

**ENVIROMENTAL DEGRADATION AS A CAUSE OF CONFLICT: A CASE STUDY  
OF THE MAU FOREST DEGRADATION IN KENYA (1963-2010) <sup>v</sup>**

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## DECLARATION

I, Margaret W. MBUGUA, hereby declare that this research project is my original work and has not been submitted for a degree in any other University.



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## **DEDICATION**

To my family, friends and colleague for their selfless support and patience that helped me through the program at the Institute of Diplomacy and International Studies (IDIS), University of Nairobi.

## ACKNOWLEDGEMENTS

I thank the Almighty God for all I have been able to attain at the Institute of Diplomacy and International Studies (IDIS), University of Nairobi. Next, I would like to thank my supervisor, Dr. Ibrahim Farah for his patience and guidance in carrying out my research project.

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## ABSTRACT

The evolution of the analysis of environmental degradation has been in favour of the broadening subject matter that constitutes the livelihoods of a person, group or a state. The evolution has seen a shift from the traditional approach of environmental degradation to one that is contemporary in approach. In this contemporary approach, there is the identification of human induced environmental degradation. In the analysis of human induced population degradation, population growth and displacement is the established component that seeks to show the extent of depletion and possible conflicts it leads to in a society. Through the analysis of the concept of environmental degradation, the major threat is man-made, characterized by human settlements and Agricultural practices. The threat is manifest where there are competing interests due to competition over natural resources. In the region, Kenya as state in East Africa has had to deal with these conflicts in ways that are reckoned favourabled and unfavourable to both the residents around the Mau and the entire nation. Information derived from the case study of the Mau forest degradation in Kenya 1963-2010; provide divergent views from the local citizens and officers in authority. Analysis of opinions show that there is indeed an environmental degradation issue that Kenya has to deal with, not through the traditional approach but rather with the contemporary approach. This contemporary approach caters for the examination of the effects of environmental degradation as a cause of conflict in Mau forest, Kenya. In addition, the contemporary approach also caters for the challenges of deforestation, ethnicity, water and food shortages; and the exploration of the conceptual linkage between environmental degradation and conflict. The information gathered in the study brings out the continuous assessment of the study of environment related conflicts and most importantly; on the impact of food security and development. Some environmental degradation issues and trends in Mau are indicated as being negative and positive. However, considering all circumstances, Kenya has the potential to improve her environmental issues that will lead to a robust economy, with resources for industrial development.

## LIST OF ABBREVIATIONS

- EIA- Environmental Impact Assessment
- ENCOP- Environmental Conflicts Project
- ENDA- Ewaso Ngiro Development Authority
- KFWG - Kenya Forest Working Group
- KFS – Kenya Forest Service
- KIFCON- Kenya Indigenous Forest Conservation Programme
- KANU-Kenya African National Union
- LVBO – Lake Victoria Basin Office of the Eastern African Community
- MFC- Mau Forest Complex
- MMF- Maasai Mau Forest
- NCC- Narok County Council.
- NEMA- National Environment and Management Authority
- NELSAP- Nile Equatorial Subsidiary Action Plan
- UNEP- United Nation Environment Program
- UNHCR – United Nations High Commission for Refugees
- WRMA- Water Resource Management Authority
- WWFN- World Wide Fund for Nature
- GOK – Government of Kenya
- NGO – Non-Governmental Organization
- Kshs. – Kenya Shillings

## TABLE OF CONTENTS

<b>DECLARATION .....</b>	<b>ii</b>
<b>DEDICATION .....</b>	<b>iii</b>
<b>ACKNOWLEDGEMENTS .....</b>	<b>iv</b>
<b>ABSTRACT.....</b>	<b>v</b>
<b>LIST OF ABBREVIATIONS .....</b>	<b>vi</b>
<b>TABLE OF CONTENTS .....</b>	<b>vii</b>
<b>CHAPTER ONE: INTRODUCTION TO THE STUDY .....</b>	<b>1</b>
1.0 Introduction.....	1
1.1 Background of the study .....	2
1.2 Statement of the Research Problem .....	5
1.3 Research Objectives.....	8
1.4 Literature Review .....	8
1.4.1 Environment .....	8
1.4.2 Environmental Degradation.....	9
1.4.3 Environmental Degradation and Conflict .....	11
1.4.4 Environmental degradation and conflict in Mau Forest - Kenya .....	14
1.5 Hypotheses.....	18
1.6 Justification of the Study .....	18
1.7 Conceptual Framework.....	19
1.8 Research Methodology .....	20
1.9 Chapter Outline.....	21
<b>CHAPTER TWO: ENVIRONMENTAL DEGRADATION AND CONFLICT - A CONCEPTUALIZATION .....</b>	<b>22</b>
2.0. Introduction.....	22
2.1. Environmental Conflicts: An Overview .....	23
2.2 Concept of Environmental Degradation and Conflict .....	28

2.3. Threats to the environment .....	30
2.3.1 Depletion of the environment .....	31
2.3.2 Population growth and displacement.....	32
2.3.3 Competition as a Source of Conflict.....	36
2.4. Environmental Conflict Management: Issues and interests.....	39
2.5 Conclusions.....	41

<b>CHAPTER THREE: ENVIRONMENTAL DEGRADATION AS A CAUSE OF CONFLICT IN KENYA: THE CASE OF THE MAU FOREST, 1990-2010 .....</b>	<b>43</b>
3.0 Introduction.....	43
3.1 History of the Mau Forest.....	43
3.1.1 Colonial Mau Forest .....	45
3.1.2 Post-Colonial Mau Forest .....	46
3.2. Settlement, trends and issues of the of the local residents in Mau water catchment .....	50
Encroachment .....	50
3.3 Positive trends and issues .....	50
3.3.1 Increased food productivity .....	51
3.3.2 Business in timber products.....	51
3.3.3 Negative trends and Issues.....	55
3.3.3.1 River water shortages .....	56
3.3.3.2 Deforestation.....	57
3.3.3.3 National crises .....	59
3.3.3.4 Food shortages .....	60
3.3.4 Kenya's response to environmental degradation.....	60
3.3.5 Other responses.....	61
3.5 Environmental degradation as a cause of conflict .....	62
3.5.1. Interests, issues and concerns .....	64
3.5.2. Managing the problem of the Mau Forest Complex.....	65
3.6 Conclusions .....	66



<b>CHAPTER FOUR- ENVIRONMENTAL DEGRADATION AS A CAUSE OF CONFLICT IN KENYA: A CRITICAL ANALYSIS .....</b>	<b>68</b>
4.0 Introduction.....	68
4.1 Emmerging Issues and Trends .....	68
4.1.1. Environmental degradation and conflict.....	70
4.1.2. Trends and Issues.....	73
4.1.3. Ethnicity.....	73
4.1.4. Laxity of government officials and forest guards.....	77
4.1.5. Political Interference.....	77
4.1.6. Poaching .....	79
4.2. Other issues.....	80
4.2.1 Loopholes .....	81
4.2.2 Kenya land reforms.....	82
4.3. Conclusions.....	83
<b>CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>85</b>
5.0 Summary.....	85
5.1 Key Findings.....	87
5.2 Recommendations.....	88
<b>BIBLIOGRAPHY .....</b>	<b>90</b>
<b>APPENDIX I .....</b>	<b>98</b>

## CHAPTER ONE: INTRODUCTION TO THE STUDY

### 1.0 Introduction

The concept of environmental issues has for decades been widely discussed and has come in circles. To draw from a global perspective, Environmental issues have traditionally been viewed as a matter of concern in the International arena.<sup>1</sup> This view is seen as realist in nature, as the understanding of environmental issues is perceived to be the extent to which the environment is depleted of resources such as air, water, soil, the destruction of the ecosystem and the extinction of wildlife.<sup>2</sup>

Discussions of the relationship between environment and society date back to the classical Greeks. In the early twentieth century, many explanations tended towards a simplistic "environmental determinism" that gave little regard to the role of human-environmental systems in feedback loops, human adaptability, and social institutions<sup>3</sup>. According to Arthur Westing, a lot of writings were influenced by environmental issues, and this elevated environment to a level of international concern.<sup>4</sup> He begins his discussion with the First World War, and then followed the Algerian War and other environmental wars of the last decade. There has since been a revision of environmental concerns over the years, due to the rising threats of environmental degradation all over the world. Thomas Matthews predicted about the fate of growing environmental issues in a finite physical world which originated more than two centuries ago and

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<sup>1</sup> K. Butts, Ed., *Environmental change and regional and Regional Security*, Carlisle, Penn.:, 199

<sup>2</sup> N. Myers, "Environment and Security." *Foreign policy* No. 74 Spring 1989, pp 23-41

<sup>3</sup> Ibid

<sup>4</sup> A. Westing, *Environmental factors in Strategic Policy and Action: an Overview*, in: the same (ed.): *Global Resource and International Conflict*. Oxford 1986, pp. 3-20

have since undergone endless revision and reinterpretation especially from 1960s onward.<sup>5</sup> However, Forrester worked on increased awareness about the environmental effects of industrial resource use resulting in amongst other things – the Pessimistic ‘World’ Models of the 1970s.<sup>6</sup> Environment change in this context means a destabilizing interference in the ecosystem’s equilibrium.

While environmental conflicts manifest themselves as conflicts over resources, there is a general tendency among scholars to interpret the linkages between environment and conflicts as an issue of struggle for scarce natural resources<sup>7</sup>. But the context in which the concept ‘Environmental’ will be used is based on the ecosystems and change in climate.

Environmental conflict is a conflict caused by environmental scarcity of a resource; usually caused by human disturbance<sup>8</sup>. There happens to be a direct correlation between environmental conflicts in recent time which has been associated with low struggles over shrinking environmental resources as a result of overuse, unfair distribution, misuse or degradation and build up stresses which trigger conflict.<sup>9</sup> In light of the definitions given above, the study seeks to look at Environmental degradation in Kenya and the role it plays to cause conflict.

### **1.1 Background of the study**

To understand the environment degradation predicament, an overview of the subject Environmental and Environmental conflict is given. The analysis of conflict through the

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<sup>5</sup> Thomas Matthews

<sup>6</sup> J. Forrester, Counterintuitive behaviour of Social Systems; *Tecnology Review*’ Vol.1.73, No. 3, 1971 pp52-68

<sup>7</sup> L. Brock: *Peace through Parks*, 1987 pp 408-409

<sup>8</sup> Renner P. et al.; *International Conflict and Environmental Degradation*” p. 109

<sup>9</sup> Homer Dixon (1996: 359). p7.

industrialized world definitions is the starting point, as this analysis gives rise to the study of environmental issues and threats. However, mankind's encounter with the environment is as old as man himself. Environmental degradation became an issue of global concern in 1989.

Aristotle and Montesquieu were the two major pre-industrial writers to cast light on natural environment as a factor of shaping human institutions of politics.<sup>10</sup> For Example, Montesquieu declared 'the empire of climate as the greatest empire'. Neo-realists have however sought to downplay environmental issues and exclude them from security studies, yet, recent environmental conflict and security literature emphasizes conflict as a an outcome of natural forces which is in consistent with realism's assumption that scarcity, insecurity and conflict are endemic in the world's institutions.<sup>11</sup>

Recent years have witnessed an explosion of interest in relationship between physical environment and human affairs. In 3<sup>rd</sup> world countries, fewer efforts have been put in place by groups working on environmental issues or citizens towards environment sustainability. This is due to democratic processes that are controlled or repressed by those in power. African states have largely concentrated on security of its citizens.

Michel Frederick is of the view that unreliability of International Institutions, mechanisms and Rules, Regulations and law to manage the environment has recapulated to state's primacy in providing security to its people against the environmental threats<sup>12</sup>. Huge populations in many developing countries are highly dependent on some key environmental

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<sup>10</sup> Montesquieu B., *Spirit of the Laws*, Cambridge:Cambridge University press, 1989 pp 182-229

<sup>11</sup> Daniel Deudney, Richard Anthony; *Contested Grounds; Security and Conflict in the new environmental politics*.

<sup>12</sup> Frederick Michel

resources that are very critical to livelihood: fresh or safe water, fish, arable land, plants, animals, mineral resources, air, among others.

Human beings thus exploit these resources for survival and sustenance. The misuse or over-use of these resources affects their quality and/or quantity in comparison with their perfect availability in the environment. Therefore, the issue of environmental degradation comes into play when resources diminish in quantity or quality, or both. The decrease in the quality and quantity of renewable resources, population growth, and unequal resource access act in a single way, or in various combinations to increase the scarcity, for certain population groups of these resources.

This can reduce economic productivity, both for the local groups experiencing the scarcity and for the larger regional and international economies. The affected people may migrate or be expelled to new lands. This in most cases will trigger off conflicts<sup>13</sup>. Migrating groups often trigger ethnic conflicts when they move to new areas, while decreases in wealth can cause deprivation conflicts.

In Kenya, one major implication of environmental degradation for social existence is that it usually disrupts the socio-economic life of the human population who are immediately dependent on natural resources for sustenance<sup>14</sup>. In most social contexts where there are weak regulatory mechanisms or institutions in a society, it can worsen the level of competition

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<sup>13</sup> T.F Homer-Dixon & J. Blitt, *Eco-violence: Links among environment, population and security*. Lanham: 1998 Rowman and Littlefield.

<sup>14</sup> F. Onuoha; *Environmental Degradation, Livelihood and Conflicts*. (2008)

amongst the dependent population, and may engender conflicts.<sup>15</sup> One such scenario is evident in Mau Forest in Rift Valley, Kenya.

The Mau Forests Complex (MFC) is considered the most important of the five main watershed areas in Kenya because of its economic, social and environmental contribution to the country. These watershed areas are commonly referred to as "Water Towers". The Mau forests ecosystem has a high and rapidly growing population with irregular and ill planned settlements, encroachments and illegal forest resource exploitation. Over the last decades, approx. 25% of Mau forest has been lost to excisions and encroachment<sup>16</sup>.

Of the three main threats, the study focuses on the role that environmental degradation plays in causing conflicts in Kenya.

## 1.2 Statement of the Research Problem

Environmental issues have over the years been confined to communities while states concentrated on military to protect itself. However, with progressive development, countries have come to realize that a lot of effort must be put in place to ensure that environmental issues are taken care of. According to Homer Dixon, many countries have the ability to adapt to environmental change; some countries, particularly poor and institutionally weak states, are likely to be more vulnerable to environmentally related violence<sup>17</sup>.

With progressive development in the analysis of environmental conflict, students of International conflict management have a new platform to study conflicts. This approach allows

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<sup>15</sup> Ibid.

<sup>16</sup> Maasai Mau Status Report 2005 p 5

<sup>17</sup> Homer-Dixon, Thomas F. and Jessica Blitt, eds, 1998. *Ecoviolence: Links Among Environment, Population and Security*. Lanham, MD: Rowman and Littlefield.

for individual analysis of state sectors and environmental organizations that are accorded to each other.<sup>18</sup> The approach brings to reality the issues and treats that environmental degradation poses to a community or a nation and subsequent future consequences. The challenges include population displacement, competition over the scarce resources and subsequent depletion of the already strained resources.

It is from understanding the concept of environmental degradation, that we are able to conserve the environment to avert extinction. The concept caters for the analysis of resource depletion within a state and internationally. The study seeks to show the relationship between environmental degradation and conflict and how it can involve the communities in the conservation of the environment, since no single country or individual can claim to manage the environment exclusively.

The central element in this is to understand the concept of degradation with regard to the environment and the repercussions of negligence and ignorance to nature's demands, as Wangari Maathai constantly said, "if we destroy nature, nature will destroy us".<sup>19</sup> Natural resources form the factors of production basis, as well as a basis for survival for both animals and human beings. Further, resources like water are critical for survival.

