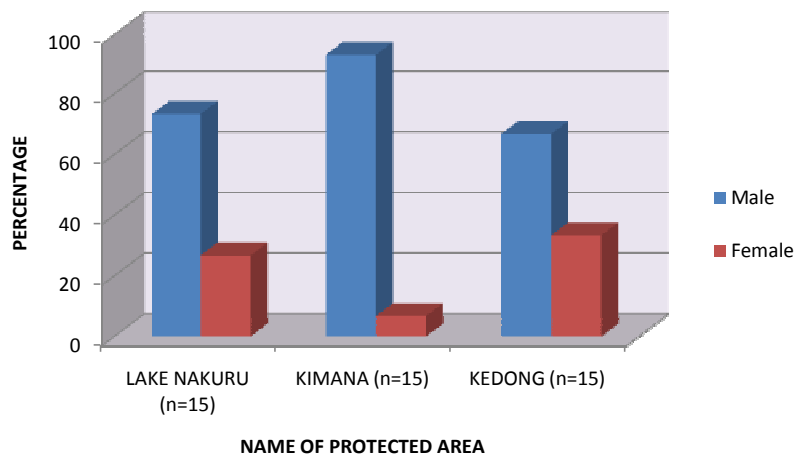
A total of fifteen respondents each for Lake Nakuru National Park, Kimana Community Wildlife Sanctuary and Kedong Game Ranch were interviewed.

**Table 6.1: Job positions of staff in the protected areas (in %)**

<b>Job categories</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (N=45)</b>
Warden	6.7	6.7	6.7	6.7
Assistant warden	20.0	13.3	6.7	13.3
Farm manager	-	-	6.7	2.2
Research Assistant	20.0	6.7	-	8.9
Ranger/Security guard	20.0	40.0	20.0	26.6
Corporal	13.3	-	-	4.4
Lodge manager	-	6.7	-	2.2
Driver/ Tour guide	13.3	13.3	13.3	13.3
Maintenance staff	6.7	13.3	6.7	8.9
Farm worker (Labourer)	-	-	40.0	13.3
Total	100	100	100	100

One staff respondent (6.7%) in each of the study area was in a position of warden in charge of the respective protected areas, while 20%, 13.3% and one respondent for Lake Nakuru,

Kimana and Kedong, respectively, represented assistant wardens (Table 6.1) in charge of the various coordinating and operational sections of the protected areas. Twenty percent of the respondents in Lake Nakuru and one respondent in Kimana were in the position of research assistants while 20%, 40% and 20% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, were rangers or security guards, with 13.3% of the respondents in Lake Nakuru being corporals. These were in charge of enforcing the management activities within the protected areas. Two respondents (13.3%) in each of the study areas were drivers/ tour guides. One respondent and 40% of the respondents in Kedong were farm manger and farm workers (labourers), respectively, while one respondent (6.7%) in Kimana was the lodge manager (Zebra Lodge). One respondent (6.7%) in Lake Nakuru and Kedong each, and 13.3% in Kimana formed part of the maintenance staff.



**Figure 6.1: Gender of staff respondents**

Figure 6.1 above illustrates that 73.3% of the staff respondents in Lake Nakuru, 93.3% in Kimana and 66.7% in Kedong represented males while 26.7%, 6.7% and 33.3% in Lake Nakuru, Kimana and Kedong, respectively, represented females. These results indicate that there were more males compared to females employed in the respective protected areas. This implies that women are marginalised when it comes to employment opportunities. This

can be attributed to the gendered nature of the jobs available. For instance, in Kimana there are fewer females working in the sanctuary because the majority of the jobs (40%) are related to security matters (Table 6.1), traditionally positions held by men among the Maasai community (Bonner, 1993), while in Kedong there are more females (33.3%) because the majority of the workers (40%) are labourers or farm workers in the ranch who are mainly women. Lim (2008) asserts that in many societies the responsibility of earning income for the household is for men and there are serious constraints and barriers that often hamper women's participation in employment activities. These include social and cultural barriers where women lack family support because they are supposed to fulfill other household roles, educational barriers where women have relatively biased lower education levels than men with limited access for vocational training, and occupational barriers where some professions are considered unfit for women (International Labour Organisation – ILO, 1999).

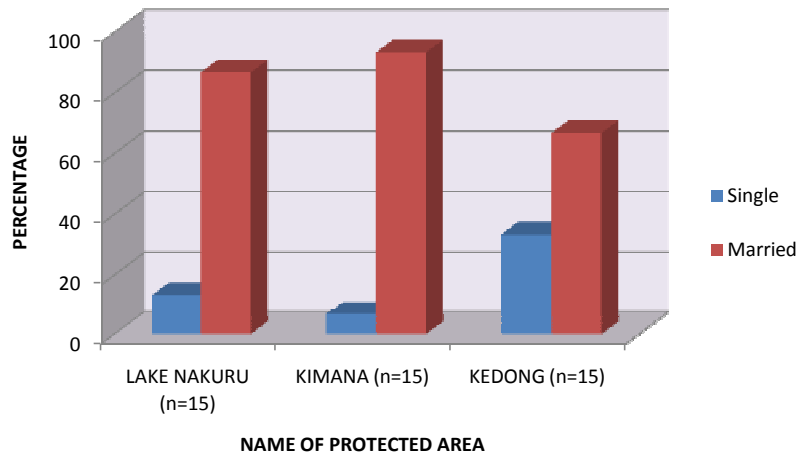
According to Table 6.2 below, 13.3% and 26.6% of the respondents in Kimana and Kedong, respectively, were below 25 years of age, while 60% in Lake Nakuru, 33.3% in Kimana and 26.6% in Kedong were between the ages of 26-35 years. One respondent (6.7%) in Lake Nakuru and 20% in Kedong were between 46-55 years, while 33.3%, 46.7% and 26.6% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, were between 36-45 years. One respondent (6.7%) in Kedong was between 56-65 years. The age distribution among the respondents was closely even across the case study sites with an overall average age for the staff respondents of 36.4 years, ranging between 23 to 53 years. The results indicate that the majority of the staff respondents were relatively young - below 45 years. This implies that the younger generation appear to have more opportunities in the conservation sector. Similar sentiments are echoed by Campbell *et al.* (2000) and Southgate and Hulme (2000) who contend that some conservation agencies such as the KWS have an affinity to recruit younger staff.



**Table 6.2: Age distribution of staff respondents (in %)**

Age (Years)	Lake Nakuru (n=15)	Kimana (n=15)	Kedong (n=15)	Total (n=45)
<25	-	13.3	26.6	13.3
26-35	60.0	33.3	26.6	40.0
36-45	33.3	46.7	26.6	35.6
46-55	6.7	-	20.0	8.9
56-65	-	6.7	-	2.2
Total	100 x=35.5, r=22	100 x=35.6, r=30	100 x=38.2, r=25	100 x=36.4, r=30

Figure 6.2 indicates that 86.7% of the staff respondents in Lake Nakuru, 93.3% in Kimana and 66.7% in Kedong were married while 13.3%, in Lake Nakuru, one respondent (6.7%) in Kimana and 33.3% in Kedong were single. The results show that the majority of the staff respondents in all the case study sites were married.



**Figure 6.2: Marital status of staff respondents**

All the staff respondents in Lake Nakuru and 46.6% in Kimana and Kedong (Table 6.3) had attained formal education to the level of senior high (Form 4-6), while 46.7% of the respondents in Kimana and 20% in Kedong were of the upper primary level (Standard 5-8)

with another 6.7% and 33.3% in Kimana and Kedong, respectively, having attained the junior high level (Form 1-3). The results imply that overall the staff in the protected areas are literate and in a position to understand conservation matters and conduct conservation outreach programmes, an essential ingredient for successful management of the protected areas (Okello *et al.*, 2003).

**Table 6.3: Educational level and professional training of staff respondents (in %)**

<b>Highest level of formal education</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Upper Primary (Standard 5-8)	-	46.7	20.0	22.2
Junior High (Form 1-3)	-	6.7	33.3	13.3
Senior High (Form 4-6)	100.0	46.7	46.7	64.4
Total	100	100	100	100
<b>Professional or technical training</b>				
None	-	26.7	46.7	24.4
Certificate	40.0	46.7	13.3	33.3
Diploma	40.0	20.0	20.0	26.7
Undergraduate degree	13.3	6.7	13.3	11.1
Postgraduate degree	6.7	-	6.7	4.4
Total	100	100	100	100

Table 6.3 also indicates that 26.7% of the staff respondents in Kimana and 46.7% in Kedong had no professional or technical training, while all the staff respondents in Lake Nakuru had attained some level of professional or technical training (40% certificate, 40% diploma, 13.3% undergraduate degree and 6.7% postgraduate training). In Kimana, 46.7%, 20% and one respondent (6.7%) had attained certificates, diplomas and an undergraduate degree, respectively, while 13.3%, 20%, 13.3% and one respondent (6.7%) in Kedong had obtained certificates, diplomas, undergraduate degrees and postgraduate training, respectively. The differences among the respondents across the case study sites in relation to professional and technical training can be attributed to the terms and conditions of employment for particular activities within the particular protected areas. For instance, in Lake Nakuru, the staff are recruited and trained in government run training institutes targeting specific disciplines like ecology, wildlife biology and policing. In Kimana emphasis is given to employment of the local people (who are mainly Maasai – Table 5.5)

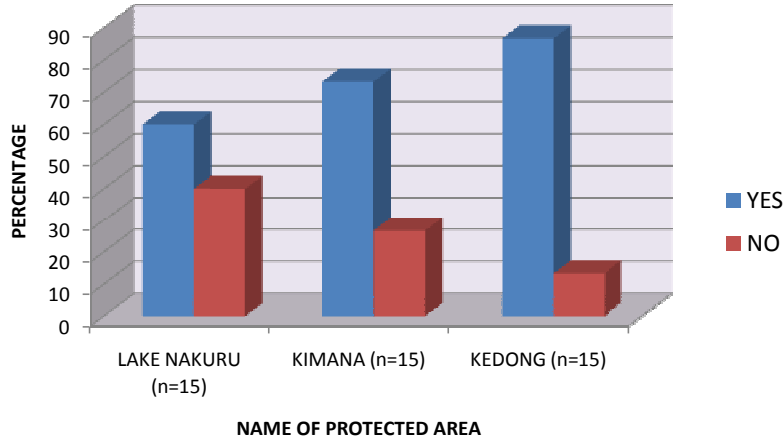
and may not have professional training but are endowed with traditional knowledge by virtue of their co-existence and dependency on the natural resources for their livelihoods (Bonner, 1993; Southgate and Hulme, 2000). Additionally, to contribute to the management of wildlife outside government protected areas the KWS trains the local Maasai as game scouts/ security guards to assist in protecting the wildlife in the dispersal areas in Kimana (Mburu and Birner, 2002). Similarly, in Kedong the management incorporates rural development components that include employment for rural people as day labourers (mainly farm workers – Table 6.1 and personal communication with Farm Manager, 2008).

**Table 6.4: District of origin of staff respondents (in %)**

<b>District of origin (Province)</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Machakos ( <i>Eastern</i> )	6.7	13.3	6.7	8.9
Marsabit ( <i>North Eastern</i> )	20.0	-	-	6.7
Nyandarua ( <i>Central</i> )	13.3	-	6.7	6.7
Meru ( <i>Eastern</i> )	13.3	6.7	-	6.7
Trans Nzoia ( <i>Rift Valley</i> )	13.3	-	6.7	6.7
Taita ( <i>Coast</i> )	6.7	13.3	-	6.7
Uasin Gishu ( <i>Rift Valley</i> )	20.0	-	-	6.7
Kisumu ( <i>Nyanza</i> )	6.7	13.3	13.3	11.1
Kajiado ( <i>Rift Valley</i> )	-	53.3	-	17.8
Narok ( <i>Rift Valley</i> )	-	-	26.7	8.9
Kisii ( <i>Nyanza</i> )	-	-	13.3	4.4
Naivasha ( <i>Rift Valley</i> )	-	-	26.7	8.9
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

According to the results indicated in Table 6.4, there was a wide distribution of the district of origin of the staff respondents. Twenty percent each of the respondents in Lake Nakuru came from Marsabit and Uasin Gishu districts while another 13.3% each came from Nyandarua, Meru and Trans Nzoia districts. One respondent (6.7%) each in Kedong indicated they came from Machakos, Nyandarua and Trans Nzoia, while 13.3% each came from Kisumu and Kisii districts, with another 26.7% each stated that they came from Narok and Naivasha districts. In Kimana, the majority of the respondents (53.3%) reported that they came from within Kajiado district, 13.3% each from Machakos, Taita and Kisumu districts, while one respondent came from Meru. These results reflect the employment

criteria which depend upon the management category of the protected areas. For instance, in Lake Nakuru (government managed) the recruitment is done nationally without any biasness towards the local areas, while in Kimana and Kedong (community and privately managed, respectively), preference is given to the local and neighbouring communities. Okech (2007) observes that where group ranches around Amboseli National Park have set aside part of their land as conservation areas, in return the community benefits by providing local labour with the local people employed as game scouts and camp staff. This is shown in this study which indicates that in Kimana most people interviewed are recruited from the local areas. Providing employment to local people is one way in which the management of the protected areas contribute to the improvement of local livelihoods. This is meant to provide local community members with a sense of ownership as well as to encourage tolerance of wildlife (Gadd, 2005). This position is similarly echoed by Gakahu (1992), Mitchell and Eagles (2001) and Sindiga (1999) who point out that where conservation programmes focus on improving the local economy, for example, through employment opportunities to the local communities, the local people will benefit and therefore support the conservation initiatives. The results reinforce the study findings among the community respondents in Kimana and Kedong (Tables 5.14 and 5.30) that showed a substantial number of members of the community households benefitted from employment opportunities in the protected areas, a situation that is reflected by the positive attitudes towards the conservation initiatives (Figure 5.17 and Table 5.31).



**Figure 6.3: Whether the staff respondents live in the surrounding community**

Figure 6.3 illustrates that 60% of the respondents in Lake Nakuru, 73.3% in Kimana and 86.7% in Kedong reside in the surrounding areas, while 40%, 26.7% and 13.3% in Lake Nakuru, Kimana and Kedong, respectively, live outside the local surrounding areas. According to Table 6.5, 26.7% of the staff respondents in Lake Nakuru, 60% in Kimana and 10% in Kedong reside within the respective protected areas, 20% in Lake Nakuru and one respondent (6.7%) each in Kimana and Kedong live 1-100 m away from the protected area boundary, while 53.3% in Kedong reside 101-200 m away from the protected area. One respondent (6.7%) in Kedong and 33.3% in Lake Nakuru live 201-300 m away with another 6.7% each in Lake Nakuru and Kedong, and 13.3% in Kimana residing 301-400 m from the protected area boundary. Twenty percent of the respondents in Kimana and 13.3% in both Lake Nakuru and Kedong live beyond 400 m away from the protected area. The distance of staff residence from the protected area boundaries as well as the surrounding areas is important in influencing staff-people interactions and the effectiveness of protected area management activities. For instance, a study by Hulme and Infield (2001) indicates that the location of staff residences in close proximity to the protected area boundaries resulted in more frequent negative interactions with local people poaching or encroaching

on the park to farm or graze cattle. This implies that where there are more staff residences within or close to the protected area boundaries to enhance monitoring and enforcement of management activities, at times this is not favourable to the local communities. This is echoed in a study by Weladji *et al.* (2003) who observe that with increased pressure and control from park staff in the near vicinity of park boundaries, local people are more negative about the park, and Kangwana and Ole Mako (2001) who point out that where the staff resided closer to the park boundary the local people complained of harassment by the rangers.

**Table 6.5: Distance of staff respondents' residences from the protected area boundary (in %)**

<b>Distance (meters)</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Within the PA	26.7	60.0	13.3.0	33.3
1-100 m	20.0	6.7	6.7	11.1
101-200 m	-	-	53.3	17.8
201-300 m	33.3	-	6.7	13.3
301-400 m	6.7	13.3	6.7	8.9
>400 m	13.3	20.0	13.3	15.6
Total	100	100	100	100

Table 6.6 indicates that 53.3% of the staff respondents in Lake Nakuru and 13.3% in Kimana have worked in the protected areas for less than 5 years, while 40%, 80% and 33.3% in Lake Nakuru, Kimana and Kedong, respectively, indicated they worked in the protected area for between 5-10 years. One respondent (6.7%) each in Lake Nakuru and Kimana, and 53.3% in Kedong reported that they worked for 11-15 years, while 13.3% in Kedong indicated that they worked for more than 15 years. The differences in the findings can possibly be explained by the period of establishment as well as the terms of employment of particular protected areas. For instance, the results reflect that in Lake Nakuru (government managed) the majority of the respondents had worked in the park for less than 10 years even though the park was established in 1968. This is in accordance with the government deployment policy where government employees are subject to transfers to other posts. On the other hand, the situation in Kimana (established in 1994) and Kedong

(established in the 1980s) shows that the majority of workers have worked in the areas longer than 5 years. This concurs with the results in Table 6.1 that indicates the workers are recruited from the local areas. The period the staff had worked in the protected areas is important for, according to Proshansky *et al.* (1983), it leads to development of attachment to the place through personal experiences and bonding with the environment.

**Table 6.6: Number of years the staff respondents had worked in the protected areas (in %)**

Number of years	Lake Nakuru (n=15)	Kimana (n=15)	Kedong (n=15)	Total (n=45)
<5	53.3	13.3	-	22.2
5-10	40.0	80.0	33.3	51.1
11-15	6.7	6.7	53.3	22.2
>15	-	-	13.3	4.4
Total	100	100	100	100

Table 6.7 shows the monthly income of the staff respondents.

**Table 6.7: Monthly income for staff respondents (in %)**

Amount of income (Ksh)	Lake Nakuru (n=15)	Kimana (n=15)	Kedong (n=15)	Total (n=45)
4 000-8 000	-	33.3	33.3	22.2
8 001-12 000	-	6.7	-	2.2
12 001-16 000	20.0	6.7	53.3	26.7
16 001-20 000	13.3	13.3	-	8.9
20 001-24 000	6.7	-	-	2.2
>24 000	60.0	40.0	13.3	37.8
Total	100	100	100	100

Twenty percent of the staff respondents in Lake Nakuru, one respondent (6.7%) in Kimana and 53.3% in Kedong indicated that they receive a monthly salary of between Ksh 12 001-16 000, while 33.3% each in Kimana and Kedong receive between Ksh 4 000-8 000 with one respondent (6.7%) in Kimana earning between Ksh 8 001-12 000 a month. Another 13.3% of the respondents each in Lake Nakuru and Kimana earned between Ksh 16 001-20 000 a month, and 6.7% in Kedong between Ksh 20 001-24 000, while 60%, 40% and

13.3% in Lake Nakuru, Kimana and Kedong, respectively, get a monthly pay of more than Ksh 24 000. The findings generally indicate that salaries are higher in Lake Nakuru followed by Kimana and Kedong. This can be attributed to the governance type and management objectives of the particular protected area, the presence of popular tourist attraction facilities, the amount of revenue generated, the educational and training levels of the staff and the arrangements for collaboration and conservation outreach programmes with the surrounding communities. In Lake Nakuru, for instance, the park is managed by KWS, a government parastatal. It has well developed infrastructure and world famous tourist attraction facilities. The revenue collected from all KWS managed parks and reserves in Kenya is pooled and managed from the national treasury. This means that the staff in Lake Nakuru, being government employees, are trained and paid in accordance to the government remuneration terms. In Kimana, which is a group ranch property run in collaboration with the KWS (being located within the dispersal areas of Amboseli and Tsavo West National Parks) and an active strategic partner, the African Safari Club that employs the local staff and a small luxury lodge (Zebra Lodge) are also in operation. The sanctuary charges considerably less for visitors than the nearby national parks and pays conservation lease fees and land rents to the group ranch committee. This possibly explains the lower salaries compared to the staff in Lake Nakuru. On the other hand, in Kedong (private company), there is integration of livestock and game ranching. The ranch does not receive financial assistance from KWS but pays wildlife user rights to the government. Additionally, the workers are employed on temporary and seasonal terms mainly as farm workers and game scouts and are paid according to the amount of work done.

The salary scales can also be linked to the job position/ titles of the staff (Table 6.8) and indicate that workers salaries are better under government than communally and privately managed protected areas. This position is echoed by Aylward and Lutz (2003 cited in Chellan, 2005: 308) who report that wages earned by workers in public sector reserves are substantially higher than those in the private sector.



**Table 6.8: Staff's job positions and their corresponding salary scales (in %)**

Variable	Response (%)			
	Lake Nakuru (n=15)	Kimana (n=15)	Kedong (n=15)	Total (n=45)
<b>Warden</b> >24 000	6.7	6.7	6.7	6.7
<b>Assistant Warden</b> >24 000	20.0	13.3	6.7	13.3
<b>Farm manager</b> 12 001-16 000	-	-	6.7	2.2
<b>Research Assistant</b> 20 001-24 000	6.7	-	-	2.2
>24 000	13.3	6.7	-	6.7
<b>Ranger/Security guard</b> 4 001-8 000	-	26.7	-	8.9
8 001-12 000	-	6.7	-	2.2
12 001-16 000	20.0	6.7	20.0	15.6
<b>Corporal</b> 16 001-20 000	13.3	-	-	4.4
<b>Lodge manager</b> >24 000	-	6.7	-	2.2
<b>Driver/ Tour guide</b> 12 001-16 000	-	-	13.3	4.4
16 001-20 000	-	13.3	-	4.4
>24 000	13.3	-	-	4.4
<b>Maintenance staff</b> 4 001-8000	-	6.7	-	2.2
12 001-16 000	-	6.7	6.7	4.4
>24 000	6.7	-	-	2.2
<b>Farm worker (Labourer)</b> 12 001-16 000	-	-	33.3	11.1
>24 000	-	-	6.7	2.2
<b>Total</b>	100	100	100	100

### 6.3. Resource Management

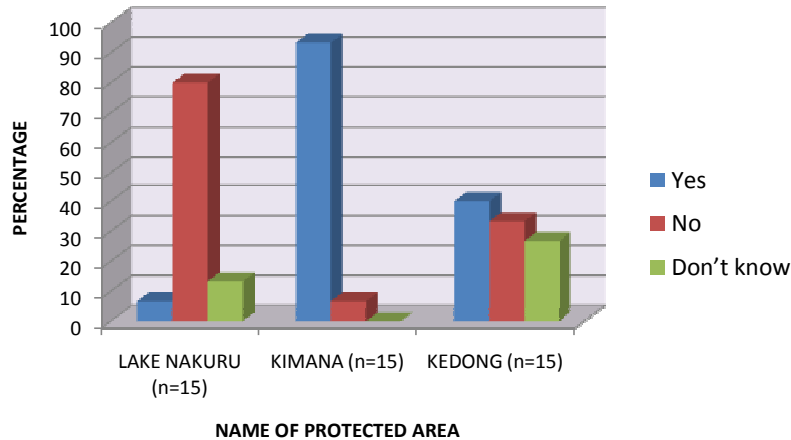
The results in Table 6.9 indicate that while all the staff respondents in Kimana, one respondent (6.7%) in Lake Nakuru and 40% in Kedong reported that the community was involved during the initiation of the respective protected areas, 80% in Lake Nakuru and 33.3% in Kedong indicated that the community was not involved while another 13.3% and 26.7% in Lake Nakuru and Kedong, respectively, stated that they did not know whether the community was involved. These results compare closely with the community respondents' results (Table 5.14) that indicated higher involvement of the community in Kimana (100%) and very low involvement in Lake Nakuru (2%) and Kedong (7.1%). The differences between the case study sites may possibly be explained by the existing tenure structures prior to the establishment of the protected areas. Legally, Kimana was a group ranch property owned by the local communities and the local people had to be consulted while Lake Nakuru was already a government protected area because of the Lake enclosed in the park. On the other hand Kedong is a private ranch that was established on land purchased from individual private landowners through shareholding arrangements.

