AN ASSESSMENT OF THE LEGAL TOOLS FOR MANAGEMENT OF HUMAN-WILDLIFE CONFLICTS WITHIN MT.KENYA NATIONAL PARK IN MERU COUNTY, KENYA.

BY

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DECLARATION

I, Jackline Makandi Murithi do hereby declare that this is my original work and that it has not been submitted for an award of Degree at University of Nairobi or any other institution of higher learning.

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Jackline Makandi Murithi **Date**

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This thesis has been submitted with our approval as university supervisors.

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Signature **Date**

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DEDICATION

I dedicate this to my parents, my father Solomon Murithi and my mother Sarah Murithi who have worked tirelessly to see me succeed in life. Thank you for your love, support and trust in me. Also to my late Grandmothers Mary Zablon and Evangeli Ruiga M'Mpuria who did not live to see the fruits of their granddaughter, thank you for the love you showed me, I will forever miss you!

ABSTRACT

This study examined the management of human-wildlife conflicts within Mt. Kenya National Park in Meru County, Kenya. HWC has been a major challenge between the local community and wildlife in the Park through destruction of crops and property, livestock depredation and disease transmission, attacks and killing of people. Little research has been done and documented. The specific objectives of the study were to; establish the mechanisms that the local communities use to manage HWCs within Mt. Kenya National Park in Meru County of Kenya; assess the effectiveness of the legal tools for management of HWCs within Mt. Kenya National Park towards wildlife; establish the role of KWS in the management of HWCs within Mt. Kenya National Park and determine the challenges faced in the management of HWCs within Mt. Kenya National Park. The study adopted a descriptive research with units of analysis being households. Out of 875 Households in Gitimene in Naari, 90 Households were sampled purposively from those living in close proximity to the Park. Data was collected through use of Interview guidelines, Key Informant Guide, Observational Checklist and a camera. Consistency was ensured by test-retest reliability while validity by criterion related validity. The ethics were observed to the letter to ensure integrity of the research. The study results were analyzed through use of Microsoft Excel in terms of percentages and were presented in terms of bar charts, pie charts and tables. The study established that HWC has been a long time problem having existed for over 20 years ago. It was established that the mechanisms used by the local community to manage HWCs were effective in the short term since the wildlife have become habituated to the mechanisms. The study also established that majority of the respondents were not aware of the provisions of Wildlife Conservation and Management Act of 2013. It was also established that KWS does not adequately help people solve HWC due to lack of manpower, adequate vehicles and fuel. Moreover, the study also established the various challenges encountered by the community and the various institutions in management of human-wildlife conflicts. The study recommend; involving the local community in the management of HWCs, amendment of WCMA, allocation of more funds to KWS to enhance its capacity and awareness creation on WCMA to the community.

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LIST OF ACRONYMS AND ABBREVIATIONS

CWA - Community Wildlife Association

CS - Cabinet Secretary

CBD - Convention on Biological Diversity

CITES - Convention on International Trade in Endangered Species of Wildlife Fauna and Flora

CMS - Convention on Conservation of Migratory species of Wild Animals

CoK - Constitution of Kenya

ELC - Environment and Land Court

EU - European Union

FAO - Food and Agriculture Organization

HWCs - Human Wildlife Conflicts

KFS - Kenya Forest Service

KWS - Kenya Wildlife Service

NPs - National Parks

NGOs - Non Governmental Organizations

NEMA - National Environment Management Authority

NET - National Environment Tribunal

PAs - Protected Areas

UNEP - United Nations Environmental Programme

UNCED - United Nations Conference on Environmental Development

WWF - World Wildlife Fund

WCMA - Wildlife Conservation and Management Act

CHAPTER ONE

INTRODUCTION

1.1. Background to the study

"Human-wildlife conflicts (HWCs) are any interaction between humans and wildlife that result in negative impacts on human social, economic or cultural life, on the conservation of wildlife populations, or on the environment."[1] They occur when the needs of people or wildlife impinge on each other.[2]

In Kenya, HWCs dates back to as early as 1900 when the man-eaters of Tsavo killed railway employees.[3] Nevertheless, the conflicts were still there far back than that although there is no recorded evidence since human beings have always interacted with wild animals in one way or the other.[4] Increase of the HWCs in Kenya can be traced back to 1945 with the policy shift which focused on protection of wildlife through the Protected Areas (PAs) and vesting wildlife resources in the government.[5] For instance FAO reported that hundreds of people had been killed as a result of conflicts with elephants in Kenya.[6] Before the policy shift, Kenyan communities historically lived in harmony with wildlife before the coming of the colonizers.[7] With the coming of colonizers, the existing systems were viewed as inferior and a western method was adopted.[8] The British wanted protected lands so that they could continue their big-game hunting safaris and to cater for their recreational needs.[9] Various ordinances were enacted to regulate access to and utilization of wildlife.[10] In 1898, The Game Ordinance was enacted that marked the beginning of legislative control over wildlife in Kenya.[11] The

[1] World Wildlife Fund, -SARPO, 'Human Wildlife Conflict Manual. Harare, Zimbabwe' (2005)
[2] www.fao.org/forestry/wildlife-partnership (2015)
[3] Muigua K, Wamukoya D & Kariuki F, '*Natural Resources and Environmental Justice in Kenya'* Glenwood Publishers Limited (2015) 221.
[4] Makini J A, 'Effectiveness of the management strategies of human-wildlife conflicts in Kitengela dispersal area, Kajiado County, Kenya' (2009) 8
[5] Muigua *et al* (n 3) 221.
[6] Food and Agriculture Organization of, 'Sustainable Wildlife Management and Human−Wildlife Conflict' [2015] CPW 1
[7] Chongwa M B, 'The History and Evolution of National Parks in Kenya' (2012) The 29 George Wright Forum 39
[8] Wamukoya D, 'Devolution Of Wildlife Management in Kenya to Enhance Community Participation: An Assessment of Kenyan Legal Frameworks' [2013]
[9] Chongwa (n 7)
[10] Muigua *et al* (n 3)
[11] Wamukoya (n8)

Proclamation Order of 1917 introduced hunting permits and licenses which were to be issued on payment of a fee.[12] The Game Preservation Proclamation of 1920 provided that 'natives' could not be granted a game license of any nature without express permission from the Governor.[13] The 1921 Game Ordinance put tighter controls on game hunting and expanded wildlife reserves.[14] These policies and regulations focused on control of hunting and regulation of possession and trade of wildlife trophies.[15]

The 1945-National Park Ordinance was enacted enabling the game department to establish protected areas (PAs) in the country (Aberdare Royal Park and Mount Kenya Royal Park) which were later renamed National Parks (NPs) to protect the wildlife and for recreation to the settlers.[16] Due to low human population that time, it was possible to separate wildlife from human activities completely. However, the ever expanding human population has led to invasion of land left solely for animals[17] thus leading to HWCs. FAO further reported that the execution of protectionist policies for conservation led to heightened emotions of disenfranchisement and injustice and frustration toward wildlife authorities among the people.[18] Problems were particularly severe when the wildlife species concerned were of major conservation importance and the conservation objectives were at odds with those of local communities.[19]

Human wildlife conflicts can be categorized as; "economic for those that involve crop damage, livestock depredation, property damage, abatement and mitigation expenses; ecological for those involving intensive foraging in natural areas that affects forest regeneration, species at risk and other biodiversity objectives; and social for those including public safety risks from potential health concern associated with wildlife diseases, injury and death of humans and damage to gardens and landscape vegetation in the urban environment."[20]

[12] Wamukoya D, 'Devolution Of Wildlife Management in Kenya to Enhance Community Participation: An Assessment of Kenyan Legal Frameworks' [2013]
[13] ibid
[14] ibid
[15] ibid
[16] ibid
[17] https://parklandsgreens.wordpress.com/2014/08/12/human-animal-conflict-in-kenya/
[18] FAO (2015) P.2
[19] ibid
[20] Treves Andrian and Karanth K Ullas, ' Human-carnivore conflict and perspectives on carnivore' (2003)

Human wildlife conflicts are experienced in many regions of the world. Impacts of HWCs vary from injury and death of people, loss of crops and livestock, spread of diseases, damage to infrastructure, and school absenteeism of children, to decrease in farm yields as people and other social costs like stress. These harmful impacts cause communities to retaliate and kill wildlife. "If the conflicts are not urgently addressed, they are fast becoming a serious menace to the existence of many endangered species globally."[21] In Kenya for instance, KWS shoot between 50-120 problematic elephants every year.[22] Similarly, in Indonesia, dozens of elephants are poisoned each year in oil palm plantations.[23] World wildlife fund (WWF) reports that, "African elephant populations have dropped from 3-5 million to 470,000-690,000 and Asian elephant numbers have diminished from 100,000 to between 35,000 and 50,000 in the last 100 years."[24] As such in-depth assessment of human wildlife conflicts was imperative in order to effectively manage the conflicts and save the wildlife from extinction as well as enhance peace co-existence between wildlife and human-beings.

In Mt. Kenya National Park, hardly a day goes by without an incident occurring between a farmer and the elephants.[25] Elephants inhabiting the Park stray outside its perimeter destroying crops and property and injure and kill people.[26] Conflicts take place around water points, in the forest and farms. These conflicts lead to injuries and deaths when farmers try to drive wildlife off their land.[27]

Various methods have been used to curb HWC in different locations. These include use of chain link and live fences around homesteads and crop farms, electrical fencing around protected areas (PAs) and animal guards e.g. dogs. Some indigenous techniques like; burning of logs and tires, use of traps and beating of drums and iron sheets have also been used. In Spain, payment of insurance premiums has been practiced successfully.[28]

[21] Esiromo Elizabeth, 'An assessment of human - wildlife conflict: a case of Ol donyo Sabuk national park, Machakos County' [2012] P.5
[22] www.panda.org/what_we_do/endangered_species/elephants/human_elephant_conflict.cfm accessed on 27 Jan 2018 at 5.49p.m
[23] ibid
[24] ibid
[25] <www.ruralpovertyportal.org/country/voice/tags/kenya/elephants> Accessed on 05 June 2017
[26] ibid
[27] ibid
[28] James Ayusa Makini, 'Effectiveness of the management strategies of human-wildlife conflicts in Kitengela dispersal area, Kajiado County, Kenya' [2009] P.14

The law governing wildlife in Kenya is, Wildlife Conservation and Management Act (WCMA), 2013. In addressing HWCs, Section 24 (2) of the Act provides for the Government to establish "…a Wildlife Compensation Scheme that shall be used for financing compensation claims for human death or injury or crop and property damage caused by wildlife." Section 25(3) thereof provides compensation for any person who suffers injury or death from wildlife and clarifies on the amounts to be paid. Section 25 (4) (5) provides for compensation to people who incur loss or destruction to their crops, domestic animals and other possessions from wild-animals. Further, section 77 and 78 of the Act provides for killing of wild animals that are considered problematic.

1.2 Statement of the problem

Human Wildlife Conflicts (HWCs) has been a major challenge facing wildlife management and has been increasing within Mt. Kenya National Park, in Meru County, Kenya.[29] WCMA, 2013, is cognizant of this challenge has provided for various tool for managing human-wildlife conflicts. Section 24(2) of WCMA, 2013 provides for establishment of Wildlife Compensation Scheme that shall be used to inter alia, compensate claims for destruction caused by wild animals including death or injury of persons and damage of crops and property. Section 25(3) and (4) of WMCA, provides for compensation of injury or death of people and for destruction of crops, livestock and property by wildlife. WCMA however, does not provide the duration within which compensation as a result of HWCs should be effected and as such it could lead to lag in compensating the people and subsequently aggravating the conflicts.

WCMA, 2013 also gives any authorized KWS officer power to destroy wild animals considered problematic. [30] Also occupiers of land are granted right to destroy any animal deemed problematic so long as the animal is not within the protected area and they do not use poison, pitfall or snare to kill any such animal.[31] Further, if immediately and absolutely necessary, people are given rights to slay and wound a wild animal in defending themselves or another person.[32] These laws giving right to destroy problem animals again are prone to abuse as there is no criteria for determining a problem animal provided and as such could lead to extinction of some already endangered species and endangering other animals.

[29] <www.ruralpovertyportal.org/country/voice/tags/kenya/elephants> Accessed on 05 June 2017
[30] Wildlife Conservation and Management Act 2013, S 77(1)
[31] ibid S 77(2)
[32] ibid S 78(1)

Moreover, Section 80(3) (f) provides for culling as a consumptive wildlife use activity. Schedule 8, Part 1 (6) provides that, "the Cabinet Secretary(CS) may, on recommendation of the Service, authorize culling of wildlife in a wildlife conservation area as a management tool: Provided that such culling shall be done by or under the supervision of KWS as a last resort after such other management tools such as translocation has been explored."

Management of HWCs within Mt. Kenya National Park is wanting despite of legal measures available for combating the HWCs. The conflicts are still recurring within Mt. Kenya National Park. This has been evidenced by frequent attacks of the local communities neighboring the park by wildlife.[33] The wildlife destroys crops, destroy property, animal depredation and disease transmission and attack and kill people. These effects of conflicts also trigger negative attitudes in the local communities towards wildlife who in return retaliate and kill the wild animals. Historically, the local communities depend on the park for firewood and other natural resources; hence the interaction between wildlife and people cannot be avoided.

[33] <www.ruralpovertyportal.org/country/voice/tags/kenya/elephants> Accessed on 05 June 2017

1.3 Research Questions

The main research question of the study was: How is the management of human wildlife conflicts within Mt. Kenya National Park in Meru County, Kenya?

The research questions of the study were as follows:

i. What mechanisms do the local communities use to manage HWCs within Mt. Kenya National Park?
ii. How effective are the legal tools for management of HWCs within Mt. Kenya National Park?
iii. What role has KWS played in the management of HWCs within Mt. Kenya National Park?
iv. What are the challenges faced in the management of HWCs within Mt. Kenya National Park?

1.4 Research objectives.

The general objective of this study was to assess the management of human wildlife conflicts within Mt. Kenya National Park in Meru County, Kenya.

The specific objectives of this study were to:

i. Establish the mechanisms that the local communities use to manage HWCs within Mt. Kenya National Park in Meru County of Kenya.
ii. Assess the effectiveness of the legal tools for management of HWCs within Mt. Kenya National Park towards wildlife.
iii. Establish the role of KWS in the management of HWCs within Mt. Kenya National Park.
iv. Determine the challenges faced in the management of HWCs within Mt. Kenya National Park.

1.5 Justification of the study

Mt. Kenya National Park is endowed with wildlife. The local communities have benefited from the park in terms of firewood among other things. They have co-existed with the wildlife. In spite of all this, there have been increasing HWCs which have posed great challenge to the local communities through destruction of crops, destruction of property, depredation of livestock and diseases transmission and attacks and killing of people as well as threatening wildlife species as a result of community retaliatory mechanisms that kill animals. Little research has been done and documented on HWCs within Mt. Kenya National Park in Meru County, Kenya. Therefore there was need to assess the management of HWCs in order to solve the conflicts sustainably.

Therefore, the findings of this research will fill the missing gaps on management of human wildlife conflicts. The specific significance of this study was to come up with recommendations that will help prevent future HWCs while ensuring sustainable coexistence between wildlife and communities neighboring Mt. Kenya National Park. In addition, the findings and recommendations of this study will be very useful to conservation organizations like Kenya wildlife service (KWS), Kenya Forest Service (KFS), National Environment Management Authority (NEMA), Non-Governmental Organizations (NGOs). It will be useful to review the current wildlife conservation laws and policies in order to enhance their effectiveness and to formulate new policies. Other national parks and reserves and wildlife sanctuaries, will also benefit by adopting measures suggested in this study. The findings will be useful to decision and policy makers in providing them with greater insight on the problems that are usually associated with wildlife conservation. The area community developers and NGOs will use the findings as a tool of awareness creation to the local community on how to co-exist with the wildlife. Finally, the study will contribute to the pool of wildlife conservation knowledge and hence useful to the academic fraternity and those interested in wildlife conservation.

1.6 Chapter Outline

Chapter one: Introduction

The chapter gives the background to the study, statement of the research problem, research questions and research objectives, and justification of the study.

Chapter two: Literature review

This chapter gives a review of literature on management of human wildlife conflicts and wildlife management in general. It will be done globally, regionally and nationally**.**

Chapter three: Methodology

This chapter describes the methodology that the researcher used to collect data in order to investigate the problem and hence achieve the study objectives.