While it is generally agreed in the environmental security literature that effects of resource scarcity is modified through political, economic and social structures, the resource scarcity and conflict scenario has been theoretically underspecified<sup>20</sup>. Resource scarcity is seen

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<sup>18</sup> J. Baylis, "International and Global Security" in J. Baylis and S. Smith (ed), *The Globalization of World Politics* (New York): Oxford University Press, 2001), p.225

<sup>19</sup> Remarks constantly repeated by the fallen Nobel Laureate, Prof. Wangari Maathai

<sup>20</sup> D. Homer, F. Thomas, *Environment, Scarcity, and Violence*. Princeton, NJ and Oxford: Princeton, 1999 pp 35-48

as a product of three different factors interacting: population growth, resource degradation, and the distribution of resources between individuals and groups. Homer-Dixon has called this demand-induced, supply-induced and structural scarcity respectively<sup>21</sup>.

The three effects of environmental degradation in Kenya as discussed in this research may have different impacts on the community, although they may frequently interact. Homer-Dixon argues that two types of interactions are particularly common<sup>22</sup>. Resource capture occurs in a situation of resource degradation and population growth, providing incentives for powerful groups to take control over scarce resources on the expense of weaker and poorer groups. Ecological marginalization denotes a situation where great land inequality and population growth leads people to move into more ecologically fragile areas.

While many countries have the ability to adapt to environmental change, some countries, particularly poor and institutionally weak states, are likely to be more vulnerable to environmentally related violence<sup>23</sup>. Resource scarcity possibly also has the potential to worsen social sections. While demographic and environmental pressures are seen as unlikely causes of international wars, it is claimed that such factors may spur local violent low-intensity disputes<sup>24</sup>. Further, the social consequences of population growth may produce absolute deprivation, meaning that people do not get what they need in order to survive, as well as relative deprivation, a situation in which they do not get what they feel they are entitled to. Both forms of deprivation may produce grievances among rural and urban populations in Kenya.

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<sup>21</sup> Ibid.

<sup>22</sup> Ibid.

<sup>23</sup> D. Homer, F. Thomas and J. Blitt, eds, *Ecoviolence: Links Among Environment, Population and Security*, Lanham, MD: Rowman and Littlefield. 1998.

<sup>24</sup> H. Kahl, H. Colin ; *States, Scarcity, and Civil Strife in the Developing World*. Princeton, NJ and Oxford: 2006: Princeton University Press.



With all the above taken into consideration, the guiding question is whether environmental degradation plays a role in causing conflicts.

### **1.3 Research Objectives**

The general objective of the study is to examine the relationship between environmental degradation and conflict with a case study of the Mau forest degradation, 1990-2000. More specifically, the study aims to:

- To identify the factors that contribute to environmental degradation in and around the Mau Forest Complex.
- To identify the effects and challenges of the Mau degradation and
- To explore the theoretical linkages between environmental degradation and conflicts.

### **1.4 Literature Review**

This section has four main sections that form the basis of the proposal as well as the analysis of the case study. The focus of the review is to gain theoretical information that will guide the case study. The themes are: Environment, Environmental degradation, Environmental degradation as a cause of conflict and Environmental degradation as a cause of conflict in Kenya's Mau forest. Emphasis is based on the International views of authors and academia with reference to Kenya.

#### **1.4.1 Environment**

Environment refers to the surroundings of an object, or the natural environment of all living and non-living things that occur naturally on Earth. It may also be considered as the physical and biological factors along with their chemical interactions that affect an organism or the

surroundings of a physical system that may interact with the system by exchanging mass, energy, or other properties.

It is an environment that encompasses the interaction of all living species according to Johnson the concept of the natural environment can be distinguished by some components: Complete ecological units that function as natural systems without massive human intervention, including all vegetation, microorganisms, soil, rocks, atmosphere and natural phenomena that occur within their boundaries.<sup>25</sup> They can as well be universal natural phenomena that lack clear-cut boundaries, such as air, water, and climate as well as energy not originating from human beings.

#### **1.4.2 Environmental Degradation**

Environmental degradation is the deterioration of the environment through depletion of resources such as air, water, and soil; the destruction of the eco-system and the extinction of wildlife according to the report on the ecology of increasing disease population growth environmental degradation<sup>26</sup>. Environmental degradation is increasingly been called a 'security' problem, and there has been speculation that it may increase the risk of violent conflict.

This research identifies the inter linkage between environmental degradation, livelihoods and conflict. The scarcity of resources increasingly undermines human security in the present day, and will increasingly do so in the future, by reducing access to, and the quality of, these natural resources that are important to sustain livelihoods. Johnson also argues that resource scarcity and environmental degradation are increasingly understood to play an important role in

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<sup>25</sup> Johnson. D.L et al 1997. Meanings of environmental terms. *Journal of Environmental Quality* 26:pp 581-589

<sup>26</sup> Ibid

generating or exacerbating conflicts.<sup>27</sup> The depletion of water resources, overexploitation of fisheries, degradation of arable land, decimation of forests, and growing interference in ecosystems from forests to wetlands to coral reefs are among the principal processes of human-induced environmental change.

Environmental change further augments already-observable challenges, by raising sea levels, shifting vegetation zones, dwindling natural habitats, changing precipitation patterns, and generating more frequent and more intense storms, floods, and droughts<sup>28</sup>.

According to John Reid, water can indeed play a role in the conflicts between people sharing the water resource as neighbors.<sup>29</sup> For a number of reasons, he discussed that cooperation, rather than conflict, has so far been the norm among riparian states. One is that a militarily weak downstream country is unlikely to challenge its upstream neighbour over water allocation issues. And riparian countries often conclude that a diplomatic solution— working out an agreed plan to share available water resources— is far preferable to a violent solution. Still, this may not necessarily hold true in the future.<sup>30</sup>

Parts of the Middle East and Africa are among the countries and regions in which growing water scarcities have caused considerable internal disputes and, in some cases, violent confrontations as indicated by Brown.<sup>31</sup> The literature review on Environmental degradation focuses on

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<sup>27</sup> Ibid

<sup>28</sup> T.Homer-Dixon and V. Percival, *Environmental Scarcity and Violent Conflict: Briefing Book*, American Association for the Advancement of Science and University College, University of Toronto, 1996

<sup>29</sup> J. Reid, "Water Wars: Climate Change May Spark Conflict," *Independent*, 28 February 2006

<sup>30</sup> Ibid. 26

<sup>31</sup> L.Brown L. *Redefining Security* World watch Institute (1977)

depletion of natural resources which is largely man-made. This is largely because human beings have deliberately made choices to substitute human selection for natural selection.<sup>32</sup>

### 1.4.3 Environmental Degradation and Conflict

The rationale behind environmental security is that with an increasing human population and continuing growth in the global economy, pressure on the world's natural resources will increase between countries<sup>33</sup>, especially in the developing world since it is deemed as more vulnerable to environmental change and scarcity<sup>34</sup>. Conflict is defined as a dispute or incompatibility caused by the actual or perceived opposition of need or interests according to Mwangi<sup>35</sup>.

The idea of environmental security is closely associated with two research groups. The Swiss based Environmental Conflicts Project (ENCOP) and more commonly with a research group led by Thomas Homer-Dixon, at the University of Toronto. The two groups investigated the relationships between the environment and violence. The main conclusion of the research was that the world would face shortages of key natural resources: land for growing food, fresh water, oil, forests and so on, and as a result of such eco-scarcities the world will experience more and more violence in the form of rebellions, ethnic clashes and unrest especially in the developing world<sup>36</sup>.

Although Homer-Dixon does acknowledge the influence of social, political and economic stresses as contributing factors to 'eco-violence', they are not the primary causes. The work of

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<sup>32</sup> A. Jeffery et al, Conservation Atlas of Tropical Forests Africa, Macmillan Publications Ltd, 1992.

<sup>33</sup> G. Tyler, G. Miller Jr, Environmental Science: Working with the Earth, Toronto: Jcak Carey, 2004

<sup>34</sup> C. Ayodele, "Towards Solving problems of environmental stress in Developing Countries, Environmental Management, Vol. 3(1997) pp 479-482

<sup>35</sup> M. Mwangi, "The greater Horn Of Africa Conflict System: Conflict patterns, Strategies and Management Practises", Revised September, 1997.

<sup>36</sup> Ibid- Homer-Dixon, - 1999

Homer-Dixon's research group suggests that developing countries will be more prone to environmental change than rich states, particular, Homer-Dixon argues that the developing world experiences the four main pressures: reduced agricultural production, economic decline, population displacement and disruption of regularized social relations as a result of atmospheric, terrestrial and aquatic environmental pressures; and as human populations grow, governments will have less and less opportunity to intervene through the use of market based mechanisms to alleviate the effects of environmental change<sup>37</sup>.

On the other hand, and depending on the circumstances, the outcome of food insecurity may in some cases be a violent one. In Sudan's Sahel region, there are increasing clashes between herders and farmers competing for scarce productive land, particularly as desertification increases. Examples include conflicts in northern Nigeria, Kenya, and in Sudan's Darfur region. The clashes may be reported as ethnic and religious struggles or even be perceived as such by the protagonists, but it is clear that resource scarcities play an important role<sup>38</sup>.

Conflict may arise over access to renewable natural resources such as water, arable land, forests, and fisheries. This may be the result of a tightening of supplies (depletion or degradation of natural resources), an unsustainable increase in demand (due to population pressures or increased per capita consumption, often related to export-led economic models), distributive inequities, or a combination of these factors.

Developing countries, like Kenya, whose economy has particularly geared heavily towards agriculture and other sectors that directly depend on the health of the natural resource

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<sup>37</sup> Ibid- H. Dixon, 1991: 78-79

<sup>38</sup> E. Stoddard, "Scarce, Degraded Land Is Spark for Africa Conflict,"( 2005)

base, are most immediately affected by environmental problems.<sup>39</sup> In Kenya, the needs and interests of contending groups are tied closely to the land— farmers, nomadic pastoralists, ranchers, and resources extractors— are often incompatible<sup>40</sup>. In this context, Mau forest has served as an important water catchment area, not only in Kenya, but in East and Northern parts of Africa due to the importance these countries attach to the Nile River waters.<sup>41</sup>

In Rwanda, according to Michael Renner, mass violence in the mid-1990s grew out of a set of circumstances that included explosive population growth, severe land shortages and inequality, land degradation, lack of non-agricultural employment, a crisis in the country's coffee and tea export sector, and pain inflicted by structural adjustment programs. Against this backdrop, opposing elites engaged in savage competition and extremist politics that led to civil war and genocide.<sup>42</sup>

In Chiapas, Mexico's southernmost state, marginalized peasants, predominantly drawn from Mayan indigenous communities rose up in 1994. The conflict, which took more political than violent forms, was driven by rampant inequality (widespread poverty in the face of natural wealth), demands for land reform, population pressures, inappropriate farming and ranching methods, rapid deforestation, austerity and lack of rural credit, and the domination of the political system by narrowly-based elites<sup>43</sup>. These examples are in line with my study as similar issues happen to arise in this conflict.

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<sup>39</sup> R. Matthew et al.; *From Conflict to Peace building: The Role of Natural Resources and The Environment*

<sup>40</sup> L. Ohlsson, *Livelihood Conflicts: Linking Poverty and Environment as Causes of Conflict* (Stockholm: Swedish International Development Agency) 2000.

<sup>41</sup> See the world water wars, the case of the Nile.

<sup>42</sup> M. Renner, *Fighting for Survival. Environmental Decline, Social Conflict, and the New Age of Insecurity* (New York: W.W. Norton & Co) 1996, pp. 114-122.

<sup>43</sup> *Ibid.*, pp. 122-130.

#### 1.4.4 Environmental degradation and conflict in Mau Forest - Kenya

The Mau Forests Complex covers approx. 416,542 hectares<sup>44</sup>. It is the largest closed-canopy mountain forest ecosystem in East Africa, and prior to recent deforestation, was larger than Mt. Kenya and the Aberdares combined. Historically, the Mau was overlooked when the forest was intact and when land pressure was low. As land pressure increased, the forest was viewed as an untapped area with high potential agricultural value waiting to be exploited.

In addition, the Mau ecosystem is considered as the most important of the five water towers in Kenya, being the upper catchments of many major rivers, which feed, partially or exclusively, the lakes of Natron, Turkana, Baringo, Naivasha, Nakuru and Victoria. The Mau is arguably of even greater importance than Mt. Kenya since the water that flows from it, is part of the Lake Victoria catchment, which in turn provides water to the White Nile. The trans-boundary significance of the Complex therefore has to be considered not only in terms of providing water to its neighbour Tanzania but also to the whole Nile basin<sup>45</sup>.

The Mau Complex is a particularly degraded catchment area in Kenya. Despite its critical role in sustaining current economic development, the Mau has been affected by widespread ill-planned settlements, encroachments and illegal extraction of forest resources. Degazettement of forest reserves (excisions) and continuous widespread encroachments have led to the destruction of over 107,000 ha over the last two decades, representing over 25 percent of the Mau.<sup>46</sup>

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<sup>44</sup> KWS Journal, 1994

<sup>45</sup> See Ibid

<sup>46</sup> see UNEP 2001

The Kenya Indigenous Forest Conservation Programme (KIFCON) of 1991-1994 estimated Kenya's closed canopy forests to cover 1.24 million hectares, or roughly two percent of the country. Recent estimates based on remote sensing indicate that against a global forest cover average of 21.43 percent, and an average for Africa of 9.25 percent, Kenya's closed canopy forest cover stands at a critical 1.7 percent according to the UNEP report of 2001.<sup>47</sup>

The loss of forest cover has been caused by a number of factors: degradation, settlement (both legal and illegal), urbanization, unsustainable extraction of timber and forest products, lack of land use policy, and corruption, among others. During the last decade of the Kenya Africa National Union (KANU) regime there was an increase in illegal and irregular forestland allocation due to political interference, exacerbating an already critical situation. The Mau Forest Complex (MCF), and the Maasai Mau Forest (MMF) in particular, were no exception (Republic of Kenya, 2004).<sup>48</sup>

The Mau Forests Complex covers approx. 416,542 ha.<sup>49</sup> It is the largest closed-canopy mountain forest ecosystem in East Africa, and prior to recent deforestation was larger than Mt. Kenya and the Aberdares combined. Historically, the Mau was overlooked when the forest was intact and when land pressure was low. As land pressure increased, the forest was viewed as an untapped area with high potential agricultural value waiting to be exploited.<sup>50</sup>

Forests that constitute the complex include Transmara, Ol Posimoru, Maasai Mau, Eastern Mau, Mau Narok, South West Mau, Western Mau, Mt. Londiani, Eburru, Molo and

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<sup>47</sup> Ibid

<sup>48</sup> Ibid

<sup>49</sup> Ibid

<sup>50</sup> Ibid



South Molo. The northern part comprises Tinderet, Northern Tinderet, Timboroa, Nabkoi, Kilombe Hill, Metkei, Maji Mazuri, Chemorogok and Lembus forests.<sup>51</sup> The Mau Forest Complex is one of the five water towers in Kenya, providing the upper catchments of many major rivers, including Nzoia, Yala, Nyando, Sondu, Mara, Kerio, Molo, Ewaso Ngiro, Njoro, Nderit, Makalia, and Naishi. These rivers in turn feed major lakes, including Natron, Victoria, Turkana, Baringo and Nakuru.<sup>52</sup>

While most of the forest blocks in the Mau Forest Complex have been gazetted and are managed by the Forest Department (KFS - formerly the Forest Department). the Maasai Mau Forest is Trust Land, managed by the Narok County Council (NCC). The Maasai Mau Forest covers 46,278 hectares, and is located some 17 kilometres north of Narok Town.<sup>53</sup>

In addition, the Mau ecosystem is considered as the most important of the five water towers in Kenya, being the upper catchments of many major rivers, which feed, partially or exclusively, the lakes of Natron, Turkana, Baringo, Naivasha, Nakuru and Victoria. The Mau is arguably of even greater importance than Mt. Kenya since the water that flows from it, is part of the Lake Victoria catchment, which in turn provides water to the White Nile. The trans-boundary significance of the Complex therefore has to be considered not only in terms of providing water to its neighbour Tanzania but also to the whole Nile basin.<sup>54</sup>

The importance of the Mau is related to the ecosystem services it provides, such as river flow regulation, flood mitigation, water storage, water purification, recharge of groundwater,

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<sup>51</sup> Ibid

<sup>52</sup> Ibid

<sup>53</sup> Ibid

<sup>54</sup> Ibid

reduced soil erosion and siltation, protection of biodiversity, carbon sequestration, carbon reservoir and regulation of microclimate which provides favourable conditions for optimum crop production.<sup>55</sup>

The critical role of the Mau is in the water it provides to urban centres and some of the most densely populated regions of Kenya supporting livelihoods and economic development. Africa is facing an unprecedented water crisis: about 25 percent of Africa's population is living in water stressed area and this figure will rise dramatically to an estimated 500 million people by 2050<sup>56</sup>. While some of this will be caused by climate change in arid and semi-arid lands, the water stress in the Mau area is largely the result of land degradation and deforestation whose effects are to be felt far beyond the Mau complex.<sup>57</sup>

The impact of the excisions has not been assessed since no environmental impact assessment (EIA) was carried out despite the requirements for such EIAs in accordance with the 1999 Environment Management Coordination Act. In addition to the excisions, approx. 41,122 ha have been encroached by settlements in the Mau, in particular in Maasai Mau trust land forest, Ol Pusimoru Forest Reserve and South West Mau Forest Reserve. Illegal logging and charcoal production are rampant in and around the encroached areas.