**Table 6.9: Whether staff respondents felt that the community was involved during the establishment of the protected areas (in %)**

<b>Response</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Yes	6.7	100.0	40.0	48.9
No	80.0	-	33.3	37.8
Don't know	13.3	-	26.7	13.3
Total	100	100	100	100

It is important to note that where protected areas are imposed on local people without prior consultation like was often the case previously (Campbell, 2002), it provokes antagonistic and social conflicts between conservationists and local people compromising their success in meeting the conservation agenda (Brockington and Igoe, 2006; Utting, 1994; Western 1982). For instance, Kangwana and Ole Mako (2001) present a case whereby villagers were being harassed and punished by park rangers for transgressing on park boundaries they

were not aware of because they were not consulted during the time the boundaries were established.



**Figure 6.4: Whether staff respondents felt that there was any community resettlement**

Figure 6.4 illustrates that one respondent (6.7%), 93.3% and 40% of the staff respondents in Lake Nakuru, Kimana and Kedong, respectively, recorded that resettlement of some members of the community had taken place when the protected area was established. Additionally, Table 6.10 indicates that 6.7% of the staff respondents in Lake Nakuru, 66.7% in Kimana and 33.3% in Kedong recorded that the community members resettled had received compensation. As Campbell (2002) asserts, when there is lack of consultation and where compensation is inadequate, delayed or non-existent; social conflicts will increase that undermine the implementation of conservation programmes. The findings here denote that possibly there are conflicts related to resource use and tenure in the case study sites where the affected individuals were not resettled or compensated.

**Table 6.10: Whether staff respondents felt that there was any compensation to community members that were resettled (in %)**

<b>Response</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Yes	6.7	66.7	33.3	35.6
No	66.7	-	26.7	31.1
Don't know	26.7	33.3	40.0	33.3
Total	100	100	100	100

According to Table 6.11, all the staff respondents in the study areas indicated that the local people should not be allowed any access to the respective protected areas for grazing, food gathering and hunting, while 33.3% in Kedong indicated access to cultivation. This is contrary to the needs of the community elicited by the community respondents in Table 5.19 that indicated that the majority of the respondents required access to the protected areas for various resource uses. Sixty percent of the respondents in Kedong, 66.7% in Lake Nakuru and 53.3% in Kimana elicited that the local people should be allowed access into the respective protected areas for recreation, while another 40% in Kedong stated that access to the Park should be permitted for fuelwood collection. Twenty percent, 6.7% and 53.3% of the staff respondents in Lake Nakuru, Kimana and Kedong, respectively, indicated the need to allow local people access to the protected areas for cultural and religious activities, while 13.3% in Lake Nakuru, 80% in Kimana and 60% in Kedong identified the need to allow local people access to water use in the protected areas. The differences in the exclusion of the communities from accessing the protected areas for resource use is consistent with the management categories and objectives for protected areas (IUCN/WCMC, 1994) that is illustrated in Table 2.1. Brockington and Igoe (2006) assert that the exclusion of local people dwelling on the edge of a protected area from access to resources such as gathering firewood or wild foods, hunting and fishing, economically displaces them from their livelihoods. Consequently, these exclusions undermine the success of conservation objectives and provoke conflicts with the local communities (Adams and Hutton, 2007; Newmark *et al.*, 1993), and particularly where the local people are highly dependent on natural resources for their livelihoods (Brockington and Igoe, 2006). However, it is noteworthy that restrictive access to the protected areas for

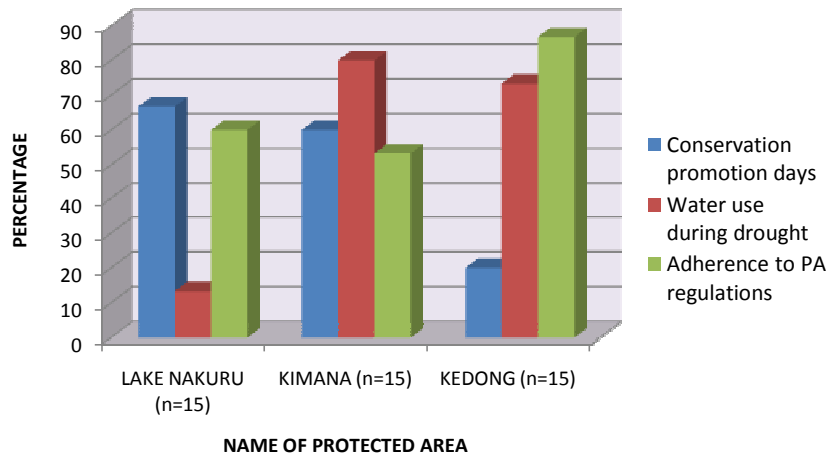
some forms of resource use should be observed as the findings of this study suggests. For instance, human pressure in protected areas through grazing, hunting, food gathering and firewood collection is noted to locally decrease the abundance of some biodiversity species and also impair the ecological functioning services of biodiversity components (Alvard *et al.*, 1997; Bruner *et al.*, 2001; Naughton-Treves *et al.*, 2005).

**Table 6.11: Whether staff respondents felt that local people should be allowed access to the protected areas for resource use (multiple responses - in %)**

Reason for access	Lake Nakuru (n=15)		Kimana (n=15)		Kedong (n=15)		Total (n=45)	
	Yes	No	Yes	No	Yes	No	Yes	No
Grazing	-	100.0	-	100.0	-	100.0	-	100.0
Recreation	66.7	33.3	53.3	46.7	60.0	40.0	60.0	40.0
Food gathering	-	100.0	-	100.0	-	100.0	-	100.0
Hunting	-	100.0	-	100.0	-	100.0	-	100.0
Cultivation	-	100.0	-	100.0	33.3	66.7	11.1	88.9
Fuelwood	-	100.0	-	100.0	40.0	60.0	13.3	86.7
Cultural activities	20.0	80.0	6.7	93.3	53.3	46.7	26.7	73.3
Water use	13.3	86.7	80.0	20.0	60.0	40.0	51.1	48.9

Virtually, all protected areas are threatened by pressure from local communities who encroach on these areas for resource use. The staff respondents highlighted various conditions under which access into the respective protected areas should be granted. Figure 6.5 illustrates that 66.7% of the staff respondents in Lake Nakuru, 60% in Kimana and 20% in Kedong stated that access into the protected areas should be allowed during times of conservation promotion to create awareness of their importance, while 13.3%, 80% and 73.3% in Lake Nakuru, Kimana and Kedong, respectively, highlighted that the local people should only be allowed access during times of drought for regulated water use. Sixty percent of the respondents in Lake Nakuru, 53.3% in Kimana and 86.7% in Kedong indicated that where and when access into the protected area is allowed for recreation it should adhere to the stipulated protected area tour guidelines. These results reinforce the institutionalised categories of protected areas in Kenya that defines the conditions for access and use of natural resources (KWS, 2005; WCMA, 1976). Reflecting on these findings, it can possibly be concluded that allowing conditional and regulated access into

the protected areas is an approach that can be used to deal with conflicts between local communities and conservation authorities and improving the attitudes of affected local people towards conservation initiatives (Adams and Hulme, 2001; Muruthi, 2005).



**Figure 6.5: Conditions (if allowed) identified by the staff respondents under which access is granted into the protected areas (multiple responses)**

Table 6.12 shows the various management activities undertaken in the protected areas. All the respondents in Lake Nakuru and Kedong identified fencing of the protected areas. All the respondents in Lake Nakuru, 80% in Kimana and 13.3% in Kedong indicated patrol by armed security guards and rangers. Collaboration with the local people was cited by 86.7% of the staff respondents in Lake Nakuru, 93.3% in Kimana and 60% in Kedong, while 80% in Lake Nakuru and 53.3% in Kedong reported education and outreach. Another 46.7% in Lake Nakuru and 60% in Kimana indicated other park management activities such as research and Problem Animal Control (PAC). These results compare with the findings on the purpose of protected area staff visits to the villages highlighted by community respondents (Table 5.33) that include educating villagers, helping with village projects, patrol and research. Effective management of biodiversity will ensure achievement of conservation goals. Bruner *et al.* (2001) in a study of effectiveness of parks in protecting

tropical biodiversity observed that basic management activities such as enforcement, boundary demarcation, and direct compensation to local communities correlates with park effectiveness. Similarly, Okech (2007) noted daily patrols and electric fencing to be effective in the management of protected areas. Many of these management strategies are being used in the protected areas, especially in Lake Nakuru and Kedong. The differences in management activities between the case study sites relate to the management structures of the protected areas. For instance, it is important to note that fencing was not enforced in Kimana because, as Western (1997) states, the sanctuary is on a dispersal and migration corridor for wildlife, while there is minimal patrol and Problem Animal Control in Kedong because the game animals kept are mainly the smaller herbivores that cause no major conflicts with the local communities.

**Table 6.12: Management activities cited by the staff respondents in the protected areas (multiple responses - in %)**

<b>Management activities</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Fencing	100.0	-	100.0	66.7
Patrol by armed guards/rangers	100.0	80.0	13.3	64.4
Collaboration with local people	86.7	93.3	60.0	80.0
Education and outreach	80.0	53.3	-	44.4
Research and PAC	46.7	60.0	-	35.6

According to Table 6.13, 40% of the staff respondents in Lake Nakuru and 80% in Kimana indicated that whenever there was a dispute over resource ownership and compensation, this is settled through the district or community leaders committees, while 80%, 86.7% and 60% in Lake Nakuru, Kimana and Kedong, respectively, stated that the settlement is instituted through the government policy frameworks. In other incidences, the settlement is through funding of community projects as reported by 26.7% of the respondents in Lake Nakuru and 93.3% in Kimana, while 26.7%, 93.3% and 6.7% in Lake Nakuru, Kimana and Kedong, respectively, indicated PAC activities.

**Table 6.13: Ways identified by the staff respondents in which resource ownership and compensation claims are settled (multiple responses - in %)**

Claim settlement method	Lake Nakuru (n=15)	Kimana (n=15)	Kedong (n=15)	Total (n=45)
District/ community committees	40.0	80.0	-	40.0
Government policy frameworks	80.0	86.7	60.0	75.6
Funding of community projects	26.7	93.3	-	40.0
Problem Animal Control (PAC)	26.7	93.3	6.7	42.2

Table 6.14 indicates that 6.7%, 13.3% and 33.3% of the staff respondents in Lake Nakuru, Kimana and Kedong, respectively, recorded that the respective protected areas have not spent any money on claims in the past year, while one respondent (6.7%) each in Lake Nakuru and Kimana indicated that the management had spent between Ksh 21 000-30 000 and Ksh 31 000-40 000, respectively, on claims. Another 6.7% and 80% of the staff respondents in Lake Nakuru reported that the management had spent between Ksh 91 000-100 000 and more than Ksh 100 000, respectively, while 80% in Kimana and 66.7% in Kedong stated that they did not know how much had been spent on settling claims.

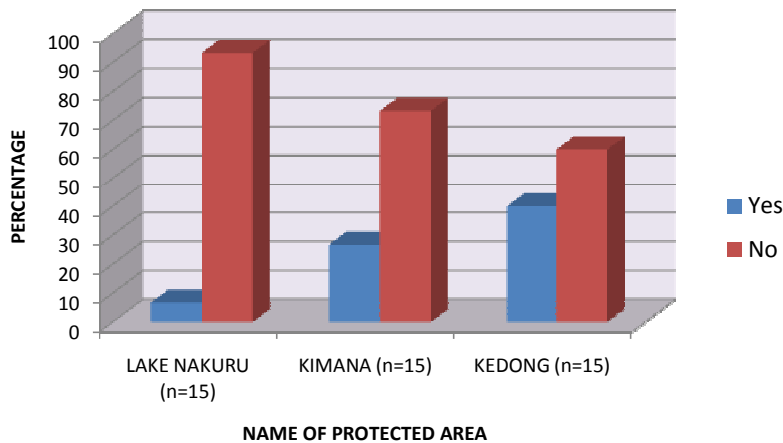
**Table 6.14: Amount of money staff respondents felt was spent by the PA management on settling claims in the past year (in %)**

Amount (Ksh)	Lake Nakuru (n=15)	Kimana (n=15)	Kedong (n=15)	Total (n=45)
None	6.7	13.3	33.3	17.8
21 000-30 000	6.7	-	-	2.2
31 000-40 000	-	6.7	-	2.2
91 000-100 000	6.7	-	-	2.2
>100 000	80.0	-	-	26.7
Don't know	-	80.0	66.7	48.9
Total	100	100	100	100

The findings generally show that there has been some money spent on claims in the case study sites and especially in Lake Nakuru. However, the majority of the respondents in Kimana and Kedong did not know how much had been spent. The possible explanation for this may be that there are no clearly spelt procedures or policy on compensation mechanisms like is the case in Lake Nakuru (KWS, 2004; WCMA, 1976). Similarly, the amount spent can be related to the prevalence of human-wildlife conflicts. For instance, the



findings indicate minimal expenditure on claims in Kedong compared with Lake Nakuru and Kedong. This can be attributed to lack of problem animals in Kedong as illustrated in Table 6.12.



**Figure 6.6: Whether staff respondents felt that the compensation amount for community claims is normally enough**

Whereas 6.7% in Lake Nakuru, 26.7% in Kimana and 40% in Kedong indicated that the compensation amount for community claims is normally enough (Figure 6.6), 93.3%, 73.3% and 60% in Lake Nakuru, Kimana and Kedong, respectively, indicated that the amount is not enough. The overall general perception of these findings is that the amount spend on claims is not sufficient. For instance, according to the Kenya Wildlife Act, there is no compensation for damage to property except for loss of human life or personal injuries. The maximum compensation amount has been Ksh 30 000 (about US\$ 450). The Director of KWS (personal communication, 2009) who contends it is insufficient observes that it should rather be termed as a consolation amount. The acknowledgement that the compensation amount is not enough by the majority of the respondents implies that the local communities may not be receiving due benefits from the protected areas which is another potential source of conflict.

Table 6.15 indicates the staff respondents' level of understanding of key concepts used in this study. This was done through a self-rating scale of four general natural resource management concepts and principles relevant to the study. The self-rating method has been adopted elsewhere in research assessing the impact of interpretative programmes on knowledge (for example, Beaumont, 2001; Coleman and Lamond, 1993). Forty percent of the respondents in Kimana indicated that they had a vague understanding of the concept of biodiversity, while 60% in Lake Nakuru, 40% in Kimana and all in Kedong recorded a general understanding of biodiversity. Forty percent in Lake Nakuru and 20% in Kimana indicated that they understood in detail the concept of biodiversity. When asked about the concept of conservation, 13.3% of the staff respondents in Kimana stated that they vaguely understood it, while 46.7% in Lake Nakuru, 60% in Kimana and 40% in Kedong reported that they have a general understanding of conservation. Another 53.3%, 26.7% and 60% in Lake Nakuru, Kimana and Kedong, respectively, indicated that they understand the concept of conservation in detail. Sixty percent in Kimana, 40% in Kedong and 46.7% in Lake Nakuru indicated a general understanding of the concept of protected area, while 53.3%, 26.7% and 60% in Lake Nakuru, Kimana and Kedong, respectively, reported that they understand the concept of protected area in detail with another 13.3% in Kimana indicating that they have a vague understanding of this concept. In relation to the concept of ecotourism, 33.3% of the respondents in Kimana recorded that they have a vague understanding of the concept while 53.3% in Lake Nakuru, 40% in Kimana and 33.3% in Kedong indicated a general understanding of ecotourism, with another 46.7%, 26.7% and 66.7% in Lake Nakuru, Kimana and Kedong, respectively, stating that they understood the concept of ecotourism in detail. A more detailed interpretation of the responses is undertaken after the Table below.

**Table 6.15: Level of understanding of concepts by staff respondents (in %)**

Concepts	Lake Nakuru (n=15)	Kimana (n=15)	Kedong (n=15)	Total (n=45)
<b>Biodiversity</b>				
Vague	-	40.0	-	13.3
General	60.0	40.0	100.0	66.7
Detailed	40.0	20.0	-	20
Total	100	100	100	100
<b>Conservation</b>				
Vague	-	13.3	-	4.4
General	46.7	60.0	40.0	48.9
Detailed	53.3	26.7	60.0	46.7
Total	100	100	100	100
<b>Protected Area</b>				
Vague	-	13.3	-	4.4
General	46.7	60.0	40.0	48.9
Detailed	53.3	26.7	60.0	46.7
Total	100	100	100	100
<b>Ecotourism</b>				
Vague	-	33.3	-	11.1
General	53.3	40.0	33.3	42.2
Detailed	46.7	26.7	66.7	46.7
Total	100	100	100	100

The overall impression of these results is that the staff at Lake Nakuru have a higher understanding of the concepts with those in Kimana having the least. These differences can be explained by the fact that Lake Nakuru is a government Park and the recruitment for staff is sourced nationally from relevant government training institutions, while in Kimana and Kedong preference is on local labour (Table 6.4) where the local people have low educational levels (Table 5.3). Similarly, the results reinforce those of the educational levels of staff respondents in Table 6.3 that showed that the staff at Lake Nakuru are generally more educated compared to Kimana and Kedong. The understanding of environmental concepts provides a better interpretation of environmental education programmes. As suggested by Goudberg *et al.* (1991), those with a better understanding of the concepts are more likely to promote and enhance conservation programmes. Wearing *et*

*al.* (2002) also indicate that knowledge of specific environmental issues and appropriate strategies to address them positively influences attitudes towards environmental management.

Table 6.16 summarises the immediate concerns or threats to biodiversity perceived by the staff respondents in the study areas. Poaching was reported as of high concern by the majority (56.7%) of the staff respondents in Kedong and one respondent (6.7%) in Lake Nakuru, moderate threat by most respondents in Lake Nakuru (60%) and in Kimana (73.3%) and 13.3% in Kedong, and of low concern by close to one third of the respondents in all locations (33.3% in Lake Nakuru, 26.7% in Kimana and 33.3% in Kedong). Sixty percent of the staff respondents in Kedong, 40% in Lake Nakuru and 26.7% in Kimana perceived illegal encroachments by local communities to be a high threat while 53.3% in Kimana and 13.3% in Lake Nakuru recorded it as a moderate threat. Twenty percent in Kimana, 33.3% in Lake Nakuru and 40% in Kedong indicated that illegal encroachments were of low concern while 13.3% in Lake Nakuru stated that it was of no concern. Pollution was indicated as a high threat (66.7% in Lake Nakuru, 13.3% in Kimana), moderate threat (26.7% in Lake Nakuru and 86.7% in Kedong), low concern (26.7% in Kimana and 13.3% in Kedong) and no concern (one respondent in Lake Nakuru and 60% in Kimana). Although the majority of the staff respondents (60% in Lake Nakuru, 66.7% in Kimana and 86.7% in Kedong) indicated that animosity by local people was of no concern as a threat to local biodiversity, 26.7%, 33.3% and 13.3% in lake Nakuru, Kimana and Kedong, respectively, perceived it to be of moderate concern with another 13.3% in Lake Nakuru highlighting it as of high concern. Inadequate management resources were perceived to be of high concern by 6.7% and 86.7% of the staff respondents in Lake Nakuru and Kimana, respectively; moderate threat by 26.7% of the staff respondents in Lake Nakuru, 13.3% in Kimana and 33.3% in Kedong; and of no concern by 66.7% each of the staff respondents in Lake Nakuru and Kedong.

**Table 6.16: Staff respondents' rating of the level of immediate concerns (threats) to biodiversity in the protected areas (in %)**

<b>Concerns</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
<b>Poaching</b>				
High	6.7	-	56.7	20.0
Moderate	60.0	73.3	13.3	48.9
Low	33.3	26.7	33.3	31.1
Total	100	100	100	100
<b>Illegal encroachments</b>				
High	40.0	26.7	60.0	42.2
Moderate	13.3	53.3	-	22.2
Low	33.3	20.0	40.0	31.1
No concern	13.3	-	-	4.4
Total	100	100	100	100
<b>Pollution</b>				
High	66.7	13.3	-	26.7
Moderate	26.7	-	86.7	37.8
Low	-	26.7	13.3	13.3
No concern	6.7	60.0	-	22.2
Total	100	100	100	100
<b>Animosity by local people</b>				
High	13.3	-	-	4.4
Moderate	26.7	33.3	13.3	24.4
Low	60.0	66.7	86.7	71.1
Total	100	100	100	100
<b>Inadequate resources</b>				
High	6.7	86.7	-	31.1
Moderate	26.7	13.3	33.3	24.4
Low	66.7	-	66.7	44.4
Total	100	100	100	100
<b>Physical developments</b>				
High	13.3	-	-	4.4
Moderate	26.7	6.7	-	11.1
Low	46.7	26.7	100.0	57.8
No concern	13.3	66.7	-	26.7
Total	100	100	100	100

Physical developments was highlighted as a threat to biodiversity by some of the respondents in Lake Nakuru (13.3% high and 26.7% moderate), Kimana (6.7% moderate) and of low concern to biodiversity by all respondents in Kedong, 46.7% in Lake Nakuru and 26.6% in Kimana; and of no concern by 13.3% and 66.6% of the respondents in Lake Nakuru and Kimana, respectively. A similar study by Okech (2007) in Masai Mara and Amboseli elicited the pitfalls and shortcomings that faced the management to include illegal poaching, hunting and uneven distribution of revenue meant for the local people resulting in conflicts and animosity against the management. These findings are consistent with those on the management activities of the protected areas (Table 6.12) where, for instance, fencing and patrol were not highly enforced in Kimana and Kedong and poaching is of high concern. Pollution was deemed to be a significant threat in Lake Nakuru and Kedong because of their proximity to major towns of Nakuru and Naivasha (GoK, 2002a; 2002c). According to Bruner *et al.* (2001), virtually all parks are under pressure from clearing, grazing, fire, hunting and logging.

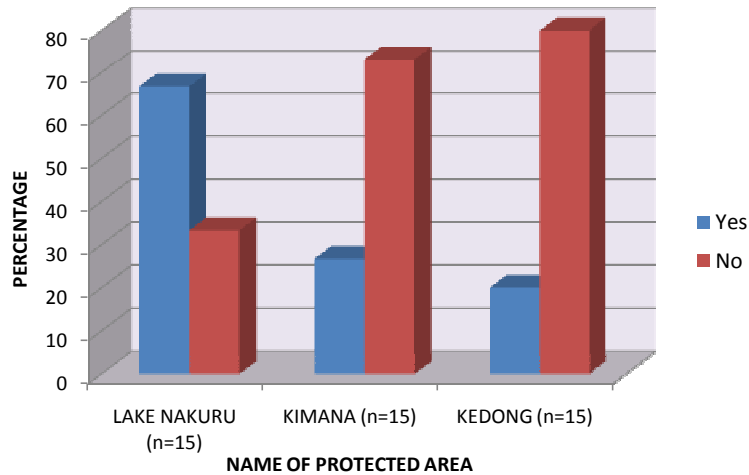
Other threats of concern to biodiversity highlighted in the study areas by the staff respondents (Table 6.17) include habitat loss (33.3% of high concern in Lake Nakuru, 6.7% of moderate concern both in Lake Nakuru and Kimana, and 53.3% of low concern in Kedong), obsolete wildlife policies (40%, 6.7% and 53.3% of high concern in Lake Nakuru, Kimana and Kedong, respectively), and climate change (33.3%, 6.7% and 53.3% of high concern in Lake Nakuru, Kimana and Kedong, respectively, and 6.7% of low concern in Lake Nakuru). The concern for habitat loss and climate change was mentioned substantially in Lake Nakuru and Kedong because of the receding and drying impacts of water bodies evident in these sites which is attributed to unsustainable land use and development practices in the catchment areas (GoK, 2002a; Kisee, 1995; KWS, 2009a). The wildlife policy in operation was also stated as inadequate and a threat to the success of the biodiversity conservation initiatives possibly because it does not adequately address the issue of compensation for damage of property and exclusion of local people from the protected areas (WCMA, 1976).