Chapter four: Results and discussions

This chapter presents the results of the study that were analyzed to achieve the objectives of the study and discussion of the results.

Chapter five: Findings, Conclusions and Recommendations

This gives the summary of the findings, the conclusions and the recommendations based on the findings of the study on of Human-wildlife conflicts within Mt. Kenya National Park, in Meru County Kenya.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers literature review for the management of human wildlife conflicts. It also presents the legal framework for wildlife management.

2.2 Overview of Human-wildlife Conflict

Human-wildlife conflicts are rising worldwide, especially in and around protected areas.[1] The conflict occurs in various forms and involves all types of untamed animals, both big and small. [2] They occur when the needs of people or wildlife impinge on each other.[3] The consequences also range from minor to very complicated situations.

Francine in his analysis found that, HWCs includes cases where wildlife harm or slay people, threaten, or destroy their domestic animals, crops and other possessions, as well as, when people injure or kill wild animals intentionally due to purported or genuine threats to their families, possessions, or livelihoods.[4] For instance, a "conflicts may occur, when a jaguar has attacked someone's livestock, an elephant has raided someone's crops, or a person has poisoned a tiger because of the threat it may pose to their livestock and family".[5] Similarly, Peterson and others in their study of HWCs identified that 95% of stated "conflict" equates to animal destruction to valuable possessions of people including; domestic animals, crops and property and safety.[6] Four percent referred to human-human conflict resulting from decision on how to handle animal damage especially around protected areas.[7]

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[1] Thirgood S,Woodroffe R & Rabinowittz A, 'The impact of human wildlife conflicts on human lives and livelihood' [2005] 13-26

[2] James A Makini, 'Effectiveness of the Management Strategies of Human-Wildlife Conflicts in Kitengela Dispersal Area, Kajiado County, Kenya' [2009] 14

[3] Food and Agriculture Organization of, 'Sustainable Wildlife Management and Human−Wildlife Conflict' [2015] CPW 1

[4] Francine M Madden, 'The Growing Conflict Between Humans and Wildlife: Law and Policy as Contributing and Mitigating Factors' [2008]

[5] ibid

[6] Peterson, Birckhead, Leong , Peterson and Peterson, 'Rearticulating the myth of human–wildlife conflict'[2010]

[7] ibid

HWC has existed since time immemorial. For instance, "forensic proof has demonstrated that the "Taung skull", the famous hominid fossil, which was discovered in South Africa in 1924, was for a child slain by an eagle over two million years ago."[8] In Kenya, HWCs dates back as early as 1900 when the man-eaters of Tsavo killed railway employees.[9]

HWCs are outcome of growth in population of people and change in lifestyles brought about by economic growth and technology that have increased the demand on wildlife greatly.[10] Research shows that, HWCs occur due to; increase of human populations into or near PAs, escalation and alteration of uses of those areas by people, land fragmentation, habitat loss, lack of co-management and co-ownership opportunities for local people in PAs, [11] increasing human and livestock populations, changing socio-economic, land use patterns [12] among others.

Okech recorded that HWCs, are challenge of resource utilization in PAs where, the lands outside the parks are vital to wild animals serving as disposal areas.[13] These dispersal lands are endangered with increasing sub-division of land, agricultural and unplanned development of tourist accommodation, and as such increasing HWCs.[14]

These works were key to this study as they elaborated HWCs. They showed the effects, history and causes of HWC. However, these studies listed the effects and causes but did not inform on the mechanisms used by local communities to manage HWCs.

2.3 Community Participation in Management of Wildlife

Wild animals are usually hosted by community lands outside the protected areas. As such, cooperation of the communities is vital to achieve successful management of wildlife. Kipkemeu, Mwangi and Njogu posit that, participation of local people in wildlife

[8] Berger, **'**Predatory Bird Damage to the Taung Type-skull of Australopithecus Africanus Dart 1925' [2006] *American Journal of Physical Anthropology*, 131: 166–168.
[9] Kariuki Muigua, Didi Wamukoya and Francis Kariuki, '*Natural Resources and Environmental Justice in Kenya'* Glenwood Publishers Limited (2015) 221.
[10] ibid .
[11] Francine M Madden, 'The Growing Conflict Between Humans and Wildlife: Law and Policy as Contributing and Mitigating Factors' [2008]
[12] Esiromo Elizabeth, 'An assessment of human - wildlife conflict: a case of Ol donyo Sabuk national park, Machakos County' [2012] P5
[13] Okech, 'Wildlife-Community Conflict in Conservation Areas in Kenya' (n.d.) 66-70
[14] ibid

management where they benefit economically, a "win-win" situation will arise where wild animals will be conserved and community welfare will improve simultaneously.[15]

According to FAO, in order to effectively address HWCs, developing response in partnership with affected communities is crucial. [16] FAO also postulates that locals will be less aggrieved and more forbearing with wildlife populations and the destruction they bring if they are involved in planning and management and when the costs involved with living with wild animals are offset by benefits from their sustainable use and conservation. FAO further suggest ways in which communities may be engaged in management of wildlife resources. These include; granting communities co-management rights over protected areas, consulting and giving responsibilities in the development of management plans for wildlife, legally recognizing communities as stewards of wild animals in their lands and enabling them to retain the benefits from tourism (including hunting tourism), granting rights to hunt wild animals and wildlife resources like; fuel wood, fodder, timber, mushrooms or fodder in PAs, entitling them to receive a proportion of revenue from tourism in neighboring protected areas, supporting them in selling handicrafts or other goods and services to tourists, among other strategies.[17] "Such approaches may foster more positive attitudes to wildlife and toward wildlife management and conservation agencies and organizations, cooperation in conservation actions, and willingness to tolerate impacts of wildlife"[18] and thus reduce incidences of HWCs.

In Tanzania, the formulation of laws to control use of wildlife resources through introduction of fines in line with the "fines and fences" concept lead to around 90% of rural Tanzania's population being locked from use of wildlife resources.[19] This has eventually created antagonism between protected area managements and the local communities. These authors infer that, in order for the conservation of resources including wildlife to succeed,

[15] Michael Kipkeu, Samson Mwangi & James Njogu, ' Incentives For Enhanced Community Participation In Wildlife Conservation In Amboseli, Kenya' (2014) 2 IJRANSS 76
[16] Food and Agriculture Organization, 'Sustainable Wildlife Management and Human Wildlife Conflict' (2015) Working paper, fact sheet
[17] ibid
[18] ibid
[19] M Zacharia and S A Kaihula, 'Community Participation in the Conservation and Management of Wildlife in Tanzania' (n.d)

communities have to participate in the process.[20] Similarly, Saito in his study in Uganda reckons decentralization as more appropriate in facilitating community conservation. [21]

Eyebe et al in their study in Cameroon observed that there are two dominant perceptions of wild animals: meat and danger. They observed that many farmers in the Far-North region retained episodes of crop and livestock destruction in their memories. The frequency of these episodes leads to competition between people and wildlife and hence intense hatred by local populations.[22]

In Kenya, in their study in Meru National Park, Kiria et al posit that, "increase in human settlement and introduction of land uses have led to loss of wildlife corridors and dispersal areas hence causing major threat to management of wildlife within and outside protected areas. They found out that there was increase in HWC within Meru National Park since local communities have inhabited the wildlife corridors due to population pressure. They further observed that there was low community participation in planning and management of the park, dispersal areas and wildlife corridors. They also alluded that, lack of direct benefits from management hindered active involvement of the people." In conclusion, the researchers proposed community-based resource management. This will promote positive interaction between local communities and wildlife and hence minimize incidences of conflicts."[23]

The WCMA, cognizant of importance of involving communities in management of wildlife grants right to any person or community on whose land wildlife inhabit to establish wildlife conservancy or sanctuary.[24] Further the Act allows communities and land owners among others to establish community Wildlife Association (CWA) and in case of an individual owner to register as a wildlife manager[25] to facilitate conflict resolutions and cooperative management of wildlife.[26] The CWA or wildlife manager by approval of the CS and on recommendation of KWS and consultation with the county wildlife conservation committee

[20] ibid
[21] Fumihiko Saito, 'Local Council Commons Management in Uganda: A Theoretical Reassessment' [2007] Nagoya University Discussion Paper No. 153 http://www.gsid.nagoya-u.ac.jp/bpub/research/public/paper/article/153.pdf accessed on 12 March 2018.
[22] Antoine J Eyebe , Guy P Dkamela , Dominique Endamana , 'Overview of Human Wildlife Conflict in Cameroon' (2012) Poverty And Conservation Learning Group Discussion Paper No 05
[23] Edwin M Kiria, Jeremiah N Ayonga and Hellen Ipara, 'Promoting Effective Community Participation in Land Use Planning and Management of Wildlife Conservation Areas' (2014) 4 NSR 29
[24] WCMA 2013, S 39
[25] ibid S 40 (1)
[26] WCMA 2013 S 40 (2)

shall among other duties assist in controlling problematic animals through wildlife scouts drawn from their membership or employees.[27]

The above authors were able to highlight the need for community participation in management of wildlife. However, the studies were so general in that, they did not elaborate how the communities can participate in wildlife management with reference to legal frameworks in Kenya, nor did they demonstrate effectiveness of community participation in wildlife management. The studies also did not show the methods communities use to solve human wildlife conflicts.

2.4 Property Rights and wildlife management in Kenya.

There are four types of environmental goods: private, common, open access and public.[28] Efficient property rights could be those that have the following four characteristics as identified by Tietenberg as cited by Henk; "All resources are privately owned (universality), all benefits and cost accrue to the owner (exclusivity), all property rights are transferable from one owner to another, in a voluntary exchange (transferability) and the owner is secure from involuntary encroachment or seizure by others (enforceability)."[29] However, this is not always the case. Many property rights do not exhibit these four characteristics of efficient property rights.

Common property are goods that are not formally owned by private actors, but can be managed by an identifiable group of individuals. [30]Public goods are common goods with particular characteristics. The good cannot be divided into separate parts: it is indivisible. Access to the goods cannot be denied after consumption: the resource is non-excludable. The good is non-rival in consumption: what one person consumes another one can consume as well. Open access resource access to is not restricted, which leads to over-exploitation and dissipation of the scarcity rent: the so-called "Tragedy of the commons."

[27] WCMA 2013 S 41 (d)

[28] Henk Harmsen, 'Property rights and natural resource management in Kenya' (2017) Wangari Maathai Institute for Peace and Environmental Studies
[29] ibid
[30] ibid

In Kenya however, the constitution classifies the land into only three categories as public, community or private.[31] Public land is vested in county governments and national governments as trustees of the people of Kenya.[32] Government forests, government game reserves, national parks, government animal sanctuaries and specially protected areas are vested in the national government.[33] A national land commission established in the Constitution administers all public lands on behalf of the national and county governments.[34]

"Community land is vested in communities identified on the basis of ethnicity, culture and similar community of interest. [35]Community land consists of among other lands, land that is lawfully held, managed or used by specific communities as community forests, grazing areas or shrines."[36]

"Private land is held by any person under any free hold tenure or leasehold tenure and also consists of any land declared as private land under an Act of Parliament."[37]

According to Mbote, wildlife is a fugitive resource and raises special problems in ownership because in its in situ condition since it cannot be associated with a particular user as its owner.[38] Ecosystem boundaries are different from property boundaries. As such, wildlife do not recognize property boundaries and avails itself in the space and forage available on private property, common property, public property and open access property.[39] Moreover, seasonal migration of wildlife necessitates the availability of corridors on various properties.[40] In an ideal situation, open access would fit wildlife where it is subject to use by any person. "Whereby, if an individual or group has defined rights over an area in which wildlife is found, such wildlife should be the property of that individual or group and it is incumbent upon the group members to regulate the use of the wildlife to ensure that the rates of the use do not threaten the existence of the resource by rendering it incapable of

[31] COK, Art 61 (2)
[32] COK, Art 62 (2) and (3)
[33] COK Art 62 (3)
[34] COK Art 62 (3)
[35] COK, Art 63 (1)
[36] COK Art 63 (2) d(i)
[37] COK Art 64 (a) (b) (c)
[38] Patricia K Mbote 'Land tenure, land use and sustainability in Kenya: towards innovative use of property rights in management of wildlife' (2005-4) IELRC Working paper
[39] ibid
[40] ibid

reproducing itself."[41] This would however lead to depletions and overexploitation of wildlife resource and subsequently extinction. [42]

In Kenya however, wherever wildlife resources are found they are state property. "Exclusive state ownership of wildlife fails to take into account the fact that most wildlife resides on private lands and that game reserves, national parks, government animal sanctuaries alone cannot ensure the survival of species."[43] Generally, individuals and community land owners have no ownership or user rights over the in situ wildlife resources.[44] Previously, wildlife resource was available to all people on whose land it appeared.[45] The vesting of wildlife rights regardless of where they are found in the state only is equivalent to appropriation of the rights of the persons or groups upon whose land the wildlife resides.[46] In so doing, the state fails to recognize the subsidies that individuals and communities provide in sharing their land with wildlife. The individuals and communities where wildlife resources are found have to deal with livestock depredation, crop destruction, disease transmission to livestock among other negative effects.[47] Further, "the emphasis on state ownership of wildlife ignores the interactions of different land uses in ecosystems and habitats." For instance, areas with permanent water and dry-season grazing are good for wildlife and for people in dry areas like Maasai where they graze their livestock and derive personal needs. Vesting of property rights to wildlife and the areas they occupy exclusively in the state is likely to impact significantly, for instance, on the Maasai way of life.

"Whether property rights are vested in individuals or in groups, there is need for security of tenure and some measure of political and economic certainty to ensure that property rights' holders can invest in sustainable resource management in the long term without fear of losing their investment." [48]In Kenya, "property owners whose land hosts wildlife, their rights are subject to state ownership of the totality of the wildlife resources."[49] The conversion of public

[41] Patricia K Mbote 'Land tenure, land use and sustainability in Kenya: towards innovative use of property rights in management of wildlife' (2005-4) IELRC Working paper
[42] ibid
[43] ibid
[44] Patricia K Mbote 'Land tenure, land use and sustainability in Kenya: towards innovative use of property rights in management of wildlife' (2005-4) IELRC Working paper
[45] ibid
[46] ibid
[47] ibid
[48] Patricia K Mbote 'Land tenure, land use and sustainability in Kenya: towards innovative use of property rights in management of wildlife' (2005-4) IELRC Working paper
[49] ibid

goods into state property without safeguards to ensure equal access for all may cause individuals and communities to develop negative attitudes towards wildlife and consequently human wildlife conflicts. If human wildlife conflicts are to be sustainably managed, the needs of humans and wildlife have to be taken into account in tandem in framing the policies.