The on-going destruction of a vital natural and nationally important asset is a matter of concern to GoK. The increasing environmental and economic problems, if not reversed, may result in breakdown of law and order, ethnic conflicts and threats to internal security.

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<sup>55</sup> Ibid

<sup>56</sup> Climate Change Report on the Intergovernmental Panel on Climate Change, 2007

<sup>57</sup> Ibid

## **1.5 Hypotheses**

The study will test the following hypotheses:

- i) Environmental degradation leads to conflict in a country.
- ii). Environmental degradation is a cause of conflict in the Mau Forest.
- iii). There is a direct correlation between environmental degradation and conflict.

This shows that there is a correlation between environmental degradation and conflict.

## **1.6 Justification of the Study**

The study was important because from observations done there was need to develop documented information by bringing out public and individual awareness on the social tensions, economic stress and political strife caused by environmental degradation. This would ensure positive action to avert further degradation of Mau Forest and also foster environmental sustainability.

The study intends to bring under microscope the issue of the impacts of environmental degradation on social, economic and political spectrums. One of the significance of the study is that it will help test my research writing skills as far as this Masters in International conflict Management is concerned, and could help to identify ways in which governments' agencies as well as local, national and international organizations can work in environment related field in an effort to improve their strategies and methods in dealing with the impacts. This could lead to the establishment of programs that can benefit local communities in regions that have experienced environmental dilapidation in an effort to promote and enhance a sustainable allocation of the already scarce resources.

## 1.7 Conceptual Framework

A social perspective on environment according to Redcliff exposes some limitations in that it draws attention to the relationship between man and the environment as resource based and located environmental conflict as an outcome of struggles between socio-economically defined groups for control of resources.<sup>58</sup> However, in my view, there are many more survival for the fittest and social deprivation theory may push individuals to look for alternatives in order to survive limitations that instigate conflicts in the theory of Tragedy of the commons. Many more conflicts emerge due to scarce resources namely, ethnic tensions and groups unrests, mostly attributed to poor institutional frameworks.<sup>59</sup>

Causal effects also are key they are dependent on each other. In order to address the objectives of the study, the data was analysed by reading through field notes, documents and interview questionnaires reflectively while taking notes. This examination of the empirical data thereafter resulted in a categorisation, where the responses and other data was put in several groups through coding, i.e. giving a name to the group. Thereafter relationships between the codes were established in line with the research questions of the study. This was followed by re-categorising the data in a more general way focussing on the specific case<sup>60</sup>.

In the following section, linkages between the framework will be between environmental degradation and conflict.

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<sup>58</sup> Y. Redcliff *Case study research: Design and methods*. Thousands Oaks, London, Sage, Publications, Inc.2008

<sup>59</sup> Ibid

<sup>60</sup> Ibid

The main assumption of the theory of relative deprivation in relation to environmental degradation is that resource scarcity is the product of environmental degradation causing an insufficient supply, too much demand or an unequal distribution of a resource that forces some sector of a society into a condition of deprivation. Thus, environmental resource scarcity will

### **1.8 Research Methodology**

The study explored the impact of environmental degradation on the population to cause conflict. The study was carried out in Mau Forest Region, of the Rift Valley Province, Nairobi, and its immediate environs and both primary and secondary Data were used for the study. Primary data was collected from the carrying out of personal interviews with identified officials at the Kenya Wildlife Service, The Ministry of Environment and Mineral Resources, The Kenya police Service, Provincial Administrators, other pursued offices and the random population residing and operating within the Mau region.

Secondary data was obtained from the analysis of publications from scholars who have written about, environment, environmental degradation and environmental conflicts and other relevant sources from the government department of Forestry and wildlife, as well as Environment. The gaps that this project has overcome include the minimal amount of the secondary data that deal with environmental issues, especially on third world countries. In addition, the project does not include efforts by the government beyond the year 2000 and above. However, the decade given provides substantial knowledge for the analysis of the study.

## 1.9 Chapter Outline

The study is structured around five chapters

1. Chapter One – Introduction of the Study.
2. Chapter Two – Environmental Degradation and Conflicts. A conceptualization
3. Chapter Three – Environmental Degradation as a Cause of Conflict. A case study of the Mau Forest
4. Chapter Four- Environmental Degradation as a cause of conflict. A Critical Analysis.
5. Chapter Five – Conclusion and Recommendations

## CHAPTER TWO: ENVIRONMENTAL DEGRADATION AND CONFLICT - A CONCEPTUALIZATION

### 2.0. Introduction

Chapter one introduces the groundwork of the project through the identification of the emerging divergent issues of Environmental degradation. From these divergent issues, the concept of environmental conflict was established. Chapter one draws a distinction of the variables of environmental degradation and conflict and how they inter-relate the dependent of communities living in the Mau Forest and its environment, which would lead to conflict. An introduction to the case study was given with the choice of Mau forest which is indicative of the effects of the environment related conflict. The negative aspect here is the impact of the degradation to the economy and the social set up of the community.

Along with this, Chapter two seeks to analyze the concept of environmental degradation, and show through a concept that environmental degradation plays a role in causing conflicts. It seeks to explain how populations can deplete natural resources through the encroachers, the competition aspect of it and the impact that the population increase in forest settlement.

As earlier indicated, large-scale human induced environmental pressures may seriously affect national and international security.<sup>61</sup> Unfortunately, the environment – security theme encompasses for about unmanageable array of sub-issues especially if we define ‘Security’ broadly to include human physical social and economic well being.<sup>62</sup>

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<sup>61</sup> N. Myers, "Environment and security," Foreign policy No. 74 (Spring 1989) Spring pp. 23-41

<sup>62</sup> R. Ullman, "Redefining Security", International Security Vol.8 No. 1 (Summer 1983). Pp 133-143

Environmental change may contribute to conflicts as diverse as war, terrorism, or diplomats and trade disputes. Furthermore, it may have different causal roles in some cases, it may be a proximate and powerful cause while in others; it may only be a minor and distant player in a tangled story that involves many political, economic and physical factors. There is need to accept the promise that environmental change may play a variety of roles as a Cause of Conflict, but this analysis is bound by focusing on the acute National and International Conflict is defined as involving a substantial probability of violence.

### 2.1. Environmental Conflicts: An Overview

Recent years have witnessed an explosion of interest in relationships between physical environment and human affairs – one area of environmental security and conflict. Aristotle and Montesquies were two major pre- industrial writers universally identified as predecessors to cast light on natural environmental as a factor in shaping human institutions of politics for example Montesquie declared the empire of environment as the first and greatest empire.<sup>63</sup>

Stephen Walt has argued that Neo-realists have sought to downplay environmental issues and exclude them from security studies,<sup>64</sup> yet recent environmental conflict and security literature emphasizes conflict as an outcome of natural fences, which is consistent with realism assumption that scarcity, security and conflict are endemic in the world's politics.<sup>65</sup> There is a proposition that environmental change may shift the balance of power between states either regionally or globally, producing, instabilities that could lead to war.

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<sup>63</sup> B. Martequieu, spirit of the laws, Cambridge: Cambridge University Press, 1989) book 19 section 14

<sup>64</sup> M. Stephen , The Renaissance of Security Studies Intl Studies Quarterly Vo. 35, No. 2 (1991). Pp 211-39

<sup>65</sup> Ibid - 2



As global environmental damage increases the disparity between the North and the South, poor nations may militarily confront the rich for a greater share of the World's wealth.<sup>66</sup>

Environmental Change may hold ultimately causes of the gradual improvement of societies in both the North and South, which could aggravate class and ethnic cleavages, undermine liberal regimes and spawn insurgencies<sup>67</sup>

Using the above frame work, the hypothesis could be the likely links between environmental change and acute conflict. The proposition is therefore that poor countries will in general be more vulnerable to environmental change than rich ones, thus environmentally induced Conflicts are likely to arise final in the developing world.

In these countries, a range of atmospheric, terrestrial and aquatic environmental pressures will in time probably produce either singly or in combination, four main causally interrelated social effects, reduced agricultural production economic decline, displacement and disruption of regular and legitimized social relations. These social effects in turns may cause several specific types of acute conflict including scarcity dispute, between countries. Clashes between ethnic groups and civil strife and insurgency , each with potentially serious repercussions for the security interests of the developed world.

As anti-Malthus have argued for long, numerous intervening factors – physical, technological, economic and social often permit great resilience, variability and adaptability in human – environmental systems.<sup>68</sup>

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<sup>66</sup> D. Wirth, "Climate Chaos<" Foreign Policy No. 74 (Spring 1989). P. 10

<sup>67</sup> *ibid*

Norman Meyers emphasizes vulnerabilities of developing nations by arguing that environmental weaknesses serve as determinants of sources of conflict, intensifies other primary causes of conflict, and largely help to shape the nature of conflict<sup>69</sup>. He particularly outlines the major causes of conflict as: access and availability of water, deforestation, desertification extinction of species and gene depletion and green house gases. He says that environmental issues destabilize societies. They may be triggers to violent conflict when coupled with disjointed economics, unjust social systems, coercive political systems and population explosion.

Jill W. Goodrich and Peter Brecke, in their framework linking environmental change and violent conflict, emphasize environmental consequences as extensive anthropogenic activities - Human activities.<sup>70</sup> The pressures in turn produce negative effects or physical and social consequences. Physical consequences result into negative social effects, either due to direct or indirect social consequences. Eventually, Environmental conflict is the outcome of these negative social effects.

According to Stephan Libiszewski, the type of scarcity produced by environmental degradation determines the role of environment in a conflict. He outlines physical scarcity, geopolitical scarcity, socioeconomic scarcity and environmental scarcity<sup>71</sup>. He argues in physical scarcity, a resource is available in a finite amount. Geopolitical is the unequal distribution of a resource, a socio-economic scarcity has a lot to do with inequality between and within societies

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<sup>68</sup> T. Gurr, "On the Political Consequences of Scarcity and Economic Decline," *International Studies Quarterly*, Vol. 29, No. 1 (March 1985), pp. 51-75.

<sup>69</sup> N. Myers "The Environmental Dimension to security Issues," *The Environmentalist* Vol. 6, Winter 1986, p.253

<sup>70</sup> Goodrich J. W. & Brecke P

<sup>71</sup> S. Libiszewski: What is an Environmental Conflict? ENCOP Occasional paper Nr. I Zurich 1992

in the distribution of purchasing power and of property rights in relation to access to natural resources.

According to him, these types of scarcity are traditional conflicts of resource distribution whereby he argues that resources that have traditionally been regarded as plentiful and naturally renewable are becoming scarce because of failure of human beings to adapt to sustainable methods of their management.<sup>72</sup> However, Angus Mac Kay examined the relationship between climate change and civil violence in Spain.<sup>73</sup>

The unrest in Spain was seen to have been produced by climate – induced food shortages. For instance in March of 1462, rioters rampaged through Seville after floods forced the price of bread beyond the environmental fabric of religious and social beliefs held by the people and promoted by preachers especially those beliefs attributing weather fluctuations to the sin of someone in the community.<sup>74</sup> Mac Kay argues against a simplistic response model of environment – conflict linkages and one that allows for culturally mediated behavior.<sup>75</sup> William Durham has also analysed environmental pressures and population, behind the 1969 “Soccer War” between El Salvador and Honduras.<sup>76</sup>, trying to strike an evidence of population growth and land stress in the two countries. This was an ecologically driven conflict.

Durham also shows that changes in Agricultural practice and land distribution to the detriment of poor farmers were more powerful induced by migration than sheer population

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<sup>72</sup> Ibid

<sup>73</sup> A. McKay, *The Impact of Humanism on Western Europe*; New York; Longman 1990

<sup>74</sup> A. MacKay, "Climate and Popular Unrest in Late Medieval Castile," in T.M. Wigley, M.J. Ingram, and G. Farmer, *Climate and History: Studies in Past Climates and Their Impact on Man* (Cambridge: Cambridge University Press, 1981), pp. 356-376.

<sup>75</sup> H. Lamb, *Weather, Climate and Human Affairs*; London: Routledge, 1988

<sup>76</sup> W. Durham, *Scarcity and Survival in Central America: The Ecological Origins of the Soccer War* (Stanford, Calif.: Stanford University Press, 1979).

growth.<sup>77</sup> Land scarcity developed not because there was too little to go around, but because of the process of competitive exclusion by which the small farmers were increasingly squeezed off the land by large owners.<sup>78</sup> In Philippines, the country has suffered from serious internal strife for many decades. Its underlying causes may be changing population displacement, deforestation and land degradation which powerfully led the community insurgency.<sup>79</sup> Here, the linkages between environmental change and conflict are complex involving various intervening variables, both physical and social. The Philippines growth rate grew at a high rate and in order to help pay massive foreign debt, the government encouraged the expansion of large scale agriculture on the lowland. People migrated to steeper areas and more ecologically vulnerable uplands cleared land or established plots on previously logged land.<sup>80</sup> This led to increased soil erosion, falling food production and further clearance of the land to allow for human settlements. This shows that human-induced climate change and ozone depletion due to the negligence of severe terrestrial and aquatic environmental problems are on the increase.

Although the underlying influence of environmental factors on conflict may be great, the complex and indirect causation in these systems means that the scarcity evidence is open to many interpretations<sup>81</sup>.

Despite this, the emergent environmental security paradigm has a great deal in common with realism. The sources of the peculiar estrangement between contemporary realists and analysts of

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<sup>77</sup> Ibid

<sup>78</sup> W. Durham, *Scarcity and Survival*, p. 54.

<sup>79</sup> Other works on the Philippines used in this article are Gary Hawes, "Theories of Peasant Revolution: A Critique and Contribution from the Philippines," *World Politics*, Vol. 42, No. 1 (January 1990), pp. 261-298; Gregg Jones, *Red Revolution: Inside the Philippine Guerrilla Movement* (Boulder, Colo.: West view, 1989); World Bank, *Philippines: Environment and Natural Resource Management Study* (Washington, D.C.: World Bank, 1989).

<sup>80</sup> Ibid

<sup>81</sup> Margaret Biswas and Arit Biswas, eds., *Food, Climate and Man* (New York: Wiley, 1979).

environmental security are to be found in the recent realist theory and conceptual under development of environmental security theory.<sup>82</sup> Environmental issues have become a widened concept of security and on the other hand, assumed to play rapidly increasing role as causes of violent conflict<sup>83</sup>. Arthur Westings discussed first and 2<sup>nd</sup> World war, then Algerian war and several other decolonization, territorial, civil and other secession wars of the last decades<sup>84</sup>. The common aspect in all these wars is that natural resources such as minerals, fuels, fish stocks, products of the land and land itself played an important role. Westings list ends with Falkland war but could be prolonged nearly definitely both to the past and the present since access to and distribution of natural resources have been the object of contention and violent conflict between social groups and states during the whole human history.

According to Brock, there is a tendency to interpret the linkage between environment and conflicts as a question of struggle for scarce resources<sup>85</sup>. The term environmental degradation is understood as a human made environmental change, having a negative impact on human society.