**Table 6.17: Other concerns (threats) to biodiversity in the protected areas identified by the staff respondents (in %)**

Concerns	Lake Nakuru (n=15)	Kimana (n=15)	Kedong (n=15)	Total (n=45)
<b>Habitat loss</b>				
High	33.3	-	-	11.1
Moderate	6.7	6.7	-	4.4
Low	-	-	53.3	17.8
No response	60.0	93.3	46.7	66.7
Total	100	100	100	100
<b>Obsolete wildlife policies</b>				
High	40.0	6.7	53.3	33.3
No response	60.0	93.3	46.7	66.7
Total	100	100	100	100
<b>Climate change</b>				
High	33.3	6.7	53.3	31.1
Low	6.7	-	-	2.2
No response	60.0	93.3	46.7	66.7
Total	100	100	100	100

Figure 6.7 illustrates that 66.7% of the staff respondents in Lake Nakuru, 26.7% in Kimana and 20% in Kedong agreed with the view that the decline of biodiversity is due to local communities' activities, while 33.3%, 73.3% and 80% in Lake Nakuru, Kimana and Kedong, respectively, did not agree with this view. These results closely compare with the perceptions of community respondents illustrated in Figure 5.12. The differences among the responses between the case study sites can be attributed to the level of interaction between the protected areas and the local communities. For instance, there are fewer responses in agreement with this perception in Kimana and Kedong compared to Lake Nakuru possibly because these protected areas have indicated a higher involvement of local communities in their management activities (see Table 6.9). Additionally, the local communities indicated a higher need for access to the protected areas for various resource use activities such as grazing, wood collection, water use and cultural activities (Table 5.19). Consequently, without due compensation for exclusion from access to the protected

areas, the local communities have become victims and agents of biodiversity loss as these findings indicate.



**Figure 6.7: Whether staff respondents perceive the decline of biodiversity to be due to local communities' activities**

When asked what characteristics of the community they think are responsible for the decline of local biodiversity (Table 6.18), 40% of the staff respondents in Kimana, 66.7% in Lake Nakuru and 13.3% in Kedong stated illegal encroachment, while 73.3% each in Lake Nakuru and Kimana and 13.3% in Kedong highlighted increase in human population. Wildlife poaching was reported by 73.3% of the respondents in Lake Nakuru, 20% in Kimana and one respondent (6.7%) in Kedong, while 33.3% and 13.3% in Lake Nakuru and Kimana, respectively, indicated unique cultural practices of the local people. Eighty percent of the respondents in Lake Nakuru, 53.3% in Kimana and 13.3% in Kedong identified the local people's over-reliance on natural resources, while one respondent (6.7%) and 60% in Lake Nakuru and Kimana, respectively, indicated individualisation of land ownership through sub-division. Twenty percent of the staff respondents in Lake Nakuru, 53.3% in Kimana and 13.3% in Kedong highlighted poverty, while 13.3%, 40% and 13.3% in Lake Nakuru, Kimana and Kedong, respectively, cited human-wildlife



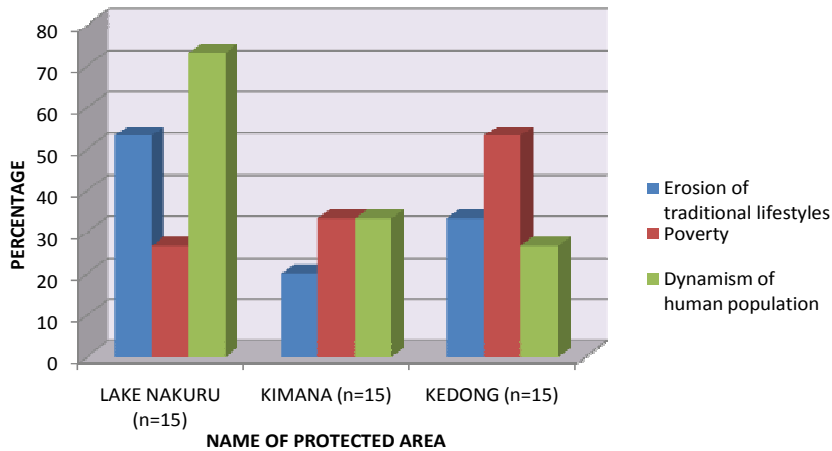
conflicts as other characteristics that make the local community responsible for biodiversity decline. These results are in agreement with those elicited by the community respondents in Table 5.25. The findings generally reflect a higher association of many of the community characteristics to biodiversity decline in Lake Nakuru followed by Kimana and then low in Kedong. The differences between the case study sites can be attributed to the level of effectiveness of the management activities enforced by the protected area authorities as well as the demographic and socio-economic characteristics within the sites.

**Table 6.18: Staff respondents’ perceptions of the characteristics of the community responsible for decline of biodiversity (multiple responses - in %)**

<b>Characteristics</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Illegal encroachment	66.7	40.0	13.3	40.0
Increase in human population	73.3	73.3	13.3	53.3
Wildlife poaching	73.3	20.0	6.7	33.3
Over-reliance on natural resources	80.0	53.3	13.3	46.7
Unique cultural practices	33.3	13.3	-	15.6
Sub-division of communal lands	6.7	60.0	-	22.2
Human-wildlife conflicts	13.3	40.0	13.3	22.2
Poverty	20.0	53.3	13.3	28.9

Figure 6.8 highlights the responses of the staff respondents in relation to their perceptions of what circumstances lead to the erosion of indigenous conservation systems. The responses include the erosion of traditional lifestyles (53.3% in Lake Nakuru, 20% in Kimana and 33.3% in Kedong), poverty (26.7% in Lake Nakuru, 33.3% in Kimana and 53.3% in Kedong) and the dynamism of human populations (73.3% in Lake Nakuru, 33.3% in Kimana and 26.7% in Kedong). The importance of indigenous conservation systems in conservation practice has featured prominently in the international community (IUCN/WCMC, 1994; UNCED, 1992) and include their critical ecological significance in buffering against the depletion of local species variants as well as providing dispersal corridors between protected areas (Ntiamoa-Baidu, 2001; Wild and McLeod, 2008). The findings in this study highlight the threats to the survival of indigenous conservation systems in relation to the erosion of the traditional beliefs and cultural values that have sustained the systems. Similar concerns were raised by the community respondents in this

study as illustrated in Figure 5.14 and elsewhere in Kenya by Coupe *et al.* (2002) and Gatua (2006).



**Figure 6.8: Staff respondents’ perceptions on the circumstances leading to the erosion of indigenous conservation systems (multiple responses)**

#### 6.4. Impacts of Integrated Community Development Approaches

According to the theme of the V<sup>th</sup> IUCN World Parks Congress, held in Durban, South Africa in 2003, “Protected Areas: Benefits beyond Boundaries”, protected areas were seen as vital to achieve the synergy between conservation, the maintenance of life support systems and sustainable development (IUCN, 2003b). One focus of the theme of the Congress was to extend tangible benefits to rural communities living adjacent to the protected area boundaries. The following section discusses the past and ongoing community conservation and development projects in the case study areas and their perceived impacts on the conservation attitudes of local people.

Table 6.19 indicates that all staff respondents in Kimana, 86.7% in Lake Nakuru and 73.3% in Kedong identified wildlife sanctuaries and reserves as some of the community conservation initiatives existing in the area, while 93.3%, 86.7% and 26.7% in Lake

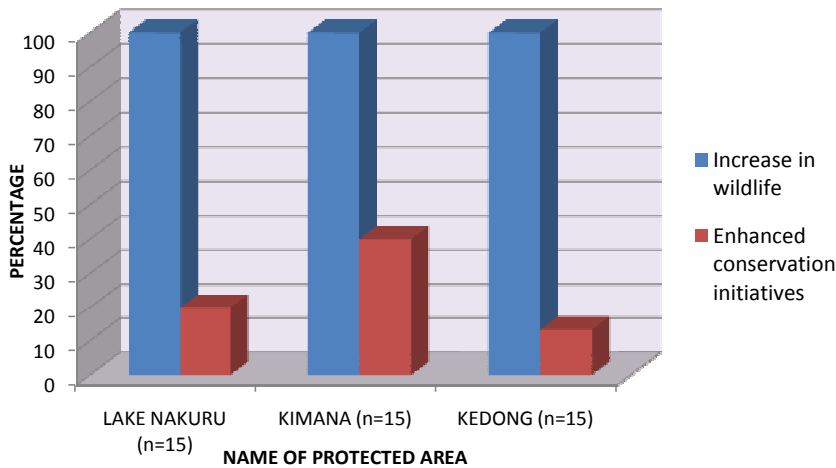
Nakuru, Kimana and Kedong, respectively, recorded collaboration with other conservation organisations. Tourism-related business enterprises (73.3% of the respondents in Lake Nakuru, 40% in Kimana and 86.7% in Kedong) and community agroforestry projects (20% in Lake Nakuru and 60% in Kedong) were other initiatives highlighted. This concurs with some of the most prevalent types of community participation ecotourism activities outlined by the World Tourism Organisation (WTO, 2002) that include village tourism, arts and crafts tourism and agrotourism. Community conservation initiatives are oriented towards empowering local people to actively participate in the management of protected areas by creating institutions that are operated by the community (Wells *et al.*, 1992; Western *et al.*, 1994). The premise here is to provide alternative means of livelihoods to local people who are excluded from access to resource use in protected areas (Coupe *et al.*, 2002; Hulme and Murphree, 2001; Okello *et al.*, 2003; Western, 1982), as incentives to participate in conservation initiatives (Mitchell and Eagles, 2001; Okech, 2007; Scheyvens, 2000).

**Table 6.19: Community conservation initiatives identified by the staff respondents that exist in the areas (multiple responses - in %)**

<b>Community conservation initiative</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Wildlife sanctuaries and reserves	86.7	100.0	73.3	86.7
Collaborating with conservation agencies	93.3	86.7	26.7	68.9
Tourism business enterprises	73.3	40.0	86.7	66.7
Community agroforestry projects	20.0	-	60.0	26.7

When asked whether the introduction of the protected areas has positively changed the state of biodiversity, all the staff respondents in the study areas agreed citing the increase in wildlife populations as an example, while 20% of the respondents in Lake Nakuru, 40% in Kimana and 13.3% in Kedong indicated that there has been an increase in conservation interests among the local communities (Figure 6.9). These results are in agreement with the perceptions of the community respondents (Figure 5.15 and Table 5.28). The findings reinforce the critical role played by protected areas in conserving biodiversity, particularly within the paradigm shift in the discourse of conservation practice that stresses the need to integrate the needs and aspirations of the local communities (Phillips, 2003; Western, 1989;

Western and Wright, 1994). As the findings suggest, this new system of protected areas which takes into account the influence of communities living near them in conserving biodiversity has yielded gains in the form of reducing human-wildlife conflicts which is reflected in the increase in wildlife populations and a positive change of attitude among the communities towards conservation.



**Figure 6.9: Staff respondents’ perceptions of the positive impacts of the protected areas on the state of biodiversity (multiple responses - in %)**

As indicated in Table 6.20, 13.3% of the staff respondents in Kedong reported that the game ranch generates between Ksh 21 000-40 000 and Ksh 61 000-80 000 per month, while one respondent (6.7%) in Lake Nakuru indicated that the park generates between Ksh 81 000-10 0000 per month. Sixty percent in Kimana, 86.6% in Lake Nakuru and 73.3% in Kedong indicated that the respective study areas generate more than Ksh 120 000 per month, while another 6.7% in Lake Nakuru and 40% in Kimana reported that they do not know how much the protected areas generate per month. The overall general impression from these findings is that the protected areas generate more than Ksh 120 000 per month as suggested by the majority of the respondents. It is worth noting that the amounts generated will vary between the protected areas according to their management objectives

as well as their status in relation to the presence of charismatic species and infrastructure development for tourist attraction facilities, and the seasons. For instance, in Lake Nakuru, the park is highly developed with an international reputation as a Ramsar site that hosts the greatest flamingo bird sanctuary, a rhino sanctuary with a white rhino breeding programme and a large luxury hotel facility (Lake Nakuru Lodge) amongst other natural attractions. However, the Park lacks the attraction of the charismatic elephant species. In Kimana there are more of the charismatic animals that include lions and elephants as well as the world famous Maasai cultural villages, and a small luxury lodge (Zebra Lodge). The sanctuary, though deprived of better transport infrastructure, benefits from being located in the dispersal area of the larger Amboseli and Tsavo West National Parks that also attract tourists visiting the Kenyan coast and the nearby snow-capped peaks of Mt. Kilimanjaro. On the other hand, Kedong lacks the big five species but has a horseback riding activity, a colonial ranch house and benefits from its proximity to the fresh waters of Lake Naivasha (also a Ramsar site), Mt. Longonot crater and Hell’s Gate National Park which hosts a geothermal power plant.

**Table 6.20: Staff respondent’s response on the amount generated by the protected areas (in %)**

<b>Amount (Ksh per month)</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
21 000-40 000	-	-	13.3	4.4
61 000-80 000	-	-	13.3	4.4
81 000-100 000	6.7	-	-	2.2
>120 000	86.6	60.0	73.3	73.3
Don’t know	6.7	40.0	-	15.6
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

All the staff respondents in the study areas indicated that the conservation authorities support local development projects. This is contrary to the perceptions of some community respondents in Lake Nakuru and Kedong (Figure 5.17) who indicated that protected area management did not support local community developments. This can be explained by the fact that local communities comprise groups with different and potentially conflicting interests (Okech, 2007) and not all groups want the same things (Wearing and Neil, 1999).

Sindiga (1999), for instance, similarly observes that even where fees collected by wildlife department in Amboseli National Park are earmarked for community projects, the amount to be spent on community projects are always delayed to be released and fall short of expectations of the community. This makes the local community not to appreciate the developments.

Table 6.21 indicates the local development projects identified by the respondents. These include support for educational programmes by all the staff respondents in Lake Nakuru, 60% in Kimana and one respondent (6.7%) in Kedong; health facilities (80% in Lake Nakuru and 46% in Kimana) and job creation by 63.7%, 53.3% and 93.3% of the respondents in Lake Nakuru, Kimana and Kedong, respectively. Other community projects supported by the protected area management indicated include infrastructure development (46.7% of the staff respondents in Lake Nakuru and 93.3% in Kimana), water provision (80% in Lake Nakuru, 46.7% in Kimana and 86.7% in Kedong), ecotourism-related businesses (33.3% and 86.7% in Lake Nakuru and Kimana, respectively), and livestock vaccination services (40% in Kimana and 60% in Kedong). According to Wells *et al.* (1999), promoting rural development programmes to local people living adjacent to protected areas extend the benefits of development to local people in an attempt to address the conflicts of interests between the local people and conservation agencies. The findings of this study therefore indicate a well developed programme of integrating conservation with rural development across the three case study sites, especially in Lake Nakuru and Kimana. The differences between the case study sites can be attributed to the management structures for the particular protected area as well as the diversity among local communities in relation to their resource user needs and rights for development activities, which is also supported by Hughes and Flintan's (2001) findings.

**Table 6.21: Types of support for community development programmes initiated by the protected area management (multiple responses - in %)**

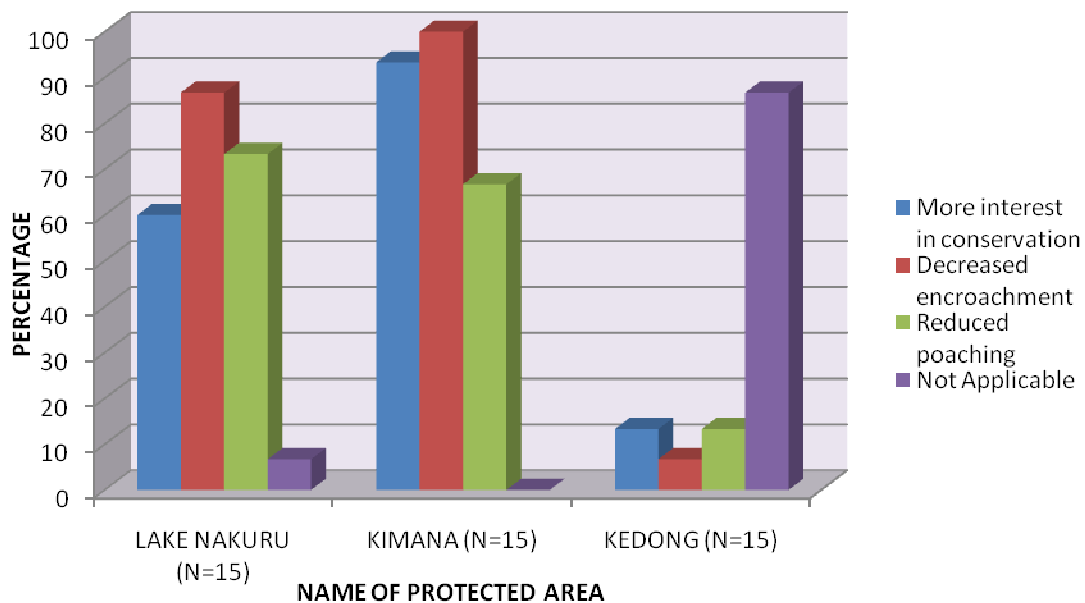
<b>Supported development programmes</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Education	100.0	60.0	6.7	55.6
Health	80.0	46.7	-	42.2
Job creation	66.7	53.3	93.3	71.1
Infrastructure	46.7	93.3	-	46.7
Housing	-	6.7	-	2.2
Water provision	80.0	46.7	86.7	71.1
Ecotourism-related businesses	33.3	86.7	-	40.0
Livestock vaccination services	-	40.0	60.0	33.3

Table 6.22 illustrates that 93.3% of the staff respondents in Lake Nakuru, all in Kimana and 13.3% in Kedong are of the opinion that community-oriented conservation and development approaches have improved the conservation attitudes of the local people, while 86.7% in Kedong indicated there has been no positive impact on the local people's conservation attitudes. One respondent in Lake Nakuru stated that he/ she did not know. The findings indicate more positive impacts in Lake Nakuru and Kimana but fewer in Kedong possibly because in Kedong there are fewer community development projects supported by the PA authority compared to the other study sites (Table 6.21). The findings compare with other studies elsewhere that have demonstrated clear associations between rural development programmes and positive attitudes towards conservation (Baral and Heinen, 2007; Wang *et al.*, 2006; Weladji *et al.*, 2003).

**Table 6.22: Whether staff respondents believed that community-oriented conservation and development approaches have improved the conservation attitudes among the local people (in %)**

<b>Response</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Yes	93.3	100.0	13.3	68.9
No	-	-	86.7	28.9
Don't know	6.7	-	-	2.2
Total	100	100	100	100

When asked how the community-oriented conservation and development approaches have improved the conservation attitudes among the local people (Figure 6.10), the staff respondents stated enhanced interest in conservation by the local communities (60% in Lake Nakuru, 93.3% in Kimana and 13.3% in Kedong), decrease in illegal encroachments into the protected areas (86.7% in Lake Nakuru, all in Kimana and one respondent in Kedong) and reduced poaching incidences (73.3% in Lake Nakuru, 66.7% in Kimana and 13.3% in Kedong) as examples supporting the positive change in conservation attitudes among the local communities. These results compare with those expressed by the community respondents in Table 5.32 and similar findings by Coupe *et al.* (2002) among park-adjacent communities in Kenya which showed an overall decrease in poaching and increase of wildlife populations, and Weladji *et al.* (2003) in Cameroon who showed local people’s appreciation of the contribution of wildlife conservation to the national economy.



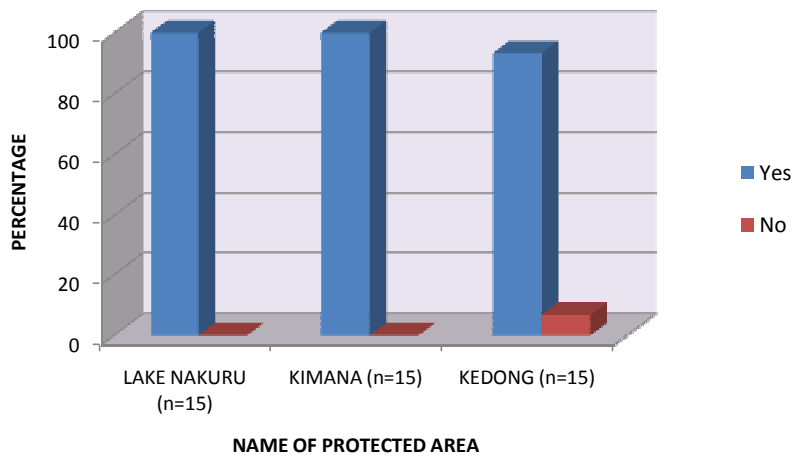
**Figure 6.10: Staff respondents’ perceptions on how community-oriented conservation and development approaches have improved the conservation attitudes among the local people (multiple responses – in %)**



## 6.5. Relationship with Local Communities

This section reviews the perceptions of the staff respondents on the relationship between the management institutions of the protected areas and the local communities and how the relationship affects the local people's attitudes to conservation.

Figure 6.11 illustrates that all the staff respondents in Lake Nakuru and Kimana and 93.3% in Kedong indicated that somebody from the protected area management had visited the local villages, while one respondent (6.7%) in Kedong indicated that he/ she did not know about anybody visiting the village from the ranch management. These findings provide a clear evidence that protected areas staff appear to be committed to interact and engage with local communities.



**Figure 6.11: If, according to the staff respondents, anyone from the protected areas visit the village**

When asked about the purpose of the visits (Table 6.23), 93.3% and 33.3% of the staff respondents in Lake Nakuru and Kimana, respectively, indicated that the visits were to educate the villagers on conservation issues, while 80% in Lake Nakuru, 66.7% in Kimana and one respondent (6.7%) in Kedong indicated that the visits were to help with village projects. Additionally, 73.3% and 46.7% of the staff respondents in Lake Nakuru and

Kimana, respectively, recorded that the visits to the villages were to conduct research, all the respondents in Lake Nakuru and Kimana and 93.3% in Kedong said it was to conduct patrols. Eighty percent of the respondents in Lake Nakuru and 73.3% in Kimana indicated that the visits are to assess wildlife damage of community property, while 46.7%, 60% and 93.3% in Lake Nakuru, Kimana and Kedong, respectively, indicated that they were to attend community meetings. Eighty percent of the respondents in Lake Nakuru and 93.3% in Kimana indicated that the visits to the village were for Problem Animal Control (PAC). The findings indicate that there were more frequent visits to the villages, especially in Lake Nakuru and Kimana than in Kedong, aimed at assisting community development programmes and ensuring the welfare of wildlife. The purpose of the visits to the villages influences the protected area staff-local people relationships. Hulme and Infield (2001), Kangwana and Ole-Mako (2001) and Weladji *et al.* (2003) provide cases where frequent visits to the villages by protected areas staff fostered relationships between the protected areas and the local people that related to the purpose of the visit. For example, Kangwana and Ole Mako (2001) state that where the visits were oriented towards enforcing restrictive management activities that infringed upon the need for access to the protected area for resource use by the local people such as patrols, there were more frequent negative interactions. On the other hand, where the purpose of visits focussed on providing support to the local people, they foster positive attitudes towards conservation among the local communities (Baral and Heinen, 2007; Wang *et al.*, 2006; Weladji *et al.*, 2003).