2.5 Legal tools for Management of Human Wildlife conflicts

Compensation

Human wildlife conflicts leads to direct economic costs as a result of crops and livestock loss as well as medical expenses incurred as a result of injury.[50] The conflicts also lead to "indirect costs including opportunity costs associated with conflict mitigation and protection activities, transaction costs associated with pursuing compensation and hidden social costs such as diminished states of psychological or physical wellbeing."[51] To engender community support in wildlife conservation, compensation of the losses incurred has been used to foster community tolerance towards offending wildlife.[52] "Compensation schemes are intended to prevent people who bear the costs of living with wildlife from becoming enemies of conservation."[53] On the contrary, Johnson et al argue that compensation is a policy designed to conserve (internationally) threatened species and not to safeguard local livelihoods.[54]

According to Nyhus as cited in Ogra and Badola, "compensation for losses incurred by cattle ranchers living near Yellowstone National Park due to reintroduction of the gray wolf has facilitated tolerance for wolves by members of the public in the United States."[55] Similarly, "a partnership between a local non-governmental organization and WWF-India to provide supplementary compensation to farmers for livestock losses near Corbett National Park has been successful."[56]

[50] Monica Ogra and Ruchi Badola, 'Compensating Human–Wildlife Conflict in Protected Area Communities: Ground-Level Perspectives from Uttarakhand, India' [2008] Hum Eco
[51] ibid
[52] ibid
[53] Food and Agriculture Organization of the United Nations, 'Managing the Conflicts between People and Lion: Review and Insights from the Literature and Field Experience' [2010] Wildlife Management Working Paper 13
[54] McKenzie F Johnson, Krithi K Karanth and Erika Weinthal, 'Compensation as a Policy for Mitigating Human-wildlife Conflict Around Four Protected Areas in Rajasthan, India' [2018] Concervat Soc 16:305-19
[55] Monica Ogra and Ruchi Badola, 'Compensating Human–Wildlife Conflict in Protected Area Communities: Ground-Level Perspectives from Uttarakhand, India' [2008] Hum Eco
[56] Rinzin Dorji, 'Interactions between protected areas and local communities- a case study from Jigme Dorji National Park, Bhutan' [2009]

In Kenya, compensation is recognized as a tool for mitigating HWCs.[57] Compensation however remains a challenge. In Nakuru East and Nakuru West for instance, the residents continue to lament on the injuries being caused by monkeys and baboons.[58]

Although compensation is an important tool for HWCs mitigation, it has shortcomings and challenges. "It requires adequate financial resources for the wildlife authorities and the capacity to implement the scheme and this can be a challenge in low budget countries."[59] Other problems include: "evaluation of claims of damage, determination of fair values for losses, delivery of payment in a timely and transparent fashion, issues of fraud and corruption, and maintenance of adequate sources of funding."[60] Moreover, "compensation os a negative payment doing little to remove the conflict of interest between human development and wildlife conservation."[61]

Culling

Culling is, "the intentional or state-sanctioned reduction of a population of species as a direct response to human-wildlife conflict."[62] In Wildlife management, culling is removal of an animal, especially a sick or a weak one, from a herd or flock.[63]Culling is used for various reasons including; to control wildlife population, to prevent spread of diseases and to mitigate human-wildlife conflicts.[64] Culling wildlife for whatever reasons remains a contentious issue. In managing HWCs, it aims to, "reduce subpopulations of problem wildlife around sites of anticipated conflict under the assumption that reducing wildlife populations will reduce conflicts."[65]

[57] WCMA, 2013 S 25
[58] https://hivisasa.com/posts/why-compensation-for-victims-of-human-wildlife-conflict-is-still-challenge
[59] Food and Agriculture Organization of the United Nations, 'Managing the Conflicts between People and Lion: Review and Insights from the Literature and Field Experience' [2010] Wildlife Management Working Paper 13
[60] Monica Ogra and Ruchi Badola, 'Compensating Human–Wildlife Conflict in Protected Area Communities: Ground-Level Perspectives from Uttarakhand, India' [2008] Hum Eco
[61] Food and Agriculture Organization of the United Nations, 'Managing the Conflicts between People and Lion: Review and Insights from the Literature and Field Experience' [2010] Wildlife Management Working Paper 13
[62] Evan Hamman, Katie Woolastin and Bridget Lewis, 'Legal Responses to Human-Wildlife Conflict: The Precautionary Principle, Risk Analysis and the 'Lethal Management' of Endangered Species'[n.d] 7 IUCNAEL EJournal
[63] https://conservationzambia.org/wildlife/culling-wildlife-management/ Accessed on 05 Dec 2018
[64] ibid
[65] Adrian Treves and Lisa Naughton Treves, 'Evaluating lethal control in the management of human–wildlife conflict' [2005]

In their analysis, Treves and Naughton established that, "there are culling programmes that include aerial shooting of coyotes prior to release into grazing areas in the US.[66] They further found that between 1996 and 2002, the US agency responsible for control of wildlife damage killed 15 260 640 wild vertebrates in effort to protect human lives and livelihoods. In the United Kingdom, there are programmes to remove European badgers to avoid transmission of tuberculosis to cattle."[67] Culling programs are under the assumption that reducing wildlife populations will reduce conflicts.

A research in northern Cameroon as cited by Asimopoulos has shown that despite satisfying local communities, control shooting of elephants did not reduce the crop damages.[68]

In Kenya, Section 3(1) of WCMA, 2013 defines culling as "selective removal of wildlife based on ecological scientific principles for management purposes." The Act further Section 80(3) (f) recognizes culling as a consumptive wildlife use activity.[69] Schedule 8, Part 1 (6) of the Act further provides that, "the CS may, on recommendation of the Service, authorize culling of wildlife in a wildlife conservation area as a management tool: Provided that such culling shall be done by or under the supervision of the Service as a last resort after such other management tools such as translocation has been explored." It has been established that Kenyan ranchers shoot suspected culprit lions by concealing themselves in blinds at the sites of fresh livestock kills.[70]

For whatever reasons that culling is done, it remains a controversial issue. It raises serious ethical questions. Moreover, culling causes disturbance effect on survivors destabilizes population dynamics.[71]

Translocation

Translocation is theoretically best solution to HWCs as it removes the problem animal from an area.[72] In reality however, it offers a temporary relief to people as captured animals

[66] ibid
[67] ibid
[68] Parker, Osborn, Hoare and Niskanen, 'Human-Elephant Conflict Mitigation'[2007]
[69] WCMA, 2013 S80 (3)(F)
[70] Adrian Treves and Lisa Naughton Treves, 'Evaluating lethal control in the management of human–wildlife conflict' [2005]
[71] Moses Litoroh, Patrick Omondi, Richard Kock and Rajan Amin, 'Conservation and Management Strategy for the Elephant in Kenya 2012-2020' [n.d]

especially elephants return to capture site.[73] Moreover, there is a risk of exporting a problem to another location.[74] Also the cost of translocation is enormous[75] requiring special equipment and skills Translocation can also be detrimental to the animal's health due to change of environment and ecosystem and hence can lead to death of the animal. For instance, in July 2018, eight Black Rhinos died after translocation to a new wildlife reserve in Kenya.[76] Moreover, "translocation has significant risk of disease expression, transmission and transfer of vectors or pathogens within translocated groups or to recipient populations."[77]

In Uganda, "the Uganda Wildlife Authority promoted translocation as the sole solution for mountain gorilla. It was however found to be ineffective due to small size of the park, high probability of gorilla returning to capture site and the high cost of translocation."[78]

2.6 Legal Frameworks for Wildlife Management

Ecological systems transcend international boundaries because some ecological systems traverse national boundaries.[79] Therefore, wildlife management goes beyond international boundaries. Internationally, concerns over destruction of shared ecosystems, loss of biodiversity, and negative impacts on the environment in general have increasingly necessitated international means of redress. [80] Response has come in form of intergovernmental treaties or other agreements that constitute international environmental law.

2.6.1 Global Legal Framework

Convention on Biological Diversity (CBD) 1992

CBD was negotiated under the auspices of UNEP and signed by 153 states and the EU at UNCED in June 1992. "It aims to conserve biological diversity, ensure sustainable use of

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[72] Stamatios Asimopoulos, 'Human-Wildlife Conflict mitigation in Peninsular Malaysia: Lessons learnt, current views and future directions' (2016)

[73] ibid
[74] ibid
[75] ibid
[76] https://www.bbc.com/news/world-Africa-44819231 Accessed on 13 October 2018 at 10.10a.m.
[77] Kock, Woodford and Rossiter, 'Disease risks associated with translocation of wildlife' [2014] Research Gate
[78] Madden M Francine, 'The Growing Conflict Between Humans and Wildlife: Law and Policy as Contributing and Mitigating Factors' [2008)]Journal of International Wildlife Law & Policy 189
[79] James G Njogu, 'Wildlife Management and Conservation in View of International Conventions' [2012] 29 (1) The George Wright Forum 109
[80] Ibid

biological diversity and its components and ensure fair and equitable sharing of benefits arising from the utilization of genetic resources."[81] To achieve these objectives, "parties are to develop national strategies, programmes and plans or adapt existing strategies, plans or programmes and integrate conservation and sustainable use of biological resources into relevant sectoral and cross-sectoral plan, programmes and policies."[82] Article 8 (f) thereof obligates parties develop and implement plans and management strategies to restore and rehabilitate degraded ecosystems and support recovery of endangered species. Kenya is a signatory to the convention and KWS is a major stake holder in the convention.

Convention on International Trade in Endangered Species of Wildlife Fauna and Flora. (CITES).

CITES was adopted in March 1973. CITES has two central objectives; to reduce negative impacts of international trade in endangered species, and control international trade that drive species to endangered levels. [83] It works by listing on Appendices species of wild animals and plants whose conservation status are threatened by international trade. [84] The level of protection given to the species depends on the Appendix of CITES it is listed. Appendix I prohibits all trade in species listed thereon except on very limited circumstances. [85] "Appendix II lists 'all species which although not necessarily threatened with extinction may become so unless trade in specimens is subject to strict regulation in order to avoid utilization incompatible with their survival."[86] Appendix III list species that parties need help from other countries to control.[87]

Kenya is one of the parties to CITES and KWS is the management authority. KWS has stood firm on its position as regards the fauna aspects of CITES, especially for elephant and rhinoceros. [88]

[81] Convention on Biological Diversity 1992, Art1
[82] ibid Art6
[83] ibid
[84] Philippe Sands, '*Principles of International Environmental Law'* (3rd edn, Cambridge University Press 2012) p.472
[85] Convention on International Trade in Endangered Species (CITES) 1971, Art. II(1)
[86] ibid Art. II(2)
[87] ibid Art. II(3)
[88] James G Njogu, 'Wildlife Management and Conservation in View of International Conventions' [2012] 29 (1) The George Wright Forum 109

Convention on Conservation of Migratory species of Wild Animals (CMS)

It was adopted at Bonn in 1979 and requires cooperation among "range" States hosts to migratory species regularly crossing international boundaries. With regard to species considered as endangered (listed in Appendix I), "range states must conserve and restore their habitats; prevent, remove or minimize impediments to their migration; prevent, reduce and control factors endangering them; and prohibit their taking.[89] With regard to other species which have an unfavorable conservation status (listed in Appendix II), range states undertake to conclude agreements to maintain or restore concerned species in a favorable conservation status."[90] Kenya is a signatory to this convention and KWS is the focal point.

1950 Birds Convention

This is the global instrument specifically intended to safeguard birds. It aims to achieve this by granting protection to all birds in their breeding season, migratory birds on their return flight to nesting grounds between March and July, and to species in threat of extinction or of scientific interest throughout the year. [91] However, absence of institutional and financial arrangements to ensure that the Convention is implemented has constrained its success.[92]

2.6.2 Regional Legal Framework for Wildlife Management

Lusaka Agreement on Co-operative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora 1992.

It is an agreement of CITES at the regional level in Africa. It aims to reduce and eventually eliminate illegal trade in wild fauna and flora within the territories of the state parties.[93] In 1999, Kenya was designated as the headquarters of the Lusaka Agreement and the secretariat is hosted at the KWS headquarters in Nairobi.[94]

[89] Convention on Conservation of Migratory species 1979, Art. III(4) Art. III(5) and (7).
[90] ibid Art. IV and Art.V
[91] Birds Convention 1950, Arts 1 and2I
[92] Philippe Sands, '*Principles of International Environmental Law'* (3rd edn, Cambridge University Press 2012) p 505
[93] Lusaka Agreement 1995, Art2
[94] James G Njogu, 'Wildlife Management and Conservation in View of International Conventions' [2012] 29 (1) The George Wright Forum 109

"The agreement establishes a taskforce[95] whose functions are to facilitating co-operative activities among national bureaus in carrying out investigations to illegal trade; [96] investigating violations of national laws pertaining to illegal trade, and to present evidence gathered during the investigation to National Bureaus or the concerned parties; [97] and collecting, processing and disseminating information on activities pertaining to illegal trade and establishing and maintaining databases"[98] among others.

Article 6 Paragraph 1a of the agreement mandates each party state to designate or establish a National Bureau whose functions are to provide to and receive from the Task Force information on illegal trade[99]; and to coordinate with the Task Force on investigations that involve illegal trade.[100] Further, Article 7 Para graph one establishes a governing council consisting of parties to the agreement. The governing council is mandate to review the implementation of the agreement [101] , undertake additional action necessary for the achievement of the objective of the agreement[102] and adopting amendments to the agreement as necessary.[103] In creating the three agencies, Lusaka agreement creates a cooperation framework among the party states and hence effective in achieving it objective to reduce illegal trade in wild flora and fauna. As such, this agreement is relevant to HWCs in that the conflicts could be viewed as a wildlife resource problem and as such, if the agreement achieves its goal in reducing and eventually eliminate illegal trade in wild flora and fauna, HWCs will consequently reduce.

Revised African Convention on the Conservation of Nature and Natural Resources (Maputo Convention, 2003)

It aims to enhance environmental protection; to foster the conservation of nature and natural resources; and to harmonize and harmonize policies in these fields.[104] It requires parties to "maintain and enhance species and genetic diversity, and as such, to establish and execute conservation policies and sustainable use of such resources, particularly where they are

[95] Lusaka Agreement 1992,Art 5
[96] ibid Art 5 Para 9a
[97] Lusaka Agreement 1992, Art5 Para 9b
[98] ibid Art 5 Para 9c
[99] ibid Art 6 para2a
[100] ibid Art 6 Para 2b
[101] Ibid Art 7 Para 9a
[102] ibid Art 7 Para 9b
[103] ibid Art 7 Para 9c
[104] Maputo Convention 2003, Art II

threatened and of social, economic or ecological value, or where they are only represented in areas under the jurisdiction of one party." [105] Parties are further required to ensure "conservation of species and habitats within land-use planning and sustainable development policy". It further provides for special protection of threatened species and habitats necessary for their survival.[106] Convention has not entered into force due to lack of the required fifteen ratifications.[107]

Review of international and regional instruments for wildlife management of wildlife is critical in this study. They show the legal framework on wildlife management. However, the conventions miss on providing mechanisms for managing human wildlife conflicts.

2.6.3 Legal Framework for Wildlife Management in Kenya

History of Wildlife Legislation in Kenya

Historically, Kenyan communities lived in harmony with wildlife. Local communities used wildlife for food and other basic necessities and not for monetary benefits. [108] Human populations were too small and scattered to have had an adverse impact on wildlife species that occupied vast land.[109]

With the coming of colonizers, the existing systems were viewed as inferior and a western method was adopted.[110] "The British wanted protected lands so that they could continue their big-game hunting safaris and to cater for their recreational needs."[111] Various ordinances were enacted to regulate access to and utilization of wildlife. [112] In 1898, The Game Ordinance was enacted that marked the beginning of legislative control over wildlife in Kenya.[113] The Proclamation Order of 1917 introduced hunting permits and licenses which

[105] ibid Art. IX(1)
[106] Maputo Convention 2003, ArtX (1)
[107]Philippe Sands, '*Principles of International Environmental Law'* (3rd edn, Cambridge University Press 2012) p 483
[108] Mungumi B Chongwa, 'The History and Evolution of National Parks in Kenya' (2012) The 29 George Wright Forum 39
[109] ibid
[110] Didi Wamukoya , 'Devolution Of Wildlife Management in Kenya to Enhance Community Participation: An Assessment of Kenyan Legal Frameworks' [2013]
[111] Chongwa (n 108)
[112] Kariuki Muigua, Didi Wamukoya and Francis Kariuki, '*Natural Resources and Environmental Justice in Kenya'* Glenwood Publishers Limited (2015) 221.
[113] Wamukoya (n 110)

were to be issued on payment of a fee.[114] The Game Preservation Proclamation of 1920 provided that 'natives' could not be granted a game license of any nature without express permission from the Governor.[115] The 1921 Game Ordinance put tighter controls on game hunting and expanded wildlife reserves.[116] These policies and regulations focused on control of hunting and regulation of possession and trade of wildlife trophies.[117]

In 1945, there was a policy shift which focused on protection of wildlife through the protected areas concept and vesting of all wildlife resources to the government.[118] The National Parks Ordinance No.9 of 1945 was enacted and for the first time, the colonial government started addressing wildlife management issues from the point of view of wildlife security and HWC.[119] From that time, wildlife management in Kenya has mainly been undertaken by the state on behalf of the Kenyan people.