## **2.2 Concept of Environmental Degradation and Conflict**

Unnatural or harsh weather conditions stifle an economy, displacing populations and can cause misery and discontent. Deforestation on the other hand is a cause of tension in some parts of the world. According to Homer, depletion of fish stocks forces farmers to migrate, or change to different methods of operation to earn a living. Decreases in crop yield due to inefficient

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<sup>82</sup> Daniel Deudney, Richard Anthony : Contested Security and Conflict in the new environmental politics

<sup>83</sup> Lathan B: Peace through Parks: The environment on the Peace Resource Agenda, 1991 pp 135 -142

<sup>84</sup> Westings

<sup>85</sup> Ibid- 65

Agricultural practices may also cause strife in some communities. Interregional or interstate conflicts can emanate from upstream pollution or appropriation of upstream freshwater.

Population growth affects the scarce natural resources which can impact negatively on the environment. Local renewable resources are depleted by logging, over-grazing, over-cultivation or pollution among others. In other words, there is a growing link between increased scarcity and violent conflict. Environmental degradation can be caused by over use, overstrain or impoverishment of either resources or living space.<sup>86</sup> Homer Dixon identifies six environmental issues that have implications for violent conflicts. He discussed on water and land degradation, deforestation, decline in fisheries and to some extent, global warming and depletion of the ozone layer.

On the other hand, Peter Gleick argues that global climate change is the ultimate cause of all environmental conflicts, by identifying four consequences of climate change caused by human activities, availability of fresh water resources , quality fresh water resources and changes in Agricultural productivity and trade, and rise in sea level<sup>87</sup>. But Homer-Dixon and Gleick underscore the vulnerability of developing countries the effects of environmental deficiencies and violent conflict. Economic activities impact negatively on environment through use of non-renewable environmental goods and services by converting environmental resources to other used and by adding waste and effluent to the environment.

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<sup>86</sup> T.F. Homer, "Environmental scarcities and Violent Conflict: Evidence from Crises", *International Security* Vol. 19, 1994, pp 5-40.

<sup>87</sup> P. Gleick, "Water in 21st Century", in Gleick ed., *Water in Crisis*

This in turn leads to a decline on environmental quality and resources impacts on economic activities to diminishing the amount of goods and services available for future production and consumption and by progressively precluding economic activities.

There is a downward trend of economic opportunities as the environment becomes

The downward trend has implications for both economic efficiency (Sound use and management of scarce resources to generate output) and equity –the access of different groups and individuals to secure livelihoods and economic activities.

### **2.3. Threats to the environment**

A threat can generally be defined as any object that affects the stability and security of an individual, state or group. There are threats that exist within the environmental arena that can terribly dilapidate the environment. In the context of this study, threats that will be discussed are depletion of the environment, population displacement and competition for scarce natural resources. Over the years, the depletion of natural resources has become a major focus of governments and organizations such as the United Nations. This is evident in the UN's Agenda 21 Section Two which outlines the necessary steps to be taken by countries to sustain their natural resources. The depletion of natural resources is considered to be a sustainable development issue.<sup>88</sup> When natural resources are threatened, there is need for speedy action because they can easily lead to conflict. In the Mau forest, there are resources of fresh water, land, forest cover, living organisms and the atmosphere that are directly threatened, not forgetting the indirect resources like the fish in dams and lakes that the forest rivers drain into.

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<sup>88</sup> Ibid

### 2.3.1 Depletion of the environment

According to Von Braun, depletion of Natural Resources is associated with social inequity.

Considering most biodiversity are located in developing countries,<sup>89</sup> depletion of this resource could result in losses of ecosystem services for these countries.<sup>90</sup> Some view this depletion as a major source of social unrest and conflicts in developing nations.<sup>91</sup>

Theodore Roosevelt in regards to natural resources, discussed that depletion is of concern for sustainable development as it has the ability to degrade current environments<sup>92</sup> and conquers with Salvati and Marco who exudes a similar opinion that on the potential to impact the needs of future generations<sup>93</sup>

The term sustainable development has many interpretations, most notably the Brundtland Commission's 'to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs according to the world report on Environment and development. Schilling and Chiang argues that in broad terms it is balancing the needs of the planet's people and species now and in the future that matters.'<sup>94</sup>

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<sup>89</sup> V. Braun J. cited in Inforesources Trends; Depletion of Natural Resources – Implications for Development: Switzerland, 2005

<sup>90</sup> UNEP, 2011 'International Year of Forests, 2011

<sup>91</sup> L. Nelson. Drivers of the Ecosystem Change: Millenium Ecosystem Assessment, Chapter 3, 2005

<sup>92</sup> T. Roosevelt, The Deep Waterway Convention, TN, 1907

<sup>93</sup> L. Salvano L & Z. Marco, Journal of Sustainable Development and World Ecology 15(6): pp 518-523

<sup>94</sup> M. Schilling M & L. Chiang L, The Effects of Natural Resources on Sustainable development: Energy Policy 39: pp 990- 998



### 2.3.2 Population growth and displacement

Population growth may put severe pressure on both local communities and state institutions at large. When the interaction between resource degradation, population growth and unequal distribution of resources leads to lower per capita availability of land resources and expansions into more marginal land, this is assumed to put a greater pressure on agricultural wages and contribute to economic marginalization as a first-order effect. Such hardship can, as a second-order effect, lead both to rural-to-rural migration, potentially causing inter-ethnic conflicts over land, and to rural-to-urban migration. While urban populations generally enjoy material standards above those in rural areas, urbanization often puts a pressure on a state's ability to provide vital services such as housing, clean water and health services.

The root causes of migration to forest lands are: political instability; economic tensions; ethnic conflict; and environmental degradation<sup>95</sup>. The claim that environmental degradation was a root cause of migration was a direct response to a growing number of articles positing a link between environmental degradation and population movement, and recognition that the numbers of displaced persons internationally was much larger than indicated by the statistics on refugee flows.<sup>96</sup>

According to many writers, the number of people who have been displaced by environmental degradation is immense. Jacobson notes that, "environmental refugees have become the single largest class of displaced persons in the world<sup>97</sup>." Homer-Dixon further

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<sup>95</sup> The UNHCR state of the world's refugees(1993)

<sup>96</sup> Ibid

<sup>97</sup> J. Jacobson, "Environmental Refugees: A Yardstick of Habitability." Washington, D.C.: World watch Institute 1988

argues that environmental degradation is likely to produce "waves of environmental refugees that spill across borders with destabilizing effects"<sup>98</sup> on domestic order and international relations. Speaking of displaced persons unaccounted for in official refugee figures, the Executive Director of UNEP at the time, Mustafa Tolba (1985), stated that "these people are the millions fleeing the droughts of northern Africa, the victims of Bhopal and the thousands made homeless by the Mexico earthquake. They are environmental refugees."

Since the end of the Cold War, there has been a dramatic increase in civil conflicts resulting in approximately 50 million refugees and internally displaced civilians.<sup>99</sup> According to the United Nations, the public health impact of these situations has been immense, comprising high rates of communicable diseases, elevated prevalence of acute malnutrition, and high excess mortality rates. The prevention of these adverse public health effects includes early warning and intervention; prompt supply of adequate food, water, and sanitation; measles immunization; effective management of epidemic communicable diseases; and simple and timely information systems.

Beginning with the use of the phrase 'environmental refugee' by Lester Brown<sup>100</sup>, there has been a proliferation in the use of the term, and later 'environmental migrant' and a cluster of similar categories, including "forced environmental migrant", "environmentally motivated migrant", "climate refugee", "climate change refugee", "environmentally displaced person (EDP)", "disaster refugee", "environmental displacee", "eco-refugee", "ecologically displaced

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<sup>98</sup> H. Dixon Environmental Changes as causes of Acute Conflict 1991

<sup>99</sup> W. Easterly W. Can institutions resolve conflicts, vol. 49: 682

<sup>100</sup> L. Brown L. 1976

person" and "environmental-refugee-to-be (ERTB)"<sup>101</sup> The differences between these terms are less important than what they have in common: according to Boano and Zeta, they all suggest that there is a determinable relationship between environmental drivers and human migration which is analytically useful, policy-relevant and possibly grounds for the expansion of refugee law.

The International Organisation for migration proposes the following definition for environmental migrants: "Environmental migrants are persons or groups of persons who, for compelling reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad."

There have been a number of attempts over the decades to enumerate 'environmental migrants/ refugees'. Jodi Jacobson is cited as the first researcher to enumerate the issue<sup>102</sup>, stating that there were already up to 10 million 'Environmental Refugees'. Drawing on 'worst case scenarios' about sea-level rise, she argued that all forms of 'Environmental Refugees' would be six times as numerous as political refugees.<sup>103</sup> (1988: 38). By 1989, Executive Director of UNEP, was claiming that 'as many as 50 million people could become environmental refugees' if the world did not act to support sustainable development<sup>104</sup>

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<sup>101</sup> B. Zeta et al, *Environmentally Displaced People: Understanding the linkages between environmental change, livelihoods and forced migration*, Policy Brief No.1 (RSC: Oxford),(2008) pg.4

<sup>102</sup> J. Jacobson, *Environmental Refugees: a Yardstick of Habitability*, Worldwatch paper 86, Worldwatch Institute, Washington DC. (1998)

<sup>103</sup> Ibid

<sup>104</sup> M. Tolba,; *Our biological heritage under siege*. Bioscience 39, (1989)pp.725-728

In 1990, the Intergovernmental Panel on Climate Change declared that the greatest single consequence of climate change could be migration, 'with millions of people displaced by shoreline erosion, coastal flooding and severe drought'<sup>105</sup> In the mid-1990s, Norman Myers became the most prominent proponent of this 'maximalist' school<sup>106</sup> stating that there were 25 million environmental refugees in the mid-1990s, and claiming that this figure could double by 2010, with an upper limit of 200 million by 2050.<sup>107</sup>

Myers argued that the causes of environmental displacement would include desertification, lack of water, salination of irrigated lands and the depletion of bio-diversity. He also hypothesised that displacement would amount to 30m in China, 30m in India, 15m in Bangladesh, 14m in Egypt, 10m in other delta areas and coastal zones, 1m in island states, and More recently, Myers has suggested that the figure by 2050 might be as high as 250 million.<sup>108</sup>

Displacement-related environment issues are widespread and often highly visible in establishment of camps, settlements, urban slums and return areas. The most significant are: environmental issues as a cause for displacement; impacts related to the concentrations of people in camps or settlements: deforestation and the fuel wood crisis in dry-land areas; land degradation; unsustainable groundwater extraction; other impacts related to the initial displacement; uncontrolled urban and slum growth; and fallow area regeneration.<sup>109</sup>

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<sup>105</sup> K. Warner and F. Laczko. 'Migration, Environment and Development: New Directions for Research', in Chamie J, Dall'Oglio L (eds.), (2008): 235 International Migration and Development, Continuing the Dialogue: Legal and Policy Perspectives, IOM

<sup>106</sup> S. Gemenne, 'Environmental Migration: Normative Frameworks and Policy (1993)

<sup>107</sup> N. Myers, 'Environmental Refugees', *Population and Environment* 19(2): (1997)167-82

<sup>108</sup> A. Christian ;'Human Tide: The Real Migration Crisis' (CA: London), (2007).

<sup>109</sup> Ibid

There is a need to predict complex emergencies earlier. Effective intervention methods will require information on the quantity and content of relief commodities and analysis of the impact of relief on the health and nutrition of the affected population. The goal should be to prevent excess mortality among the affected populations. The public health challenge is to improve the health status of populations caught in the cycle of war, intimidation, hunger, migration, and death. The poor people are the most affected by the displacement, while population growth as well impacts negatively on the resources as there is competition for resources.

### **2.3.3 Competition as a Source of Conflict**

The ideas of struggle over increasingly scarce resources which is often used to characterize the linkage between environment and conflict. This can be explained in the relative deprivation theory, frustration-aggression theory or by the tragedy of the commons.

Resource competition commonly used by biologists to study animal population cannot be applied directly to human societies. The scarcity for resources is a major challenge for every society. How this leads to conflicts is socially and historically conditions. Social facts such as conflicts cannot be explained by national facts by but only by other social facts<sup>110</sup>

Where resources are scarce, competition for limited supplies can lead groups, communities, and even nations to see access to resources as a matter of highest concern. The negative impacts of overuse of a resource can be devastating and sometimes abrupt. According to Hardin 1968, there is no right defined to a property, even when the marginal benefit of that

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<sup>110</sup> F. Dixon "Getting Mainstream Investors to Thinkable Sustainability, Earth Times Views Service. Environment dispute Resolution an anthropology of Practical Solutions.

resource is close to Zero and yet its return tomorrow is lower than today's. Example is like when a large population depends on green pasture for their livestock, overgrazing due to increased population leads to a tragedy among the commons living in that particular region.

Aggression is used to describe a number of functionally different behaviours that have in common the infliction of harm upon another person.<sup>111</sup> Some varieties of aggression have been identified, such as angry retaliation, self defence, and violence carried out. Cognition is required to recognize the stimulus according to Cairns.<sup>112</sup> Negative effects do not necessarily cause aggression, it may create an impulse to flee from the unpleasant situation in cases of migration, or either fight back.<sup>113</sup> He argues that both tendencies are elicited simultaneously but that each one of them depends either on a person's genetic endowment, prior conditioning and learning or recognition of aspects of the situation that inhibit or facilitate aggression.

Biological factors in aggression increase the probability of a person's reacting to increased negative effect with impulsive aggression.<sup>114</sup>

Aggression is moderated to a larger extent by social and cultural factors. A provocation that evokes a violent and destructive response in one culture or society may elicit a more controlled reaction in another that follows different norms for aggressive behaviour.

Relative deprivation is the experience of being deprived of something to which one believes oneself to be entitled to have<sup>115</sup> It refers to the discontent people feel when they compare their

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<sup>111</sup> M. Baron & C. Richardson, 'Environmental issues to deal' 1994, p.5)

<sup>112</sup> Ibid

<sup>113</sup> Berkowitz, 1993

<sup>114</sup> D. Berman et al, 1993

positions to others and realize that they have less than them.<sup>116</sup> Relative deprivation is used to describe the feelings or measures of political, economic and social deprivation that are relative, rather than absolute.<sup>117</sup> Relative deprivation conflicts are manifested in civil strife and insurgency caused by unequal distribution of resources. This occurs because society's level of resource and wealth production decreases due to environmental deficiencies, as an individual's level of discontent increases due to the widening gap between their actual level of achievement and the level they feel they deserve.<sup>118</sup> This results to class animosity within the lower classes towards the elites.

Schaefer defines it as "the conscious experience of a negative discrepancy between legitimate expectations and present actualities"<sup>119</sup>. This concept of relative deprivation has important consequences for both behaviour and attitudes including feelings of stress, political attitudes, and participation in collective action. This is highly propagated by competition. It is a potential cause of social movements and deviance which can lead to violence of one form or another. When the environment is highly depleted, grievances arise from people who feel deprived<sup>120</sup>. Their engagement in deviant behaviour occurs when their means do not meet their g

Resources are unevenly distributed throughout the world. Water resources are unevenly distributed by the natural hydrological cycle, with some regions receiving enormous amounts of rainfall or river flow, while others are extremely dry. Human factors, such as high population densities or intensive industrial development may cause conditions of "relative" scarcity.

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<sup>115</sup> L. Walker, Heather J. Smith, *Relative Deprivation: Specification, Development, and Integration*, Cambridge University Press, 2001

<sup>116</sup> K. Bayetz, *Solidarity*, Springer, 1999

<sup>117</sup> Ibid

<sup>118</sup> Ibid

<sup>119</sup> T. Richard, *Racial and Ethnic Groups, 11th Ed.*, Pearson Education, 2008, p.69

<sup>120</sup> R. Jerry *Outbreaks, the sociology of collective behavior*, 1982, New York Free Press

The problem of shared resources complicates the problem of scarcity. When a resource base extends across a political border, misunderstandings or lack of agreement about allocations are more likely.