**Table 6.23: The reasons for community visits by the protected area management identified by the staff respondents (multiple responses - in %)**

<b>Purpose of visit</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Educate villagers	93.3	33.3	-	42.2
Help with village projects	80.0	66.7	6.7	51.1
Carry out research	73.3	46.7	-	40.0
Assess wildlife damage	80.0	73.3	-	51.1
Patrol	100.0	100.0	93.3	97.8
Attend community meetings	46.7	60.0	93.3	66.7
Problem Animal Control	80.0	93.3	-	57.8

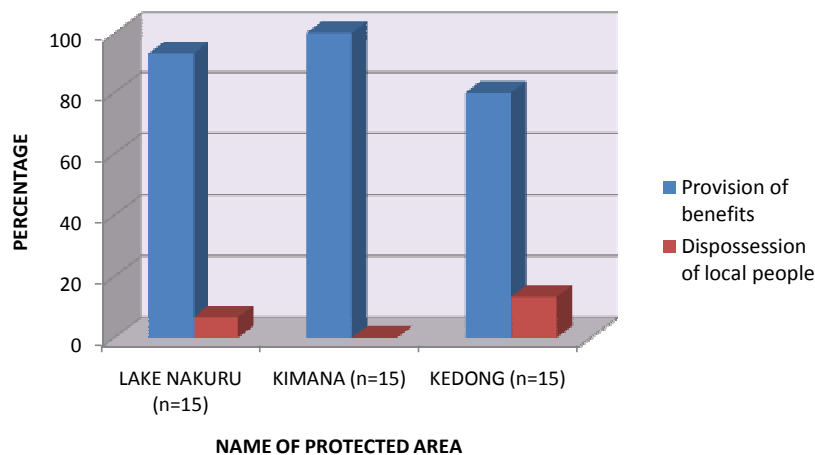
Table 6.24 indicates that the relationship between the community and the management staff of Kimana was excellent and very good as reported by 13.3% and 66.7% of the staff respondents, respectively, while 33.3% in Lake Nakuru indicated it was very good. Sixty percent, 20% and 13.3% of the staff respondents in Lake Nakuru, Kimana and Kedong, respectively, indicated a good relationship with the community, while 73.3% in Kedong stated it was satisfactory. However, one of the respondents in Lake Nakuru and 13.3% in Kedong indicated that the relationship with the community is poor. These findings indicate favourable interactions between the management staff and local communities, especially in Kimana and Lake Nakuru, while in Kedong the relationship is wanting. This is in contrast to the views expressed by the community respondents in Table 5.34 that revealed that the relationship in Lake Nakuru was the most severed. The reasons given by the staff respondents to the nature of relationship are discussed in Figure 6.12 below.

**Table 6.24: Staff respondents' rating of the relationship between the community and management staff of the protected areas (in %)**

<b>Nature of relationship</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Excellent	-	13.3	-	4.4
Very good	33.3	66.7	-	33.3
Good	60.0	20.0	13.3	31.1
Satisfactory	-	-	73.3	24.4
Poor	6.7	-	13.3	6.7
Total	100	100	100	100

According to the results illustrated in Figure 6.12, 93.3% of the staff respondents in Lake Nakuru, all in Kimana and 80% in Kedong indicated that the reason for the cordial relationship between the community and management staff of the protected areas was due to the provision of benefits, while 6.7% and 13.3% in Lake Nakuru and Kedong, respectively, indicated that the relationship was severed as a result of dispossession of the local people of the resources they considered virtually their domain. These results compare with Okech's (2007) findings in Amboseli and Masai Mara that show that the good relationship with the local community was because the parks provided employment and business opportunities for the locals and assistance in community development projects

such as schools, transportation and health facilities. The WTO (2002) observes that an improved relationship between the local people and the local park management agents provides incentives to achieve conservation goals. On the other hand, other studies (Fiallo and Jacobsen, 1995; Gillingham and Lee, 1999; Kangwana and Ole Mako, 2001) assert that when the local people are excluded from the local resources this will result in social conflicts with the protected area authorities.



**Figure 6.12: Reasons identified by the staff respondents for the nature of the relationship between the community and the protected area authority (multiple responses - in %)**

Twenty percent of the staff respondents in Kedong indicated that nobody was consulted by the conservation authority to start a partnership (Table 6.25), while 93.3% and 20% in Lake Nakuru and Kimana, respectively, stated that the local Chief or Sub-Chief were approached to develop a partnership. Eighty percent of the respondents in Lake Nakuru, 93.3% in Kimana and 80% in Kedong indicated that the respective conservation authorities had consulted selected members of the community for a partnership, while 93.3%, 60% and 80% in Lake Nakuru, Kimana and Kedong, respectively, stated that community-based organisations were consulted. Forty percent of the respondents in Lake Nakuru stated that

the park authority had consulted the local Councillor to develop a partnership, while 6.7% and 60% in Lake Nakuru and Kimana, respectively, indicated that private and group ranch officials were consulted.

**Table 6.25: Who (if any person or organisation), according to the staff respondents, was/were consulted by the conservation authority to develop a partnership (multiple responses - in %)**

<b>Community member consulted</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Nobody	-	-	20.0	6.7
Chief/Sub-chief	93.3	20.0	-	37.8
Selected members of the community	80.0	93.3	80.0	84.4
Community based organisation	93.3	60.0	80.0	77.8
Councillor	40.0	-	-	13.3
Private and group ranch officials	6.7	60.0	-	22.2

The findings indicate that there are efforts made to develop partnerships with local communities in the case study sites. As Mulder and Coppollilo (2005) state, it is important to take into account the heterogeneous nature of the communities when characterising who should be involved in community conservation initiatives. The authors maintain that this should be considered in relation to the extent to which communities are differentiated in terms of the institutions that govern their internal and external relationships, and the extent to which they share values pertaining to conservation. For instance, Chellan (2005) reports the tendency of the ecotourism sector to attract members of the community that have access to information and occupy positions of power in the community. In a similar situation, Songorwa (1999) reports cases where it is the wealthier and more educated sectors of the community who are most disenchanted by a community-based project. In situations where the information about the development of a conservation partnership is limited to the most influential persons and not shared by the wider community, the less privileged members of the community may feel disenfranchised and thus fail to support the conservation initiatives. It is therefore important to ensure that there is transparency and genuine representation among the community members.

**Table 6.26: Who staff respondents felt development monies from the conservation authority were given to (multiple responses - in %)**

<b>Monies recipient</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Community trust fund	93.3	46.7	80.0	73.3
Group ranch committee	-	93.3	-	31.1
School board committees	40.0	6.7	-	15.6
Not applicable	-	-	20.0	6.7

According to Table 6.26, where the staff respondents indicated that a partnership existed, 93.3% of the respondents in Lake Nakuru, 46.7% in Kimana and 80% in Kedong stated that the monies were deposited with the community trust fund, while 93.3% in Kimana indicated the monies were given to group ranch committees. Forty percent of the respondents in Lake Nakuru and 6.7% in Kimana said the money was given to the school board committees. These findings indicate that there were specific structures in place for allocating financial aid to the local community programmes across the case study sites. This is contrary to the views elicited by the community respondents (Table 5.39) where it was reported that the majority of the local people did not know who received the money. Problems arise primarily when local communities comprise of heterogeneous groups with conflicting interests, differential power and influence. Wearing and Neil (1999) observe that not all groups want the same things. This implies that the local people should be consulted when it comes to the persons to whom the revenue will be given to avoid further conflicts and irreconcilable inconsistencies. For instance, Mulder and Coppolillo (2005) point out that the allocation of revenues to communities can fuel social conflicts and wealth disparities. This position is echoed by Stronza (2001: 269), in a study in the Micronesian island of Yap, who states that “the Chief is not sharing the entrance fees to the village”. Consequently, Gibson and Marks (1995) assert that this misunderstanding will disrupt local institutions harming community cohesion and the achievement of conservation agendas.

**Table 6.27: Staff respondents' views on government policies and biodiversity conservation institutions (multiple responses - in %)**

<b>Respondents view</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Inadequate	93.3	80.0	93.3	88.9
Unfair (favour tourists and wildlife)	73.3	80.0	60.0	64.4
Enhance tolerance of wildlife	40.0	53.3	6.7	33.3
Obsolete (need to be revised)	6.7	20.0	6.7	11.1
Poorly enforced	40	26.7	-	22.2

Table 6.27 indicates that the majority of the staff respondents were of the view that the government policies and institutions of biodiversity conservation are inadequate and unfair to the local people. Specifically, 80% of the respondents in Kimana, 93.3% in Lake Nakuru and 93.3% in Kedong indicated that the conservation policies and institutions are inadequate, while 73.3%, 80% and 60% in Lake Nakuru, Kimana and Kedong, respectively, stated that they were unfair to the local people and biased towards the welfare of the wildlife and foreign tourists. This reinforces the perceptions of the community respondents (Table 5.40) and the studies of Weladji *et al.* (2003) in Cameroon and Western (1992) in Kenya which show that wildlife policies favour animals and tourists rather than local people's interests. Additionally, Steel (1995) observes that when the protected area management institutions are compromised by the interests of tourists and overlooks the interests of the local communities, unsustainable conservation will arise. Forty percent of the respondents in Lake Nakuru and 53.3% in Kimana and one respondent (6.7%) in Kedong stated that the institutional and policy framework enhanced tolerance of wildlife in private lands, while one respondent each in Lake Nakuru and Kedong as well as 20% in Kimana stated that the policies and institutions are obsolete and need to be revised. However, 40% and 26.7% of the staff respondents in Lake Nakuru and Kimana, respectively, indicated that the policies are poorly enforced. Government policy, as stated in Banoo and Jaggernath (2008), provides guidelines for the decisions and actions that organisations and institutions take to evaluate their performance. The success of conservation strategies lies in appropriate planning, management institutions and the application of government policies (Brandon *et al.*, 1998; Wells, 1994; Wells *et al.*, 1999).

The findings of this study are reinforced in Bob and Banoo (2002 cited in Banoo and Jaggernath, 2008: 137) who identify numerous shortcomings of and conflicts over environmental legislation internationally that include fragmented and minimally enforced environmental policy, lack of coordination, capacity, resources and skills as well as inadequate administrative systems to effectively manage, monitor and sustain natural resources.

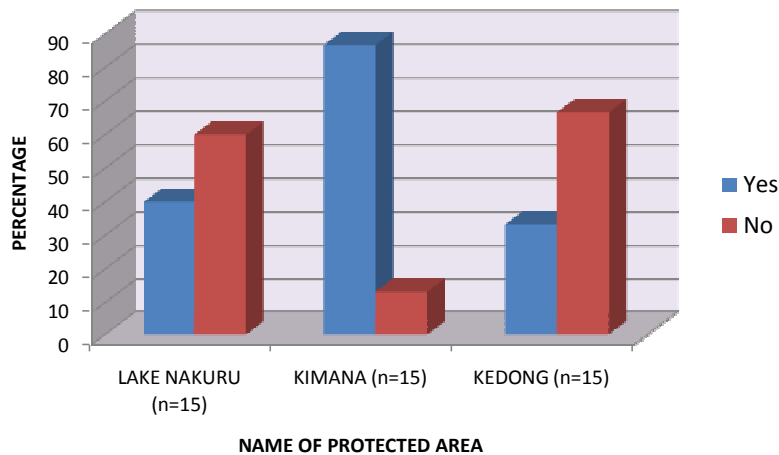
**Table 6.28: Staff respondents’ description of the profile of the tourists (in relation to where they come from) who visit the protected areas (multiple responses - in %)**

<b>Tourists</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Non-African foreigners	93.3	100.0	100.0	97.8
African foreigners	6.7	-	-	2.2
Kenyans from outside the area	46.7	13.3	60.0	40.0
Kenyan locals from the surroundings	80.0	26.7	13.3	40.0

Table 6.28 indicates that all of the staff respondents in Kimana and Kedong and 93.3% in Lake Nakuru identified the tourists visiting the respective protected areas as mostly non-African foreigners, while one respondent in Lake Nakuru described them as African foreigners. Sixty percent of the respondents in Kedong, 13.3% in Kimana and 46.7% in Lake Nakuru identified the tourists as Kenyan locals from the surrounding areas, while 80%, 26.6% and 13.3% in Lake Nakuru, Kimana and Kedong, respectively, described them as Kenyans from outside the local areas. The differences between the case study sites can be possibly attributed to the entry fees charged by the particular protected area. For instance, Lake Nakuru charges US\$ 60 for adult non-residents and Ksh 300 for Kenyan citizens (KWS, 2009a), which is higher than the US\$ 10 and Ksh 100 that Kimana charges for non-residents and Ksh 100 for Kenyan citizens, respectively (personal communication with the Warden, 2008). On the other hand, Kedong charges US\$ 35 for non-residents and Ksh 200 for Kenyan residents (personal communication with Ranch Manager, 2008). The results affirm Sindiga’s (1999) findings that most tourists to Kenya are wealthy foreigners, particularly from Europe and America. Similarly, a study by Okech (2007: 188) in



Amboseli and Masai Mara parks in Kenya attest that 90% and 96% are international tourists, respectively. The results also indicate that domestic tourism has started taking root in Kenya. The country established a domestic tourism policy in 1984 that encourages residents to travel locally, especially during the low season for international tourism (Sindiga and Kanunah, 1999). However, Sindiga (1996) and Okech (2007) observe that the strategies aimed at making domestic tourism attractive and affordable, which include lower entrance fees for local people and free promotional tours into the parks and reserves, have not been fully successful.



**Figure 6.13: Whether staff respondents felt that local people were facilitated to interact with tourists that visit the protected areas (in %)**

According to Figure 6.13, 40% of the staff respondents in Lake Nakuru, 86.7% in Kimana and 33.3% in Kedong indicated that the local community were facilitated to interact with tourists, while 60%, 13.3% and 66.7% in Lake Nakuru, Kimana and Kedong, respectively, reported that the local people are not allowed to interact with tourists. The results compare closely with those by the community respondents in Figure 5.19 and indicate that there is more interaction with tourists in Kimana followed by Kedong and then Lake Nakuru. Similarly, according to the findings illustrated in Table 5.34, the community respondents,

especially in Kimana, indicated interaction with tourists as one of the benefits of living next to the protected areas. The low intensity of interaction with tourists in Lake Nakuru can possibly be attributed to the fact that the park is fenced as well as more expensive for the local people to afford the entrance fees. Another possible explanation for these findings may be that most visitors are managed by tour operators on tight schedules that give them little time to interact with local community members and activities. This position is echoed by Bonner (1993: 7) who asserts that foreign tourists have little time with the local people since “they stay in Western-managed hotels, fly between parks, are chauffeured around in minivans, and the only contact they have with Africans, other than with those who wait on them, is through the lens of a camera”. However, where community tourism-related enterprises are present and promoted in the vicinity of the tourist’s route, there is more interaction with tourists. This contributes to much of the interaction mentioned in this study, especially in Kimana and Kedong where there is a lot on display along the tourists’ routes. For instance, Okech (2007: 205) indicates that a significant percentage (43%) of the tourists visited the Maasai homesteads popularly known as ‘manyattas’. This reinforces the high response (90%) for interaction with tourists in Kimana since in this study the Maasai culture is predominantly an attraction for international tourists.

**Table 6.29: Staff respondents’ perceptions of local people’s attitudes towards the tourists who visit the areas (multiple responses - in %)**

<b>Attitude</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Euphoria (excitement)	33.3	100.0	66.7	66.7
Apathy (tourists taken for granted)	53.3	-	-	17.8
Annoyance (misgivings on tourism)	20.0	6.7	-	8.9
Antagonism (displayed irritations)	13.3	-	-	4.4
Acceptance	40.0	86.7	53.3	60.0

Table 6.29 indicates that all the staff respondents in Kimana, 33.3 % in Lake Nakuru and 66.7% in Kedong indicated that the local people are excited when they see tourists, while 53.3% in Lake Nakuru reported that the local people are apathetic to tourists. Twenty percent and one of the respondents in Lake Nakuru and Kedong, respectively, stated that the local people harbour misgivings about tourism; while 13.3% of the respondents in Lake

Nakuru felt that the local people openly display antagonistic feelings towards tourists. On the other hand, 40% of the respondents in Lake Nakuru, 86.7% in Kimana and 53.3% in Kedong indicated that the local people express acceptance of tourists. The findings show a positive attitude towards tourists in Kimana followed by Kedong and then Lake Nakuru. The differences in these results may be explained by the relationship between the local people and the protected areas. For instance, where the local people indicate benefits associated with living next to the protected areas (Table 5. 34), it demonstrates that they appreciate the tourists visiting the areas who are the main source of revenue for the protected area/ community conservation activities.

**Table 6.30: Staff respondents’ perceptions of the problems associated with tourism in the study areas (multiple responses - in %)**

<b>Problem</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
None	6.7	60.0	-	22.2
Dependency on handouts	20.0	33.3	86.7	46.7
Erosion of indigenous cultural values	60.0	26.7	60.0	48.9
Increased prices of commodities	26.7	6.7	93.3	42.2
Associating conservation with foreigners	73.3	13.3	33.3	40.0

Though tourists were generally accepted by the majority of the local people as highlighted in Table 6.29, the staff respondents identified some problems associated with tourism in the study areas as illustrated in Table 6.30. Twenty percent of the respondents in Lake Nakuru, 33.3% in Kimana and 86.7% in Kedong indicated that the local people have developed a dependency syndrome by relying on handouts, while 60% of the respondents in Lake Nakuru, 26.7% in Kimana and 60% in Kedong associated tourism with the erosion of indigenous cultural values. Another 26.7%, 6.7% and 93.3% of the staff respondents in Lake Nakuru, Kimana and Kedong, respectively, indicated that tourism has contributed to an increase in the prices of commodities, while 73.3% in Lake Nakuru, 13.3% in Kimana and 33.3% in Kedong indicated that tourism has led to the misconception that conservation is a foreign concept. The overall impression of these findings is that there are more problems associated with tourists in Lake Nakuru and Kedong, and fewer in Kimana. The

differences between the communities may be linked to the extent of interaction with and acceptance of tourists as indicated in Figures 5.19, 6.13 and Table 6.29 that show more interaction with and acceptance of tourists in Kimana followed by Kedong and then Lake Nakuru. Similar concerns are highlighted by Mulder and Coppolillo (2005) who observe that the arrival of tourists who are considered wealthy in remote areas stimulates new expectations among local residents. Accordingly, Okech (2007) and Sindiga and Kanunah (1999) identify the social factor of cultural erosion, for instance, the exposure of the youth to new lifestyles that include drugs, materialism as well as inappropriate clothing and behaviour. Other potential problems associated with ecotourism activities include ecological and environmental impacts, for example, disturbance to wildlife and damage to vegetation through the over-utilisation of resources by the concentration of tourists in a few places (Mulder and Coppolillo, 2005; Okech 2007; Sindiga and Kanunah, 1999) and uneven distribution of tourism benefits (Bonner 1993; Koch, 1997; Sindiga and Kanunah, 1999; Stronza, 2001).

## **6.6. Sustainable Conservation Strategies**

According to Mulder and Coppolillo (2005), the question of when and where different strategies of conservation works better is still largely unclear and so is the question regarding which category of protected area is more effective in conserving biodiversity. This section discusses the responses of the management staff in the study areas on critical issues in the quest for sustainable biodiversity conservation strategies that meets the conservation agenda and fosters local people's attitudes to conservation.

Table 6.31 summarises the responses of the staff respondents on the effectiveness of the categories of protected areas under study. Indigenous systems of biodiversity conservation were rated as excellent by one of the staff respondents in Lake Nakuru, while 13.3%, 26.7% and 86.7% in Lake Nakuru, Kimana and Kedong, respectively, recorded them as very good. Another 13.3% of the staff respondents in Kedong and 73.3% each in Lake Nakuru and Kimana stated that the indigenous systems of biodiversity conservation were good, while one respondent in Lake Nakuru indicated that the indigenous systems are very bad.

National parks were rated as excellent in enhancing biodiversity conservation by 33.3% of the respondents in Lake Nakuru and 40% in Kimana; while 60% in Lake Nakuru, 53.3% in Kimana and 26.7% in Kedong indicated that the national parks are very good. Another 86.7% of the respondents in Kedong and 6.7% each in Lake Nakuru and Kimana stated that national parks are good in conserving biodiversity.

**Table 6.31: Staff respondents' rating of the effectiveness of the categories of protected areas in conserving biodiversity (in %)**

Conservation system	Lake Nakuru (n=15)	Kimana (n=15)	Kedong (n=15)	Total (n=45)
<b>Indigenous systems</b>				
Excellent	6.7	-	-	2.2
Very good	13.3	26.7	86.7	42.2
Good	73.3	73.3	13.3	53.3
Very bad	6.7	-	-	2.2
<b>National parks</b>				
Excellent	33.3	40.0	-	24.4
Very good	60.0	53.3	26.7	46.7
Good	6.7	6.7	73.3	28.9
<b>Community reserves</b>				
Very good	26.7	26.7	-	17.8
Good	66.6	73.3	100.0	80.0
Bad	6.7	-	-	2.2
<b>Private reserves</b>				
Excellent	-	13.3	-	4.4
Very good	53.3	40.0	100.0	64.4
Good	40.0	33.3	-	24.4
Bad	6.7	13.3	-	6.7

Community reserves on the other hand were identified as very good by 26.7% of the staff respondents in Lake Nakuru and Kimana, while all the respondents in Kedong, 66.6% in Lake Nakuru and 73.3% in Kimana rated them as good. However, 6.7% of the respondents in Lake Nakuru indicated that the community reserves do bad conservation. Private reserves were found to perform excellently by 13.3% of the respondents in Kimana, while all the respondents in Kedong, 53.3% in Lake Nakuru and 40% in Kimana indicated that

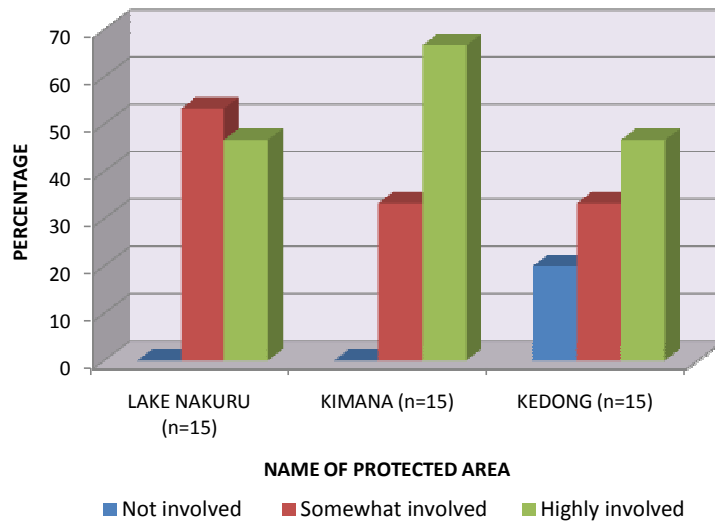
private reserves are very good in conserving biodiversity. Whereas 40% and 33.3% of the respondents in Lake Nakuru and Kimana, respectively, identified private reserves as good, 6.7% in Lake Nakuru and 13.3% in Kimana indicated that they perform badly.

The ratings show that the respondents had divergent opinions about the effectiveness of different categories of protected areas with a bias towards the particular protected area they work for. The overall impression from the findings is that generally all the categories of protected areas are good for conservation. The effectiveness of different measures of conserving biodiversity have been linked to different levels of protection (Caro *et al.*, 1998; Mulder and Coppolillo, 2005). An elaborate comparison of strategies for conservation, as Mulder and Coppolillo (2005) point out, lies not in contrasting different categories of protection, but rather in comparing the results of the objectives of management in particular situations. For example, Brandon (1998) and Parks *et al.* (2002) observe that parks that were set up in remote areas, with little productive potential and low population pressure are likely to prosper than those set up in densely populated areas. The unclear comparison of protected areas is evident where research reveals contradicting results, for example, Bruner *et al.* (2001) conclude that national parks are more effective in conserving biodiversity, while others like Ghimire and Pimbert (1997) and Orlove and Brush (1996) argue that national parks fail. Other studies have supported the myth that private reserves do bad conservation (ELI, 2003; Langholz, 1996). This is reflected in the findings of this study that show that whereas all the conservation categories generally do good conservation, national parks seem to be rated as more effective. The results do not provide a clear answer to the ongoing debate on what type of conservation strategy is most effective. This implies that all protected area categories are important in conserving biodiversity in particular situations. This position is echoed by West *et al.* (2006 cited in Brockington and Igoe, 2006: 426) who point out that the effects of protected areas are too diverse to be merely categorised as 'good' or 'bad'.