In 1975, the government issued Sessional Paper No.3 that recognized that wildlife needed space outside the protected areas[120] which was a radical move from the colonial preservationist policies. The policy further proposed decentralization of wildlife management by providing that government only be a facilitator and advisor working with communities.[121] Wildlife (Conservation and Management) Act (Cap 376) (now repealed) was enacted in 1976 to give effect to the policy. However, according to Mbote as cited by Wamukoya, it retained a centralist approach despite being cast within the framework of decentralization in the policy[122] by merging the two government departments into one, that is, the Wildlife Conservation and Management Department under the then Ministry of Tourism and Wildlife and thus concentrating management of wildlife within the central government.[123]

In 1989, the Act was amended and it created KWS as an autonomous state corporation mandated to conserve and manage wildlife.[124] The recognition of the state as sole regulator of

[114] ibid
[115] ibid
[116] Didi Wamukoya , 'Devolution Of Wildlife Management in Kenya to Enhance Community Participation: An Assessment of Kenyan Legal Frameworks' [2013]
[117] ibid
[118] Muigua *et al* (n 9) 221
[119] Wamukoya (n 49)
[120] Muigua *et al* (n 9) 221
[121] Sessional Paper No. 3 of 1975, 'Statement on Future Wildlife Management Policy in Kenya'.
[122] Wamukoya (n 49)
[123] ibid
[124] Wildlife Conservation and Management Act (cap 376) s 3

wildlife matters was inconsistent with the constitution of Kenya 2010, which requires public participation and democracy in governance matters.[125] Wildlife management remained centralized through KWS.[126]

The Constitution of Kenya, 2010

This is the supreme law of Kenya. Article 2(5) and (6) provides that, "…the general rules of international law and any treaty or convention ratified by Kenya shall form part of the law of Kenya." As such, it recognizes the mechanisms for management of wildlife provided for under the various treaties and conventions relating to wildlife that Kenya has ratified. It also embraces new governance by providing for participatory and decentralized arrangements to better conserve natural resources including wildlife. Article 10, provides for participation of the people as one of national values and principles of good governance. It further obligates the State to encourage public participation in the management of the environment.[127] Public participation is a key aspect of wildlife management because it allows communities to express their views on key governmental policies and laws.[128]Fourth Schedule obligates the national government to protect animals and wildlife.[129] These provisions embed state control of wildlife and create situation that does not support devolution of wildlife management to local communities.

The Environmental Management and Co-ordination ACT, 1999

EMCA is the Legal and Institutional framework for management of environment. Section 2 defines environmental resources to include flora and fauna among others. The Act establishes the National Environment and Management Authority (NEMA)[130] and mandates it to "exercise general supervision and coordination of matter related to environment."[131]NEMA is further mandated to consult with relevant lead agencies, "…to prescribe measures necessary to ensure the conservation of biological diversity."[132] Section 112 subsection 1 provides for granting of an environmental easement to further principles of environmental management[133]

[125] Muigua *et al* (n 9)
[126] Wamukoya (n 49)

[127] The Constitution of Kenya 2010, Art 69 (1) (d)
[128] Wamukoya (n 49)
[129] Constitution of Kenya 2010, 4th Schedule Part 1 Para 25
[130] EMCA 1999, S.7(1)
[131] EMCA 1999, S.9 (1)
[132] EMCA 1999, S.50
[133] EMCA 1999, S. 112 (2)

including creating and maintaining wildlife corridors.[134] "Any person, who has a legal interest in the land which is the subject of an environmental easement, is entitled to compensation commensurate with the lost value of the use of the land."[135] These provisions can serve as effective mechanisms for enlisting the support of land owners for wildlife management by KWS.[136]

The Wildlife (Conservation and Management) Act, 2013)

Wildlife (Conservation and Management) Act (WCMA), 2013 is the law governing management of wildlife in Kenya and is based on the National Wildlife Conservation and Management Policy of 2012. The enactment of this legislation was as a result of need for decentralization and devolution of wildlife management to the lowest level. The Act established KWS generally for management of wildlife.[137] The Act provides for inclusion of representatives of communities and private land owners in the board of trustees to represent their views in making decisions on wildlife management.[138] It also establishes County Wildlife Conservation Compensation Committees with representatives from Communities nominated by the community wildlife associations[139] and are to play a role in wildlife management at local level.[140] Section 23 provides for KWS to establish Wildlife Endowment Fund vested in the Board of Trustees whose functions include, inter alia, developing wildlife conservation initiatives[141] and facilitating community based wildlife initiatives.[142] It further establishes the Wildlife Compensation Scheme[143]which is to finance claims over injury and death of people as well as destruction of crops and other property by wild animals.[144]

Further, the Act considers the interests of communities in HWCs resolution and mitigation measures as well as sharing of benefits from wildlife conservation initiatives. It provides that decisions relating to resolution of HWCs are to consider the rights and privileges of locals living next to wildlife PAs with regard to appropriate laws on devolution and land

[134] EMCA 1999, S. 112 (4K)
[135] EMCA 1999,S. 116 (1)
[136] Patricia K Mbote, 'Land tenure, land use and sustainability in Kenya: towards innovative use of property rights in management of wildlife' (2005-4) IELRC. Working paper
[137] WCMA 2013, s 6
[138] ibid S 8 (2) (f)
[139] WCMA S 18(g)
[140] WCMA S 19
[141] WCMA S 23 (3) (a)
[142] WCMA S 23 (3) (e)
[143] WCMA S 24
[144] WCMA S 24 (2)

management to ensure mutual co-existence.[145] With regards to any dispute arising in management, protection or conservation of wildlife, the Act provides that in the first instance, the dispute is to be "…referred to the lowest possible structure under the devolved system of government, as set out in the laws dealing with devolution including traditional dispute resolution mechanisms"[146] and any other unresolved matter to be referred to the National Environment Tribunal (NET) and any ensuing appeal is to be submitted to the Environment and Land Court (ELC) as established in the ELC Act, 2011.[147] In addressing HWCs, the Act provides the following measures;

a) Killing of Problem Animals

KWS officers are given powers to destroy wild animals that are considered problematic with consent from owner/ occupier of private land or even without prior consent where the animal has been previously wounded or injured and is a danger to human life. [148] Also occupiers of land are granted right to destroy any wild animal considered problematic so long as the animal is not within the protected area and that they do not use poison, pitfall or snare to kill any such animal.[149] Further, if immediately and absolutely necessary, people may slay or wound a wild life in defending oneself or another person.[150]

b) Compensation

Section 24(2) of WCMA, 2013 provides for establishment of Wildlife Compensation Scheme that shall be used to inter alia, compensate claims for injury and death of people and destruction of people crops and other possessions by wild animals. Section 25(3) and (4) thereof, provides for compensation of injury and death of people and destruction of crops and property.

c) Culling

WCMA, 2013 defines culling as "selective removal of wildlife based on ecological scientific principles for management purposes." [151] Section 80(3) (f) recognizes culling as a consumptive wildlife use activity. Schedule 8, Part 1 (6) provides that, "the CS may, on

[145] WCMA S 75 (1)
[146] WCMA 2013 S 117 (1)
[147] WCMA 2013 S 117 (2)
[148] WCMA 2013 S 77 (1)
[149] WCMA 2013 S 77 (2)
[150] WCMA 2013 S 78 (1)
[151] WCMA 2013 S 3 (1)

recommendation of the Service, authorize culling of wildlife in a wildlife conservation area as a management tool: Provided that such culling shall be done by or under the supervision of the Service as a last resort after such other management tools such as translocation has been explored." This management tool is liable to abuse.

The review of legal instruments for wildlife management is important to this study. The gap is that they do not show the effectiveness of the legal mechanisms in solving HWCs. Also they do not elaborate on the role that KWS has played in solving HWCs.

2.6 Gaps from Literature Review.

The literature review of this study shows that human wildlife conflicts are real. The various studies reviewed that HWCs lead to destruction of crops, property destruction, livestock depredation and death and injury of people. These effects lead to negative attitudes among the community members who in return retaliate and kill the animals. The studies further reveal that HWCs are a resource problem arising from increase in human population that has led to increased demand for land when the people have encroached in the wildlife areas and change in land use practices. The studies also reveal that involving communities in management of wildlife would foster positive attitudes among the communities towards wildlife and hence minimize HWCs. Furthermore, the literature shows that there are various tools for managing HWCs internationally, regionally and in Kenya. However, there is no study that has elaborated how communities participate in wildlife management; role KWS play in solving HWCs; challenges encountered in the management of HWCs and the effectiveness of legal measures for managing HWCs. Also there is no study that has been carried out in Mt. Kenya National Park on management of human wildlife conflicts. There was therefore a need for further research on management of HWCs within Mt. Kenya National Park in Meru County Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology that was applied during the research. It provides the analytical (Theoretical and Conceptual) frameworks, study area, research design, study population, sample size and sampling techniques, data analysis and presentation, data reliability and validity and the research ethics.

3.2 Analytical Framework

3.2.1 Theoretical Framework

The theoretical framework for this study was based on the social exchange theory by George Homans. He defined social exchange as "the exchange of activity, tangible or intangible and more or less rewarding or costly, between at least two people."[1] Rewards and costs are important concepts that form the foundation of most social exchange theory. The theory suggests that, "people base their behaviors on rational calculations designed to maximize individual profit; Most people value reward; costs arise whenever there is an undesirable value for an individual and that the net outcome is equal to rewards take away costs."
Social exchange theory comprised of rules and norms of exchange, resources exchanged and relationships that emerge. [2]

Many researchers have studied the influence of anticipated costs and benefits of wildlife for people in support of management of wildlife. Social exchange suggests that community support for sustainable management of wildlife is a willingness of the community to enter into an exchange.

Wildlife is a very important resource for economic and social development. For instance wildlife resources earn the country income through tourism. However, some wildlife causes economic losses to people through damage of crops and property, livestock predation, and

[1] Russell Cropanzano and Marie S Mitchell 'Social exchange Theory: An Interdisciplinary Review' (2005) 31 Journal of Management 874
[2] ibid

injuring and killing people. “These in return lead to people having negative attitudes towards wildlife and hence retaliate and kill the animals some of which are protected by the country’s laws and others by international laws like CITES.[3] Such retaliatory responses from local communities usually attract adverse reactions from the state and government agencies such as Kenya Wildlife service, thus leading to arrests and prosecution of the local people which makes them to develop negative attitudes and perceptions towards wildlife and wildlife conservation.”[4]

“HWCs results to hatred by the locals who feel neglected thus creating hostility and mistrust between them and PAs management. In the long run, local people who more often offer space for wildlife and support conservation in exchange for envisioned benefits like revenue and access to wildlife resources often feel short changed, and do not realize tangible benefits.”[5] As such, the conflicts keep recurring and unsustainable and as such threaten survival of wildlife.

It is therefore imperative to promote peaceful co-existence between wildlife and local communities by sustainably managing human-wildlife conflicts through mechanisms that the communities feel they have an upper hand in management of wildlife and are benefiting from the wildlife resources.

[3] Phoebe N Kariuki, ‘Local Residents’ Attitudes and Perceptions Towards Tourism Development: A Study of Lake Nakuru National Park and its Environs, Kenya’ [2013]
[4] ibid
[5] ibid

3.2.2 Conceptual Framework

The figure below represents the conceptual framework that guided this study.

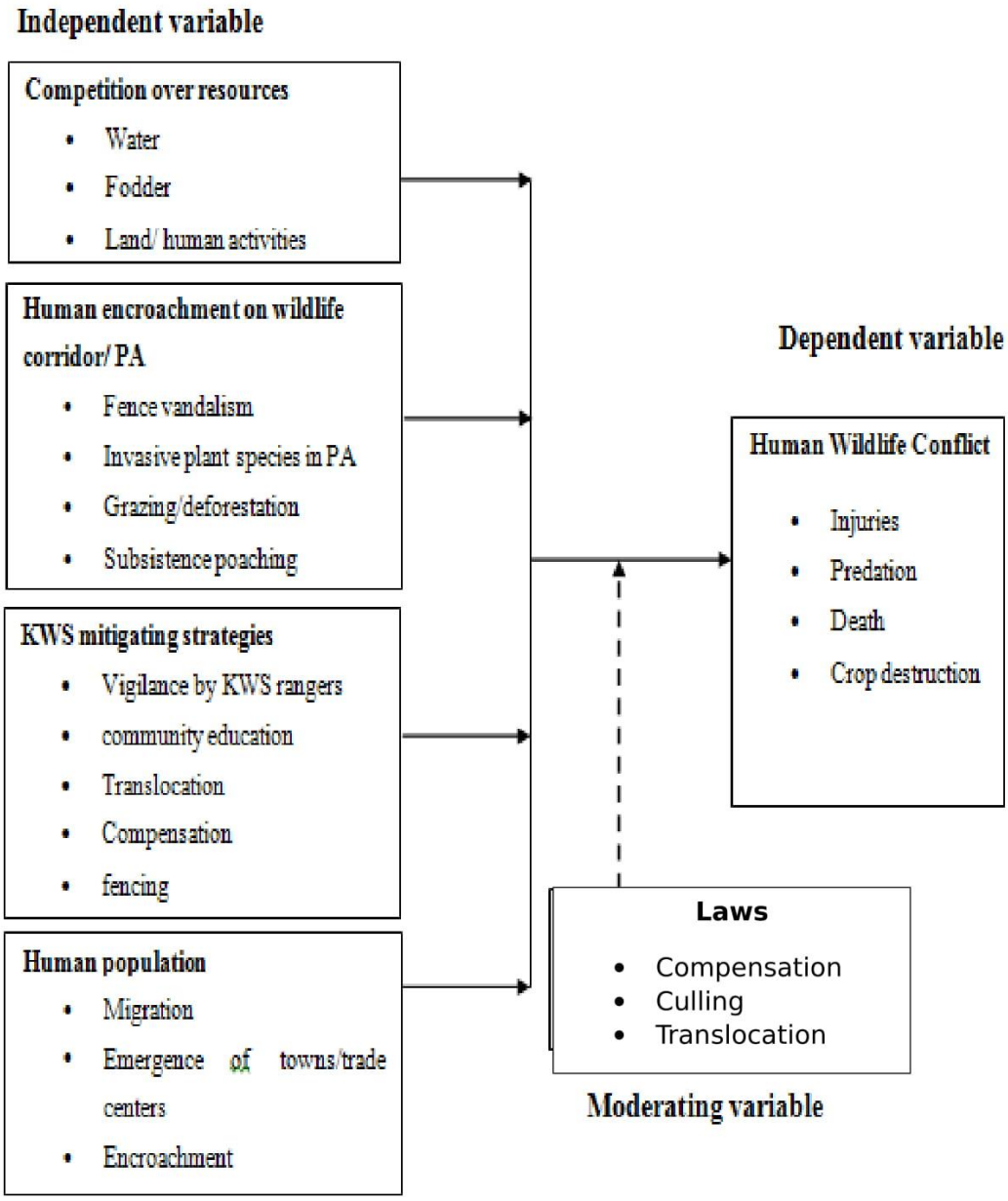

Figure 3.1 Conceptual Framework

Source: Adopted from Maurine Musimbi, 2013

3.3 Study area.

Meru Community occupy the East, North and North-Western slopes[6] of Mt. Kenya National Park where there have been increasing HWC. It has an altitude of approximately 5199 metres.[7] Geographically, Meru is located at 0º3'N 37º 38'E / 0.050º N 37.633 coordinates.[8] The population of Meru County is 1,591,533.[9] Farming is the main economic activity in the County.[10] Livestock rearing is also practiced including; cattle, sheep, rabbits, chicken and goats among others. [11] Farmers neighboring Mt. Kenya National Park have frequent encounters with the wildlife that come destroying their crops, livestock depredation and property destruction. Below are two maps one showing map of Kenya indicating the location of Meru and the other showing location of Mt. Kenya National Park.

Figure 3.2 Map showing the study location

Source: Google Map, 2018

[6] <http://www.thecountyplatform.or.ke/meru-county/#ffs-tabbed-12 Accessed on 05 June 2017
[7] ibid
[8]< https://en.m.wikipedia.org/wiki/Meru_County> Accessed on 05 June 2017
[9] Kenya National Bureau of Statistics, 2009
[10] <http://www.thecountyplatform.or.ke/meru-county/#ffs-tabbed-12 Accessed on 05 June 2017
[11] ibid

3.4 Research Design

"Research design is the conceptual structure within which the research is conducted."[12] This study adopted a descriptive research in order to describe the state of affairs as it exists.[13] This design helped to understand and answer the research questions in line with the objectives of the study. The researcher interviewed individuals from sample households and reported the findings of the study. The researcher further analyzed the findings and interpreted the data to explain the current state of management of human wildlife conflicts within Mt. Kenya National Park in Meru County, Kenya. The study describes the mechanisms used to solve HWCs and their effectiveness, the role played by KWS and challenges encountered in management of HWCs within Mt. Kenya National Park. The unit of analysis used was households as it is the household generally affected by the HWCs.