#### 2.4. Environmental Conflict Management: Issues and interests

Sustainable development in a global economy requires a delicate long term balance between human activity and nature's ability to renew itself<sup>121</sup> Future prosperity depends both on preserving ecological treasures for the benefit of future generation and on continued economic growth and innovation<sup>122</sup> There is need to improve systems for managing the inevitable conflicts and develop techniques resolving the inevitable disputes since there will always be tension between individual development and preservation of the environment.

This provides an overview of significant analytical framework for improving environmental dispute Resolution outcomes on overview of how environmental management systems can be used to improve EDR Results. Over three decades ago protection of environmental resources has become a worldwide concern<sup>123</sup> . Contaminated soils air and water are perceived as serious threats in industrialized that previously measured quality of life in terms of materials output.

According to Ann Mac Naughton and Gray Morton, the late twentieth century witnessed three fundamental changes of significance to the development of sustainable solutions both

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<sup>121</sup> K. Lynton, International environment . Environmental policy (3rded 1996 p.243

<sup>122</sup> R. Unro. & J. Tammers 'For Protection and sustainable development Legal see Principles and Recommendations (London : Graham and Tratman,1987)

<sup>123</sup> Ibid



domestically and internationally. They argued that environmental protection and economic development are no longer regarded as mutually excessive goals. Systems and strategies are being developed to achieve sustainable economic development objectives. They were of the view that Conflict Management and dispute resolution are no longer solely as cost centers they are seen as potential sources of seminal creativity solutions and improved relationships as well. Further they argued that technological application transform global business realities by networking people in radically redefined patterns of interaction<sup>124</sup>.

Long term sustainable solutions are required. Environmental Conflicts have a common scientific and technical fact, whereby stakeholders have different but overlapping interests for example. Soil and water contamination from single industrial area may give rare to enforcement and compliance dispute with local authorities or international regulatory to authorities. They must also be subject matter that crosses geographic EDR and professional borders, affect large economic stakes have multiparty dynamics have optimum solutions and stakeholders outside the scope of judicial reach.

Caldwell argues that while natural resources are distributed and impacted though complex interactive systems of oceans islands species and ecosystems geopolitical borders are created by the interaction of people, committees cultures and sovereign states<sup>125</sup> Increasing awareness about the risks of ground water contamination, deforestation, soil erosion and either changes let the late twentieth century to dramatically expanded international structures.<sup>126</sup>

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<sup>124</sup> Ibid  
<sup>125</sup> Ibid  
<sup>126</sup> Ibid

Different disputes dynamics require different conflict management and dispute resolution resources depending on the nature extent of any emotional or values conflict, constructing ideas and facts, different needs and interests, power struggles and other valuables.<sup>127</sup> Experiences in

EDR context relies or how to maximize results through use of State of The Art ADR systems, strategies and tactics.<sup>128</sup> There is need to understand the nature of the dispute, outcome desired. EDR process and the resources to assist EDR process Chosen.<sup>129</sup> In Mau forest, the only strategy is to evict all those who have encroached, and involve the local communities

NGOs working on environmental issues have advocated to achieving improved environmental performance and compliance through continual improvement of regulation of policy on Environment protection.<sup>130</sup> Top government officials should establish a policy and commitment to continuous environmental improvement. The government should analyze all environmental laws and regulations that potentially affect its facilities and business practices like air pollution.

## 2.5 Conclusions

Simply by existing, people have made major impacts on the world's living ecosystems. This summary attempts to list most of these, so that the enormity of the situation can be observed. A century ago, this list would have been quite short, because human use of the planet's resources was much less, and not perceived as damaging. Today, not only can damage be seen or predicted, it can also be felt personally in the form of shortages and hindrance. Little do we

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<sup>127</sup> B. William et al, effective settlement advocacy In Mass tort Disputes Chapter 7

<sup>128</sup> Macnaughton ANNL: Practical Dispute Resolutions: Skill Tips and Tactics (ABA SEER) 1999

<sup>129</sup> Macnaughton ANNL, Collaborative problem solving in Environment Dispute Resolution

<sup>130</sup> C. Campbell, " II Natural resources and Environment" F(1996) P 3

realize, however, to what extent we have changed this planet. Not all changes to the planet's ecosystems are perceived as problems. Only those that affect us are, particularly those that affect us now. All our problems are caused by people, for without people there would be no problems. Thus the more people and the more affluent their lifestyle, the more resources they will use and the more numerous and severe our problems will become. Politicians in Kenya are the main culprits in the Mau degradation.

## CHAPTER THREE: ENVIRONMENTAL DEGRADATION AS A CAUSE OF CONFLICT IN KENYA: THE CASE OF THE MAU FOREST, 1990-2010

### 3.0 Introduction

Chapter one and two gives and Introduction to environmental degradation which is a concept of conflict the interrelation of Environmental degradation in communities degradation are discussed through the analysis of various concepts. The threats to environment are discussed in chapter two, that shows the interlinkages between many variables of competition, population and ethnicity. Chapter three is the case study and will present both secondary and primary data collected with regard to the Mau Forest Encroachment from the Years 1990-1999. However, the chapter gives information on the years before the case study, as background information. These years are categorized as the colonial years and the post colonial years and the influence they had on the Mau forest.

### 3.1 History of the Mau Forest

The Kenya Indigenous Forest Conservation Programme (KIFCON) of 1991-1994 estimated Kenya's closed canopy forests to cover 1.24 million hectares, or roughly two percent of the country<sup>131</sup>. Recent estimates based on remote sensing indicate that against a global forest cover average of 21.43 percent, and an average for Africa of 9.25 percent, Kenya's closed canopy forest cover stands at a critical 1.7 percent<sup>132</sup>.

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<sup>131</sup> Ibid

<sup>132</sup> Nkako et al (2005) *Maasai Mau Forest Status Report*. Narok, Kenya, Ewaso Ngiro South Development Authority.

The loss of forest cover has been caused by a number of factors: degradation, settlement (both legal and illegal), urbanization, unsustainable extraction of timber and forest products, lack of land use policy, and corruption, among others. During the last decade there was an increase in illegal and irregular forestland allocation due to political interference, exacerbating an already critical situation. The Mau Forest Complex (MCF), and the Maasai Mau Forest (MMF) in particular, were no exception<sup>133</sup>.

The Mau Forests Complex covers approx. 416,542 ha<sup>3</sup>. It is the largest closed-canopy mountain forest ecosystem in East Africa, and prior to recent deforestation was larger than Mt. Kenya and the Aberdares combined. Historically, the Mau was overlooked when the forest was intact and when land pressure was low. As land pressure increased, the forest was viewed as an untapped area with high potential agricultural value waiting to be exploited<sup>134</sup>.

Most of the forest blocks in the Mau Forest Complex have been gazetted and are managed by the Forest Department (KFS - formerly the Forest Department). In addition, the Mau ecosystem is considered as the most important of the five water towers in Kenya, being the upper catchments of many major rivers, which feed, partially or exclusively, the lakes of Natron, Turkana, Baringo, Naivasha, Nakuru and Victoria. The Mau is arguably of even greater importance than Mt. Kenya since the water that flows from it, is part of the Lake Victoria catchment, which in turn provides water to the White Nile. The trans-boundary significance of the Complex therefore has to be considered not only in terms of providing water to its neighbour Tanzania but also to the whole Nile basin.

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<sup>133</sup> Ibid 13

<sup>134</sup> Ibid 13 p. 5

The importance of the Mau is related to the ecosystem with the services it provides, such as river flow regulation, flood mitigation, water storage, water purification, recharge of groundwater, reduced soil erosion and siltation, protection of biodiversity, carbon sequestration, carbon reservoir and regulation of microclimate which provides favourable conditions for optimum crop production.

The critical role of the Mau is in the water it provides to urban centres and some of the most densely populated regions of Kenya supporting livelihoods and economic development. With a high leaf area index, Mau forest has over the years been able to intercept all the water falling on the forest canopy and slowly channel the same to the forest floor and eventually to the ground aquifers. Natural forest reduces the erosive impact of rainfall which leads to soil erosion<sup>135</sup>. Leaf litter prevents erosion and forest soils provide the sponge for the entrapment of water.

### 3.1.1 Colonial Mau Forest

The assault on the Mau forests began with colonialism, which established the first settlement schemes as early as the 1940s to protect the colonialists' needs for fertile land in the so-called White Highland areas and beyond. Such schemes continued in the post-colonial period and culminated with the Moi regime's actions of de-gazetting parts of the Mau Forest to reward loyal politicians and entice the Kalenjin community to vote for KANU in the 1997 elections<sup>136</sup>.

The new scramble for the Mau and its steady obliteration is closely related to the protracted challenge of landlessness in the Rift Valley Province that originated from the colonial and post-colonial land policies. The colonial policy of land appropriation displaced thousands of

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<sup>135</sup> Ibid

<sup>136</sup> H. Gisemba, "The Lie of the Land: Evictions and Kenya's Crisis", *Africa Policy Institute (API)*, Policy Brief No.2, February, 2008. Available at <http://www.africapi.org> (accessed 23 Nov, 2011)

people and triggered unprecedented migration in the 1900s, with thousands of Kikuyus, Luos, Luhyas and Kisiis moving to the White Highlands as squatters and sharecroppers.

But many Kikuyu squatters became successful farmers and threatened the white settler's smooth access to land and cheap labour. The colonial state responded with forceful evictions that exterminated the competition and left majority of the Kikuyu squatters landless and available for cheap labour<sup>137</sup>.

In an attempt to resettle the displaced squatters, the colonial government established the first wave of government re-settlement schemes in 1941 in Olenguruone, North of Nakuru and part of the Mau forests. But over 100,000 squatters were viciously repatriated to Central Kenya between 1946 and 1952, a pattern now considered cyclical after recurring during the 1991/92, 1997 and 2007/2008 electoral cycles<sup>138</sup>. The landless population increased with more evictions in 1955 during the second wave of African re-settlement schemes, when Kikuyu peasants in Olenguruone were evicted to pave the way for a re-settlement scheme of the loyalist black farmhands, an exclusive strategy designed to purge suspects of the Mau Mau uprising<sup>139</sup>.

### 3.1.2 Post-Colonial Mau Forest

The post-colonial government land policy of willing-buyer-willing-seller alienated the landless squatters and attracted the wealthy middle class, land buying companies and cooperative societies from predominantly agricultural communities of the Agikuyu, Maragoli, Abagusii, and

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<sup>137</sup> N. S. Carey Jones, "The Decolonization of the White Highlands of Kenya", *The Geographical Journal*, Vol. 131, No. 2 (Jun., 1965), pp. 186-201.

<sup>138</sup> Ibid

<sup>139</sup> Ibid

Abanyore<sup>140</sup>. At the same time, the government land re-settlement schemes were strongly opposed by the indigenous Kalenjin ethnic group, protesting against invasions of their ancestral land by "foreigners". To pacify the 'native' opposition, the Kenyatta regime imprisoned the leading critics, including Honorable Jean Marie Seroney, the MP for Tinderet, who authored the controversial "Nandi Declaration" in 1969 that ordered all foreigners to vacate the Nandi's ancestral land. Kenyatta also used senior Kalenjin leaders led by Vice-President Daniel arap Moi to mollify the discontented Nandis, a key explanation factor for the absence of land-related clashes in the Rift Valley during Kenyatta's presidency<sup>141</sup>.

But historical analysis of land ownership in Rift Valley by the supra-ethnic Kalenjin grouping and systematic evictions during the former regime continues to face criticism due to notable distortions and historical misrepresentation. Contrary to numerous reports that identify the land question as the root cause of the post-election violence in Rift Valley Province, the key driver of systematic evictions has been the struggle for power within the political class in the multi-party era.

Evidently, the etymology of geographical Maasai names such as Sirikwa, Eldoret, Kipkaren and Uasin Gishu in the North Rift region indicates the Maasai were the earliest inhabitants before the brutal colonial displacements took place. Secondly, the displacement of Kikuyus from Central Kenya by the colonialists took place in the early 1900s, creating second and third generations of Kikuyu squatters in Rift Valley. Finally, Kenyans from diverse ethnic and class backgrounds took advantage of the government's willing-buyer-willing-seller policy to

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<sup>140</sup> W. Oyugi, "Politicised Ethnic Conflict in Kenya: A Periodic Phenomenon", 2000.

<sup>141</sup> Ibid



buy tracts of land in the region, making the Rift Valley one of the most populous and cosmopolitan provinces in the country<sup>142</sup>.

Continued encroachment and forest excisions of the 400,000 hectares complex led to the loss of at least 107,000 hectares of forest cover, leading to the current degradation status that puts at risk the political stability and economic progress of Kenya and the entire East African region. Despite protests by environmentalists and a High Court injunction obtained by civil society, the Moi administration went ahead and allocated a total of 61,587ha.<sup>11</sup> But instead of benefiting the landless population, the resettlement programmes became a political strategy to reward Moi's loyalists and safeguard grassroots political support within his Kalenjin community. The 2004 Ndung'u Report and the 2009 multi-stakeholder Mau Task Force acknowledged that most of the land was not allocated to the landless and needy population but to the local political leaders and 99% of title deeds were issued illegally<sup>143</sup>.

The approval of illegal land allocations by the Moi regime stimulated subsequent encroachments on the Mau Complex, largely by the landless Kalenjins. Despite efforts by environmental activists to block the invasion of forest reserves through judicial and parliamentary interventions, the government failed to take decisive action as thousands of people moved into the forests, cut down trees and built homes<sup>144</sup>.

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<sup>142</sup> G. Horace "The Lie of the Land: Evictions and Kenya's Crisis", *Africa Policy Institute (API)*, Policy Brief No.2, February, 2008. Available at <http://www.africapi.org> (accessed 22 November, 2011)

<sup>143</sup> P. Kantai, "Saving Kenya's Mau Forest", *Africa Report*, 21 September 2009.

<sup>144</sup> Ibid

### 3.1.3 Mau forest from the 1990's

The major threat to Maasai Mau Forest was identified as encroachment for settlement, which dates back to early 1980s when part of the forest was settled and destruction began. Following environmental concerns, e.g., water conservation and deforestation, the Presidential (Ntutu) Commission was formed in 1986 to review the boundaries in order to conserve the water catchment areas and recover lost forest areas. As recommended by the Commission, a total of five regions were reclaimed from Ol Posimoru 'A', Kamrar, Olokurto, Nkareta and Naisoya Adjudication Sections.<sup>145</sup>

Pressure on Maasai Mau Forest started again in 1999 when five forest adjacent Group Ranches that had been adjudicated in 1970s, applied for consent from the local Land Control Board to subdivide their land among members. The affected ranches were Sisiyan (Ilmotiok Adjudication Section), Nkaroni, Enoosokon and Enakishomi (Ololulunga Adjudication Section) and Reiyo (Nkoban Adjudication Section). The boundaries of these sections were well defined during land adjudication and therefore adopted at First Registration.<sup>146</sup>

After consents were issued, government officers, politicians, private surveyors and influential people irregularly increased the sizes of the Group Ranches far in excess of their registered areas. After expansion, this added land, all in the Maasai Mau.<sup>147</sup>

Forest, was sold to unsuspecting outsiders who had no information on the status of the forest. The new members were referred to as "acceptees." Most of these people obtained title deeds fraudulently, while others squatted, awaiting ratification of their occupancy. By 2005, illegal extension into the Maasai Mau Forest due to expansion of Group Ranches had created

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<sup>145</sup> Ibid

<sup>146</sup> Ibid

<sup>147</sup> Ibid

1,962 parcels of land, amounting to 14,103.7 hectares of the forest. No resolution to give away the forestland was made by the Narok County Council (NCC), as required by law. However, letters of no objection by the NCC were fraudulently obtained stating that the areas to be subdivided did not encroach onto Council land, including the forest.<sup>148</sup>

### **3.2. Settlement, trends and issues of the of the local residents in Mau water catchment**

#### **Encroachment**

Large-scale encroachment was observed on the western side of the Maasai Mau Forest, where 11,095 hectares has been heavily impacted. On the lower slopes of the western section, over 90 percent of the forest canopy has been destroyed (Photograph 2). Destroyed forest cover decreases progressively from approximately 90 to 50 percent towards the upper slopes, while clearing activities intensify tremendously<sup>149</sup>

#### **3.3 Positive trends and issues**

There has been a few positive trends for those that have been benefiting from the forest reserved. The study revealed that a number of residents had benefited from the crises in that they were able to grow foodstuffs, sell timber and therefore the gains to them were positive. However, the national gains out weight the individual gains and therefore the environmental degradation was an issue of national security and hence a need for immediate halt.