**Table 6.32: Staff respondents’ perceptions regarding under what situations strict protection strategies should be adopted (multiple responses - in %)**

<b>Situation</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Increased encroachment into the PA	93.3	53.3	80.0	75.6
Increase in adjacent human population	20.0	40.0	100.0	53.3
Increased human-wildlife conflicts	100.0	93.3	100.0	97.8
Threatened or endangered species	100.0	80.0	100.0	93.3

Strict protectionism as classified under IUCN (Table 2.1) is essential to achieving conservation ends. Mulder and Coppolillo (2005) indicate cases, such as where only small populations of rare or endangered species remain and where the biodiversity in an area is under significant threat, to warrant strict protection. The majority of the staff respondents in the study areas were in agreement that it is important at times to enhance strict protection of wildlife (Table 6.32). Eighty percent of the respondents in Kedong, 53.3% in Kimana and 93.3% in Lake Nakuru indicated that when there is a threat to the wildlife habitat through increase in human encroachment it is critical to place the wildlife areas under strict protection, while all the respondents in Kedong, 20% in Lake Nakuru and 40% in Kimana highlighted the situation necessary for strict protection as being when there is an increase in human population in the adjacent settlements. All the staff respondents in Lake Nakuru and Kedong as well as 93.3% and 80% in Kimana identified the increase in the incidences of human-wildlife conflicts and when a species is threatened or endangered, respectively, as situations that justify wildlife areas to be put under strict protection. Under these kinds of circumstances, it will be more suitable to establish strict protected areas to slow biodiversity decline. For instance, Norton-Griffiths (1998) notes that in Kenya, wildlife losses were much greater in unprotected areas between 1977 and 1995 than in protected areas.



**Figure 6.14: Staff respondents' opinion on the extent to which the local community should be involved in the management of the protected areas**

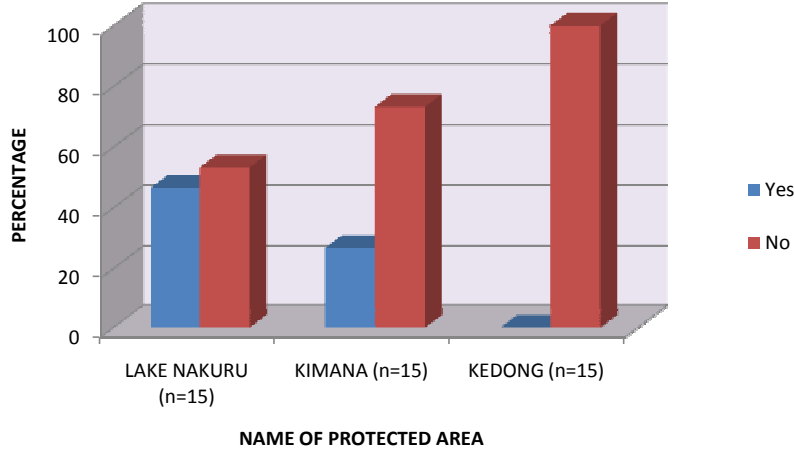
The importance of involving local people in resource management has been highly acknowledged (Adams and Hulme, 2001; Barrow and Murphree, 2001; Wells *et al.*, 1992; Western *et al.*, 1994). Figure 6.14 illustrates that 46.7% of the staff respondents in Lake Nakuru, 66.7% in Kimana and 46.7% in Kedong indicated that the local community should be highly involved in the management of the respective protected areas under study, while 53.3% and 33.3% each in Lake Nakuru, Kimana and Kedong, respectively, stated that the local community should be somewhat involved. However, 20% of the staff respondents in Kedong were of the opinion that the local community should not be involved at all in the management of the protected area. The possible reason for this finding may be because Kedong is under private ownership and management. Overall, the majority of the respondents in all communities generally supported the views of the researchers expressed above that community involvement is necessary, although they disagreed on the level of involvement. The reasons for the staff views above are explained below (Table 6.33).



**Table 6.33: Reasons forwarded by the staff respondents on why the local communities should be involved in the management of the protected areas (multiple responses - in %)**

<b>Why local communities should be involved</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Gives a sense of ownership	80.0	86.7	80.0	82.2
Dependency on the natural resources	60.0	53.3	20.0	44.4
<b>Why should local communities not be (or fully) involved</b>				
Demand access to use the resources	26.7	26.7	20.0	24.4
Avoid delays in decision-making	53.3	33.3	53.3	46.7

When asked why the local communities should be involved or not involved in the management of the protected areas (Table 6.33), 80% of the respondents in Lake Nakuru, 86.7% in Kimana and 80% in Kedong stated that the involvement of local people will give them a sense of ownership of the protected area therefore improving the relationship with the PA authority as well as enhancing support for conservation efforts. Sixty percent, 53.3% and 20% of the respondents in Lake Nakuru, Kimana and Kedong, respectively, indicated that it is important to involve the local community in the management of the protected area because the local people depend on the natural resources for their livelihoods. However, 26.7% of the respondents in Lake Nakuru and Kimana and 20% in Kedong indicated that the local people should not be/ or fully involved in the management of the protected area because they will demand access to use the resources, while 53.3% each in Lake Nakuru and Kedong, and 33.3% in Kimana stated that if involved, the local people will delay the management in making decisions. A caution to involve local people in the management of protected areas gets support from Kiss (1990) and Locke and Deardan (2005) who claim that it may place the local people at the centre of the protected area agenda at the expense of wild biodiversity conservation objectives. Similarly, Cater (1994) argues that any involvement should not only be in the form of handouts but should be holistic to extend to economic survival, environmental conservation and socio-cultural integrity.



**Figure 6.15: Whether staff respondents felt that the local communities should be allowed to utilise resources from the protected areas**

Figure 6.15 illustrates that whereas all the respondents in Kedong, 53.3% in Lake Nakuru and 73.3% in Kimana indicated that the local people should not be allowed to extract resources from the protected areas, 46.7% in Lake Nakuru and 26.7% in Kimana stated that they should be allowed. The differences in the findings between the case study sites is influenced by the governance type and the management objectives of the protected areas (IUCN, 2003d) and compare with the results on the extent of involvement of the local communities in the management of the protected areas. The implications of these findings are discussed below.

**Table 6.34: Reasons forwarded by staff respondents on why the local communities should be allowed to utilise resources from the protected areas (multiple responses - in %)**

<b>Reason for allowing extraction</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Reduce conflicts with local people	26.7	26.7	-	17.8
Controlled harvesting of some resources	46.7	26.7	80.0	51.1
<b>Reasons for not allowing extraction</b>				
Will threaten and deplete resources	53.3	73.3	100.0	75.6
Against passive management concept	53.3	33.3	100.0	62.2

When asked the reasons why the local people should be allowed or not allowed to extract resources from the protected area (Table 6.34), 26.7% of the respondents each in Lake Nakuru and Kimana indicated that they should be allowed to reduce conflicts, while 46.7%, 26.7% and 80% in Lake Nakuru, Kimana and Kedong, respectively, stated that they should be allowed to harvest some resources (need for controlled harvesting). However, 53.3%, 73.3% and all the staff respondents in Lake Nakuru, Kimana and Kedong, respectively, highlighted that allowing the local people to extract resources from the protected areas will threaten and deplete the resources further, while 53.3% in Lake Nakuru, 33.3% in Kimana and all the respondents in Kedong stated that if allowed this will be against the passive management concept of a protected area that places emphasis on the self-regulating function and natural regeneration of an ecosystem. The findings indicate that the respondents in Kedong were more conscious of the negative impacts of allowing extractive use in the protected areas than in Lake Nakuru and Kimana. This may be attributed to the fact that the majority of the respondents were from the area and were concerned that in the event that the resources are depleted they may lose their jobs. The question as to whether to enforce strict protection and allow or prohibit extractive use in protected areas will depend on the PA category and management objectives (IUCN/WCMC, 1994; KWS, 2005; WCMA, 1976). However, for sustainable management of protected areas to be achieved, the guidelines to minimise negative environmental impacts must be enforced that include, for example, the slogan adopted by many parks worldwide: “Take nothing but photographs, Kill nothing but time, Leave nothing but footprints” (Mason, 1997: 161). This implies that

a code of practice should be developed and adhered to, for instance, not littering and feeding of animals.

**Table 6.35: Ways identified by the staff respondents in which the protected area management can improve the livelihoods of the local people without compromising the state of biodiversity (multiple responses - in %)**

<b>Response</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Limited and controlled access to some resources	53.3	33.3	26.7	57.8
Development of local infrastructure	100.0	100.0	100.0	100.0
Compensating losses caused by wildlife	53.3	53.3	33.3	66.7
Promotion of domestic ecotourism initiatives	86.7	100.0	100.0	95.6
Enhancing interaction with tourists	60.0	60.0	100.0	73.3

Table 6.35 illustrates the ways the staff respondents highlighted as to how the management of the protected areas under study can improve the livelihoods of the local people without comprising the state of local wildlife/ biodiversity. All the staff respondents in the three study areas identified the development of local infrastructure, while 26.7% of the respondents in Kimana, 53.3% in Lake Nakuru and 33.3% in Kedong recommended that the management should allow limited and controlled access to some resources. Additionally, 33.3% of the respondents in Kedong and 53.3% each in Lake Nakuru and Kimana identified compensation mechanisms for losses caused by wildlife, while all the respondents in Kimana and Kedong and 86.7% in Lake Nakuru stated domestic ecotourism initiatives. All the staff respondents in Kedong and 60% each in Lake Nakuru and Kimana indicated that the management of the protected areas should enhance interaction between the local people and tourists. The findings indicate that generally the majority of the respondents agreed that enhancing community conservation and development programmes would foster positive attitudes among the local communities to conserve. The differences between the case study sites, particularly in Kedong, can be explained by the governance type and status of the protected area (private ranch) that, for example, does not host much of the problem animals that are in conflict with human activities, thus minimal need for enhancing compensation mechanisms. Additionally, there is minimal suggestion for limited and controlled access to some resources and more of enhancing interaction with tourists in

Kedong which reinforces earlier sentiments illustrated in Figures 6.13 and 6.15. Similar results by Okech (2007) and Chellan and Bob (2008) indicate that infrastructure development and greater mobilisation of communities to participate in the management activities of the protected areas are important to improve the livelihoods of local people without undermining the natural resource base.

**Table 6.36: Ways identified by staff respondents in which the local community can contribute towards promoting biodiversity conservation (multiple responses - in %)**

<b>Response</b>	<b>Lake Nakuru (n=15)</b>	<b>Kimana (n=15)</b>	<b>Kedong (n=15)</b>	<b>Total (n=45)</b>
Collaboration through community policing	73.3	100.0	100.0	91.1
Enhancing alternative sustainable lifestyles	86.7	73.3	100.0	86.7
Tolerating wildlife in private lands	86.7	100.0	100.0	95.6

Most staff respondents indicated that the local community can contribute towards promoting the conservation of local biodiversity as indicated in Table 6.36. All the respondents in Kimana and Kedong and 73.3% in Lake Nakuru stated that collaborating with the local people through community policing initiatives will enhance biodiversity conservation, while 86.7% in Lake Nakuru, 73.3% in Kimana and all the respondents in Kedong indicated that the local people should embrace alternative sustainable livelihood lifestyles that do not compromise local biodiversity. All respondents in Kimana and Kedong as well as 86.7% in Lake Nakuru suggested that the local communities should be encouraged to tolerate wildlife in their private lands. These results indicate that for sustainable management of protected areas, the conservation and management institutions and policies should cater not only for the economically viable activities but the ecological as well as the cultural aspects of the local people (Gakahu, 1992). Thus, the overall impression of the findings is that communities' participation and involvement in the management of the protected areas should be enhanced. This implies that the communities were willing to collaborate with the conservation agencies if the constraints to their socio-economic circumstances are considered.

## **6.7. Conclusion**

This chapter presented the analysis and discussion of the results collected from the protected areas staff representing the administrative and management authorities (stakeholders) of the different categories of protected areas under study. The discussion made specific reference to documented literature and the researcher's personal communication with several regulators. The focus was on the impacts of the management activities on the effectiveness of the protected areas and how they have influenced the conservation attitudes of the local people. Overall, there were differences as well as similarities between the case study sites as regards what they perceived to be key issues and concerns in the management of the protected areas. According to the findings, the primary concern of the management staff was to ensure protection of biodiversity and local development structures that can foster the attitudes of the local communities to conserve.

## CHAPTER SEVEN

### SUMMARY, RECOMMENDATIONS AND CONCLUSION

#### 7.1. Introduction

The principal biodiversity conservation strategies dealt with in this study are three categories of management objectives and governance types of protected areas in Kenya. These included a government managed national park (Lake Nakuru National Park) that involves strict protectionism in association with outreach, a community managed reserve (Kimana community wildlife sanctuary) that integrates conservation with community-based conservation initiatives, and a privately managed game ranch (Kedong game ranch) with various forms of game rearing integrated with livestock and farming. The broad objective of the study was to comparatively assess the performance of the protected areas from the perspective of the local communities as the main stakeholders in relation to issues and debates discussed in the previous chapters.

As observed earlier from Mulder and Coppolillo (2005), the answer to the question of when and where protected areas are most effective, lies in the proper and systematic comparison of the different approaches of conserving biodiversity defined by IUCN (Table 2.1). In this respect, analyses of the effects of different levels of biodiversity conservation within a particular country such as postulated in this study are useful. The main aim of this chapter is to summarise and make recommendations in relation to the review of the key research findings, related literature and theoretical framework. The chapter considers key issues in relation to the conceptual framework of the political ecology of conservation that includes the role of local communities, the relationship between biodiversity conservation and rural development, and the debate on the effectiveness of different categories of protected areas in conserving biodiversity. The study focussed on an assessment and description of the community and staff characteristics and their perceptions on the different strategies of conserving biodiversity in an attempt to provide insight between the issues and concerns of their effectiveness in meeting the dual goal of conserving biodiversity and improving the

livelihoods of the local people, as well as establishing mechanisms so that the different strategies could be integrated in a manner that is sustainable.

## **7.2. Summary of Key Findings**

The key results and findings of this study are summarised and presented in relation to the objectives of the study in an attempt to address the issues raised by the research questions. There were substantial observed similarities as well as differences between the case study sites and among the perceptions of the stakeholder groups.

### **7.2.1. Objective One: Demographic and socio-economic characteristics of the local communities and their influence on their attitudes towards biodiversity conservation**

The focus of this objective was to examine the effects of the human pressures on the perceived state and condition of local biodiversity. The factors considered included the demographic and socio-economic characteristics of the local communities such as gender, age, household size, farm size, educational level, poverty status, land tenure and resource use systems amongst others.

Several demographic and socio-economic characteristics of the local communities were found to significantly ( $\chi^2$  tests,  $p < 0.05$ ,  $p < 0.01$ ,  $p < 0.001$ ) influence their attitudes towards the protected areas and related community conservation and development programmes (Table 5.42). Overall, the study revealed a high proportion of male community respondents (71.1%) than females (28.9%) with a mean age of 46 years that ranged between 21 to 71 years. The analysis identified that male and older respondents generally indicated more favourable attitudes towards the protected areas and the community conservation and development programmes (CCDPs) than the female and younger respondents. This finding compares with other similar studies elsewhere such as Wang *et al.* (2006) in Bhutan that indicated that younger respondents (less than 45 years) expressed more negative attitudes towards protected areas and CCDPs compared to older respondents.



Mburu and Birner (2002) in Kenya stated that male elders influenced attitudes by facilitating management processes, enforcing norms and resolving conflicts. However, Wang *et al.* (2006) and Baral and Heinen (2007) found out that gender had no association with attitudes, while Mehta and Kellert (1998) observed that in relation to resource extraction, women, who are more involved, are more negative about conservation initiatives that restrict traditional resource uses.

In terms of educational levels, there were different perceptions with most of the respondents without formal education in this study being more positive towards the protected areas and CCDPs. However, a substantial number of those with formal education were more positive about the protected areas but more negative about the CCDPs. This was consistent with the findings of Weladji *et al.* (2003) in Cameroon that indicated no significant influence of education towards protected areas. However, Wang *et al.* (2006) found that literate respondents expressed more positive attitudes towards CCDPs. Similarly, Mburu and Birner (2002) stated that educational level is a human capital indicator which is a strong incentive in community participation where the educated play a leading role in the governance of community activities.

Households with lower poverty levels were more positive towards the protected areas but substantially positive about CCDPs, while those with higher poverty levels were more substantially positive about the protected areas and more positive about CCDPs. This compares with Wang *et al.* (2006) who assert that poor respondents were more concerned with fulfilling the basic needs of their families than eliminating negative impacts on the environment. Location of residence of the local communities from the protected areas was found to be significantly associated with the attitudes of local people towards protected areas ( $\chi^2=48.1, p = 0.001$ ) and CCDPs ( $\chi^2=40.7, p = 0.001$ ). Those closer to the protected areas were more negative towards the protected areas but more positive to CCDPs, while those further from the protected area boundaries were more positive to the protected areas as well as the CCDPs. This is consistent to the findings of Wang *et al.* (2006) in Bhutan and Weladji *et al.* (2003) in Cameroon who observe that local people living closer to park

boundaries depended more on resources from the park for their livelihoods and had strong negative attitudes towards conservation efforts, probably because there was increased control from park staff that led to restrictions on access to park resources. Similarly, according to Table 5.37 and Hulme and Infield (2001), those close to the protected areas boundaries harbour negative attitudes because of the problem associated with damage to property, crops and loss of livestock from wild animals.

The overall mean land size among the community respondents was 3.9 acres with a household size of 6 members which ranged from one to 14 members per household. The majority of the respondents indicated that they owned the land they occupied with legal entitlement. Mburu and Birner (2002) observe that landowners with more security of land tenure would be more motivated to participate in conservation activities. However, Wang *et al.* (2006) argue that people who own no land may actually gain by the presence of the protected area if they receive direct benefits and other facilities, and therefore may respond more positively. Fuelwood (firewood and charcoal) formed the main source of energy (Table 5.13) in the study areas. The overall impression was that the land size was not adequate to meet the household subsistence livelihoods among the community respondents. Consequently, the majority of the respondents complained about the restrictions imposed on resource use in the protected areas and indicated a need to access supplementary resources for grazing, wood collection, watering, recreation, hunting, food gathering, cultivation, and religious and cultural activities. However, the majority of the community respondents (82.2%) indicated that they were not allowed access to use these resources. This finding was echoed by most of the staff respondents who reported that the local people should not be allowed any access to the study areas and provided conditions to be followed if and where access is allowed, including adhering to the protected area management and utilisation objectives and guidelines for code of practice. Table 5.42 indicates a positive significant association between access to protected areas for resource use and attitudes towards the protected area ( $\chi^2 = 13.4, p = 0.01$ ) and towards CCDPs ( $\chi^2 = 12.8, p = 0.05$ ). The issue of access to resources in protected areas and the relationship between local people and protected areas is described by Adams and Hutton (2007) as highly political

where the local people have found themselves increasingly excluded from obtaining livelihoods from their former lands, now declared as protected areas. McElwee (2006) and Cernea (1997) observe that restriction of access on the use of resources imposed on the people living outside protected areas has a direct impact on livelihoods where the local people depend directly on natural resources, including risks of impoverishment, landlessness and food insecurity. Such involuntary restrictive access undermines the effectiveness of conservation efforts where the relatively high poverty levels push the local people to hunt, collect fuelwood, farm and graze livestock on the protected areas boundaries leading to more negative interactions with wildlife or protected area authorities. Thus, increasing regulated local people's access to resources may enhance their support and promote the sustainability of the protected areas.

The findings show that respondents from different backgrounds generally support conservation efforts. However, there were concerns identified relating to access to park resources, level and nature of participation and job opportunities.

### **7.2.2. Objective Two: Community attitudes and protected area systems (people-park relationships)**

The focus of this objective was to examine the experiences of the local people with conservation institutions and assess how their relationship with the conservation authorities affects their attitudes towards conservation. The questions that underpinned this objective were in relation to the different interests advanced by the local communities and the conservation priorities promoted by the conservation authorities.

The community respondents highlighted several indigenous resource management practices that existed in the study areas before the introduction of the modern systems of protected areas that included community policing, controlled/ zoned grazing and sacred sites/ groves that were instituted through traditional and cultural values. On the other hand, staff respondents identified natural resource management activities undertaken by the protected areas that differed between study sites including fencing, patrol by armed guards/ rangers,

collaboration with local people, education and outreach, research and control of problem animals. The enforcement of appropriate protected area management activities in specific situations have been identified by Bruner *et al.* (2001) and Okech (2007) to correlate with the effectiveness of the protected areas in conserving biodiversity.

Overall, the majority of the tourists (97.8%) visiting the protected areas were non-African foreigners. The attitudes of local people towards the tourists generally compared fairly well among the respondents (Tables 5.41 and 6.29) and were described as euphoric where the respondents were more acceptable and more positive about tourism activities, and apathetic, annoying and antagonistic where the respondents harboured negative attitudes towards the tourists. This kind of attitude towards the tourists related to resultant problems of tourism-related activities reported by the respondents including creation of a dependency syndrome on handouts among the local people, erosion of indigenous cultural values through misconduct and bad influence, increased prices of commodities and associating conservation with foreigners. The unfavourable interactions with tourists have been demonstrated in several studies to influence negatively the attitudes of local people in supporting conservation initiatives (Bonner, 1993; KWS, 1994; Okech, 2007; Sindiga and Kanunah 1999; Western, 1992). In Kenya, the government is trying to institute mechanisms to improve the interaction between local communities and tourists through outreach programmes to make the local communities understand the importance of tourism to the national economy as well as participating in domestic tourism.

A large proportion of community respondents (75.2%) and all staff respondents reported that the introduction of the protected areas had positive impacts on the state of biodiversity explaining that there has been a reduction in conflicts with wildlife and an increase in community conservation initiatives among the communities. The community respondents mentioned various benefits of living next to the protected areas that included seeing and knowing different kinds of wildlife, getting game meat, transport, getting firewood, business opportunities, interaction with tourists and social amenities. However, perceived problems of living next to the protected areas included restrictive access to and use of

resources, loss of land and livelihoods, damage of property and crops by wildlife, danger to people from wildlife, wildlife disease transmission to livestock and harassment by the rangers and security guards. These findings are similar to the findings of Kangwana and Ole Mako (2001) in Tanzania. In relation to these problems, the community respondents indicated that their claims had not been compensated or settled. The staff respondents explained that any disputes over ownership and compensation are settled through established mechanisms according to government policy frameworks or through community institutions that involved enhancing benefits and controlling problem animals. However, most staff respondents were in agreement that the compensation was not adequate. The benefits and problems associated with living next to protected areas and the communities' perception of conservation policies and institutions are related to the type of attitudes of the local people towards the conservation systems and their relationship with protected area staff. The nature of the relationship between the local people and the staff of the protected areas differed between the study areas and among the respondents (Tables 5.34 and 6.24) and was significantly associated with attitudes of local communities towards the protected areas and CCDPs (Table 5.42). Overall, where the relationship was perceived to be good this was associated with the benefits of living next to the protected areas, while where the relations were strained it was attributed to the perceived problems of the protected areas and the communities, particularly the restrictive exclusion from access to resources, lack of compensation for damages and losses due to wildlife, and harassment of the local people by the conservation enforcing agents. Similar studies elsewhere that have demonstrated an improvement in the historical enmity between protected areas and local people as a result of assistance given to local people by the park authorities include Hulme and Infield (2001) in Uganda, Kangwana and Ole Mako (2001) in Tanzania and Weladji *et al.* (2003) in Cameroon.

The majority of both the community and staff respondents expressed negative views concerning government conservation policies and institutions (Tables 5.40 and 6.27) stating that they were inadequate and unfair to the local people but favoured tourists and wildlife. The community respondents complained that the government conservation policies did not

take into account their present interests such as compensation for damages and losses caused by wild animals. The protected area staff expressed reservations about the government conservation policies, despite the fact that they were in charge of implementing them, possibly because of problems such as inadequate management facilities (Table 6.16) and they also considered the wildlife policies to be obsolete (Table 6.17). Inappropriate government policies and failure of conservation institutions have been demonstrated in other studies to affect the success of conservation strategies (Banoo and Jaggernath, 2008; Brandon *et al.*, 1998; Steel, 1995; Wells, 1994). Where the conservation policies do not take into account the interests of the local people but promote evictions and restrictive resource uses they elicit antagonistic relations and negative attitudes among the local communities towards the protected areas.