3.5 Study population and sampling

The target population of this study comprised of all households in Meru County.

The accessible population included a total of 875 households in Naari, Gitimene.[14] According to Gay as cited in Mugenda and Mugenda, 10% of accessible population is considered adequate for a descriptive study. As such, the researcher took 10% of the 875 households to get the sample size for this study. That was;

$\frac{10}{100} \times 875 = 87.5$

For ease of analysis, the researcher rounded off the sample to 90 individuals from households within Naari.

The researcher also interviewed key informants to including Area Chief, NEMA Officer, Kenya wildlife Service (KWS) Officer, Kenya Forest Service Officer and County Environmental Officer.

Purposive sampling method was used to get households close to Mt. Kenya National Park. This was because households in close proximity to the Park are the ones mainly faced with HWCs. The researcher selected one adult of 18 years and above from each household to answer the interview questions.

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[12] Donald K Kombo and Denlo L A Tromp, '*Proposal and Thesis Writing*' (Paulines Publications Africa,2nd edn 2006) 70

[13] ibid p 71

[14] https://data.humdata.org/dataset/kenya-population-households-and-density-by-sublocations-2009Accessed on 28 March 2018

3.6 Data collection method

The study collected both primary and secondary data. Primary data was collected through survey interviews and observations. The research employed survey interview guideline on individuals, key informant interview guideline, observational form and camera as instruments to collect primary data. The secondary data was collected by use of data acquired from the reports, books, journals, dissertations, internet information concerning the research study.

3.7 Data Analysis and Presentation

Qualitative data was analyzed thematically where data was cleaned and edited. Quotations of some key informants were used to give the final report a deep and well-backed analysis.

The quantitative data was analyzed using Microsoft Excel and presented in a descriptive form. This was after cleaning the interview guides and coding the answers given by the respondents. The coded answers were entered in Excel and analyzed in line with the objectives. The results were presented in form of tables, frequencies, percentages and other statistical diagrams of pie charts and bar graphs.

3.8 Data reliability and validity

The consistency of the measurements was ensured by employing Test-Retest reliability test method.[15] The researcher administered the same measurement procedure to the same group of people two times.[16] The reliability of the test instrument (survey interview guide) was estimated by correlating the consistency of the scores in the first test and the scores in the second test.[17] The scores were very similar and hence the instrument was regarded reliable and as such employed.[18] Internal consistency was ensured by checking the homogeneity of items.

The criterion-related validity was used to test whether the instrument (survey interview guideline) was measuring what it was expected to measure.[19] The research instrument was pretested through a pilot survey where the questions were corrected after the pilot survey to

[15] Olive M Mugenda and Abel G Mugenda (1999) 'Research Methods: Quantitative and Qualitative Approaches (Act Press, 1999) 97
[16] ibid
[17] ibid
[18] ibid
[19] (n 15) 102

ensure validity of the survey. The researcher also ensured content validity by designing questions addressing all the objectives of the study.[20]

3.9 Research Ethics

Research ethics helped to promote the aims of the research, including knowledge, truth, and avoidance of error.[21] Plagiarism, fraud, misuse of privileges and misconduct was avoided and the research assistants were paid as agreed. About the research subjects, confidentiality and privacy was ensured and anonymity of individuals upheld. Physical and psychological harm on individuals was avoided by not compelling them to say what they did not want, nor forcing them to recall an occurrence against their wish. The purpose of the research was well explained to the research assistants, terms of payment and risks involved in the research were made clear to ensure they provided voluntary information and that they had an informed consent about the whole exercise. No pertinent issue was ignored in the research.

[20] (n 15)
[21] (n 15) 181

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results of the study based on the data that was analyzed to achieve the objectives of the study. The results are discussed as appropriate.

4.2 Social economic status of the respondents

4.2.1 Gender of the respondents

The results on gender are as indicated in Table 4.1 below.

Table 4.1 Gender of Respondents

Gender of Respondents	Frequency	Percent (%)
Male	29	32
Female	61	68
Total	**90**	**100**

Source: Field data, 2018

The study found out that 68%of those interviewed were females while 32% were males. The domination of females was because women are mainly engaged in household and farming activities hence they are mainly in the homesteads. This also signified that women are more affected by HWCs. Only a few men were found to be at home. This was attributed to culture where men work far from the homesteads. This means that men were less affected by HWCs compared to women since they are mostly away from home.

4.2.2 Age of the Respondents

The results on the age bracket of the respondents are shown in Table 4.2.

Table 4.2 Age of Respondents

Age of respondents	Frequency	Percent (%)
18-20 Years	8	9
31-40 Years	27	30
41-50 Years	12	13
>50 Years	43	**48**
Total	**90**	100

Source: Field data, 2018

Forty eight percent (48%) of those interviewed were above50 years, followed by those of between 31-40 years at 30%, then of between 41-50 years at 13% and lastly between 18-30 years at 9%. This implied that the information obtained was reliable since the respondents had lived in the area for a long period and hence they were more conversant with the management mechanisms used by the community to manage HWCs. This also showed that HWCs mainly affected individuals above fifty years.

4.2.3 Academic level

The results showing the academic level of the respondents are indicated in Table 4.3.

Table 4.3 Academic Level of Respondents

Education level of respondents	Frequency	Percent (%)
Primary	**45**	**50**
Secondary	**23**	**26**
Tertiary	**8**	**9**
Illiterate	**14**	**15**
Total	**90**	**100**

Source: Field data, 2018

The results showed that 50% of the respondents had primary education, 26% had secondary level of education, 15% were illiterate and only 9% of the respondents had tertiary level of education.

Education affected many aspects of life, including how individuals related with the wildlife and source of income. The population neighboring the Park was dominated by people with low levels of education at primary and secondary and illiterate with only 9% of the respondents having tertiary level of education. As a result, the respondents depend so much on agriculture for their livelihoods. Low levels of education were also attributed to the negative attitude towards the park.

4.2.4 Number of years lived in the area

The results showing the number of years the respondents had lived in the area are indicated in Table 4.4.

Table 4.4 Number of Years the Respondents have lived within the study area.

Time lived in the area	Frequency	Percent (%)
<5 Years	6	7
5-20 Years	20	22
>20 Years	64	71
Total	**90**	**100**

Source: Field data, 2018

The findings indicated that 71% of the respondents had lived in the study area for more than 20 years, 22% of the respondents had lived in the area for 5-20 years, while 7% of the respondents had lived in the area for less than 5 years. Since most of the people had lived next to the Park for more than 20 years, the results were deemed to be reliable as the respondents were found to be very conversant with the management of HWCs within Mt. Kenya National Park.

4.3 Mechanisms used by the local community to solve Human Wildlife Conflicts

4.3.1 Nature of human wildlife conflicts

The results showing the nature of HWCs are indicated in table 4.5.

Table 4.5: Nature of conflicts

Nature of conflict	Frequency	Percent
Crop destruction	90	100
Property destruction	28	31
Livestock Depredation	25	28
Injury and death of people	13	14

Source: Field data, 2018

The findings indicate that 100% of the respondents had experienced HWCs. The different types encountered were categorized in relation to the damages caused. The categories of the conflicts found were related to crop destruction, property destruction, animal depredation and death and injury of people.

Crop destruction was found to be the most prevalent conflict encountered by 100 % of the respondents. The main crops that were destroyed were Irish potatoes, pumpkins, beans, maize, green peas and on few instances bananas. Crop destruction was found to be season-dependent occurring mainly during dry season when there was food shortage in the Park and there were ripe crops on the fields and rainy season when there were crops in the farms. Elephants, monkeys and baboons were found to be the most notorious animals in destroying crops. If was further found that crop destruction was severe in farms that were in close proximity to the Park. Seemingly, the invading animals preferred to eat and destroy what they get first without walking long distances to obtain food. The results were consistent with those of Sabic who found crop damage to be the main conflict in the Nanda Devi Biosphere Reserve in Uttarakhand, India.[1] The results also agreed with Mordo et al who found that HWCs to be commonly related to agriculture operations where 23.5% of respondents who

[1] Sabic K, 'Human-wildlife conflict in the Nanda Devi Biosphere Reserve, Uttarakhand, India' (2011) 8-16

were in close proximity to the forest encountered the conflicts. [2] Emaja et al also found crop damage to be the most prevalent conflict in Gera district in South Western Ethiopia.[3]
Property destruction was the other type of conflict with 31% of the respondents indicating so. It was found out that the wild animals mainly elephant brought down temporary structures including houses and livestock sheds. The damage was worse if there were pumpkins in the house. One of the respondents, a woman (>50 years) said;

> *"…those elephants cannot be stopped if there are pumpkins in the house. It is as if they smell the pumpkins. If your house or granary where the pumpkins are stored is made of timber, the elephants will surely bring it down…"*

Property destruction was not as rampant as crop destruction because the main reason for wildlife invasion was hunger. Similar to crop destruction, property destruction was observed to be more in homesteads very close to the Park compared to those that were further.

The other conflict established was livestock depredation as indicated by 28% of the respondents. Livestock species mainly attacked were cows, goats and sheep. It was found out that the livestock are infested by ticks and tsetse flies and suffered from trypanosomiasis, foot-and-mouth diseases as a result of grazing in the Park. The people incurred costs for treatment of livestock although some of the livestock succumbed to the diseases. The study established that elephants caused physical injuries and killed the livestock. The Area Chief clarified that livestock depredation was a rare occurrence and occurred when the wildlife were hungry and found no crops in the fields. This was consistent with the findings of Otuoma (2003) who found that the most prevalent diseases as a result of human-wildlife conflicts to be rinderpest and trypanosomiases with few incidences of East Coast Fever and foot-and-mouth disease in Meru Conservation Area.

Fourteen percent of the respondents encountered injury and death of people. It was found out that this conflict occurred when people were caught unawares by the animals while grazing by the Park's buffer zone, collecting firewood, farming in the Park and other times when chasing the wildlife from their farms. The animals that cause threat to people were elephants, baboons, monkeys and snakes. Most people reported that they encounter snakes, monkeys

[2] Mordo B S, Breck W S, Wilson R K & Theobald M D, 'Spatiotemporal Distribution of Black Bear-Human conflict in Colorado, USA' (2007) 1855-1859
[3] Amaja G L, Feyssa H D & Gutema T M 'Assessment of types of damage and causes of human-wildlife confict in Gera distict, South western Ethiopia' (2016)

and baboons almost daily. The monkeys and baboons mainly affected women and children. It was further found that most of the snakes encountered were killed. Injury and death of people was a rare occurrence because the wildlife invaded in search of food and also because people can run away from the wild animals.

4.3.2 Frequency of occurrence of the conflicts

The survey showed that HWCs was experienced at different times. Nearly 48% of the respondents said that they experienced HWCs daily, 44% said they experienced HWCs seasonally while nearly 8% said they experience HWCs monthly as shown in Figure 4.1.

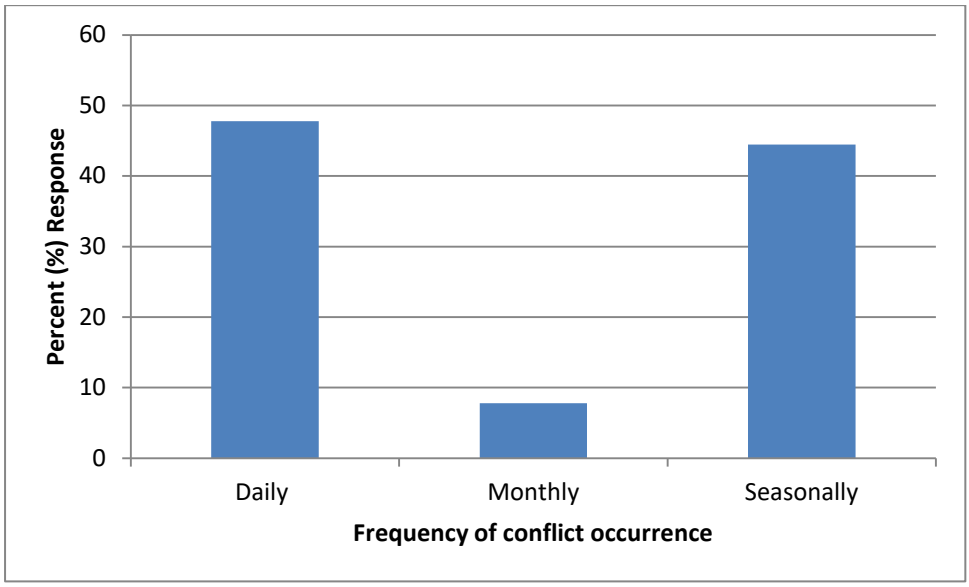

Figure 4.1 Frequency of conflict occurrence

Source: Field data, 2018

The area chief clarified that, the conflicts mainly occurred seasonally when there were crops in the farms during rainy season and during dry season when there was shortage of food in the Park. It was also reported that when it was season for conflicts, the wildlife attack daily including many times in a day. The experiences varied due to the type of animal attacking. For elephants it was seasonal, while for monkeys, baboons and snakes the attacks occurred almost daily. The results were found to be consistent with those of Sabic where 93% of the respondents said that they had frequent encounters with monkeys.[4]

[4] Sabic (n 1)

From the above findings, it is evident that human wildlife conflict is still a major challenge within Mt. Kenya National Park. If wildlife is to be managed sustainably, there is an urgent need for a solution of the conflicts to avoid losses that the neighboring community incurs as a result of the conflict.

4.3.3. Mechanisms used to manage HWCs and their effectiveness.

The researcher left the question of the mechanisms the community used to solve HWCs open-ended in order to capture all the mechanisms used. The various methods used to manage conflicts include: throwing stones and soil, lighting fire and torches, burning plastics, beating drums and containers, screaming, use of dogs, killing animals and fencing farms and homesteads. The study established that different methods varied with the type of wild animal invading.

a. Guard Animals

The study found out that 68% of those interviewed reared dogs as guards against wild animals. It was found that the dogs watched the livestock while grazing. The dogs alerted people whenever there was danger of attack by wild animals during the day and at night by barking. The dogs also chased the animals by running wildly towards the attacking animal. Further, the barking of the dogs also scared the animals away. The results were consistent with those of Njue who found out that, dogs and donkeys were used as guard animals.[5] They were trained to bond with flocks, monitored them while grazing and warned people of roaming danger of attack by predators.[6]

b. Fencing of homesteads and farms:

It was found that fencing of homesteads and farms was used as a deterrent of wild animals. The people used live fences, barbed wire, stones and timber. However, it was observed that only 35% of the interviewed homesteads and farms were fenced. This was because fencing was expensive and only few people could afford. Sixty five percent of the farms and homesteads were not fenced. Lack of fences heightened the impact of the conflicts because the attacking animals had free access to the farms and homesteads**.**

[5] Robert M Njue, 'Critical Analysis of Strategies of Wildlife Related Conflict Management in Kenya' (2013) 73
[6] ibid

The results were similar to those of Njue who found fencing to be an effective method of managing HWCs.[7] According to Njue, "when they are properly designed, constructed and maintained, fences can be almost completely effective in preventing conflict between people and wild animals"[8] Fencing allows people to practice agriculture and livestock rearing with minimal disruptions from wildlife.[9] "Fences also help prevent the transmission of certain endemic contagious diseases such as foot- and-mouth disease, African swine fever and theileriosis."[10] Moreover, fencing homestead areas instead of an entire park boundary is cheap and allows greater wildlife dispersal.[11]

Nevertheless, fencing is not 100% efficient as animals like monkeys and baboons are not deterred by fences.[12]

c. Acoustic methods.

The study found that the people used acoustic methods to chase and scare straying animals. These included beating of drums and tins, screaming and whistling to scare the animals. However, if was found that overtime the animals had become accustomed to these methods and as such they had become poorly effective and sometimes not effective at all. These methods were also found to be tiresome. Although this technique is useful sometimes, it can be used in expanse areas and the noise can potentially cause auditory problem to non-target species.[13]

d. Visual scares:

It was established that the people used scarecrows in the farms and on the fences to scare baboons and monkeys. It was however found that this method was effective in the short term as the animals learnt that they were just scare crows and invaded the crops anyway. It was further found that when the elephants invaded at night, the people lit fire and torches. Its effectiveness was found to be diminishing as the wildlife were getting used to the method.

The people burnt tires and plastics to scare away animals. This method was found to be very effective in scaring snakes and elephants.