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<sup>148</sup> Ibid  
<sup>149</sup> Ibid

### 3.3.1 Increased food productivity

Food production had gone up for the communities farming tea and other food crops, although in the study, they vehemently refused to admit that they had made quite some fortune from the proceeds. This was observed as a cultural way of protecting their wealth as they could not reveal it. However, the local administration was quick to confirm that the land was very fertile for crop production and therefore had increasingly practiced commercial farming without use of advanced farm inputs and chemicals.

### 3.3.2 Business in timber products

Logging in the Mau forest must be understood against the background of forest excisions whereby the government periodically hives off large chunks of forest land, ostensibly for “landless” Kenyans but actually for distribution to powerful, well connected individuals.<sup>150</sup>

Under Kenya’s Forest Act, which was in force from colonial times until mid-2005, when a new forest law was enacted (read more about this below), all forests belonged to the state and were managed on its behalf by the Forest Department.<sup>151</sup> By all accounts, the Forest Department has made a mess of managing forests. Huge chunks of forest areas were routinely excised. During the colonial period, and for a couple of decades after independence, large chunks of the Mau forest were destroyed in order to establish tea plantations in the parts of the forest under Kericho and Bomet county councils. This resulted in the largest tea-growing areas in Kenya being found within the forest.

From 1973 to 2003, 36,780 ha were lost in the Eastern Mau forest and, as recently as 2001 for example, the government excised over 67,000 ha for logging and to settle agricultural

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<sup>150</sup> Ibid  
<sup>151</sup> Ibid

communities. Excisions have also taken place in various other parts of the forest, including the Transmara area where, in a Gazette Notice of 3 March 1989, 937.7 ha were set aside for timber and tea plantations. The gazette notice was not accompanied by a legal notice - a mandatory requirement. From 1996 to 2003, over 30% of the Maasai Mau forest was lost to logging and agricultural activities. Maasai Mau measures approximately 46,278 ha.<sup>152</sup>

Excisions continue to this day for political reasons. With the next scheduled elections in December 2007 fast approaching, the government, through the Ministry of Lands, is considering excising a further 7,000 ha from Maasai Mau for the settlement of "landless" potential voters. The government action is illegal, against the well-being of the country's environment and the economy, and will definitely result in conflicts of jurisdiction and interests between the Ministry of Lands and the Ministry of Environment and between the central government and local authorities.<sup>153</sup>

Nearly five years ago, the government imposed a ban on logging in order to curb deforestation and to conserve the country's major water catchment areas. Despite the ban, there is alarm at the rate at which the country's forest cover continues to be depleted through logging activities. Camphor and cedar trees, which produce prized varieties of wood products are said to be particular targets for loggers. Other types of wood are also used for carving artefacts for the tourism industry.

The Mau forest complex is the most heavily logged forest in Kenya. When the government imposed the ban on logging in the country, it exempted three multi-national logging companies: Pan African Paper Mills, Raiply Timber and Timsales Ltd, the biggest loggers in the Mau forest. According to government explanations, the three firms were exempted

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<sup>152</sup> Ibid

<sup>153</sup> Ibid

because Raiply and Timsales employ over 30,000 Kenyans, while "the government has shares in [the Pan African Paper Mills] and it is important to the economy," explained Kimaiyo Towett, a leading Ogiek activist. While the ban subsists, the three companies continue to cut down thousands of trees every month from Eastern Mau for the national and Middle East market. On 20 August 2006 for example, Ms Letitia Zobel, a UNEP (United Nations Environment Programme) policy adviser visited the Mariashoni area of Eastern Mau. "In the one hour that I stood there on a Sunday morning, I counted 7 ten-ton trucks ferrying logs to the three companies' plants in Elburgon town," she explained in shock. "The swamp that is the source of the Mara River is drying up!" she added.

The Mara River waters both the Maasai Mara and Serengeti game reserves and drains into Lake Victoria. Eastern Mau is also the water catchment area for Lake Nakuru, which supports one of Kenya's most visited wildlife parks with the biggest concentration of flamingos in the world. In a press conference on 17 August 2006, the Director of Kenya Wildlife Service and the top civil servant in the Ministry of Environment expressed concerns that, at the current rate of Eastern Mau forest destruction, Lake Nakuru would no longer be there in 20 years' time.

<sup>154</sup>Ironically, a major daily newspaper featured a leading story the next day in which forest and other government officials in Nakuru district were demanding that loggers immediately pay the US \$ 450,000 royalty fees they owed the government for timber harvested in Eastern Mau. The officials particularly accused a local politician of owing the government in excess of US \$ 115,000 in logging fees royalty arrears! Both Lake Nakuru and Eastern Mau are located in Nakuru district. By allowing logging that is destroying one of Kenya's prime tourist destinations, the government is systematically chopping off the hand that feeds it.

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<sup>154</sup> Ibid

Logging activities are also rampant in other parts of the forest. Logging in parts of the forest found in Kericho district is undertaken to supply the tea industry.

Tea factories daily need undocumented large quantities of timber to roast tea leaves. In Maasai Mau, logging is mostly done by small-scale poor locals desperate to put food on their tables. But when small-scale loggers are many, they add up to something big. In a 2005 report prepared jointly by UNEP, Kenya Wildlife Service, Kenya Forestry Working Group and Ewaso Nyiro South Development Authority on the status of the Maasai Mau, "logging was so intense in the western parts of the forest that it was impossible to count the number of trees cut. In the eastern part, some 2,343 recently logged indigenous trees were counted, in addition to some 573 hectares on which logging was so heavy that individual trees logged could not be counted," stated Mr. Koriata, the then Principal Administrative Officer of Narok county council. The government authorities in Narok district, where the forest is found, are alleged to be deeply involved in the logging activities. The biggest culprits are said to be officials from the forestry department and Narok county council.<sup>155</sup>

But when they take action and arrest a few private loggers and impound their timber, the court fines are small and not an effective deterrent. The impounded timber is often channelled back into the black market by the very same government officials who impounded it.

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<sup>155</sup> Ibid

### 3.3.3 Negative trends and Issues

Degazettement of forest reserves (excisions) and continuous widespread encroachments have led to the destruction of over 107,000 ha over the last two decades, representing over 25 percent of the Mau<sup>156</sup>.

Out of the approx. 416,542 ha of the protected forests, 61,586.5 ha were excised in 2001 alone. The excised areas are critical upper catchments areas for the rivers and lakes that are fed by the Mau. The excised areas included both the bamboo forests with high catchment values and biodiversity-rich areas, as well as parts of the summit of the Mau escarpment. The excisions are starting to impact negatively on major natural assets and development investments, including Lake Nakuru National Park, Maasai Mara National Reserve, Sondu-Miriu Hydropower Scheme (60MW), geothermal plants near Naivasha, small hydropower plants in the Kericho tea estates (4MW) and the tea growing areas in Kericho Highlands<sup>157</sup>.

The impact of the excisions has not been assessed since no environmental impact assessment (EIA) was carried out despite the requirements for such EIAs in accordance with the 1999 Environment Management Coordination Act. In addition to the excisions, approx. 41,122 ha had been encroached by settlements in the Mau, in particular in Maasai Mau trust land forest, Ol Pusimoru Forest Reserve and South West Mau Forest Reserve. Illegal logging and charcoal production are rampant in and around the encroached areas<sup>158</sup>.

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<sup>156</sup> A. Thenya and W. Kiama. Maasai Mau Survey Draft Report. In: KFWG-COMIFORM Project, 22-23rd (2008) September 2008, . Narok, Kenya.

<sup>157</sup> Ibid

<sup>158</sup> Ibid



The on-going destruction of a vital natural and nationally important asset is a matter of concern to GoK. The increasing environmental and economic problems, if not reversed, may result in breakdown of law and order, ethnic conflicts and threats to internal security.

The destruction had threatened the river-dependant wildlife in the Maasai Mara and the Serengeti ecosystems; and, many streams in the Mau Forests Complex have their flows changed significantly or have dried up. Most of the changes have occurred around the years 1996-2001. For example, in Njoro area, 13 of the 32 streams identified by the communities have dried up completely signaling a major threat to the rivers they fed. Twenty-seven other water sources or streams have also dried up completely in Elburgon, Kuresoi, Keringet, Kiptagich and Ol Pusimoru areas<sup>159</sup>.

### **3.3.3.1 River water shortages**

Africa is facing an unprecedented water crisis: about 25 percent of Africa's population is living in water stressed area and this figure will rise dramatically to an estimated 500 million people by 2050<sup>160</sup>. While some of this will be caused by climate change, the water stress in the Mau area is largely the result of land degradation and deforestation whose effects are to be felt far beyond the Mau complex.

It has become clear in recent years that the continuous provision of water is directly related to the existence of the natural forest: water towers and mountain forests are closely linked but the relation between the two has not always been fully recognized. Once the forest has gone, water infiltration is greatly reduced and aquifer level lowered causing springs to dry, and rivers to

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<sup>159</sup> Ibid

<sup>160</sup> Climate Change 2007. *Report on the Intergovernmental Panel on Climate Change*

become highly seasonal. Increased runoff and storm flow frequency and amplitude causes soil erosion and downstream flooding. The social impacts are water shortage, infrastructural damage, poverty, ill-health, conflict and regional insecurity.<sup>161</sup>

### 3.3.3.2 Deforestation

The conversion of forest into agriculture and built-up land in the MFC has led to noteworthy environmental impacts. Generally, increased impervious and hardened surface areas such as roads, parking lots, sidewalks and rooftops diminishes infiltration based processes and, consequently, recharge to the groundwater systems. These processes not only impair the ability of the system to cleanse runoff and protect wetlands, but also amplify the potential for soil erosion and floods, thereby contributing to the degradation of streams and other water bodies<sup>162</sup>.

The replacement of forest and woodland by depletive subsistence agriculture has also caused massive inflow of sediments into the nearby Lakes<sup>163</sup>.

The rising nutrient levels from the sediment have affected the growth of blue-green algae (*spirulina platensis*), which forms the main food for flamingo birds, known to be a major touristic attraction for Lake Nakuru. Apart from reduced revenues associated with ecotourism in the area, the ecological effect of this has been the loss of biodiversity through migration of the birds to other water bodies within the rift valley where complimentary food is available. Conversion from forest to agriculture and grazing land has also disrupted the hydrological cycle of the river drainage basins through increased evaporation and runoff process, especially during

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<sup>161</sup> Ibid

<sup>162</sup> Kundu P. M., China S. S. & Chemelil, M. C. (2008). Automated extraction of morphologic and hydrologic properties for River Njoro catchment in Eastern Mau, Kenya. *Journal of Science, Technology, Education and Management*, 1 (2), 14-27

<sup>163</sup> Ramesh, T.(1998). Lake Nakuru Ramsar Project. World Wide Fund for Nature (WWF) ([www.aaas.org/international/ehn/biod/thampy.htm](http://www.aaas.org/international/ehn/biod/thampy.htm))

rainy seasons. Generally, low-productivity grass types from natural grassland pastures have lesser leaf area and produce a smaller amount of biomass compared to the forested vegetation. With reduced leaf area and biomass consequent of the land degradation, rainfall interception and surface detention capacity are bound to significantly decrease. This reduces the soil moisture retention capacities, further contributing to the decline in the general evapotranspiration rates (ET<sub>o</sub>) of the area. Changes in land use may also affect the groundwater recharge of a system.<sup>164</sup>

This however, depends on the groundwater recharge area, which may be different from the surface water catchments. However, studies have also shown that logging or conversion of forest to grassland for grazing can result into rising water table as a result of decreased evapotranspiration. In some cases, the water table may fall as a result of decreased soil infiltration from soil compaction and non-conservation farming techniques. If the infiltration capacity is substantially reduced, the long term effect can be severe cases of drought and desertification<sup>165</sup>.

Removal of forest from a catchment can also cause significant hydrologic consequences such as decreased rainfall interception leading to variations in the stream water quality and quantity<sup>166</sup>. Research has shown that tree canopies can intercept 10-40% of incoming precipitation depending on the age, location and density of stand, tree species, rainfall intensity and evaporation rates.

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<sup>164</sup> Ibid

<sup>165</sup> D. Maidment, Handbook of hydrology. McGraw Hill, New York, San Francisco, USA(1993).

<sup>166</sup> B. Mutua. & A. Klik,. Predicting daily streamflow in ungauged rural catchments: the case of Masinga catchment, (2007). Kenya. *Hydrological Sciences*, 52(2), 292-304

### 3.3.3.3 National crises

The Enosupukia case demonstrates how environmental factors have been used as causal explanation for systematic evictions in Kenya's Rift Valley Province during the multi-party period. But the Akiwumi Commission established in 1998 to investigate ethnic-related clashes dismissed environmental stress and other proximate causes of Ennosupukia ethnic clashes, and stressed that evictions of non-Maasai communities were primarily driven by political reasons<sup>167</sup>.

Found in the Rift Valley Province and Narok District, Ennosupukia lies at the southern end of the Mau Escarpment and was declared government settlement land in 1970 and subsequently demarcated for the indigenous Dorobo and Maasai communities. But the land was unsuitable for pastoralism, forcing the nomadic groups to sell their land to agriculturalists who were mainly Kikuyus<sup>168</sup>.

In October 1993, Maasai morans invaded the settlement, killing more than 20 people and displacing over 30,000 others<sup>169</sup>. Prior to the invasions, influential Maasai leaders declared Ennosupukia a water-catchment area and blamed the predominantly Kikuyu settlers for engaging in charcoal burning and agricultural activities that contributed to deforestation and adversely affected their cattle economy. KANU leaders, still bitter with the settlers for supporting opposition parties in the 1992 elections, found the right excuse to declare the Ennosupukia area trust land for the Narok County Council and subsequently drove out all 'foreigners' from their ancestral home area<sup>170</sup>. Some of the evictees were sheltered in the Maela and Moi Ndabi camps

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<sup>167</sup> Report of the Judicial Commission Appointed to Inquire Into Tribal Clashes in Kenya (the Akiwumi Report), Nairobi: Government Printer, 31 July 1999; Republic of Kenya

<sup>168</sup> P. Kagwanja, "Blaming the Environment: Ethnic Violence and the Political Economy of Displacement in Kenya", *Centre for Refugee Studies*, Occasional Paper Series Vol. 1 No.2 2002, Moi University Press

<sup>169</sup> Ibid

<sup>170</sup> M.Njeru, "Ministers Got Land Meant for Clash Victims", *Daily Nation*, 11 July, 2008

within the Rift Valley, but majority were forcibly transported to and dumped in Central Province, the ancestral home of the Kikuyus<sup>171</sup>.

#### **3.3.3.4 Food shortages**

Globally, all living things require food to survive. All over Kenya, the effect of Mau degradation was felt by and large, as there came persistent droughts and famine. The agrarian communities were directly hurt, and this made the government take quick action to save the Mau. This concluded the debate that 'if we destroy nature, it will destroy us'. Many farmers lost their livestock during this period. However, it was shocking to hear a former head of state explain on the National Media that 'rain did not come from the trees, but rather came from the clouds'. This was rather absurd, as he was protecting his interests.

#### **3.3.4 Kenya's response to environmental degradation**

The Mau evictions in 2009 became the major news items internationally and replaced the debate on prosecution of 2008 post-election perpetrators in the news headlines. The politicization of the Mau and the absence of common approach by the Coalition Government turned the international community increasingly cautious regarding taking strong positions on the Mau evictions.