### **7.2.3. Objective Three: Threats to biodiversity conservation strategies and their underlying causes**

This objective sought to try and expose the factors that cause were a threat to the conservation of biodiversity and the underlying causes of these threats. The objective was an attempt to establish the circumstances that led to the erosion of the indigenous conservation systems and consequently the effectiveness of the introduction of the modern systems of protected areas.

A substantial proportion of the community respondents (66.7%) indicated that before the introduction of modern systems of conservation strategies biodiversity was threatened and dwindling. Consequently, the staff respondents reported various immediate concerns and proximate threats that faced the protected areas under study (Tables 6.16 and 6.17) which included poaching, illegal encroachments, pollution, animosity by local people, inadequate management resources, physical developments, habitat loss, obsolete wildlife policies and climate change. Some respondents from among both the community members (31.8%) and staff (37.8%) interviewed attributed the decline of biodiversity and erosion of traditional indigenous conservation strategies to the unsustainable activities of the local communities such as illegal encroachments, increase in human population, wildlife poaching, over-

reliance on natural resources, unique cultural practices, subdivision of communal/ group lands/ ranches, resource use and management conflicts, and poverty. However, it is important to underscore, as illustrated by Mulder and Coppolillo (2005) and Wells *et al.* (1992), that the underlying causes of many threats to protected areas are linked to factors that are beyond the influence of local communities. This implies that the local people have no influence over the main drivers of biodiversity decline and threats to protected areas that can be traced to government policies and economic forces which for instance encourage large physical development activities around protected areas.

#### **7.2.4. Objective Four: Community involvement and their impacts on biodiversity conservation**

The aim of this objective was to assess the level of involvement of local communities in natural resource management and how their participation influence their perceptions of conservation as well as their relation with conservation authorities. Of particular concern was the question of whether the protected areas were imposed on the local communities or whether the local communities were in agreement with their establishment and key management objectives.

There was significant association between the consultation and involvement of the local communities with attitudes towards the protected areas and CCDPs (Table 5.42). Overall, a substantial proportion of both the community and staff respondents stated that the local communities were not involved during the establishment of the protected areas and indicated that they should be highly involved in the management activities of the protected areas (Figures 5.20 and 6.14). The reasons outlined for involving the communities were that the local people had a better understanding of the local resources; depended on the local resources for their livelihoods, cultural and religious activities; and as a way to improve relations with the conservation authorities. However, reservations in relation to the extent and level of involvement of local communities in the management of the protected areas were associated with concerns that this may be misconstrued as a permit to demand access to use the resources threatening them further as well as delaying decision-making. This

finding is similar to that of Kiss (1990) and Locke and Deardan (2005) who caution that if more focus and emphasis is given to developing local communities at the expense of biodiversity this will undermine conservation objectives.

Most of the respondents acknowledged that the conservation authorities had approached the communities to form a partnership and supported local community development programmes (Tables 5.30 and 6.21) such as education programmes, health facilities, job opportunities, infrastructure development, housing, water provision, ecotourism-related businesses and livestock vaccination services. This explains the perception by the majority of the respondents (67% community and 68.9% staff) that community conservation and development programmes had improved the conservation attitudes of the local people in the study areas. Specifically, reduced encroachment by the local people, increased understanding of the importance of the protected areas, decrease in poaching incidences and enhanced interest in conservation among the communities were identified as key positive changes. This is consistent with the findings of Wang *et al.* (2006) and Weladji *et al.* (2003) that show that where park authorities have instituted an extensive number of CCDPs to help resolve conflicts between local people and park management activities, there was an overwhelming support for conservation. Similarly, Bonner (1993: 278) contends that where villagers are involved in park management and benefit from it, “in effect, the park becomes the villagers bank and the wildlife in the park their assets”. The author further asserts that this will provide a powerful incentive against poaching.

#### **7.2.5. Objective Five: Mechanisms for integrated sustainable biodiversity conservation strategies**

The focus of this objective was to provide mechanisms to enhance biodiversity conservation strategies that are sustainable and acceptable to all stakeholders derived from the research findings and relevant literature consulted. Using the research findings as well as the secondary data, the aim was to examine the different kinds of conservation strategies and how they can be appropriately managed in a sustainable manner that meets the dual goal of conservation and rural development.



Most community respondents indicated a low understanding of basic concepts in natural resource management (Table 5.22) compared with the staff respondents (Table 6.15). In terms of the effectiveness of the different categories of conservation systems, generally most respondents felt that all the types of protected areas were good for conservation with slightly more support for national conservation areas being better managed. Additionally, a high proportion of all respondents supported the establishment of strict protected areas (Tables 5.45 and 6.32) under certain situations such as when wildlife is injured or diseased, when there is an increase in encroachment into the protected areas, increase in poaching incidences, increase in adjacent human population, increase in human-wildlife conflicts and when some species are threatened or endangered. This implies that the respondents considered the establishment of protected areas to be important and contended that without them some species will diminish. This reinforces the perception that local communities appreciate the role of protected areas in conserving biodiversity. Similarly, a large proportion of the community respondents (67%) agreed that extractive use by the local people should be allowed in the protected areas, but a high proportion of the staff respondents (75%) disagreed with this position. The support for allowing extractive use was advanced as a mechanism for sustainable utilisation and as an incentive aimed at reducing conflicts with local people through, for example, providing water during times of drought and allowing the local people to harvest over-populated wildlife and collect fuelwood. Those opposed to extractive use were concerned that it is a threat to biodiversity and in contravention to the management objectives of strict protection.

All respondents provided suggestions for protected area authorities in terms of mitigating human-wildlife conflicts, improving the relations with local communities and improving the livelihoods of local people without compromising the state of biodiversity (Tables 5.48 and 6.35) that included allowing limited and controlled access to some resources, sharing gate collection revenues with local communities, giving the community a part of the protected area to manage, development of local infrastructure, compensating for losses caused by wildlife, improved fencing, involving the local people in protected area

management, promoting domestic ecotourism and enhancing interaction with tourists. On the other hand, the local communities were encouraged to contribute towards promoting biodiversity conservation by enhancing collaboration with the PA management through community policing activities, engaging in domestic tourism, adopting alternative sustainable resource utilisation livelihoods and tolerating wildlife on their lands.

### **7.3. Recommendations**

This study looked at three conservation strategies that were assessed and compared in terms of their type of governance and primary management objectives according to the IUCN categorisation of protected areas (IUCN, 2003d; IUCN/WCMC, 1994) with an emphasis on the perceptions of the local communities and the management staff towards their effectiveness in integrating the principle goal of biodiversity conservation and local community development. It is clear that different rationales for conserving biodiversity need to address the issue of protected area management in the context of sustainable development. Primary conservation strategies encompass strict protectionism and approaches that integrate conservation with rural development. This position is echoed by Mulder and Coppolillo (2005) who assert that conservation strategies can be ordered loosely in terms of their emphasis on protectionism and utilisation. This section presents several recommendations in view of the key findings of the study.

#### **7.3.1. Socio-economic impacts on resource use and management**

The findings of this study indicated that there is a need to increase local people's access to benefits from the protected areas and/ or more involvement in resource management in order to enhance their support for conservation and sustainability of the protected areas. Similar findings by Coupe *et al.* (2002) maintain that resource use conflicts may not be resolved if the socio-economic characteristics and management circumstances within the communities are not appropriately dealt with. In promoting conservation initiatives, it is worth considering the nature of the community in terms of livelihoods, gender, age, ethnicity, literacy levels, power and affluence amongst others. Similarly, Jones and Murphree (2001) observe that community conservation programmes should consider the

intra-communal differentiation between community interests and economic strategies in relation to social identity and resource use. The communities in this study were highly heterogeneous in relation to ethnic, cultural, economic and social aspects. These differences among communities explain the different relationships with protected areas in relation to revenue sharing and resource use. The study findings revealed a number of conflicts between different community interests and attitudes towards protected areas, including differences in opinions between the youth and older groups as well as male and female respondents (Table 5.42) and ethnic conflicts in resource use between pastoralists and farmers (personal communication with respondents). Additionally, the patterns of socio-economic differentiation existing within the communities were found to constrain conservation attitudes in the protected areas. For instance, the staff respondents who manifested higher educational and income levels than community respondents supported approaches for management exclusions to control resource use compared to the community respondents. This position is echoed by Cinner and Pollnac (2004 cited in McClanahan *et al.*, 2009: 348) who assert that better educated individuals with more wealth have positive perceptions towards conservation and are more supportive of management restrictions.

This study therefore suggests that if improved socio-economic conditions can resolve resource use conflicts and foster conservation attitudes of the local people they should be strengthened. This will require the development of effective strategies and programmes that empower the local people and designed in relation to the state and condition of the biodiversity in each area, and take into consideration the socio-economic circumstances of the local populations. For example, outreach and conservation education, promotion of ecotourism activities and allowing some forms of resource utilisation are ways in which local people's attitudes towards protected areas can be improved. These were outlined by the respondents such as:

- allowing limited and controlled access to some resources;
- sharing gate collection revenues with local communities;
- allocating a part of the protected area to the community to manage;
- supporting the local people to tolerate wildlife in private lands; and

- promoting domestic ecotourism activities.

Another key finding in this study was the contentious issue concerning access pertaining to the extraction of resources from the protected areas. Whereas the majority of the community respondents indicated a need for access to the protected areas for utilisation of various resources such as water, grazing and firewood collection, the protected area staff respondents reported that such access and extractive use is not and should not be allowed unless under certain conditions. This is another impediment to sustainable biodiversity conservation and a source of conflict between the local people and protected area management. Curran and Tshombe (2001) observe that it is important to recognise that local communities have legitimate rights to certain resources and forced protection is a short-term solution. While exclusions are important for the protection of biodiversity and its associated components, it is recommended in this study that the management activities reflect on ways in which the protected area authorities can improve the livelihoods of the local people highlighted by the respondents in Tables 5.48 and 6.35, such as compensation for losses caused by the establishment of the protected areas and provision of alternatives for resources to which access has been prohibited. The study findings established that a substantial number of respondents agreed that where the community has realised developments and benefits affiliated to the protected areas their conservation attitudes have improved. This argument is supported by Wells *et al.* (1992) who maintain that providing appropriate compensation or substitutes can remove the economic incentive to illegally exploit a protected area's natural resources. The management of the protected areas should therefore consider exploring the sustainable use rationale where some form of use can be executed which is compatible with the protected areas' objectives, for example, access to some resources that are abundant. Similarly, the protected area managers and personnel should be trained and empowered in terms of interacting positively with local people. This will entail understanding that the adoption of community conservation approaches by the local communities is a long-term process of social change. They should be informed about the long-term benefits of communities access to the protected areas for certain resource uses and also made to realise that restrictive approaches imposed without appropriate

consultation and local community buy-in will create tensions and conflicts that will impede and constrain conservation activities. A forum of all the stakeholders can be held where the issues of access can be discussed and joint decisions taken that are favourable to the local people and conservation objectives.

### **7.3.2. Role of government institutions**

The findings of this study also indicated that there is a need to strengthen the current government conservation institutions and policies and in particular the Wildlife Management and Conservation Policy that was largely perceived to be inappropriate and unfair to the interests of the local communities surrounding the protected areas. There are numerous shortcomings and conflicts over conservation policies in Kenya. These include the lack of coordination, resources and inadequate administrative and enforcing systems. A substantial number of respondents indicated that the wildlife policy needs to be revised and its enforcement enhanced. It is therefore recommended in this study that the wildlife policy should be formulated in a participatory way that accommodates the views and interests of all the stakeholders as well as designed according to the IUCN category of protected areas (Table 2.1) which considers where strict protection is most effective and where other categories allowing utilisation would work better. The revised policy should ensure that the diversity among the local ecological and socio-economic conditions of the local people is considered.

According to Weladji *et al.* (2003), a legitimate and efficient wildlife policy should promote the involvement of local people and enhance the interaction of park staff and local people through devolving real power and authority to local people and to existing and appropriate local institutions. This reinforces a recommendation forwarded by a high proportion of the respondents in this study that local communities should be significantly involved in the management activities of the protected areas so as to improve relations with the protected area management staff and enhance the conservation attitudes as it gives them a sense of ownership. Mechanisms for the involvement of local communities in the management of natural resources in their areas should therefore be institutionalised

appropriately. Such involvement, as Cater (1994) and Wells *et al.* (1992) suggest, should not only be in the form of handouts like being hired as temporary employees but should be in real decision-making throughout the programme cycle. This will help to eliminate the general antipathy towards the conservation systems. The protected area staff should also be empowered with adequate resources to implement these policies.

### **7.3.3. Management of threats to conservation strategies**

In terms of the threats to the protected areas, a substantial number of respondents associated the main threats to be linked to the unsustainable exploitation activities of the local communities that include illegal encroachments, wildlife poaching, increase in human population, animosity by local people, physical developments and over-dependency on natural resources. However, as Mulder and Coppolillo (2005) and Wells *et al.* (1992) observe, the underlying causes of many of these proximate threats are complex and lie well beyond the protected area boundaries. These were highlighted in this study by the respondents who identified concerns such as increase in human population, inadequate management capacity, inappropriate conservation policies, climate change and poverty. In relation to climate change, Steffen *et al.* (2004 cited in Bob *et al.*, 2008: 35) illustrate that the proximate drivers are the immediate human activities that drive the change, while underlying drivers are related to the fundamental needs and desires of individuals and groups. Wells *et al.* (1992: 12) further suggest that serious efforts to conserve biodiversity must extend beyond local communities, observing that even though “the activities of local people may well represent the most immediate, direct, and visible threat, in many cases the rising pressures on natural ecosystems derive from laws, policies, social changes, and economic forces over which poor rural people have no influence”. Against this background, this study recommends that the underlying factors motivating local people to undertake unsustainable exploitation activities of natural resources in the protected areas should be thoroughly assessed and adequate efforts made to find ways of how they can be encouraged to adopt alternative strategies. Support for more community conservation and development projects should be improved that can include the establishment of self-sustaining

community projects such as tree nurseries, woodlots and water points outside the protected area boundaries as substitutes for the reduced access to resources inside the protected areas.

#### **7.3.4. Developing sustainable conservation structures**

Owen-Smith and Jacobson (1989 cited in Curran and Tshombe, 2001: 529) assert that appropriate conservation and development projects should enhance conservation objectives that motivate local people to modify potentially destructive resource exploitation practices. Similarly, Ntiama-Baidu (2001) maintains that the externally enforced exclusion of local communities from protected areas and restrictive access to resources do not promote good relations and do not encourage local support for conservation. While the local people indicated an appreciation for the important role played by protected areas in conserving biodiversity, there were instances where the people expressed concerns related to the lack of alternatives, particularly where people had their access to historically exploited resources lost or reduced. The issue of compensation and resettlement of those displaced was raised by the majority of the community respondents who indicated that they were not addressed. Similarly, the staff respondents agreed that even where compensation was undertaken it was not adequate. Cernea (2006) purports that displacement from protected areas includes the restriction on the use of resources imposed on local people living adjacent to the protected areas. This position is echoed by Adams and Hutton (2007) who contend that in the context of protected areas, displacement includes loss of rights to residence and use of land and resources. The displacement of local people from protected areas as well as their resettlement is a contentious issue in Africa that is associated with negative impacts on people's livelihoods that include loss of land, food insecurity, social polarisation and economic marginalisation (Cernea, 1997). The study therefore recommends that the communities displaced should be empowered with sustainable livelihoods strategies. This can be, for example, adequately compensating the communities, proper planning and support for those displaced to resettle and re-establish their livelihoods.

Generally, many conservation efforts are purported to be in the interest of the people. For example, the Kenyan community conservation outreach programme seeks to increase local support for conservation by bringing tangible benefits to communities through wildlife tourism (Barrow *et al.*, 2001). One issue of concern in this study relates to whether the local people meaningfully benefit from conservation initiatives and whether the benefits foster the attitudes of the local people to conserve. Emerton (2001) demonstrates that although benefit distribution is necessary for encouraging communities to engage in conservation, it is not sufficient. She argues that community incentives to conserve vary at different times for different people and depend on the form in which the benefits are received, and on the costs and benefits of other economic activities which compete with wildlife. This position is supported by the findings of Mburu and Birner (2002) which show that investing in wildlife conservation is not financially viable for landowners. The Kenya Wildlife Service through the Wildlife for Development Fund (WDF) implements a revenue sharing scheme where 25% share of revenue from park fees is offered to the communities neighbouring national parks (KWS, 1994) as a mechanism to share benefits and encourage conservation-related enterprise projects. This scheme is favourable where the revenue collected is adequate and the KWS meets its financial needs first. Where conservation benefits are inequitably distributed, it can impede community participation in conservation, particularly where wildlife traverse private and communal lands. Reflecting on the interests of various stakeholders it is imperative to address the issue of how to equitably distribute the benefits derived from the protected areas, for as Hazzah (2007, cited in Groom and Harris, 2008: 248) asserts, perceptions of inequitable distribution and sharing of revenues can engender negative feelings towards protected areas. Additionally, the benefits accruing should be substantial enough for local communities and also inspire the local people to participate more in conservation.

One way of overcoming inequities in conservation benefit distribution is through indirect methods such as permitting limited wildlife utilisation or directly employing local people in the protected areas (Emerton, 2001). The findings in this study revealed very minimal employment of household members in the protected areas. The respondents expressed the



need for the protected areas to provide more opportunities for direct employment of the local people. The form in which benefits are shared should be in a way that provides secure livelihoods to the majority of community members as well as enough to compensate for loss in resource utilisation in the protected areas and wildlife damage. Emphasis should be on how to create more income generating opportunities that can interface with conservation initiatives and interaction with tourists. For example, the local communities using the biodiversity and landscape of protected areas can promote small, medium and micro enterprises (SMMEs) related to ecotourism facilities such as selling curios, artifacts or cultural exhibitions to tourists.

The findings in this study established that the community respondents lacked adequate skills and understanding of key concepts in conservation practice. Community outreach programmes were also found to be wanting as reported by the community respondents that there were minimal community conservation initiatives in the case study areas. Some of the conflicts between the management staff and local communities were related to lack of information about the conservation issues among the communities. This is reflected in the findings of this study that staff visits to the villages were focussed on patrols and not to educate local people. Lack of education, public awareness and understanding of conservation issues have been identified as some of the factors that militate against protected area systems (Ntiamoa-Baidu, 2001; Tshombe and Curran, 2001). Additionally, the World Conservation Strategy (IUCN, 1980) emphasises the need to develop local people to understand and implement conservation approaches. The premise here is that it is virtually challenging to convince and expect local people to change their attitudes towards protected areas and support conservation efforts when they do not understand the conservation issues at stake. For example, Kangwana and Ole Mako (2001) present cases where villagers in a study in Tanzania were punished for transgressing park regulations of which they were not aware. According to Sutherland (2000 cited in Mulder and Coppolillo, 2005: 244), the objectives of conservation education programmes should be:

- to encourage general interest in nature;
- to generate more conservation awareness;

- to bring about specific change in opinion;
- to disseminate specific information; and
- to provide training.

It is therefore suggested in this study that education of both conservation staff and local people on conservation issues should be improved since the shortage of adequately skilled personnel can affect the success of conservation efforts. The study recommends explicit education of the local people on their user rights and practical implications of conservation policies as well as appropriate training of the protected area staff on working with local people. Community outreach programmes that enhance conservation education should be properly designed and implemented to provide a better understanding of the value of biodiversity, the importance of protected area systems in conserving biodiversity and how unsustainable activities by the local communities affect biodiversity. With conservation skills and training the local people can be involved in protected area management through direct employment as tour guides and community resource managers. It is important to note that educational interventions must respect indigenous knowledge and inculcate a culture of sharing information and learning from each other.

#### **7.3.5. Recommendations for further research**

The quest for a sustainable conservation system that can reconcile conservation with rural development will continue to be a dilemma and more pronounced as the human society (population and economy) continue to expand. There are few instances where conservation projects can be initiated without adverse impacts on local people. Wells (1994) argues that there will always be the potential for conflicts in interest between rural development initiatives and the conservation of areas with high ecological value. In this regard, this study recommends further research in relation to the formulation of specific sustainable resource-use plans dependent on the different socio-economic circumstances prevalent in each site and acceptable to all stakeholders. The study also recommends further research on the viability of economic incentives for community involvement in conservation programmes. Reflecting on the political ecology of conservation in the context of

sustainable development, the potential conflicts in interests revolving around the balancing of conservation, economic demands and rural development need more research to examine the overall role of each stakeholder in conservation. This research focussed mainly on the local communities and protected area staff. Further research on the role of other stakeholders including tourists, tour operators and the hospitality sector amongst others should be conducted in the quest for a sustainable biodiversity strategy. The tourists must be inducted on the social-cultural impacts of ecotourism while the local people should have opportunities in relation to skills development to derive economic benefits associated with ecotourism and understand the importance of interacting with the tourists.

#### **7.4. Conclusion**

Protected areas remain a key strategy for conserving biodiversity. However, conservation often involves constraining people's lives and activities. Ntiamoa-Baidu (2001) observes that in the Western world, resources conserved are mainly those for which people have no immediate need, while in Africa, people are being asked to conserve resources that they depend on for their everyday needs. Balancing the global environmental goals with local people's livelihood activities continues to be a growing challenge in contemporary conservation, particularly in developing countries like Kenya. The protest and negative perceptions against conservation means that not all is well. As Brockington and Igoe (2006: 426) argue, "if conservation provoked no protest then it would be unlikely to be doing its job properly". Thus, understanding which factors influence attitudes towards protected areas is critical for choosing the most suitable strategy for conservation. The findings of this study, like many others, indicate that where conservation initiatives are premised on the needs of the people as much as the wildlife they are found to be successful.

Taking three protected areas under different governance types and management objectives in Kenya (Lake Nakuru National Park - government managed, Kimana Community Wildlife Sanctuary - community managed, and Kedong Game Ranch - privately managed) as illustrative case study areas, this study focussed on the perceptions of the local communities towards the respective protected areas and how this relation influences the

conservation attitudes of the local people. The findings of the study indicate that although local people generally appreciate the crucial value of biodiversity and the role of protected areas in conserving it, there is some evidence of resentment towards some management activities of the protected area regulators. Negative attitudes were attributed to perceived problems of living next to the protected areas such as restrictive access to and use of resources from the protected areas, harassment by the conservation enforcing agents, conflicts with wildlife and lack of compensation for damages and losses incurred. Widespread support for the management activities, on the other hand, was associated with perceived benefits to the local populations such as support for educational programmes, social amenities, employment and business opportunities. These reinforce the observation by Kangwana (1993 cited in Bonner 1993: 227) that local people living adjacent to parks are not antagonistic to wildlife but negative about the park systems and the conservationists. There were particularly found to be an antagonistic relationship between the local people and the protected area staff in some cases in this study.

One key observation emanating from this study is that all categories of protected areas vary widely in their primary management objectives, governance types, tenure and organisational conditions under which they operate and the mode through which they are implemented. A common element is the way they integrate different stakeholders in the interest of conservation. The study findings, for instance, indicate that the majority of the community respondents in Kimana, followed by Kedong and lastly Lake Nakuru agreed that the supported community conservation and development programmes had improved the conservation attitudes of the local people. Consequently, it can be concluded that the communally managed protected area (Kimana) is more successful in integrating conservation with rural development where the level and extent to which communities are involved in wildlife management and receive benefits is high. This fulfills the premise of sustainable development in integrating the conservation of biodiversity and the challenge of meeting human needs in and around protected areas. What made Lake Nakuru and Kedong different from Kimana was that they were established mainly on the premise of preservation and utilisation for profit making and that they did not initially involve the local

communities, while in Kimana it is the local communities who asked for the establishment of the sanctuary.