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[7] Robert M Njue, 'Critical Analysis of Strategies of Wildlife Related Conflict Management in Kenya' (2013) 73
[8] ibid
[9] ibid
[10] ibid
[11] Mworia B Mwiti, 'Human Wildlife Conflicts and rural livelihoods in Laikipia District' (2006) 80
[12] ibid
[13] Robert M Njue, 'Critical Analysis of Strategies of Wildlife Related Conflict Management in Kenya' (2013) 73

e. Human vigilance:

Young men in the community guarded the farms at night using shift when it was a season for elephants to attack. The young men spent the whole night at conflict areas to scare away the animals. It was found that this method was effective in reducing the conflict as the guards could see the attackers from a distance and chase them before they invaded their farms and homesteads. However, it was found that this method was dangerous when the animals escaped using unusual routes. The guarding men were attacked unawares and sometimes they were severely injured or killed. It was further found out that people remained alert during the day to chase monkeys and baboons using stones and soil. The monkeys and baboon were not afraid of women and children and sometimes attacked them and injured them.

Although vigilance is effective, it is a tiresome and unsustainable method. Guarding overnight means one will spend better of the day resting. It thus hinders the capability of people to engage in other income generating activities during the day thus impacting negatively on their livelihoods.

The results are similar to those of Mwiti who established that in Endana and Rumuruti, vigilance was an effective measure alerting people of impending danger.[14] Mwiti however noted that this method hindered the people to engage in other activities and child labor. [15]

f. Killing of animals

The study found that the people killed wild animals as a management mechanism. Snakes were found to be most killed animal as indicated by 70 % of the respondents. It was also established that most of the times the people chased straying elephants with the intention of killing them.

The findings demonstrated that the people had a negative attitude towards wild animals. Moreover, it demonstrates that people are ignorant of the law. Killing of an animal is only allowed when an animal has been deemed problematic. [16] Killing endangers wildlife

[14] Mworia B Mwiti, 'Human Wildlife Conflicts and rural livelihoods in Laikipia District' (2006) 80
[15] ibid
[16] WCMA 2013, Section 77 (a)

negatively impacts tourism and economy in general.[17] There is therefore need to educate the people on the importance of wildlife and how to co-exist with them.

4.3.3.1 Effectiveness of the mechanisms used by community to manage HWCs

The results on how effective methods used to manage HWCs are shown in Figure 4.2.

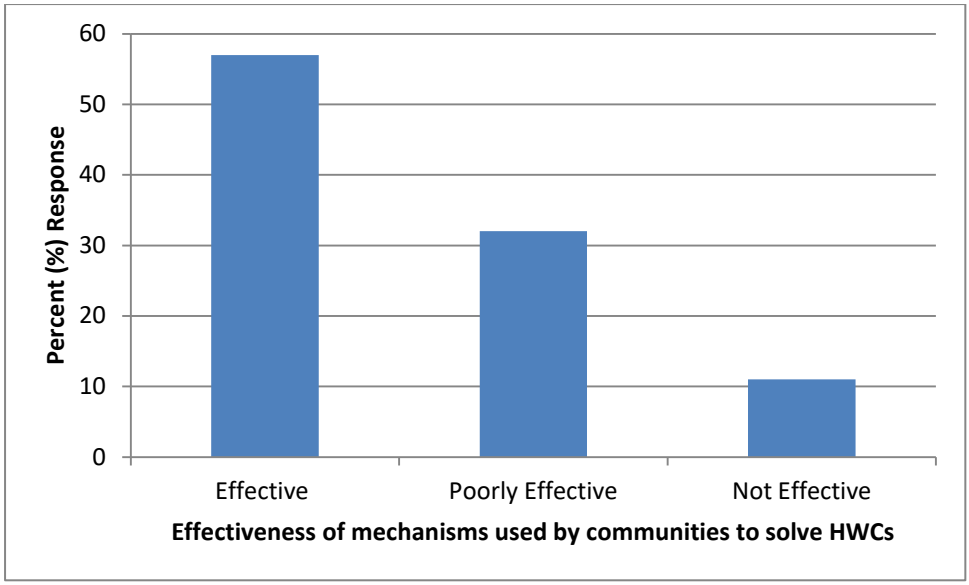

Figure 4.2: Effectiveness of the mechanisms used by local community to manage human wildlife conflicts

Source: Field data, 2018

Fifty seven percent of the respondents indicated that the mechanisms they used were effective. They, however, exclaimed that the methods were not effective all the time especially during the dry seasons when the animals are hungry. The methods were not sustainable and they were vey tiresome. Thirty two (32%) said that the mechanisms used were rarely effective, while 11% said the mechanisms were not effective at all since the wild animals were habituated with the methods and hence they were no longer scared of the methods used.

Although majority of the respondents people view the mechanisms they use effective, they are tiresome and not sustainable. The wild animals have also been accustomed to them reducing their efficiency. Some of the mechanisms are not applicable to some animals. For

[17] Gordon O Ocholla, James Koske, Gilbert W Asoka, Martin M Bunyasi, Ongere Pacha and Samson H Omondi, 'Assessment of Traditional Methods Used by the Samburu Pastoral Community in Human Wildlife Conflict Management' (2013) 3 (11) International Journal of Humanities and Social Science.

instance, monkeys and baboons are not deterred by fences. These mechanisms consume a lot of time and inhibit people from engaging in other activities and hence can lead to poverty.

4.3.4 The Community's Attitude of the Park

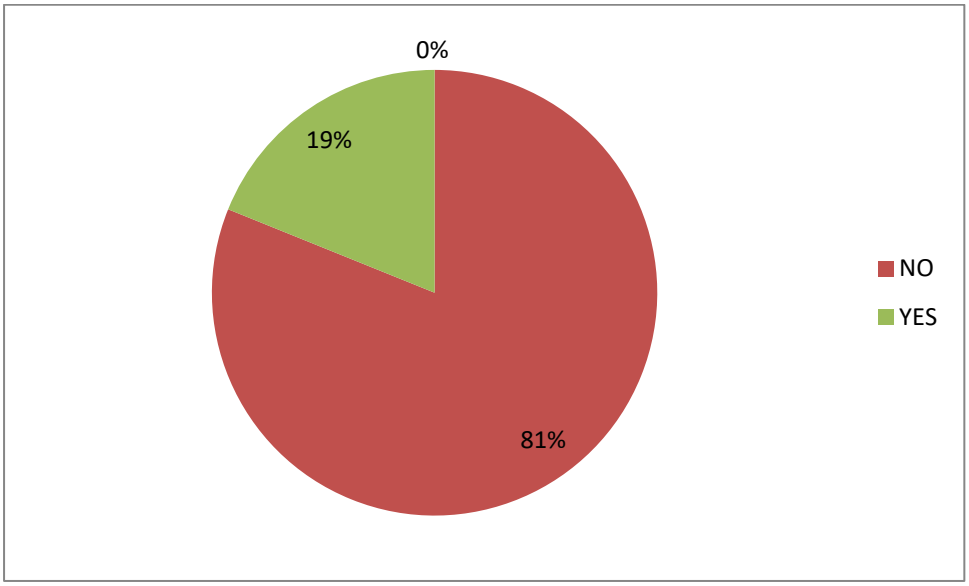

Figure 4.3 Community's attitude of the Park

Source: Field data, 2018

Eighty one percent of the respondents had a negative attitude towards the Park by indicating that they would not want the park to continue being there. They said that the wild animals were a liability. The wild animals destroyed their crops, property including houses, killed the people and transmitted diseases to their livestock leading to their death. If these people do not develop positive attitudes towards wildlife conservation in general, efforts to manage human wildlife conflicts will be in vain. If the people are not adequately compensated for the losses they incur as a result of wildlife, they cannot tolerate them.

On the other hand, 19% of the respondents had a positive attitude towards the park by indicating that they would want to continue living near the Park. These said that they didn't have a problem with the park or the animals. They said that they would not wish the wild animals away if they were managed effectively. They also said that they benefited from the park by getting firewood, grazing farm for their livestock, and economically when people visit they boosted their businesses. These findings demonstrated that if benefits accruing from wildlife resources are shared as is provided in Section 71 (1) of WCMA of 2013, the

communities would have a positive attitude towards the park and subsequently lead to decrease in human wildlife conflicts.

These findings were consistent with those of Tewodros and Afework where, "85% of the respondents indicated that they were unhappy on the existence of Abijata-Shalla Lakes National Park in Ethiopia, whereas 12% had positive attitude and 2.4% were neutral. [18] People have negative attitudes towards wildlife as a result of loss of resource use rights, livestock depredation and crop damage, lack of compensation strategies, and exclusion of farmers from the parks planning processes."[19] The results however varied with those of Mir et al where 84% of interviewees supported wildlife conservation in India, whereas 16% opposed it.[20] The variation could be due to education levels of the respondents.

4.4 Legal Tools for Management of Human-Wildlife Conflicts

4.4.1 Awareness and Effectiveness of the Legal tools used to manage Human Wildlife conflicts

The findings on awareness of Wildlife Conservation and Management Act of 2013are shown in Table 4.6

Table 4.6 Awareness of Wildlife Conservation and Management Act, 2013

Awareness of existence of WCMA, 2013	**YES**	**NO**
Frequency	67	23
Percent (%)	74	26
Awareness of provisions of WCMA, 2013		
Frequency	24	66
Percent (%)	27	73

Source: Field data, 2018

[18] Tewodros Kumssa and Afework Bekele, Attitude and Perceptions of Local Residents toward the Protected Area of Abijata-Shalla Lakes National Park (ASLNP) Ethiopia (2014) 4(1) JEE < http://dx.doi.org/10.4172/2157-7625.1000138> Accessed on 01 June 2017

[19] Nature Conservation Division of Forests, Bhutan National Human Wildlife Conflict and Management Strategies (2008) 4-5, 28

[20] Zaffar R Mir, Athar Noor, Bilal Habib, and Gopi G Veeraswami, Attitudes of Local People Toward Wildlife Conservation: A Case Study From the Kashmir Valley (2015) 35 (4) MRD <http://dx.doi.org/10.1659/MRD-JOURNAL-D-15-00030.1> Accessed on 01 June 2017

74% of the respondents said that they were aware of the existence of Wildlife Conservation and Management Act of 2013 while nearly 26% of the respondents said that they were not aware of existence of the Act or any law on wildlife conservation and management. This was attributed to the low levels of education as indicated earlier.

Conversely, only 27% of the respondents were aware of the provisions of WCMA, 2013 with regards to HWCs whereas 73% of the respondents were not aware of the provisions of the Act. It was found out that those aware of the provisions of the Act only knew provisions on compensation for death and damages as a result of HWCs. They, however, did not know the amounts for compensation.

Failure to know the provisions of laws governing wildlife can lead to breaking them. People can kill 'innocent' wildlife out of ignorance and be fined or jailed. This could further lead to negative attitudes towards wildlife. Moreover, failure to know the law means that people are not aware of their rights in case of HWCs. As such, they could be taken advantage of by those in charge of compensations. Also, people will not explore the opportunities available in managing wildlife resources. From the findings, there is need to create awareness of Wildlife Conservation and Management Act (WCMA) 2013. Moreover, it may empower the people to practice wildlife conservation in their farms for gains and as such reduce HWCs.

4.4.2 Legal tools used to managed Human wildlife conflicts within Mt. Kenya National Park

The findings on legal tools used to manage HWCs are shown in Figure 4.4.

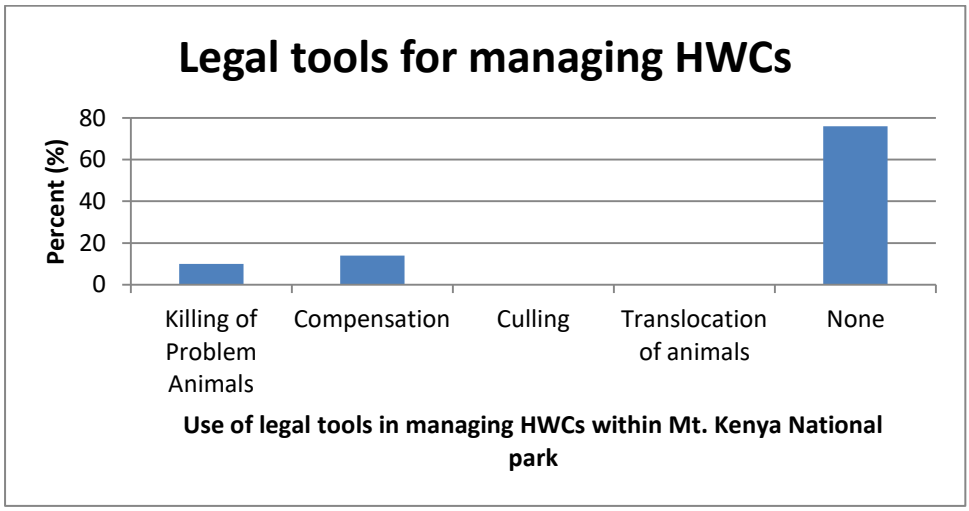

Figure 4.4: Legal measures for management of HWCs

Source: Field data, 2018

76% of those interviewed said that none of the legal measures provided was used within Mt. Kenya National Park, 10% said that killing of problem animals was used while 14% said that compensation was used. No respondent said that translocation or culling was used within the Park. However, on an in-depth interview with the Kenya Wildlife Service (KWS) warden, it was established that the Service also captured and translocated animals.

4.4.3. Effectiveness of legal tools used to manage HWCs within Mt. Kenya National Park.

A total of 22 respondents responded to the question on effectiveness of legal tools used to manage HWCs within Mt. Kenya National Park. The results were analyzed in Table 4.8. The respondents deferred from the total respondents for the research because the remaining 68 respondents said that none of the legal measures was used within the Park. As such they did not rate the effectiveness of the legal tools since they had not experienced them being used with Mt. Kenya National Park.

Table 4.7 Effectiveness of Legal Measures for management of HWCs

Legal Measure	Effective (Frequency, Percent)	Less Effective (Frequency, Percent)	Not Effective (Frequency, Percent)	Total
Killing of problem animals	10, 45%	5, 23%	7, 32%	22
Compensation	6, 27%	7, 23%	9, 41%	22
Culling	0	0	0	0
Translocation	0	0	0	0

Source: Field data, 2018

45 % of the respondents regarded killing of problem animals as effective. They said that once the stubborn animal was eliminated, they experienced peace for some time. This further demonstrated negative attitudes towards wildlife where the people would rather have the wildlife killed. 23% of those interviewed said that killing problem animals was less effective while 32% said that it was not effective method at all.

Killing of problem animal provides a "quick fix" solution by eliminating the problem.[21] But is it not morally degrading to kill an animal? How does one measure the extent to which an animal is problematic? In some cultures like Asia, killing of elephants is a taboo.[22] According to Mwiti, killing of problem animals poses a challenge in identifying the problem animal due to time lapse between the conflict occurrence and capture of the animal. [23]

On rating effectiveness of compensation as a tool in managing HWCs, 27% respondents said that compensation was effective. They said that compensation eases the pain and loss incurred as a result of HWCs. On the other hand, 32% said that it was less effective while 41% said that it was not effective at all. The findings varied with those of Njue who found

[21] Stamatios Asimopoulos, 'Human-Wildlife Conflict mitigation in Peninsular Malaysia: Lessons learnt, current views and future directions' (2016)
[22] ibid
[23] Mworia B Mwiti, 'Human Wildlife Conflicts and rural livelihoods in Laikipia District' (2006) 80

that people strongly vouched for compensation as mechanism for solving HWCs. This variation could be due to frustration the people encountered with compensation. The study found that when people reported their claims to KWS, they were asked to fill claim forms and they never received the compensation other than for those who had money to follow up. When compensation was done, the money paid was too little compared to the losses incurred as a result of HWCs. Failure to compensate the claims could be as a result of lack funds. It could also be laxity of the service due to the fact that WCMA does not provide the time within which compensation should be effected. As such there is need for amendment of the Act to specify the time within which compensation should be effected. The amount compensated should cater for all the losses incurred. As such, an audit of the lost property should be done once a claim is filed and a value equated depending on the market price of the destroyed items at that time. Whilst compensation increases tolerance to damage caused by wildlife, it only addressed the symptoms of the conflicts.