The international community, emphasising the regional value of the Mau eco-system, has criticised President Kibaki's lethargic approach and divisive actions of ministers and MPs inciting illegal squatters to oppose evictions before compensations and "turning poor peasants in the Mau into human shields".<sup>83</sup> Western diplomats in Nairobi, especially from the European Union and the US, have been accused of leaning towards Mr. Odinga while China, the African Union and the Asian Group remain non-aligned, at the moment. The international community is

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<sup>171</sup> Ibid

therefore caught up in the Mau politics and its involvement is potentially capable of having unintended consequences of exacerbating inter-community conflicts and elite fragmentation in the run up to 2012 polls, contributing to election related violence.

### 3.3.5 Other responses

In October 2009, the European Union (EU) pledged to fund the restoration of Mau Forest and eviction of squatters living in Mau Forests. The 23 EU member countries have also demanded key politicians, civil servants and “untouchable” businessmen in the current and previous regime to surrender their illegally acquired land in Mau to facilitate effective rehabilitation of Kenya’s leading water tower. The United Nations Environment Programme (UNEP) has also supported evictions<sup>172</sup>.

But as the EU continues to demand Mau evictions, human right NGOs, led by the Minority Rights Group International (MRG), have demanded respect of minority rights, especially the Ogiek indigenous community that is threatened by illegal evictions from their ancestral home in Mau Forests. The international community should therefore be the voice of the voiceless in the controversial Mau evictions that have huge humanitarian implications<sup>173</sup>.

As the third phase of Mau evictions unfolds, the US ambassador to Kenya, Mr. Michael Ranneberger participated actively in the tree planting ceremony of 22 April 2010 led by Prime Minister Raila Odinga and donated America’s gift of Sh532 million to assist in rehabilitation of

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<sup>172</sup> Kipngeno Ruto. “Not scared: Kenya PM Raila Says He’s Ready to Pay the Political Price for Stand on Mau,” *majimbokenya.com*, 29 July, 2009. Available at <http://majimbokenya.com> (accessed 23 November, 2011)

<sup>173</sup> “Illegal Eviction of Ogiek Indigenous Community from Ancestral Home in Mau Forest, Kenya”, *minorityrights*, 28 October 2009. Available at <http://www.minorityrights.org> (accessed 22 November, 2011)

the Mau ecosystem, a move that resonates with the US geo-political interests in the Horn region where fragile states and terrorism threatens access to oil and other resources<sup>174</sup>.

### **3.5 Environmental degradation as a cause of conflict**

The Mau Forest has been a very important water catchment area for the major rivers and lakes in Kenya. The Ogiek community has used the area sustainably with no environmental conflict. The Ogiek, through their customary tenure system, have managed their forests communally. A clan who in turn divides into families communally owns the land. Each family is then responsible for each and every living thing – animals and plants – in the allocated land. No one is supposed to hunt, or cut any tree without permission from the family responsible for that particular forest land. Apart from being home to thousands of Ogiek people the forest has and still plays a bigger environmental role in the region. Before encroachment, the Ogiek lived with all the ‘forest treasures’ intact. The settlement has not only introduced conflict over land, but has also generated other conflicts. Social conflict is one of them. Conflicting interests and different cultural and traditional beliefs are the cause. The Kalenjin have introduced their cultures and traditions, which are totally unheard of in Mau Forest. For example, the Kalenjins have renamed most parts they have occupied while the original names from the original owner are disregarded. In a recent meeting, a respected 57-year-old Ogiek elder, Lenduse Oldaisaba reiterated, “*We have lost our land, identity and our moral values with the coming of Kipsigis [referring to Kalenjins]. They have polluted all our clean water, they have cleared all our forests for farming and they are now very busy digging our graves. Since I was born, I have never seen such a*

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<sup>174</sup> Muchemi Wachira & George Sayagie, “US in Surprise Sh532 Million Gift for Mau Restoration”, Daily Nation, 23 April, 2010.

*situation. This is not what we expected in our motherland. . . . they have taken our birthright and now we have nowhere to call home and soon, we are going to become their slaves<sup>175</sup>”*

Mau (East) Forest is a haven of biodiversity. The forest is also an important water catchment area for major rivers and lakes supporting the lives of more than five million people. The government initiated its settlement scheme without conducting the necessary Environmental Impact Assessment (EIA) to measure any possible environmental disasters posed by the scheme. The more than 30,000 new settlers, who are mainly farmers, have totally degraded and destroyed the environment to pave way for their settlement and farming. These combined activities have caused several rivers to dry up permanently. This has resulted in conflict with environmentalists who argue that the scheme is unsustainable. The environmentalists have since gone to court to challenge the scheme.

In addition, the Ogiek argue that the new settlers have destroyed thousands of beehives through their destruction of the environment, severely straining relations between the two groups, as asserted by 37-year-old Mr William Kalegu, accompanied by Isaiah Sanet: *“We no longer get enough honey for our needs. They [referring to the new settlers] have destroyed our beehives by burning and felling our trees . . . We are now starving for their greed. They have teamed up with local foresters to loot and sell our trees just because the government ‘belongsto’ them. We have nobody to turn to since all of them are against us. It’s only by God’s mercy that we live<sup>176</sup>”*.

About 10% of Ogiek fully lead their traditional way of life by honey gathering and hunting, while the rest combine this old way with peasant farming and livestock rearing.

#### ***Case study: Maasai-Kalenjin Clashes over the Mau***

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<sup>175</sup> *F. Kemei & 9 others vs the Attorney General & 4 others* in HCCA 227/99. High Court of Kenya, Nairobi.

<sup>176</sup> M. Gichuki. 1999. ‘Ogiek Elders struggle to reposes their ancestral lands’ in *The People Daily*, 9 April 1999.



The Mau Complex is a source of livelihood for several communities, both pastoralists and agriculturalists. Its degradation and drying up have escalated competition for access to water, grazing and farming spaces between the Maasai and Kipsigis communities inhabiting the Mau. This growing competition for scarce resources threatens ethnic violence between the two communities. The Maasai support evictions of squatters to restore the forest which is the basis of their cattle economy. The stand has led to political fallout between the two communities, with the Kalenjins urging caution in the manner of evictions and emphasizing the need to compensate and resettle all settlers and squatters before the evictions<sup>177</sup>.

### 3.5.1. Interests, issues and concerns

The war of words over the Mau affair has intensified between political leaders from both communities, with Parliamentarian Nkoidila ole Lankas (Narok South) declaring that “some people are chest-thumping because they think they have the numbers; but we have the right to reclaim our source of livelihood”<sup>178</sup>. In September 2009 during the discussions by Parliament to adopt the report on the Mau Forest Complex, Ntimama strongly opposed compensation as against the Land Adjudication Act that allows adjudicated land to be given to residents but “nobody was born on the Mau and nobody can claim to be a genuine ordinary resident of the Mau”<sup>179</sup>. Proposing speedy evictions, Mr. Ntimama argued for equity in evictions as squatters

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<sup>177</sup> J. Morgan, “Kenya’s Heart Stops Pumping”, BBC News, 29 September 2009. Available at <http://news.bbc.co.uk> (accessed 23 November, 2011).

<sup>178</sup> A. Shiundu, “Mau Report Up for House Debate”, Daily Nation, 30 August 2009

<sup>179</sup> Motion on the Adoption of the Report on Conservation of the Mau Forest Complex, Hansard Report, 15 September, 2009.

forcibly evicted from the Aberdares and Mt. Kenya water towers were not compensated. Mau squatters, argued Ntimama, are “not more special human beings than others”<sup>180</sup>.

### **3.5.2. Managing the problem of the Mau Forest Complex**

Near South West Mau Forest Reserve, Kenya Forest Service has established a tree nursery with several million trees seedlings to be planted shortly. Some 5,000 hectares of forest will be rehabilitated by KFS during the long rains. This is in addition to the approx 1,400 hectares that were replanted before and during the short rains in 2009.

Kenya Wildlife Service, in partnership with East African Breweries Ltd, Equity Bank, Nation Media Group and the Green Belt Movement, established the *Save the Mau Trust Fund*. The five partners have committed Kshs50 million. The Trust Fund has already enabled the planting of 25,000 trees in the Mau.

The Ministry of Forestry and Wildlife and the Secretariat have established a Committee on Rehabilitation and Livelihoods. The Committee is currently actively involved in establishing agreements between Kenya Forest Service and partners. Four organizations have signed three-year agreements with the Kenya Forest Service to rehabilitate sections of Mau forests Complex, while other organizations are finalizing the terms of the agreements intended to be signed shortly. These organizations that have signed include African Wildlife Foundation (13,500 acres), Malaika Ecotourism & Coral Cay Conservation UK (375 acres), Save the Mau Trust Fund (21,518 acres), and the Ministry of State for Defense (2,500 acres).

The Ministry of Energy is in an advance stage in the consideration of signing an agreement with the Kenya Forest Service to rehabilitate 47,500 acres.

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<sup>180</sup> Ibid

The Ministry of Water and Irrigation has gazetted two catchment management strategies covering the Mau Forests Complex and identified degraded water catchments. Eight Water Resource Users Association (WRUAs) covering the entire Mau Forests Complex have been formed. The WRUAs are currently involved in (i) raising awareness on catchment restoration and equitable water allocations; (ii) pegging riparian reserves; and, (iii) establishing tree nurseries to assist the restoration of the riparian reserves. The Ministry has also formulated Sub-catchment Management Plans (SCMP), particularly focusing on seriously affected rivers feeding Lake Nakuru.

With support of USD 2 million from the Ministry of Environment and Mineral Resources, the rehabilitation of the watersheds of Makalia, Naishi, Nderit and Njoro rivers has been launched on 25 November 2010. These rivers are the main rivers flowing in the catchment of Lake Nakuru. The project will rehabilitate the riparian reserves along the four rivers and promote sustainable rural development, in particular alternative livelihoods – i.e. bio-enterprises - that are compatible with natural resources conservation.

With the support of WWF, the capacity of the WRUA' for the Mara River is being strengthened. This includes strengthening the governance arrangements and establishing a service delivery contract between the WRUA and the Water Resources Management Authority (WRMA).

### **3.6 Conclusions**

The negative environmental impacts on the MFC, have reached crisis level. Presently, the riparian communities and the Kenya government through key economic sectors that directly depend on goods and services of the region are paying the price of over three decades of negligence and improper land use management. The ongoing restoration efforts, including

educating the general public about the need for sustainable environmental conservation in such areas is highly essential and should be sustained.

It is imperative that the restoration and rehabilitation efforts are fortified through integration with potential socio-economic activities that can support the survival of the riparian rural communities. Exploring the role of eco-tourism, in relation to natural forested ecosystem, followed by putting in place appropriate and sustainable management framework are hence important in this respect. In order to further support the rural communities it is crucial to initiate long-term agro-forestry based practices such as production of sustainable wood products, and non-timber products such as medicinal plants and honey for commercialization purposes. Also, worth mentioning as a fundamental aspect of the conservation would be the unavoidable role of continued research in the region. Further studies that go hand in hand with the restoration and rehabilitation process would be a key support tool that enables necessary and appropriate adjustment as need arises. Evaluating the interactions of the rehabilitated forest ecology in relation with the biological and hydrological systems' will be important at every stage.

## CHAPTER FOUR- ENVIRONMENTAL DEGRADATION AS A CAUSE OF CONFLICT IN KENYA: A CRITICAL ANALYSIS

### 4.0 Introduction

The case study of Environmental Degradation in Mau Forest is given in Chapter Three. The positive and the negative trends and issues are discussed, taking into consideration the historical development of the Mau forest, as well as the settlement of people in the area. The records are traced down to before the British colonial years, when the Maasai and Ogiek communities protected the forest, and only used the forest as lifeline through its permanent water supply and grazing. Over time, and with the coming of the colonial regime, the Mau was encroached into, and in 1970's the forest had been shrinking at an annual rate of 1%.<sup>181</sup>

Chapter four analyses the issues leading to environmental degradation, and the role of the Kenyan Government and the citizens in the Mau forest degradation. The analysis takes into account trends and issues identified in the case study as the basis for explanation.

### 4.1 Immerging Issues and Trends

The study is investigating the Mau forest degradation and its impacts on the Kenyan people as well as how the continued degradation affects the East Africa region and its citizens. And in distinguishing the major factors leading to the degradation, the study establishes that there are four major factors that has contributed immensely in the degradation. The first category is the Ethnic factor whereby much of the encroachment is done by the Kalenjin community and left out

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<sup>181</sup> Information from : "Mau Complex under siege. Continous destruction of Kenya's largest forest", UNEP, Kenya Wildlife working group, June 2005.

the Maasai and the Ogieks who were the indigenous people in the forest. The second is the laxity of government officials who have the mandate to protect the forest. The third is the political interference by the local politicians have infiltrated into the forest. The fourth is the poaching, while greed and unequal distribution of the national resources has led the poor people encroach on the forest for their livelihood. Degradation as a cause of conflict, an overview of the objectives is introduced in chapter one of the study and specific objectives are given so as to draw attention to the outcomes that the case study has established.

According to Gurr, the rise in conflicts cannot be taken simply as turbulence resulting from regime transitions<sup>182</sup> at the end of the Cold War. Most do involve authority struggles as opposed to traditional territorial or geopolitical dimensions.

These trends suggest important themes for understanding and responding to problems linking resources and environment to conflict as indicated by Zachary.<sup>183</sup> It becomes critically important to pay attention to the relationship between, on the one hand, potential triggering events of environmental degradation or resource scarcity and, on the other hand, such “intervening variables” as pre-existing social, political, or cultural cleavages, regime types, economic circumstances, and the incentives and disincentives elites face regarding the use of violence.

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<sup>182</sup> G. Ted, 1993. *Minorities at Risk: A Global View of Ethnopolitical Conflicts* (Washington, DC: United States Institute of Peace Press).

<sup>183</sup> Zachary, G.P. 1997. Water pressure: Nations scramble to defuse fights over supplies. *The Wall Street Journal*, December 4, p. A17

#### 4.1.1. Environmental degradation and conflict

The study is investigating the environmental degradation of the Mau forest and its impact to the community as well as the effect it has on the Kenyan people. The Overall objective examines the relationship between environment and conflict with a case study of the Mau Forest in Kenya. According to Myers, environmental degradation affects the availability of freshwater, the productive capacity of soils, and patterns of human settlement. However, most predictions warn that environmental degradation may greatly increase the risk of violent conflict over increasingly scarce resources, such as freshwater and arable land.<sup>184</sup> These predictions were affirmed while conducting the research and these findings were more accurate and less astounding when establishing relationships between population, environment, and conflicts between 1990-2000 in the Mau

From the overall objective, three sub-objectives are established whereby the first examines the effects of environmental degradation to cause conflict within societies in the Mau, the second is to analyse the issues and threats emerging from the degradation, while the third explores the conceptual linkages between environmental degradation and conflict. From the guidelines that the objectives give for the study, the collected data largely affirms that Environmental degradation does play a role in causing acute conflicts within societies. The maintenance of sustainable environmental development is through community driven approaches with great support from the government, ensuring that the institutions that protect the environment are empowered.

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<sup>184</sup> Obi 1997C: 2-3

During the 1990's the destruction of the forest reached its peak with politicians and government official allocating the forest land to themselves which aggravated the environmental and economic problems, and if not reversed, may result in breakdown of law and order, ethnic conflicts and threats to internal security as unemployed and landless people turn to crime and other illegal activities for survival.

In understanding the present issue in the Mau, the loopholes due to corrupt government officials, ethnicity, laxity of law enforcement agencies and poaching need to be addressed.

The Mau Forests Complex supports key economic sectors in Rift Valley and western Kenya, including energy, tourism, agriculture and water supply. The Mau Complex is particularly important for two of the three largest foreign currency earners: tea and tourism. The market value of goods and services generated annually in the tea, tourism and energy sectors. If the water table declines, the geothermal potential diminishes correspondingly. Many of the high potential geothermal sites are around the Mau. The tourist potential of the Mau has never been exploited despite its proximity to the world-famous wildlife areas of the Maasai Mara National Reserve and the adjoining Serengeti National Park in Tanzania.<sup>185</sup>

Inequities in resource distribution, use, and consequences of resources management and use have been sources of tension and dispute.<sup>186</sup> However, there has been distinctions between the scales at which resource conflicts may occur throughout the Mau depending on the degradation.