One of the principle objectives of this study was geared towards developing mechanisms that embrace a sustainable biodiversity conservation strategy that is acceptable to all stakeholder groups. This calls for a way to reconcile the contrasting goals of conservation highlighted by Mulder and Coppolillo (2005: 24) that entails “protectionism (that seeks to exclude human consumptive uses other than tourists advocated mainly in national parks) and utilisation (premised in community conservation initiatives including private reserves)”. The management approaches for each particular category of protected area should be advanced in relation to the environmental conditions as well as the socio-economic circumstances of the local communities in order to evolve a system that is suitable for each site. This is in recognition that different sites require different approaches to conservation. This position is supported by Adams and Hulme (2001) who contend that in order to attain a sustainable conservation strategy, the pressing contemporary issue is how to relate and mix strategies that incorporate elements of the traditional narrative of fortress conservation and community conservation. The study revealed that people’s attitudes towards protected areas were site-dependent. This study therefore underlines the fundamental issue of understanding the strengths and weaknesses of each conservation strategy and ultimately reflecting them in specific management approaches. The challenge is therefore to understand how to develop effective mixes of state, community and private action that combine elements of different conservation approaches. This calls for strengthening existing protected area systems in addressing the issue of integrating local communities in conservation initiatives for a significant contribution to long-term biodiversity conservation.

The research findings summarised above together with the multi-conceptual framework adopted in this study adds to the body of knowledge pertaining to protected areas and specifically local community issues and concerns. In relation to the conceptual framework, the study reveals clearly that politics at the local, national, regional and global levels

influence protected area management options and priorities. The literature reviewed and the research findings show that a key stakeholder remains responding to tourism demands at the local community level. The analysis presented here suggests that protected area management and sustainable economic development programmes can only be effective if the impacts of all development investments and interventions designed to foster local economic and conservation incentives are assessed. The assessment can involve adequately defining the policies influencing the participation and involvement of the key stakeholders in conservation practice with a re-examination of assumptions and objectives in the growing policy debate about the social impacts of conservation, particularly the issues of rights and access to resources and benefits from conservation. A renewed emphasis should focus on the relation between biodiversity conservation and local livelihoods through an explicit understanding of the biophysical/ environmental, political, social and economic dimensions of conservation processes, policies and agendas.

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**APPENDIX 1A: COMMUNITY SURVEY QUESTIONNAIRE (ENGLISH)**

Q. No.....
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This questionnaire forms part of the data as partial requirement for a PhD degree at the school of Environmental Sciences, University of KwaZulu-Natal Durban. The research is on communities' perception and assessment of biodiversity conservation strategies in Kenya and is aimed at establishing the performance of the conservation initiatives and their impacts on the attitudes of the local residents.

You are kindly asked to participate in the study. The information you provide is strictly confidential and your personal details will remain anonymous and protected.

*(Tick the box and provide written responses where applicable)*

Name of Park/Reserve/Ranch \_\_\_\_\_

Size of the Park/Reserve/Ranch \_\_\_\_\_

**1. BACKGROUND INFORMATION**

1.1. Gender

1. Male		2. Female	
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1.2. Age of respondent

1. <25 yrs	2. 26-35 yrs	3. 36-45 yrs	4. 46-55 yrs	5. 56-65 yrs	6. >65 yrs
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1.3. Ethnic origin \_\_\_\_\_

1.4. Nationality \_\_\_\_\_

1.5. Home language \_\_\_\_\_

1.6. Highest level of formal education attained.

1. None	
2. Lower Primary (Std 1-4)	
3. Upper Primary (Std 5-8)	
4. Junior High (Form 1-3)	
5. Senior High (Form 4-6)	
6. Certificate (specify)	
7. Diploma (specify)	
8. Degree (specify)	
9. Other (specify)	

1.7. Marital status

1. Single		2. Married		3. Separated	
4. Divorced		5. Widowed			

1.8. Occupation

1. Unemployed		2. Labourer (casual worker)	
3. Domestic		4. Business owner	
5. Civil servant		6. Farmer	
7. Retired/Pensioner		8. Other (specify)	

1.9. Economic activities of respondents.

1. Farming		3. Business	
2. Pastoralism		4. Mixture of cultivation and livestock keeping	

1.10. Number of people living in your household

0	1	2	3	4	5	6	7	8	9	10	>10

1.11. Sources of monthly income

Sources	Amount in Ksh.
1. Pensions	
2. Remittances	
3. Wages/Salary	
4. Farm-harvest	
5. Grants	
6. Other (specify)	
Total	

1.12. For how long have you been living in this area?

1. > 5 years		2. 6-10 years		3. 11-15 years	
4. 16-20 years		5. 21-25 years		6. >25 years	

1.13. Have you or your family lived elsewhere previously?

1. Yes		2. No	
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1.13.1. If yes, why did you move here?

1. Insecurity/Ethnic differences		3. Better prospects	
2. Forced removal /Resettlement		4. Other (specify)	

1.14. Type of dwelling

Type of house	Before 2000	After 2000
1. Own formal house		
2. Own traditional hut		
3. Shack/informal residence		
4. Formal farmhouse		
5. Employer provided house		

1.15. Type of sanitation

Type of sanitation	Before 2000	After 2000
1. Flush toilet		
2. Chemical toilet		
3. Pit latrine		
4. Bucket toilet		
5. None		

1.16. Main sources of domestic water

Sources of water	Before 2000	After 2000
1. Piped tap water on site		
2. Bore-hole communal on site		
3. Rainwater tank on site		
4. Flowing stream/river		
5. Well/Spring communal on site		
6. Dam/pool on site		

1.16.1. If no water on site, what is the average distance to the nearest water source?  
 \_\_\_\_\_ km/m

1.17. Main sources of energy/fuel for your household

Sources of energy	Before 2000	After 2000
1. Electricity from public supply		
2. Gas		
3. Paraffin		
4. Wood		
5. Lantern		
6. Candles		
7. Other (specify)		

1.18. How would you assess the poverty levels of your household?

No poverty	Low	Moderate	High	Very high
1	2	3	4	5

**2. RESOURCE USE AND TENURE**

2.1. Who owns the protected area?

1. Government		2. Private holding	
3. The community		4. Other (specify)	

2.2. Were the indigenous and local communities involved in asking and establishing the protected area?

1. Yes		2. No	
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2.2.1. If yes, was any resettlement involved?

1. Yes		2. No	
--------	--	-------	--

2.2.2. If yes, was there negotiated compensation for any community leaving their territories?

1. Yes		2. No	
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2.3. Where do you reside?

1. Within the Park	
2. 1-100m radius from the Park boundary	
3. 101-200m radius from the Park boundary	
4. 201-300m radius from the Park boundary	
5. 301-400m radius from the Park boundary	
6. >400m radius from the Park boundary	

2.4. What is the size of the land you occupy? \_\_\_\_\_ Acres

2.5. Does your household own the land you occupy?

1. Yes		2. No	
--------	--	-------	--

2.5.1. If yes, what is the type of ownership?

1. Private(with title deed)		2. Private(without title deed)	
3. Communal		4. Tenancy	

2.6. Do you think you will be asked/ forced to move?

1. Yes		2. No	
--------	--	-------	--

2.6.1. If yes, how far away from the protected area are you being relocated?

1. 1-5 km radius from the Park boundary	
2. 6-10 km radius from the Park boundary	
3. 11-15 km radius from the Park boundary	
4. 16-20 km radius from the Park boundary	
5. >20 km radius from the Park boundary	

2.6.2. How will you be compensated?

1. Money	
2. Another piece of land elsewhere	
3. Other (specify)	

2.7. Do you require access into the protected area for the following resource uses?

Resource use	Yes	No
Grazing	1	2
Recreation	1	2
Food gathering	1	2
Hunting	1	2
Cultivation	1	2
Wood collection	1	2
Watering/Irrigation	1	2
Cultural/Social activities	1	2
Other (Specify)	1	2

2.7.1. If yes, are you allowed access into the protected area for such activities?

1. Yes		2. No	
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2.7.2. Under what conditions is access to the protected area (if any) permitted?

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2.8. Do you have any claims to any resources within the protected area?

1. Yes		2. No	
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2.8.1. If yes, please explain

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2.8.2. If yes, have the claims been settled?

1. Yes		2. No	
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2.8.2.1. How much have you received for your claims?

1. <Ksh10 000.00	
2. Ksh11 000.00-Ksh20 000.00	
3. Ksh21 000.00-Ksh30 000.00	
4. Ksh31 000.00-Ksh40 000.00	
5. Ksh41 000.00-Ksh50 000.00	
6. Ksh51 000.00-Ksh60 000.00	
7. Ksh61 000.00-Ksh70 000.00	
8. Ksh71 000.00-Ksh80 000.00	
9. Ksh81 000.00-Ksh90 000.00	
10. Ksh91 000.00-Ksh100 000.00	
11. >Ksh100 000.00	

2.8.2.2. Is the compensation amount enough?

1. Yes		2. No	
--------	--	-------	--

### 3. STATE OF LOCAL BIODIVERSITY

3.1. How would you describe your understanding of the following concepts? (use the scale below)

1. Biodiversity		2. Conservation	
3. Protected areas		4. Ecotourism	

Scale: 1. None      2. Vague      3. General      4. Detailed

3.2. What traditional /indigenous natural resource management/conservation practices existed in your community before the introduction of the protected areas?

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3.3. How was the traditional management systems of natural resources instituted?

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3.4. What was the state of the biological resources in the area before the conservation strategies were initiated?

Extinct	Threatened	Scarce	Rare	Abundant
1	2	3	4	5

3.5. Do you think the decline in local biodiversity is because of threats by the local communities?

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

3.5.1. If yes, what in your opinion are the characteristics of the community that are responsible for the decline of biodiversity?

1. None	
2. Illegal encroachments	
3. Their increasing population	
4. Their poaching of wildlife	
5. Their over-reliance on natural resources	
6. Their unique cultural activities	
7. Other (specify)	

3.5.2. If no, what do you think were the circumstances that led to the erosion of the traditional conservation systems and subsequently the introduction of the protected areas?

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#### 4. IMPACTS OF COMMUNITY-ORIENTED CONSERVATION INITIATIVES

4.1. What community conservation initiatives exist in the area?

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4.2. Do you or any of your household members work at the protected area?

1. Yes		2. No	
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4.2.1. If yes, complete the table below.

Family member	Type of job	Salary per month (see codes below)	Nature of job (see codes below)



Codes

Salary per month	Nature of job
1. <Ksh 2000.00	1. permanent
2. Ksh 2000.00- Ksh 4000.00	2. seasonal
3. >Ksh 4000.00- Ksh 6000.00	3. casual
4. > Ksh 6000.00- Ksh 8000.00	
5. >Ksh 8000.00- Ksh 10 000.00	
6. > Ksh 10 000.00	

4.3. Do you think the introduction of the protected area has positively changed the state of biodiversity?

1. Yes		2. No		3. Don't know	
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4.4.1. Please explain your answer above

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4.4. Do you think the community-oriented conservation and development approaches have improved conservation attitudes among the local people?

1. Yes		2. No		3. Don't know	
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4.4.1. Please explain your answer above

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4.5. How much income do you think is generated by the protected area per month?

1. <Ksh 20000.00	
2. Ksh 21 000.00-Ksh 40 000.00	
3. Ksh 41 000.00-Ksh 60 000.00	
4. Ksh 61 000.00-Ksh 80 000.00	
5. Ksh 81 000.00-Ksh 100 000.00	
6. Ksh 101 000.00-Ksh 120 000.00	
7. >Ksh 120 000.00	

4.6. Do the conservation authorities support local development initiatives?

1. Yes		2. No		3. Don't know	
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4.6.1. If yes, what type/s of development initiatives?

1. Educational	
2. Health	
3. Job creation	
4. Infrastructure	
5. Housing	
6. Water provision	
7. Other (specify)	

4.6.2. If no, what developments would you like to see initiated in your community?

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## 5. ATTITUDES AND RELATIONSHIPS WITH CONSERVATION INSTITUTIONS

5.1. Has anyone from the protected area authority visited your village?

1. Yes		2. No		3. Don't know	
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5.1.1 If yes, what was the purpose of the visit?

1. To educate villagers	
2. To help with village projects	
3. To carry out research	
4. To assess wildlife damage	
5. To Patrol	
6. Other (specify)	
7. Don't know	

5.2. How would you describe the relationship between the community and management/staff of the protected area?

1. Excellent		2. Very good	
3. Good		4. Satisfactory	
5. Poor		6. Very poor	

5.2.1. Give a reason for your choice of answer above?

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5.3. What are the good experiences (benefits) of living next to the protected area?

1. Able to see and know different kinds of wild biodiversity	
2. Get game meat	
4. Help with transport	
5. Get firewood	
6. Business opportunities	
7. Other (specify)	

5.4. What are the bad experiences (problems) of living next to the protected areas?

1. Restrictions on access to, and use of traditional resources	
2. Loss of land and livelihoods	
3. Damage of property and crops by wildlife	
4. Human harassment by wildlife	
5. Disease transmission from wildlife to livestock	
6. Hostility and harassment by conservation enforcing agents	
7. Other (specify)	

5.5. Who (if anybody), has the conservation authority consulted to develop a partnership with?

1. Nobody	
2. The Chief/Sub-Chief	
3. Selected members of the community	
4. Community Based Organisation	
5. The counselor	
6. Other(specify)	
7. Don't know	

5.5.1. If a partnership exists, monies are given to:

1. Community trust fund	
2. The Chief	
3. Counselor	
4. Community based organisation	
5. Don't know	
6. Other (specify)	

5.6. What is your view of government policies on biodiversity conservation?

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5.7. Do you interact with the tourists that visit the protected area?

1. Yes		2. No	
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5.8. How are the attitudes of the local communities towards the tourists to the area?

1. Euphoria (excitement)	
2. Apathy (tourist are taken for granted)	
3. Annoyance (misgivings about tourism)	
4. Antagonism (openly displayed irritations)	
5. Don't know	

5.9. What problems (if any) are associated to tourism in your community?

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## 6. RESPONSES FOR SUSTAINABLE CONSERVATION STRATEGIES

6.1. How effective is conservation of biodiversity in the various institutional alternatives as compared to other protected areas?

	1. Excellent	2. Very good	3. Good	4. Bad	5. Very bad
Indigenous systems					
National parks					
Community reserves					
Private ranches					

6.2. At what situations do you think strict protection strategies should be adopted for biodiversity conservation?

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6.3. To what extent (if any) should the local communities be involved in the activities, decision-making and management of the protected area?

1. Not involved		2. Somewhat involved	
3. Highly involved		4. Don't know	

6.3.1. Please explain the reasons for the choice of answer above.

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6.4. Should villagers be allowed to extract resources in the protected area?

1. Yes		2. No		3. Don't know	
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6.4.1 Please explain your answer above

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6.5. List ways in which the protected area management authority can improve the livelihoods of the local people without compromising the state of wild local biodiversity components.

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6.6. List ways in which you think the community can contribute towards promoting biodiversity conservation.

## APPENDIX 1B: COMMUNITY SURVEY QUESTIONNAIRE (SWAHILI)

Q. No.....

Huu ni utafiti juu ya maono ya wakaazi wa karibu na eneo za hifadhi ili kutathmini ubora wa mbinu na mikakati iliyowekwa kuhifadhi na kutunza bioanui inchini Kenya. Utafiti huu ni kwa ajili ya masomo ya juu katika Kitivo cha Sayansi ya Mazingira, Chuo Kikuu cha KwaZulu-Natal, Durban Afrika Kusini.

Unaombwa kushiriki katika utafiti huu. Habari na maoni yote utakayotoa yatakaa siri na hayatasambazwa ama kunukuliwa popote bila tu kwa idhini yako.

*(Weka alama katika kijisanduku na uandike jibu kwenye nafasi ambayo imepeanwa)*

Jina la hifadhi \_\_\_\_\_

Ukubwa wa hifadhi \_\_\_\_\_

### 1. HABARI YA MSHIRIKI

#### 1.1. Jinsia

1. Mwanamume		2. Mwanamke	
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#### 1.2. Miaka yako

1. Chini ya ishirini na tano (<25)	
2. Kati ya ishirini na sita na thelathini na tano (26-35)	
3. Kati ya thelathini na sita na arobaini na tano (36-45)	
4. Kati ya arobaini na sita na hamsini na tano (46-55)	
5. Kati ya hamsini na sita na sitini na tano (56-65)	
6. Zaidi ya sitini na tano (>65)	

1.3. Mahala pa kuzaliwa \_\_\_\_\_

1.4. Uraia \_\_\_\_\_

1.5. Lugha ya nyumbani \_\_\_\_\_

#### 1.6. Kiwango cha juu cha elimu ambacho umehitimu.

1. Bila elimu	
2. Shule ya msingi ya chini (Darasa la kwanza hadi la nne)	
3. Shule ya msingi ya juu (Darasa la tano hadi la nane)	
4. Shule ya upili ya chini (Kindato cha kwanza hadi cha tatu)	
5. Shule ya upili ya juu ( Kindato cha nne hadi cha sita)	
6. Cheti cha Certificate (eleza )	
7. Cheti cha Diploma ( eleza )	
8. Shahada ya Chuo kikuu (eleza)	
9. Ingingine (eleza)	

1.7. Hali ya ndoa

1. Sina ndoa		2. Nina ndoa		3. Tumetengana	
4. Tumetalakiana		5. Mjane			

1.8. Kazi yako

1. Sina kazi		2. Kibarua	
3. Kazi ya nyumbani		4. Biashara	
5. Serikali		6. Mkulima	
7. Mstaafu		8. Injine (eleza)	

1.10. Maendelezi ya kiuchumi

1. Ukulima		3. Biashara	
2. Ufugaji		4. Ukulima na ufugaji	

1.10. Nambari ya watu unaoishi nao

Pweke	Moja	Mbili	Tatu	Nne	Tano	Sita	Saba	Nane	Zaidi ya nane

1.11. Mapato ya fedha kwa mwaka

Kutoka kwa	Kiwango cha pesa.
1. Pensheni	
2. Mapokezi kutoka kwa jamii yako	
3. Mshahara	
4. Mauzo ya shamba na mifugo	
5. Misaada kutoka kwa wahisani	
6. Injine (eleza)	
Jumla	

1.12. Umeishi hapa kwa muda gani

1. Chini ya miaka 5		2. Kati ya miaka 6-10		3. Kati ya miaka 11-15	
4. Kati ya miaka 16-20		5. Kati ya miaka 21-25		6. Zaidi ya miaka 25	

1.13. Je umewahi wewe ama jamii yako kuishi mahali pengine?

1. Ndio		2. La	
---------	--	-------	--

1.13.1. Kama ndio ni kwanini uliamia hapa?

1. Vita/tofautu za kikabila		3. Kutafuta maisha bora	
2. Kuondolewa kwa nguvu		4. Injine (eleza)	

1.14. Aina ya makao

Aina	Kabla ya mwaka 2000	Baada ya mwaka 2000
1. Nyumba ya kisasa		
2. Nyumba ya muundo wa kale		
3. Nyumba ya kienyenji isiyo rasmi		
4. Nyumba ya shambani		
5. Nyumba ya mwanjili		

1.15. Namna ya usafi

Aina	Kabla ya mwaka 2000	Baada ya mwaka 2000
1. Bila choo rasmi		
2. Choo cha ndoo		
3. Choo cha shimo		
4. Choo cha dawa		
5. Choo cha kuflashi		

1.16. Mahali pa kupata maji

Mahali	Kabla ya mwaka 2000	Baada ya mwaka 2000
1. Maji ya Mfereji		
2. Kisima cha kuchimba		
3. Maji ya tanki ya mvua		
4. Maji ya mto		
5. Kisima cha kawaida		
6. Mbwawa		

1.16.1. Kama hamna maji karibu, ni wastani umbali gani kufikia mahali karibu kupata maji?  
\_\_\_\_\_ km/m

1.17. Aina ya umeme/moto unaotumiwa kwako

Aina	Kabla ya mwaka 2000	Baada ya mwaka 2000
1. Umeme wa sitima		
2. Gesi		
3. Mafuta ya taa		
4. Kuni		
5. Taa ya kienyenji		
6. Mishumaa		
7. Injine (eleza)		

1.18. Hali ya umaskini katika jumuiya yako

Hamna umaskini	Chini	Kadiri	Juu	Juu sana
1	2	3	4	5

**2. UTUMIZI NA UMILIKAJI WA MITAJI YA MALI ASILI**

2.1. Nani mwenye kumiliki hifadhi?

1. Serikali		2. Binafsi	
3. Jumuiya		4. Injine (eleza)	

2.2. Wenye kijiji walihusishwa kuitisha na kuanzisha hii hifadhi?

1. Ndio		2. La	
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2.2.1. Kama ndio, kuna uhamishanji ulifanywa?

1. Ndio		2. La	
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2.2.2. Kama ndio, kuna malipo yaliyoafikianwa baina ya wenye kijiji waliohamishwa kutoka kwa makao yao?

1. Ndio		2. La	
---------	--	-------	--

2.2. Unaishi wapi?

1. Ndani ya hifadhi	
2. Kati ya mita 1 na mita 100 inje ya mpaka wa hifadhi	
3. Kati ya mita 101 na mita 200 inje ya mpaka wa hifadhi	
4. Kati ya mita 201 na mita 300 inje ya mpaka wa hifadhi	
5. Kati ya mita 301 na mita 400 inje ya mpaka wa hifadhi	
6. Zaidi ya mita 400 inje ya mpaka wa hifadhi	

2.3. Ukubwa wa shamba/ardhi unayoishi \_\_\_\_\_ Acres

2.4. Je, unamiliki shamba unayoishi?

1. Ndiyo		2. La	
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2.4.1. Kama ndiyo, eleza aina ya umiliki

1. Binafsi na hati ya umiliki		2. Binafsi bila hati ya umiliki	
3. Ujumuiya		4. Kukondisha	

2.5. Je, unadhani utaulizwa/utalazimishwa kuhama hapa?

1. Ndiyo		2. La	
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2.5.1. Kama ndiyo, umbali gani kutoka kwa hifadhi unakohamishwa?

1. Kati ya kilomita 1 na kilomita 5 mbali na mpaka wa hifadhi	
2. Kati ya kilomita 6 na kilomita 10 mbali na mpaka wa hifadhi	
3. Kati ya kilomita 11 na kilomita 15 mbali na mpaka wa hifadhi	
4. Kati ya kilomita 16 na kilomita 20 mbali na mpaka wa hifadhi	
5. Zaidi ya kilomita 20 mbali na mpaka wa hifadhi	

2.5.2. Utalipwa kwa njia gani kuamishwa kutoka hapa?

1. Pesa	
2. Kupewa shamba/ardhi mahali pengine	
3. Inginge (eleza)	



2.6. Je, unahitaji ruhusa kuingia katika hifadhi ili kutumia mitaji ya maliasili humo?

Matumizi	Ndiyo	La
Kulisha mifungo	1	2
Burudani	1	2
Kukusanya chakula	1	2
Kuwinda	1	2
Kulima	1	2
Kuokota kuni	1	2
Kuteka maji	1	2
Taaluma za kitamaduni	1	2
Ingingine (eleza)	1	2

2.6.1. Kama ndiyo, je unaruhusiwa kuingia katika hifadhi kutekeleza matumizi hayo?

1. Ndiyo		2. La	
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2.6.2. Kwa masharti yapi (kama yapo) unaruhusiwa kuingia katika hifadhi?

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2.7. Una madai yeyote kuhusu mali asili ndani ya hifadhi?

1. Ndiyo		2. La	
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2.7.1. Kama ndiyo, tafadhali eleza.

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2.7.2. Kama ndiyo, je madai yako yamelipwa?

1. Ndiyo		2. La	
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2.7.2.1. Kiasi gani cha pesa ambacho umelipwa madai hayo?