Translocation and culling methods were not rated by the respondents. This was because the respondents said that these methods were not used within Mt. Kenya N.P. However on asking the opinion of the respondents to these methods, 50% said that translocation would be a good measure if it was applied in the Park. They further said that this would save the community from the losses they suffered as a result of conflicts with wildlife and at the same time save the lives of the animals by not killing them. The remaining 50% said that translocation would be less effective. Twenty one percent of the respondents said that culling would be effective while 80% said that it would not be effective at all.

Translocation is theoretically best solution to HWCs as it removes the problem animal from an area.[24] In reality however, it offers a temporary relief to people as captured animals especially elephants return to capture site.[25] Moreover, "there is a risk of exporting a problem to another location."[26] Also the cost of translocation is enormous.[27] Translocation can also be detrimental to the animal's health due to change of environment and ecosystem and hence can lead to death of the animal. For instance, in July 2018, eight Black Rhinos died after

[24] Stamatios Asimopoulos, 'Human-Wildlife Conflict mitigation in Peninsular Malaysia: Lessons learnt, current views and future directions' (2016)
[25] ibid
[26] ibid
[27] ibid

translocation to a new wildlife reserve in Kenya.[28] On the other hand, culling is unethical as it may involve killing of unproblematic animals.

4.4.4 Need to amend laws on management of HWCs.

The findings on need to amend laws on management of HWCs are in figure 4.5

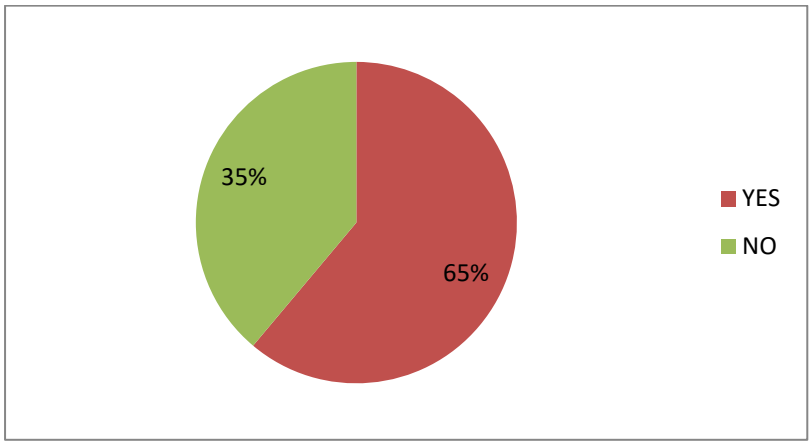

Figure 4.5: Need to amend laws on management of HWCs

Source: Field data, 2018

On whether there was need to amend Wildlife Conservation and Management Act, 2013. 65% of the respondents said that there was need to amend the Act to specify the period within which compensation should be executed. On the other hand, 35% of the respondents said that there was no need to amend the law.

From the Key Informant Interviews, it was noted KWS would want the Act amended to define the period of time that the claims for compensations should be made. KWS also recommended that the law on killing problem animals should be amended in that it could lead to killing of animals that are not really problem animals. Kenya Forest Service (KFS) recommended that the law should allow people to utilize the wildlife resources freely. They also recommended that the law should clarify on which institution is in charge of the Park between KWS and KFS to avoid conflicts of interest and hence enhance conservation and management of wildlife and subsequently HWCs.

[28] https://www.bbc.com/news/world-Africa-44819231 Accessed on 13 October 2018 at 10.10a.m.

4.5 Role of KWS in the management of HWCs within Mt. Kenya National Park.

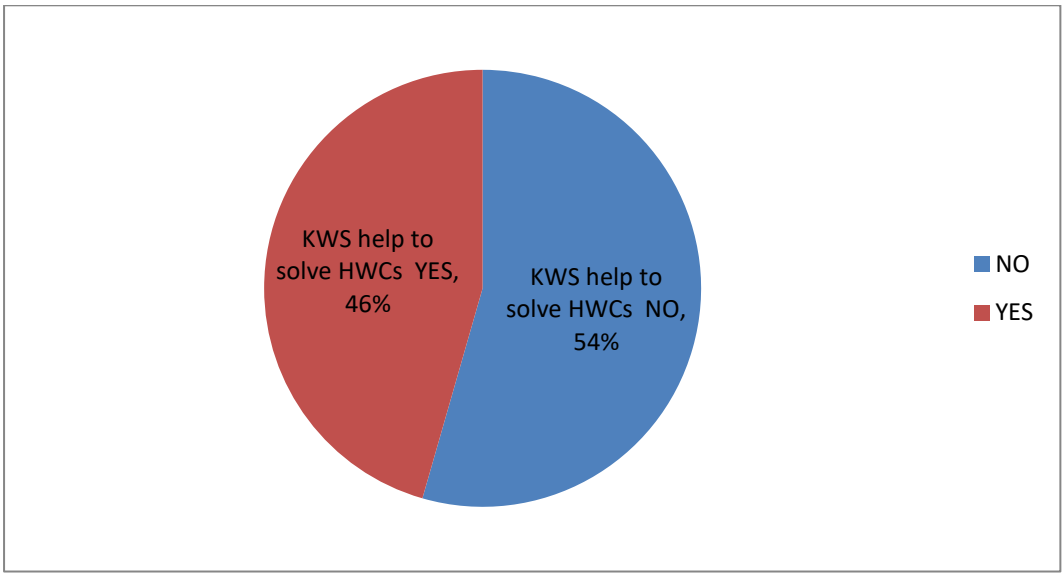

Figure 4.6: Whether KWS help to solve HWCs

Source: Field data, 2018

Majority of the respondents (54%) said that KWS had never helped to solve HWCs. The findings further showed that when KWS was called when a stray animal was out of the Park and there was no Officer to help, the community uses their own means to chase the stray animals from their midst by throwing stones, lighting fire, screaming and other local mechanisms. This was attributed to the challenges that KWS reported they faced of lack of enough personnel and lack of fuel for vehicles.

It was established that KWS had assisted 46% of the respondents to curb HWCs through chasing the animals from their farms and homesteads, electric fencing around the farm, compensation of the damages caused. It was further found out that the electric fencing had helped reduce the frequency of occurrence of the conflicts.

On the time taken by KWS to respond when there was a conflict, the results are shown in Figure 4.7

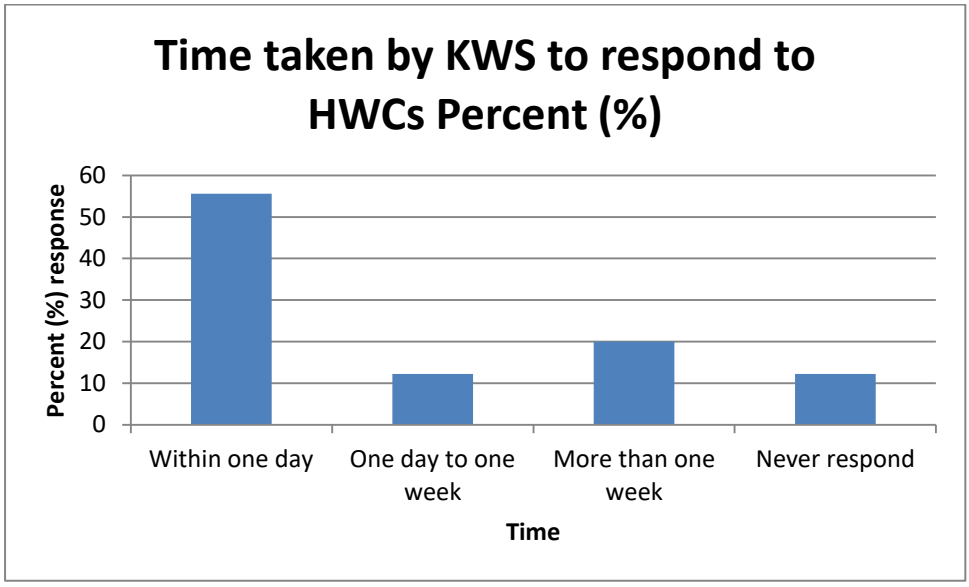

Figure 4.7: Time taken by KWS to respond to HWCs

Source: Field data, 2018

Nearly 56% of those interviewed indicated that KWS responded to HWCs within one day, 20% said more than one week, 12% between one day and a week and 12% said that KWS never responded. Delay and failure to respond by KWS was because of lack of enough vehicles and fuel and lack of enough personnel. There is need for KWS to employ more officers within the Park to manage HWCs successfully.

From the findings, it is evident that KWS is not sufficiently managing wildlife. KWS is mandated to among other things, conserve and manage national parks, wildlife conservation areas, and sanctuaries under its jurisdiction under Section 7 (a) of WCMA, 2013. Moreover, Section 7 (c) provides that KWS should set up a county wildlife conservation committee in respect of each county. This committee is to set to develop and implement, in collaboration with community wildlife associations, mechanisms for mitigation of human wildlife conflict.[29] By failing to help people during attacks by wildlife, KWS fails in its mandate. This poses a question whether there is a need to establish a different Institution to manage wildlife in Kenya. If no, the question is, 'what can be done to enhance the capacity of KWS in managing human-wildlife conflicts?'

[29] WCMA 2013, S 19 (h)

It was observed that KWS had erected an electric fence around the park which deterred elephants from straying outside the park. Ninety percent of the respondents indicated that electric fencing was effective in reducing HWCs. It was however noted that sometimes the fence did not have power. It was also noted that the wildlife especially elephants were habituated to the fence and as such fell the posts and strayed outside the Park.

These findings were consist with those by Asimopoulos who established that electric fence in Peninsular in Malaysia had reduced HWCs by 36 % between the year 2006 and 2011.[30] Similarly, a study in Bhutan showed that people were satisfied with the effectiveness of the electric fencing in solving HWC and especially in the early years after installation the electric fencing.[31]

Although electric fencing help deter wildlife, the Park is not sufficient to cater for all the needs of wildlife. The wildlife need to migrate for other reasons like breeding. In a study carried out in Ol Pejeta Conservancy in Laikipia, Graham et al established that, fencing impaired opportunities for genetic exchange between elephant populations and access to seasonally important resources.[32] As such the community land is crucial to provide the corridors for such migrations. Moreover, installation and maintenance of electric fences is costly. [33] There is therefore need to enhance the attitudes of the people towards wildlife so as they can peacefully co-exist with the animals.

[30] Stamatios Asimopoulos, 'Human-Wildlife Conflict mitigation in Peninsular Malaysia: Lessons learnt, current views and future directions' (2016)
[31] Royal Institute of Management, 'Assessment of Effectiveness of Electric Fencing in Combating Human Wildlife Conflict: Case Study of Bji and Katsho Gewogs of Haa Dzangkhag' (2016)
[32] ibid
[33] Graham M D Gichohi N, Kamau F, Aike G, Craig B, Douglas-Hamilton I and Adams W M,(2009), 'The Use of Electrified Fences to Reduce Human Wildlife Conflict: A Case Study of the Ol Pejeta Conservancy, Laikipia District Kenya. Working Paper 1, Laikipia Elephant Project Nanyuki Kenya

4.6 Challenges in the management of HWCs within Mt. Kenya National Park.

4.6.1 Challenges faced by the local community.

i. Poverty

The research found that agriculture was the main source of livelihood in Naari as indicated by 85% of the respondents. As such HWCs threatened their source of income though crop destruction, property damage and livestock depredation. The people exclaimed that HWCs was the reason they lacked money to fence their farms and build permanent structures causing wildlife mainly elephants to enter their farms and homestead freely and cause great damage. Most of the houses, granaries and livestock sheds were made of timber and as such the elephants easily damaged them.

Increase in poverty can lead to increased human-wildlife conflicts. This can happen when people turn to the park to derive their livelihoods. Poverty also poses risks of wildlife crimes like poaching for earn a livelihood. Moreover, the people can cut trees from the Park to sell timber in order to generate income. As such, there is need to educate the people of opportunities that are available for people living with wildlife like conserving wildlife in their farms for gain.[34] There is also need to empower people to enter into agreement with KWS to share benefits accrued from providing wildlife migration corridors. [35]

ii. Wildlife habituation to the methods of prevention

The research found that over the years, wildlife had familiarized with the mechanisms used by the local communities to prevent the conflicts and their effectiveness had consequently declined. Failure of these mechanisms can exacerbate the impact of conflicts and people can suffer greater loses as a result. The people need to develop a positive attitude towards wildlife and learn how to co-exist with them rather than viewing them as enemies they have to chase all the time.

[34] WCMA 2013 S(1)
[35] WCMA 2013 S 74

iii. Fear

The study found out that 75% of the respondents were afraid of wild animals and could not chase them from their farms or homesteads. It was found that people mainly women and children run away or locks themselves in the houses. This was because of the ugly encounters with wild animals the resulted in severe injury and death of people. This may cause children refuse to attend school for fear of encountering wild animals. Fear also has severe health implications.

4.6.2 Institutional Challenges in managing Human wildlife conflicts

i. Lack of enough funds.

In an in-depth interview with the warden in charge, it was established that KWS lack enough funds to fuel vehicles. In the words of the Officer,

> *"… sometimes we receive calls that the elephants are in the farms neighboring the Park and we cannot go to chase the animals because the vehicles do not have fuel*…"

This has incapacitated the KWS Officers and as such they cannot attend to emergency cases of conflicts.

It was noted that electric fencing project was stalled and some sections of the fence were not functional due to lack of funds. This implied that in areas where there is no electric fence, the wild animals stray freely in people's farms. Moreover, the training local community on how to manage HWCs conflicts was found to be very expensive. As such KWS does not conduct the trainings as regular as could be effective in managing HWCs.

From the findings, there is need for the government to allocate more funds to Kenya wildlife Service to enhance its capacity. KWS also needs to partner with other organizations to get funds for managing wildlife.

ii. **Lack of enough manpower.**

It was established that KWS has few Rangers to patrol the Park and that there are times that many animals invade the communities and only one officer or none is available to chase the animals from the lands. This further impedes KWS from executing its mandate efficiently.

Lack of enough manpower heightens the effect of the conflicts where more property is damaged than could be the case if the stray animals are returned to the Park urgently. The study established need for KWS to employ more Officers to patrol the Park. It was noted that there was no Community Wildlife Association within the study area. As such there is need to empower the community to register an association to help in controlling problem animals. Even so, a question still remains whether employing more Officers would be economically viable considering that the conflicts do not occur all the time.

iii. Poor land use planning

It was noted that communities neighboring the Park grew crops like Irish potatoes, maize, carrots, cabbages, pumpkins, beans and peas that were susceptible to wild animals such as elephants, monkeys and baboons. This was worsened by absence of fences around the farms. From the findings, the current land use practices by the community neighboring the Park are incompatible with wildlife conservation needs. As such, there is need for change in land use to promote co-existence between people and wildlife.

iv. Compensation

From the study it was noted that compensation of claims as a result of HWCs was not done in time. This was because the claims are forms are to be verified by the County Wildlife and Compensation Committee who after verification submits the claims to the Cabinet Secretary with the recommendations as provided in Section 25 (2) of the WCMA, 2013. How the County Wildlife and Compensation Committee confirms the claims without actual on-site audit of damaged goods still remains a big question. Further, the Act does not give the period within which the compensation should be effected. This is liable to abuse by those responsible for compensation as the law does not give the duration within which compensation must be made.

From the findings, there is need to amend WCMA to specify the time within which compensation should be effected.

v. Population pressure

The study established that increase in human population in the area was also a challenge to managing HWCs. This was because the increased population led to increased demand for

land to farm and hence people encroached the Park. This was found to lead to competition for resources including water, food and spaces between wildlife and animals and consequently HWCs which are sometimes fatal when the wildlife met people off guard. The increase in population over the years has led to people inhabiting lands that were initially not inhabited some of which were wildlife migration corridors and dispersal areas. Subsequently, this led to confinement of wild animals in the Park with limited space and resources. During the dry season when there is inadequate food and water in the Park, the animals disperse in the neighboring lands in search of food and water leading to HWCs.

vi. Institutional conflicts.

When read together with the eleventh schedule, Section 119(a) of WCMA, 2013 gazettes Mt. Kenya National Park and as such it also falls under conservation and management by Kenya Wildlife Service.[36] Kenya forest service (KFS) is the body corporate mandated to, among other functions, conserve, protect, and manage all public forests.[37] Section 77 (a) and Third Schedule of the Forest Conservation and Management Act, 2016 gazetted Mt. Kenya Forest as a public forest and as such it also falls under KFS. This was found to pose a challenge in determining whose responsibility it was to manage HWCs. In the in-depth interview with the KFS Officer, it was found out that KFS has left the responsibility of managing HWCs to Kenya Wildlife Service. This could be a major reason behind poor management of HWCs within Mt. Kenya National Park due to lack of clarity on who is responsible to conserve and manage the park.

vii. Dangerous activities by the communities.

The study found out that the people neighboring the Park enter deep into the forest to fetch firewood. This was found to lead to HWCs when the wild animals met with people or wildlife. It was further found out that people managed to escape on many instances. However, on few instances, it was found that there are severe conflicts when people are caught unawares by the wildlife where people are severely injured or even killed. It was further established that the people grazed their livestock in the Park which caused disease transmission to livestock.

[36] WCMA 2013 S 7 (a)
[37] Forest Conservation and management Act 2016, S 8 (a)

viii. Community intolerance with wildlife

The study found out that that people were intolerant due to the losses incurred as a result of crop destruction, death on animals as a result of disease, loss of property and injury and death of people. The people injure and kill wild animals found in their farms even without first calling KWS for help. The study established need for KWS to promote positive attitude towards wildlife by engaging the community in managing the wildlife and sharing benefits accruing from the wildlife resources with the community.

ix. Identifying the problem animals

The research further found that there was a challenge in identifying problem animal. This is because the law is not clear at what point an animal should be deemed problematic and as such the Officers could end up killing animals that are not problem animals. This was consistent with the findings by Asimopoulos who established a challenge in identification of problem animal due to time lapse between incident and capture.[38] The study therefore established need for WCMA to be amended to clarify criteria for deeming an animal a problem animal.

[38] Stamatios Asimopoulos, 'Human-Wildlife Conflict mitigation in Peninsular Malaysia: Lessons learnt, current views and future directions' (2016)

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter gives the summary of the findings, the conclusions and the recommendations of the study. This is done in various sections that follow.

5.2 Summary of findings

The research found out that HWCs had been experienced within Mt. Kenya National Park for over 20 years as stated by all the respondents. Crop destruction was found to be the main effect of the conflicts as stated by 100% of the respondents, followed by property destruction as indicated by 31%, then livestock depredation as indicated by 28% and injury and death of humans as indicated by 14% of the respondents. It was also found that elephants, monkeys, baboons and snakes were the animals involved in the conflict. It was found that people encountered monkeys, baboons and snakes almost on a daily basis, while conflicts with elephants were seasonal occurring during the dry season when there was hunger in the park and rainy season when there were crops in the farms. It was also noted that the conflicts were severe on those living in close proximity to the park as observed by the research during the survey.

Further, the study found that the community used dogs as guard animals; fencing of homesteads and farms; acoustic methods through beating of drums and tins, whistling and screaming, and throwing of stones and soil; visual scares like scarecrows, fire and torch at night and burning of tires and plastics at night; Human vigilance where young men had shift to guard against elephants when it was season for their attack and killing of snakes. It was found that these methods were effective on the short term and depending on the type of animals involved. The efficiency of these mechanisms had however declined as the wildlife had become habituated with them.

The study further established that 74 % of the respondents were aware of the existence of Wildlife Conservation and Management Act, 2013. Conversely, only 27% were aware of the provisions of the Act regarding management of HWCs. The research also found out that

compensation for damages as a result of HWCs was done as reported by 14% of the respondents and killing of problem animals as reported by 10% of the respondents. However, 76% of the respondents said that none of the legal measures for addressing HWCs including translocation and culling of animals was exercised with Mt. Kenya National park. However, through an in-depth interview with KWS warden, the researcher found out that the KWS also capture and translocated problem animals. 41% of the respondents said that compensation was less effective since the takes very long and the amount paid is very little compared to the losses incurred. Majority of the respondents (45%) viewed killing of problem animals to be effective as they enjoyed peace. However, the KWS Officer viewed killing of problem animal as unsustainable mean of addressing the conflicts. The study established need to amend Wildlife Conservation and Management Act as indicated by 65% of the respondents.

The study established that KWS helped the people solve HWC through fencing of the park, chasing wildlife from the farms, compensation, killing problem animals, capturing and translocation of problem animals. KWS mostly responded to HWCs within one day as indicated by 56% of the respondents. It was also found that there are times that KWS never responded to conflicts as indicated by 12% of the respondents and reverberated by KWS Officer.

Correspondingly, the study established various challenges encountered in the management of HWCs. The people lacked funds to fence their farms and homesteads and build permanent structures. It was also established that wildlife had become habituated to the mechanisms used by the community to solve the conflicts and hence their effectiveness had diminished immensely. The study also found out that KWS wardens were incapacitated to address the conflicts while it was occurring due to lack of fuel, inadequate vehicles and lack of enough manpower. Moreover, the research found that there was institutional conflict in managing the park where it was found out that the park was under management of KWS as mandated in WCMA, 2013 and KFS as mandated in Forest Conservation and management Act, 2016. It was also found that the process of compensation was very long and not defined by the law. Still, the research found out that population pressure increased pressure on land causing people to encroach the park and wildlife dispersal and migratory corridors. It was also found out that there was poor land use planning where the local community grew crops that were enticing to wild animals and hence prone to destruction. It was also discovered that the

community were intolerant with the wildlife as a result of losses suffered and sometimes they just killed animals which were even not problematic. In addition, it was found out that there was a challenge in determining a problem animal in that the law does not elaborate what a problem animal actually is.

5.3 Conclusion

From the findings, the study concludes that HWCs is still a major problem within Mt. Kenya National Park having been experienced for over 20 years. The conflicts have a severe implication on the lives and livelihoods of people through crop and property destruction, livestock depredation, injury and death of people. Although the community has various methods including use of guard animals, fencing, acoustic methods, visual scares, human vigilance among others, the methods have been declining over the years as a result of animals getting habituated to the mechanisms. The people are ignorant of the provisions of WCMA, 2013. The legal tools for managing HWCs are not effective enough due to delays in compensating, temporary nature of the solutions the offer and ethical questions they raise. Moreover, Kenya wildlife service does not adequately address human wildlife conflicts due to lack of adequate funds and lack of enough personnel. Additionally, there are various challenges encountered in management of HWCs. The community is faced with poverty and the animals are habituated to the mechanisms used by the people to prevent the conflicts. The relevant institutions like KWS, KFS, NEMA, County government have institutional conflicts among other challenges.

The argument in this thesis is that legal tools to address human wildlife conflicts are under-evaluated and in need to have further academic attention. Through the lens of several examples, the legal tools for management of HWCs have been explored. The mechanisms used by the local communities to manage human wildlife conflicts have also been investigated. It is proposed that for sustainable management of HWCs, the community has to be involved in the management. Further work is however required to explore exactly how the community ought to be engaged in managing human wildlife conflicts. Moreover, it is suggested that the WCMA, 2013 needs to be amended to define the period within which compensation should be effected and provide a criteria for determining a problem animal.

5.4 Recommendations

From the study, it was evident that human-wildlife conflicts were still a major problem within Mt. Kenya National Park.

It is therefore recommended that the local communities should be involved in managing wildlife. This can be done by encouraging the people to establish community wildlife associations. This way, the people will feel part of the management of wildlife resources and hence boost positive attitude towards wildlife. Kenya Wildlife Service also needs to share the benefits accruing from wildlife with the local community.

Secondly, the study recommends amendment of Wildlife Conservation and Management Act to specify the amount of time within which compensation should be effected. This will help reduce delays in compensation. There is also need to provide criteria for deeming an animal a problem animal.

Thirdly, the study recommends allocation of more funds to Kenya Wildlife Service t. this will enhance the capacity of the Service to employ more staff and purchase more vehicles to attend to emergency cases. Moreover, allocation of more funds would enable KWS to employ community scouts to help control problem animals.

The study further also recommends education and awareness creation on WCMA, 2013. This will empower the community to change their land use to conserving wildlife in their farms for beneficial purpose. Moreover, the people will know their rights in cases of HWCs

5.5. Areas of further research:

1. Experience of KWS in dealing with Human wildlife conflicts.
2. Impacts of devolution in management of human wildlife conflicts.

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50. World Heritage Convention, 1972.

APPENDICES

APPENDIX I: INTERVIEW GUIDELINE

AN ASSESSMENT OF THE MANAGEMENT OF HUMAN-WILDLIFE CONFLICTS WITHIN MT.KENYA NATIONAL PARK IN MERU COUNTY, KENYA.

Date of Questionnaire……

Questionnaire number……

SECTION A: Please complete the following by ticking the appropriate box or writing a comment:

1. Name…….....
2. Age

a) 18-30 years b) 31-40 years c) 41-50 years d) >50 years

3. Gender:

☐ Male ☐ Female

4. What is your level of education?

☐ Primary ☐ Secondary ☐ Tertiary ☐ Illiterate

5. How long have you lived in this area?

a) <5 years b) 5-20 years c) >20 years

SECTION B: Mechanisms used by the local communities to manage HWCs within Mt. Kenya National Park in Meru County Kenya.

7a.What are the types of conflicts that occur in this area?

A. Crop destruction
B. Livestock depredation
C. Injury and death of humans
D. Destruction of property
E. Other. Specify.....

b. Which is the most prevalent conflict?

A. Crop destruction

B. Livestock depredation

C. Injury and death of humans

D. Destruction of property

E. Others, specify.....

8a. How often do they occur?

A. Daily B. Weekly

C. Monthly D. Semi-annually

E. Annually

b. What time do the conflicts occur?

A. Morning B. Afternoon

C. Night

8. What is your reaction whenever conflicts occur?

A. Retaliate and kill the animal

B. Report to KWS

C. Report to Assistant Chief/ Chief

D. Others, specify

.....

.....

9. What mechanisms do you use to curb HWCs?

10. How would you rate the effectiveness of the mechanisms you use to curb HWCs?

A. Very Effective B. Effective

C. Poorly Effective D. Not effective

Please explain your answer.....

11. In your opinion which measure do you think if implemented will solve HWCs effectively?.....

.....

12a. In your opinion should the park continue being there?

YES NO

b. If your answer in (a) above is NO, please explain

.....

.....

.....

SECTION C: Effectiveness of the legal tools for the management of HWCs?

13a. Which of the following legal tools has been used to manage HWCs within Mt. Kenya National Park?

A. Killing of Problem Animals B. Compensation

C. Culling D. Translocation

14. How effective are the legal tools used to manage HWCs within Mt. Kenya National Park?

A. Very effective B. Effective

C. Poorly effective D. Not effective

15a.In your opinion, is there need to amend the laws for managing HWCs?

☐ YES ☐ NO

b. If your answer in (a) above is YES, which law would you like to be included or removed?

.....

SECTION D: Role of KWS in the management of HWCs within Mt. Kenya National Park.

16a. Has KWS ever helped you solve HWCs?

☐ YES ☐ NO

b. If your answer in (a) above is YES, what mechanisms has KWS used to solve HWCs?

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.....

17. How effective are the mechanisms used by KWS to solve HWCs?

A. Very effective B. Effective

C. Poorly effective D. Very poorly effective

E. Not effective

18. In case of a conflict how long does KWS take to respond?

A. Hours

B. One day

C. One week

D. More than a week

E. Never respond

19a. In your opinion, is KWS adequately managing HWCs?

☐ YES ☐ NO

b. If your answer in (a) above is NO, please explain why.

.....

.....

SECTION D: CHALLENGES IN MANAGEMENT OF HWCs.

20. What challenges do you face in managing HWCs? Please explain

.....

.....

21. How does HWCs affect your livelihood?

.....

THE END

THANK YOU FOR YOUR COOPERATION

Appendix II: KEY INFORMANT INTERVIEW GUIDE

1. Which is the most prevalent conflicts?.....
2. Which Mechanisms do the local communities use to solve Human-wildlife conflicts?.....
   .....
   .....
   .....
3. Which legal measures have you used to solve HWCs within Mt. Kenya National Park?.....
   .....
   .....
   .....
4. In your opinion how effective are the legal measures for solving HWCs? Please explain
   a. Killing of Problem animals……
      ……
   b. Compensation……
      …….
   c. Culling……
      …….
   d. Translocation……
      ……
5. In your opinion, is there need to amend WCMA, 2013? Please explain……
   ……
   ……
   ……
   ……..
6. What role has your institution played in managing HWCs? Please explain……
   ……
   ……

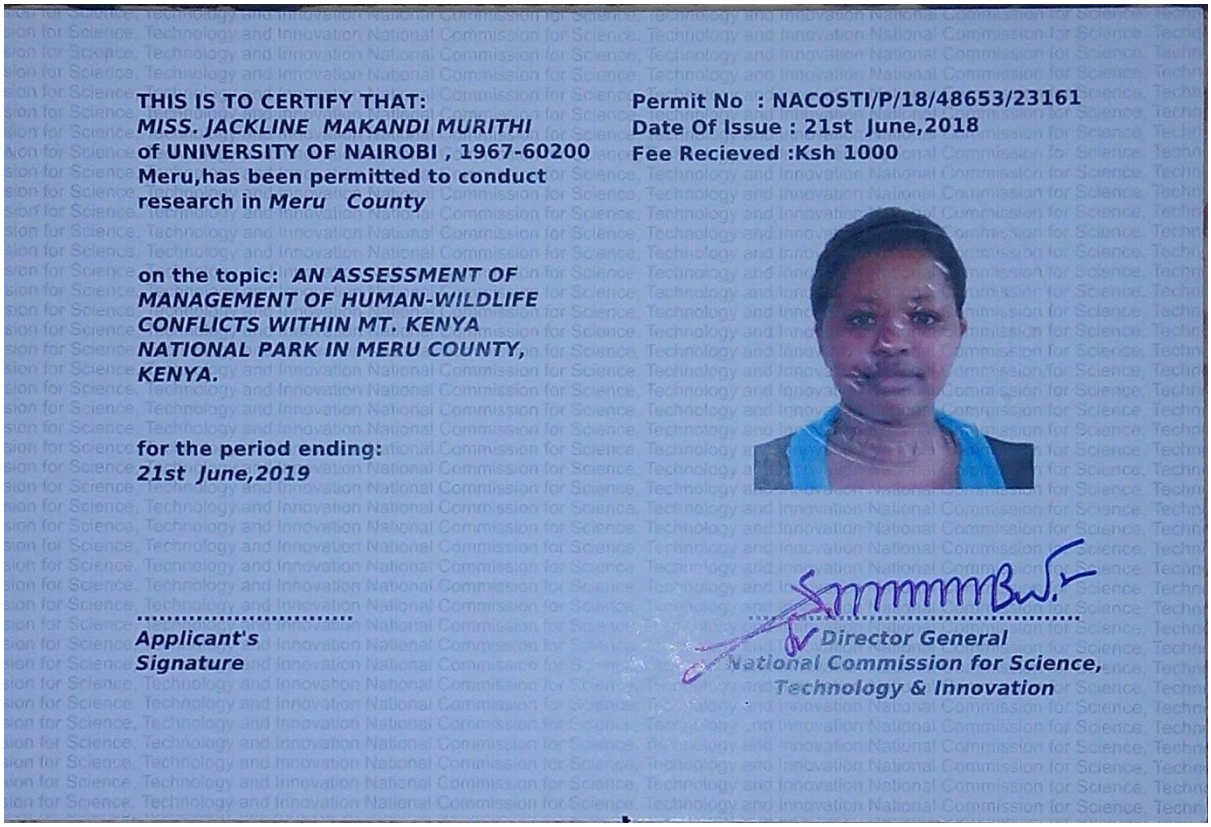
……
……..

7. What challenges does your institution face in managing HWCs? Please explain……
……
……
……
……

END

THANK YOU FOR YOUR COOPERATION

APPENDIX III: RESEARCH PERMIT



THIS IS TO CERTIFY THAT:
MISS. JACKLINE MAKANDI MURITHI
of UNIVERSITY OF NAIROBI , 1967-60200
Meru,has been permitted to conduct
research in *Meru County*

on the topic: *AN ASSESSMENT OF MANAGEMENT OF HUMAN-WILDLIFE CONFLICTS WITHIN MT. KENYA NATIONAL PARK IN MERU COUNTY, KENYA.*

for the period ending:
21st June,2019

Permit No : NACOSTI/P/18/48653/23161
Date Of Issue : 21st June,2018
Fee Recieved :Ksh 1000