1. Chini ya shilingi elfu kumi (<10,000.00)	
2. Kati ya elfu kumi na moja na elfu ishirini (11,000-20,000)	
3. Kati ya elfu ishirini na moja na elfu thelathini (21,000-30,000)	
4. Kati ya elfu thelathini na moja na elfu arobaini (31,000-40,000)	
5. Kati ya elfu arobaini na moja na elfu hamsini (41, 000-50,000)	
6. Kati ya elfu hamsini na moja na elfu sitini (51, 000-60, 000)	
7. Kati ya elfu sitini na moja na elfu sabini (61, 000-70, 000)	
8. Kati ya elfu sabini na moja na elfu themanini (71,000-80,000)	
9. Kati ya elfu themanini na moja na elfu tisini (81, 000-90, 000)	
10. Kati ya elfu tisini na moja na elfu mia moja (91, 000-100 000)	
11. Zaidi ya elfu mia moja (>100 000)	

2.7.2.2. Je malipo uliyopata kwa madai yako yanatosha?

1. Ndiyo		2. La	
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### 3. HALI YA BIOANUAI

3.1 Nieleze vile unaelewa maana ya maneno haya ukitumia dhana zilizopeanwa

1. Bioanuai		2. Kuhifadhi	
3. Hifadhi		4. Utalii	

Scale: 1. Sina habari      2. Kiasi      3. Jumla      4. Kinaganaga

3.2. Ni njia gani za kienyeji ambazo utumizi na utuzaji wa maliasili uliendesha katika jumuiya yenu kabla ya uzinduzi wa hifadhi za leo?

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3.3. Hifadhi za kienyeji zilisimamiwa vipi

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3.4. Hali ya bioanuai ilikuwa vipi kabla ya uazilishaji wa hifadhi?

Malizika/toweka	Tishika/hatari ya kutoweka	Haba	Nadra	Jaa
1	2	3	4	5

3.5. Je unafikiri kufifia na kupotea kwa maliasili ni kwa ajili ya matisho kutoka kwa wanakijiji?

1. Ndiyo		2. La		3. Sina jawabu	
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3.5.1. Kama ndiyo, kwa maoni yako ni tabia gani za wanakijiji ambazo zimesababisha kufifia kwa mitaji ya viumbe asili?

1. Hakuna	
2. Kudukiza kusiyo halali	
3. Kuongezeka kwa wingi wa watu	
4. Kuwinda wanyama bila kibali	
5. Kutegemea zaidi maliasili	
6. Mila zilizopitwa na wakati	
7. Ingingine (eleza)	

3.5.2. Kama siyo, unafikiri ni nini chanzo cha kusabaratika kwa hifadhi za kale na kuanzishwa kwa hifadhi za leo?

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### 4. ADHARI ZA KUENDELEZWA KWA HIFADHI ZA KIJUMUIYA

4.1. Ni njia gani ambazo hifadhi za kijumuiya zinaendeshwa katika kijiji?

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4.2. Je kunaye jamaa wa nyumba yako ambaye anafanya kazi katika hifadhi?

1. Ndiyo		2. La	
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4.2.1. Kama ndiyo, kamilisha hapa chini.

Jamaa	Aina ya kazi	Mshahara kwa mwezi (changua zilizopeanwa chini)	Hali ya kazi (changua zilizopeanwa chini)

vidokezo

Mshahara kwa mwenzi 7. Zaidi ya elfu mbili (< 2000.00) 8. Kati ya zaidi ya elfu mbili na elfu nne (2000-4000) 9. Kati ya zaidi ya elfu nne na elfu sita (> 4000- 6000) 10. Kati ya zaidi ya elfu sita na elfu nane (> 6000- 8000) 11. Kati ya zaidi ya elfu nane na elfu kumi (> 8000- 10 000) 12. Zaidi ya elfu kumi (>10 000)	Hali ya kazi 4. Kudumu 5. Muda 6. Kibarua
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4.3. Je unafikiri kutegwa kwa hifadhi za leo kumeboresha hali ya mitaji ya viumbe asili?

1. Ndiyo		2. La		3. Sina jawabu	
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4.4.1. Tafadhali eleza sababu ya chaguo la jibu lako hapo juu?

4.4. Je, unafikiri hifadhi za kijumuiya na maendeleo kijijini zimeboresha mtazamo wa wanakijiji juu ya kuhifadhi mitaji ya viumbe asili?

1. Ndiyo		2. La		3. Sina jawabu	
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4.4.1. Tafadhali eleza sababu ya chaguo la jibu lako hapo juu?

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4.5. Ni kiasi gani cha pesa ambacho unafikiri kinapatikana kutoka kwa hifadhi kwa mwezi?

1. Zaidi ya elfu ishirini (<Ksh 20000.00)	
2. Kati ya elfu ishirini na moja na elfu arobaini (Ksh 21 000.00-Ksh 40 000.00)	
3. Kati ya elfu arobaini na moja na elfu sitini (Ksh 41 000.00-Ksh 60 000.00)	
4. Kati ya elfu sitini na moja na elfu themanini (Ksh 61 000.00-Ksh 80 000.00)	
5. Kati ya elfu themanini na moja na elfu mia moja 81 000.00-Ksh 100 000.00)	
6. Kati ya elfu mia moja na moja na elfu mia ishirini (Ksh101 000.00-120 000.00)	
7. Zaidi ya elfu mia ishirini (>Ksh 120 000.00)	

a. Je, usimamizi wa hifadhi unasaidia miradi ya maendeleo kijijini?

1. Ndiyo		2. La		3. Sina jawabu	
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4.6.1. Kama ndiyo, ni miradi ipi inayosiadiwa?

1. Masomo/Elimu	
2. Afya	
3. Ubuni wa Kazi	
4. Muundombinu	
5. Nyumba /Makazi	
6. Maji	
7. Injine (eleza)	

4.6.2. Kama siyo, ni miradi ipi ambayo ungetamani ianzishwe katika kijiji?

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## 5. MTAZAMO NA UHUSIANO NA MBINU ZA USIMAMIZI WA HIFADHI

5.1. Je kuna yeyote kutoka kwa usimamizi wa hifadhi ambaye hutembelea kijiji village?

1. Ndiyo		2. La		3. Sina jibu	
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5.1.1 Kama ndiyo, ni kwa azimio gani hutembelea kijiji?

1. Kuelimisha wanakijiji	
2. Kusaidia miradi ya kijiji	
3. Kufanya utafiti	
4. Kutathmini hasara ya wanyamapori	
5. Kushika doria	
6. Injine (eleza)	
7. Sina jawabu	

5.2. Je uhusiano wa wanakijiji na wasimamizi wa hifadhi uko namna gani?

1. Bora zaidi		2. Mzuri sana	
3. Mzuri		4. Maridhawa	
5. Mbaya		6. Mbaya sana	

5.2.1. Tafadhali eleza sababu ya chaguo la jibu lako hapo juu?

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5.3. Ni faida gani unayopata kuishi karibu na hifadhi?

1. Fursa ya kuona na kujua aina za wanyama pori	
2. Hupata nyama pori	
4. Usaidizi wa usafiri	
5. Kuni	
6. Fursa ya biashara	
7. Injine (eleza)	

5.4. Ni shida zipi unazopata kuishi karibu na hifadhi?

1. Kuzuiwa kufikia na kutumia mitaji ya maliasili ya kienyeji	
2. Kupoteza ardhi na hali ya kujiudumu kimaisha	
3. Hasara ya mali na mazao inayosababishwa na wanyamapori	
4. Kusumbuliwa kwa watu na wanyamapori	
5. Kuenezwa kwa magojwa na wanyamapori kwa mifugo	
6. Uhasama na kuonewa na wafanyikazi wa hifadhi	
7. Ingingine (eleza)	

5.5. Ni nani ambaye usimamizi wa hifadhi umeendea ili kuanzisha ushirikiano na wanakijiji?

1. Hakuna	
2. Chifu/ Naibu wa Chifu	
3. Mjumbe	
4. Jumuiya ya maendeleo ya kijiji	
5. Kiongozi wa kijiji ambaye amechanguliwa na wanakijiji	
6. Ingingine (eleza)	
7. Sina jibu	

5.5.1. Kama uhusiano hupo fedha zinapewa nani?

1. Akiba ya Jumuiya	
2. Chifu/naibu wa chifu	
3. Mjumbe	
4. Jumuiya ya maendeleo ya kijiji	
5. Sina jibu	
6. Ingingine (eleza)	

5.6. Nini mtazamio wako juu ya sera za serikali kwa uhifadhi wa mitaji ya viumbe asili?

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5.7. Je unaingiana na watalii wanaotembelea hifadhi?

1. Ndiyo		2. La	
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5.8. Mtazamo wa wanakijiji kwa watalii huko aji?

1. Msisimuko	
2. Ubaridi	
3. Kero	
4. Uhasama	
5. Sina jawabu	

5.9. Ni shida gani zinahusishwa na utalii katika kijiji chako?

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## 6. MIKAKATI ENDELEVU YA MBINU ZA KUHIFADHI MALI ASILI

6.1. Linganisha ufanikishi wa mbinu mbalimbali za kuhifadhi mitaji ya viumbe asili.

	1. Bora	2. Nzuri sana	3. Nzuri	4. Baya	5. Baya sana
Hifadhi za kale za kienyeji					
Hifadhi za serikali					
Hifadhi za jumuiya					
Hifadhi za binafsi					

6.2. Ni wakati gani ambao unafikiri hifadhi zinahitaji zizuiwe kabisa

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6.3. Je ni vipi unadhani wanakijiji wanaweza kushirikishwa katika uendeshaji wa hutuzi wa hifadhi?

1. Hata washirikishwe		2. Washirikishwe kiasi	
3. Washirikishwwe kamili		4. Sina jibu	

6.3.1. Eleza sababu za jibu lako hapo juu

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6.4. Je, unafikiri nimuhimu kuruhusu wanakijiji kusindika mali asili kutoka kwa hifadhi

1. Ndiyo		2. La		3. Sijui	
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6.4.1 Tafadhali eleza sababu za jibu lako hapo juu

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6.5. Taja jinsi na taratibu ambazo usimamizi wa hifadhi unaweza kuboresha hqli ya maisha ya wanakijiji bila kudhuru hali ya mitaji ya viumbe asili

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6.6. Taja jinsi na taratibu mbazo wanakijiji wanaweza kuchangia uboreshaji wa kuhifadhi mitaji ya viumbe asili

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ASANTE SANA KWA WAKATI WAKO KUJIBU MASWALI HAYA.

**APPENDIX 2: PERSONNEL SURVEY QUESTIONNAIRE**

Q. No.....

This questionnaire data forms part of the requirement for a PhD degree at the school of environmental sciences, University of KwaZulu-Natal Durban. The research is on communities' perception of biodiversity conservation strategies in Kenya and is aimed at establishing the impacts of the conservation institutions on the local residents.

You are kindly asked to participate in the study. The information you provide is strictly confidential and your personal details will remain anonymous and protected.

*(Tick the box and provide written responses where applicable)*

Name of Park/Reserve/Ranch \_\_\_\_\_

Size of the Park/Reserve/Ranch \_\_\_\_\_

1. Background information

1.1. Job title: \_\_\_\_\_

1.2 Gender of respondent

1. Male	2. Female
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1.3. Age of respondent

1. <25yrs	2. 26-35 yrs	3. 36-45 yrs	4. 46-55 yrs	5. 56-65 yrs	6. >65 yrs
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1.4. Marital status

1. Single	2. Married	3. Separated	
4. Divorced	5. Widowed		

1.5. Highest level of formal education attained.

1. None	
2. Lower Primary (std 1-4)	
3. Upper Primary (std 5-8)	
4. Junior High (Form 1-3)	
5. Senior High (Form 4-6)	
6. Certificate (specify)	
7. Diploma (specify)	
8. Degree (specify)	
9. Other (specify)	

1.6. Ethnic origin \_\_\_\_\_

1.7. Nationality \_\_\_\_\_

1.8. Do you live within the surrounding community?

1. Yes	2. No
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1.8.1. If yes, how far from the protected area boundaries?

1. Within the Park	
2. 1-100m radius from the Park boundary	
3. 101-200m radius from the Park boundary	
4. 201-300m radius from the Park boundary	
5. 301-400m radius from the Park boundary	
6. >400m radius from the Park boundary	

1.9. How long have you worked at the protected area?

1. < 5 years	2. 5-10 years	3. 11-15 years	4. > 15 years
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1.10. What is your income in Ksh per month?

1. Ksh 4 000.00- Ksh 8 000.00	
2. >Ksh 8 000.00- Ksh 12 000.00	
3. > Ksh 12000.00- Ksh 16000.00	
4. >Ksh 16 000.00- Ksh 20 000.00	
5. > Ksh 20 000.00-Ksh 24 000.00	
6. >Ksh 24 000.00	

## 2. RESOURCE MANAGEMENT AND CONSERVATION ISSUES

2.1. Who owns the protected area?

1. Government		2. Private holding	
3. The community		4. Other (specify)	

2.3. Were the indigenous and local communities involved in asking and establishing the protected area?

1. Yes		2. No	
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2.3.1. If yes, was any resettlement involved?

1. Yes		2. No	
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2.3.2. If yes, was there negotiated compensation for any community leaving their territories?

1. Yes		2. No	
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2.4. Are the local people allowed access into the protected area for the following resource uses?

Resource use	Yes	No
Grazing	1	2
Recreation	1	2
Food gathering	1	2
Hunting	1	2
Cultivation	1	2
Wood collection	1	2
Watering/Irrigation	1	2
Cultural/Social activities	1	2
Other (Specify)	1	2



2.4.1. If yes, under what condition is access to the protected area (if any) permitted.

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2.5. What management practices do you undertake to enforce the conservation of biodiversity within the protected area?

1. Fencing	
2. Patrolling by armed guards/rangers	
3. Collaborating with local communities	
4. Conservation education and outreach	
5. Other(specify)	

2.6. How are claims from the local communities over resource ownership and compensation settled?

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2.7. How much has the management spent on claims for the past one year?

1. <Ksh10 000.00	
2. Ksh 11 000.00-Ksh 20 000.00	
3. Ksh 21 000.00-Ksh 30 000.00	
4. Ksh 31 000.00-Ksh 40 000.00	
5. Ksh 41 000.00-Ksh 50 000.00	
6. Ksh 51 000.00-Ksh 60 000.00	
7. Ksh 61 000.00-Ksh 70 000.00	
8. Ksh 71 000.00-Ksh 80 000.00	
9. Ksh 81 000.00-Ksh 90 000.00	
10. Ksh 91 000.00-Ksh 100 000.00	
11. >Ksh 100 000.00	

2.8. Do you think the compensation amount is normally enough?

1. Yes		2. No	
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### 3. STATE OF LOCAL BIODIVERSITY

3.1 How would you describe your understanding of the following concepts? (use the scale below)

1. Biodiversity		2. Conservation	
3. Protected areas		4. Ecotourism	

Scale: 1. None      2. Vague      3. General      4. Detailed

3.2. Please rank the immediate concerns/threats (if any) to the protected area concerning biodiversity conservation.

	High	Moderate	Low	No concern
1. Poaching				
2. Illegal encroachments by the local communities				
3. Pollution				
4. Animosity by the local people				
5. Inadequate management resources				
6. Physical developments				
7. Other (specify)				

3.3. Do you think the biodiversity loss is because of threats by the local communities?

1. Yes		2. No		3. Don't know	
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3.3.1. If yes, what in your opinion are the characteristics of the community that are responsible for the decline of biodiversity?

1. None	
2. Illegal encroachments	
3. Their increasing population	
4. Their poaching of wildlife	
5. Their over-reliance on natural resources	
6. Their unique cultural activities	
7. Other (specify)	

3.3.2. If no, what do you think were the circumstances that led to the erosion of the traditional conservation systems and subsequently the introduction of the protected areas?

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#### 4. IMPACTS OF COMMUNITY-ORIENTED CONSERVATION INITIATIVES

4.1. What community conservation initiatives exist in the area?

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4.2. Do you think the introduction of the protected area has positively changed the state of biodiversity?

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

4.2.1. Please explain your answer above

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4.3. Do you think the community-oriented conservation and development approaches have improved conservation attitudes among the local people?

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

4.3.1. Please explain your answer above

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4.4. How much income is generated by the protected area per month?

1. <Ksh 20 000.00	
2. Ksh 21 000.00-Ksh 40 000.00	
3. Ksh 41 000.00-Ksh 60 000.00	
4. Ksh 61 000.00-Ksh 80 000.00	
5. Ksh 81 000.00-Ksh 100 000.00	
6. Ksh 101 000.00-Ksh 120 000.00	
7. >Ksh 120 000.00	

4.5. Does the conservation authorities support local development initiatives?

1. Yes		2. No		3. Don't know	
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4.5.1. If yes, what type/s of development initiatives?

1. Education	
2. Health	
3. Job creation	
4. Infrastructure	
5. Housing	
6. Water provision	
7. Other (specify)	

4.6.2. If no, what developments are the authorities considering to initiate in the community?

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## 5. RELATIONSHIPS AND ATTITUDES OF THE LOCAL PEOPLE

5.1 Does anyone from the protected area authority visit the local village?

1. Yes		2. No		3. Don't know	
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5.1.1. If yes, what is the purpose of the visits?

1. To educate villagers	
2. To help with village projects	
3. To carry out research	
4. To assess wildlife damage	
5. To Patrol	
6. Other	

5.2. How would you describe the relationship between the community and management/staff of the protected area?

1. Excellent		2. Very good	
3. Good		4. Satisfactory	
5. Poor		6. Very poor	

5.2.1. Give a reason for your choice of answer above?

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5.3. Who (if anybody), has the conservation authority consulted to develop a partnership with?

1. Nobody	
2. The Chief/Sub-Chief	
3. Selected members of the community	
4. Community Based Organisation	
5. The counselor	
6. Other(specify)	
7. Don't know	

5.3.1. If a partnership exists, monies are given to:

1. Community trust fund	
2. The Chief	
3. Counselor	
4. Community based organisation	
5. Don't know	
6. Other (specify)	

5.4. What is your view of government policies and institutions of biodiversity conservation?

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5.5. How would you describe the tourists to the protected area?

1. Mostly non-African foreigners	
2. Mostly African foreigners	
3. Mostly Kenyan citizens from outside the area	
4. Mostly Kenyan local people from the surrounding area	
5. Don't know	

5.6. Are the local people allowed to interact with the tourists that visit the protected area?

1. Yes		2. No	
--------	--	-------	--

5.7. How are the attitudes of the local people towards the tourists to the area?

1. Euphoria (excitement)	
2. Apathy (tourist are taken for granted)	
3. Annoyance (misgivings about tourism)	
4. Antagonism (openly displayed irritations)	
5. Don't know	

5.8. What problems (if any) are associated to tourism in the local community?

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**6. RESPONSES FOR SUSTAINABLE CONSERVATION STRATEGIES**

6.1. How effective is conservation of biodiversity in the various institutional alternatives as compared to other protected areas?

	1. Excellent	2. Very good	3. Good	4. Bad	5. Very bad
Indigenous systems					
National parks					
Community reserves					
Private ranches					

6.2. At what situations do you think strict protection strategies should be adopted for biodiversity conservation?

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6.3. To what extent (if any) should the local communities be involved in the activities, decision-making and management of the protected area?

1. Not involved		2. Somewhat involved	
3. Highly involved		4. Don't know	

6.3.1. Explain the reasons for the choice of answer above.

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6.4. Should villagers be allowed to extract resources in the protected area?

1. Yes		2. No		3. Don't know	
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6.4.1 Please explain your answer above

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6.5. List ways in which the protected area management authority can improve the livelihoods of the local people without compromising the state of wild biodiversity conservation.

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6.6. List ways in which you think the community can contribute towards promoting biodiversity conservation.

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### **APPENDIX 3: INTERVIEW SCHEDULE**

The questions below will be used as a guide in probing for information in interviews regarding the relationships, attitudes and responses of the key informants and resource persons of various management authorities in the study sites. Depending on the position and role of the interviewee in the area, some questions may not apply.

Name of Authority \_\_\_\_\_

Occupational position of interviewee \_\_\_\_\_

#### **A. BACKGROUND INFORMATION**

1. How big is the protected area (by size and personnel numbers)?
2. When was the protected area established?
3. Who owns the protected area?
4. What were the objectives for the establishment of the protected area?
5. What percentage of the employees is permanent?
6. What percentage of the employees is on contract?
7. What percentage of the employees are casual labours?
8. What is the gender breakdown of the personnel?
9. What is the racial breakdown of the personnel?
10. Do you have a biodiversity conservation policy?
11. Do you live within the surrounding community?
- 11.1. If yes, how far from the protected area boundaries?
12. How long have you worked at the protected area?

#### **B. RESOURCE USE, MANAGEMENT AND CONSERVATION ISSUES**

13. What natural resources does the community depend on within or close to the protected area?
14. Who owns the natural resources in the protected area?
15. Was the protected area imposed over the will of indigenous and local communities or were the communities in agreement with the establishment of the protected area and its key management objectives?
16. Do the local communities have access to, and use of any of the natural resources?
17. Under what conditions is access to and use of the resources if any permitted?
18. What management practices do you undertake to enforce the conservation of biodiversity within the protected area?
19. How are claims from the local communities over resource compensation settled?
20. How much has the management spent on claims for the past one year?
21. Do you think the compensation amount is normally enough?

#### **C. STATE OF LOCAL BIODIVERSITY**

22. How was the traditional/indigenous management of the natural resources enhanced before the introduction of protected areas?
23. What circumstances/threats to biodiversity necessitated the introduction of protected areas and subsequently integrated conservation and development approaches?

24. a) On a scale of 1-5 where 1 is extinct and 5 is abundant, how would you rate the state of biodiversity in the area before the introduction of the protected area?

Extinct	Threatened	Scarce	Rare	Abundant
1	2	3	4	5

- b) On a scale of 1-5 where 1 is extinct and 5 is abundant, how would you rate the state of biodiversity in the area after the introduction of the protected area?

Extinct	Threatened	Scarce	Rare	Abundant
1	2	3	4	5

25. What are the current concerns/threats (if any) to the protected area concerning biodiversity conservation?
26. a) Do you think the decline of biodiversity is because of threats by the local communities?  
b) If yes, what in your opinion are the characteristics of the community that are responsible for the decline of biodiversity?
27. Do you think the introduction of the protected area has positively changed the state of biodiversity?

#### D. IMPACTS OF COMMUNITY-ORIENTED CONSERVATION INITIATIVES

28. How much income is generated by the protected area per month in Ksh?

1. <Ksh2000.00	
2. Ksh21 000.00-Ksh40 000.00	
3. Ksh41 000.00-Ksh60 000.00	
4. Ksh61 000.00-Ksh80 000.00	
5. Ksh81 000.00-Ksh100 000.00	
6. Ksh101 000.00-Ksh120 000.00	
7. >Ksh120 000.00	

29. a) Does the management support local development initiatives?  
b) If yes, what type/s of development initiatives?  
c) If no, what developments are the authorities considering to initiate in the community?
30. What community conservation initiatives exist in the area?
31. Do you think the community-oriented conservation and development approaches have improved conservation attitudes among the local people?

#### E. RELATIONSHIP WITH THE LOCAL PEOPLE

32. a) Does anyone from the protected area authority visit the local village?  
b) If yes, what is the purpose of the visits?
33. How would you describe the relationship between the community and management/staff of the protected area?
34. Who (if anybody), has the conservation authority consulted to develop a partnership with?
35. What is your view of government policies on biodiversity conservation?
36. a) Are the local people allowed to interact with visitors/tourists to the protected area?  
b) How are the attitudes of the local people towards the visitors/tourists?
37. What problems (if any) are associated to visitors/tourism in the local community?

**F. RESPONSES FOR SUSTAINABLE CONSERVATION STRATEGIES**

38. On a scale of 1-5 where 1 is very bad and 5 is excellent compare the performance of the different institutional arrangements of protected areas in conserving biodiversity?

	1. Very bad	2. Bad	3. Good	4. Very good	5. Excellent
Indigenous systems					
National parks					
Community reserves					
Private ranches					

39. Are there situations that you think strict protection should be adopted for biodiversity conservation?

40. Do you think the local communities should be involved in the management activities of the protected area?

41. Do you think the local people should be allowed to extract resources from the protected area?

42. In what ways do you think the protected area management authority can improve the livelihoods of the local people without compromising the state of wild biodiversity components?

43. In what ways do you think the community can contribute towards promoting biodiversity conservation?

THANK YOU VERY MUCH FOR YOUR TIME AND COOPERATION