When it was brought to the attention of all Kenyans that Mau had been encroached, the politicians opted to negotiate with the government so as they may surrender the Title Deeds.

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<sup>185</sup> Ibid

<sup>186</sup> P. Gleick, Water and conflict. *International Security* 18, no. 1,(1993) pp. 79-112 (Summer).



This confirms the debate by Wolf that when adversaries are equally matched economically or militarily, negotiation and cooperation are more common outcomes.<sup>187</sup>

There had also been a reduction in the water levels for geo-thermal power and therefore all Kenyans were up in arms to conserve the Mau. This is so because according to Falkenmark, if there are few technologically or economically attractive alternative sources of supply, the potential for conflict is higher<sup>188</sup>. If an energy or water resource is scarce and shared, but alternative sources exist, such as renewable energy systems, alternative suppliers, other rivers, groundwater aquifers, or even expensive desalination, conflicts are less likely to occur. There is a high economic, social, and political cost to conflicts.

Water remains an important factor in the politics of the region. The lake Victoria waters and the Nile river have been faced with talks by neighbor states. Disputes over the allocation of water confirming that disputes may occur at the subnational level as well, and have the potential to turn violent. For example in California in the mid-1920s, farmers repeatedly destroyed an aqueduct taking water from their region to the urban centers of southern California. The governor of Arizona called out the local militia in the 1930s to protest the construction of water diversion facilities on the Colorado River between Arizona and California.<sup>189</sup> That dispute was eventually resolved in court.

Court decisions do not always successfully end disputes in Kenya. There is need for cooperation to avert conflicts over resources.

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<sup>187</sup> H. Wolf, 1997. *Water wars and water reality*

<sup>188</sup> Falkenmark, M. 1986. Fresh waters as a factor in strategic policy and action. In A.H. Westing, ed., *Global Resources and International Conflict: Environmental Factors in Strategic Policy and Action*. Oxford University Press, New York, pp. 85-113

<sup>189</sup> Reisner, Marc, 1986. *Cadillac Desert*, Viking Penguin, New York.

#### **4.1.2. Trends and Issues**

From the case study carried out, the categorization of the identified issues and trends largely turned out to be negative as degradation and conflict are in themselves negative. The issues identified were ethnicity whereby the diverse ethnic groups in Kenya have deep rooted differences that have not allowed them to embrace patriotism and seeing Kenya as one, but rather have seen their tribes men as their own and other tribes as 'others'. This challenge can be seen as the one that led to protection of politicians as they continued to grab the forest as they have seen the politicians as their clansmen who should be protected even when they commit criminal acts. Others include: Laxity of government officials and forest guards, Poaching, Political interference and corruption.

#### **4.1.3. Ethnicity**

Ethnicity is the groupings of people in ethnic groups. An ethnic group usually affiliates itself with a common language, common origin and ancestral background. Kenya has 42 Ethnic groups, with a majority living on farming as a main source of livelihood. Before the coming of the British colony, each ethnic group lived on its own geographical boundary and hardly crossed over to other regions except when an inter-marriage occurred. Soon after the coming of colonialism, the education was highly emphasized by the missionaries, who later employed them in their schools, and in government. Those who did not go to school were working as farm workers in the white Highlands and in the Ranches which happened to be on low lying fertile lands.

Bearing in mind that the forests that constitute the complex include Transmara, Ol Posimoru, Maasai Mau, Eastern Mau, Mau Narok, South West Mau, Western Mau, Mt. Londiani, Eburru, Molo and South Molo. The northern part comprises Tinderet, Northern Tinderet, Timboroa, Nabkoi, Kilombe Hill, Metkei, Maji Mazuri, Chemorogok and Lembus forests, a number of ethnic groups have great interest in the forest.

More so, the Mau Forest Complex is one of the five water towers in Kenya, providing the upper catchments of many major rivers, including Nzoia, Yala, Nyando, Sondu, Mara, Kerio, Molo, Ewaso Ngiro, Njoro, Nderit, Makalia, and Naishi. These rivers in turn feed major lakes, including Natron, Victoria, Turkana, Baringo and Nakuru.<sup>190</sup>

Since the ethnic groups living in these areas depend on the Mau for survival, it is therefore a very sensitive region, given that it can heighten tension and subsequent conflict if destroyed. The original ethnic groups to settle in the Mau are Maasai's and Ogiek's as earlier indicated in Chapter One. Later other ethnic groups encroached in the forest, for settlement, Agriculture and harvesting of the forest timber. These include mainly the Kalenjins of various sub-tribes, the Kisiis, Kikuyus and politicians from the region. In the study, it was shocking to note that a number of the settlers had title deeds issued by the Ministry of Lands, with authority from the head Commissioner and a former Head of state.

Ethnic groups who feel that they initially owned the Mau had started to feel that their rights were being denied and therefore were agitating for forceful eviction of the new comers. This is an ethnic issues as those who had inhabited the forest were feeling that they had a legal right to be

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<sup>190</sup> Ibid

in the forest since they had purchased land. This is so because close association of land and identity has received much attention in the country over the years.

Land and natural resources are not merely assets, sources of income and commodities but represent reposition of ancestral spirits. Sacred rituals and historical landmarks that tie the individuals to particular landscapes and locations led to the Maasai's campaign to want the Mau conserved.<sup>191</sup> At the same time, the ethnic diversity and the rich variety of local institutional systems found throughout Kenya have provided platform for numerous assertions about identity and conflict. This may over represent ethnicity in theories on human conflict. The ethnic and national boundaries lack congruency, thus the readiness for other ethnic

There is also lack of congruence between ethnic and national boundaries and explain conflict as the result of this groups intermingling as the constitution allowed any Kenyan to own land anywhere. Horowitz argued that the concept of African ethnicity is an overworked legacy of colonial times when the portrayal of local populations as backward and stateless provided grounds for modernizing and civilizing interventions, in many cases leading not only to the formulization of ethnic groups and their customs but also their creation.<sup>192</sup> Kenya in particular suffers from this colonial legacy, whereby the political boundaries are divided into ethnic regions. The administrative boundaries too followed the same route and ended up dividing Kenyans rather than uniting them more.

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<sup>191</sup> Ibid  
<sup>192</sup> Ibid

Among some scholars Harowitz (1985) (k) has argued that ethnicity can be seen as the root of violence<sup>193</sup>; ethnic division both overwhelm and direct politics and tend to dissolve relations necessary for peaceful co-existence<sup>194</sup>. Ethnic diversity and fractionalization have also been used to explain a number of African ills. From corruption and lack of investment in public goods to economic stagnation and regression.<sup>195</sup> In the forest vicinity, there are seven tribes who benefit directly from the water tower. Harowitz refined his views in 1998 by representing the continuation of the theory that African Politics are different from those of other regions. But such theories have the tendency not take African Strivings for democracy seriously enough. These views are however opposed. One criticism is typified by Horowitz who criticizes the ideas of Horowitz on the grounds that he neglects important political, historical and economic factors: It is possible and we would even argue necessary to accept the presumption that most civil wars in Africa are centered around ethnic identities as the subjectification of power, and still question whether this in itself can explain the causes behind violence

Braathen et al emphasizes the need to consider other underlying factors. In particular, they point to the personal and Mercurial (rather than ethnic) nature of African Politics whereby leading politicians 'buy' political support for purposes of material gain. These can be challenged by the move towards democracy. In times of economic hardship caused for example by donor imposed reduction in public spending by the general reduction in foreign aid that followed the end of Cold War; African government that can no longer afford to secure continued support by economic means may react to divisive discourages and to coercion or violence.

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<sup>193</sup> Ibid  
<sup>194</sup> Ibid  
<sup>195</sup> Ibid

#### **4.1.4. Laxity of government officials and forest guards**

Since Kenya gained independence, her citizens took over the seats that were held by the British government. Initially during Kenyatta's regime, Kenya has very strong institutions and people upheld the rule of law. This continued for some time and Kenya was rated among the most improved countries, even ahead of Singapore among others. In the 1990's the government institutions were affected by the structural adjustment programme by the World Bank that required the government to reduce the size of the civil service in exchange for funding. This brought fears among the civil service and they realized that they were prone to firing any time. This came with drawbacks as a drawback as the forest officers argued that, during this time, there was laxity of the civil servants and they were equally part of the encroachments in the Mau forest, with little attention to the repercussions ahead. The forest officers had colluded with encroachers and failed to implement their mandate. The forest guards worked in cohort with the illegal loggers who paid 'protection fees' in order to continue carrying out the illegal business.

However, in the process, those who took position in the government took over the land previously owned by the colonial government and continued to retain the worked though in exchange for a small piece of land for settlement.

#### **4.1.5. Political Interference**

Countries in the world are governed by the political elites who own the factors of production, mainly land. In most cases, politicians have influenced the way in which countries are driven.

Kenya was a British Colony and the systems governing the nation was borrowed from the British

culture. Kenyan politicians have all along been engaged in making laws in the country. Most of the laws made have had no consultation from the citizens, rather they made laws that favoured their survival in most cases. This led to non representation of the minority groups which fell under women and children, youth and the minority ethnic group. The issue of Mau forest was rampant because politicians were involved in the allocation process, and so efforts by the conservationists to bring to light the issue was thwarted by the cover-ups by politicians who downplayed the issue in the public arena.

Lack of political goodwill to save the Mau meant that the forest was to face encroachment without support from politicians. Politicians on the other hand have the culture of amassing wealth to stay in power. This is because Kenyan politics are characterized by voter buying and bribing. Those who have more money were almost sure to capture a parliamentary seat in the elections. In cases where there were economic crisis in the country, there were political instabilities in the country especially before 1992 and 1997 general elections.

Seymour Martin Lipset shows that this variable mediates the relationship between economic crisis and political instability: economic crisis must first lead to a crisis of legitimacy before widespread strife can occur.<sup>196</sup> This was confirmed by the study as there had existed a perception that the political and economic system is legitimate and had moderated a citizen's sense of relative deprivation and had hinder the mass mobilization of discontent.

Later in 2009, the political wing moved in to save the mau, and only then were there some efforts made by polititans and the governemtn to save part of the Mau forest. Some people were evicted

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<sup>196</sup> Seymour M.L., *Political Man: The Social Buses of Politics*, Garden City, N.Y.: Doubleday, 1959

as those who held title deeds returned them to the Ministry of lands. This confirms the argument that through various techniques of persuasion and distraction, policymakers may be able to sustain a perception of legitimacy even in the face of environmentally induced economic decline<sup>197</sup> as upheld by Mitchell and Edward Muller..

The Kenyan coalition government to my opinion somehow influenced the reclamation of the Mau because there is a major role in shaping a society's response to social stress. For example, while analyzing variance in the effects of the depression on European societies in the 1930s, Ekkart Zimmermann and Thomas Saalfeld emphasize the explanatory power of coalitions between politically powerful groups such as agrarian classes, labor, the bourgeoisie/ business class, and the state<sup>198</sup>. There is need for the Kenyan people to change their perceptions of corrupt politicians, who had acquired their wealth from looting public goods.

#### **4.1.6. Poaching**

Kenya's fauna is well known for its biological diversity. The number of different species of animals and plants is by far above the average of other African countries. However, all animals and plants are threatened by poaching. There has been a lot of attention given to the Kenya's wildlife and biodiversity by Europe and other developed countries. In this analysis, Poaching is illegal taking of wild animals contrary to the local and international conservation. The clashes between the poachers and forests guards is considered as conflict in this context. and it concerns

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<sup>197</sup> Mitchell S. and Edward M., "Democratic Stability and Economic Crisis: Costa Rica, 1978, p 83.

<sup>198</sup> Ekkart Z. and Thomas S., Economic and Political Reactions to the World Economic Crisis of the 1930's in Six European Countries, *International Studies Quarterly*, Vol. 32, No.3, p. 326.



the environment because poachers have killed off a large part of the elephants and rhino population.<sup>199</sup>

According to the Kenya wildlife officials, the number of different species of animals and plants is by far above the average of the other African countries. However, they argued that 15 of the 314 known mammals and 1124 plants are threatened.<sup>200</sup> According to the World resource institute, poaching decimated the population of elephants from 160,000 to 16,000 between 1973 and 1989. The number of rhinos sank greatly during the same period from 20,000 to 500. This is a conflict because the poachers are armed with modern sophisticated weapons , communication facilities and vehicles. They often engage forest guards in shoot-outs with the game rangers. However, the rangers have been provided with better equipment to handle the poachers including firearms and helicopters.<sup>201</sup> The poaching resulted in black market for hunted restricted animals.

#### 4.2. Other issues

Inequities in Resource Distribution, Use, and Development are some of the other issues of concern in the study. Tensions and conflicts may also result from such indirect factors as the inequitable distribution, use, and development of resources. Energy, water, food, minerals, and other resources are shared by many people, while a lot of wealth is also concentrated in hands of a few individual elites. This creates discontent among the people as they struggle in abject poverty for survival. This much as this is blamed on the colonial government, the current government has a responsibility in availing land to its citizens.

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<sup>199</sup> Frankfurter Allgemeine Zeitung, 1994

<sup>200</sup> The Kenya wildlife service, quoting from the World Resources Institute, pp 304-306.

<sup>201</sup> Cf Hecklau, P. 102ff; p 24

Finally, there are often adverse consequences of water development and use, and people who do not receive the benefits from water projects may feel these consequences. Examples include contamination of downstream water supplies or groundwater aquifers, dislocation of people because of dam construction, and the destruction of fishery resources that support local populations.

The connections between these issues and conflict is that, inequities will lead to poverty, shortened lives, and misery, but perhaps not to direct conflict. But in some cases, they will increase local, regional, or international disputes, create refugees that cross or try to cross borders, and decrease the ability of a nation or society to resist economic and military aggression.<sup>202</sup>

#### **4.2.1 Loopholes**

There has been rampant corruption in the government ministries of land and forest that contributed to the encroachment.

Loopholes in the Law that make the poor victims of eviction since they have no representation in decision making processes. On the Other hand, there exists a loophole in the supremacy of Titles over the rights of persons squatting on a land. Those who had title deeds were seen as bonafide owners, regardless of the way in which the land was acquired.

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<sup>202</sup> P. Gleick, 1993. Water and conflict; Homer-Dixon, 1994. Environmental scarcities and violent conflict.

Politicians have also used the illegal allocation as a bait to woo voters with the aim of getting back to power. Land is also one of the most important ways through which political influence is practised. For example, the discretionary allocation of publicly-owned land to individuals or organizations has become one of the means through which political patronage is rewarded. This in fact renders the land upon which informal settlements are situated prime for "grabbing".

"Land grabbing" — a term commonly used by Kenyans to describe the irregular allocation or sale of public land to individuals to reward political patronage — has escalated in recent years. This has resulted not only in mass forced evictions but has also led to a deterioration in the landscape as public spaces such as parks, playgrounds and even public toilets are sold or allocated to people who then build on this property. Out of the research, others confirmed that they were in the Mau because everyone else had encroached and thus did not have a congruent reason as to why.

#### **4.2.2 Kenya land reforms**

The question of land in the urban context is not only very broad and complex but also economically and politically sensitive. Land is not only a basic- component of human activity but is also, in most cases, the most important means of livelihood. It is the foundation for shelter, food, work and a sense of nationhood. The government of Kenya has come up with a Draft paper on Land reforms which is yet to become law. However, the constitution of Kenya has a lot to do with the reforms and with the National land policy on board, a lot is going to change.

Again the Issue of Title Deed occurs whereby the Title is said to be supreme : in Section 23 of the Registration of Titles Act Cap.281 of the Laws of Kenya provides that "Certificate of Titles issued by the registrar to a purchaser of land ... shall be taken by all courts as conclusive evidence that the person named in it as the proprietor of land is the absolute and indivisible owner ...". In this sense, even if Government land is irregularly allocated, those who occupied were recognized. In fact, our courts have held that squatters occupying the land which has in time been irregularly privatised do not have any locus standi. This means they have no right to be heard by the courts because according to the judges, they have lost nothing. This has victimised the urban poor and placed them in a very vulnerable position.

With the coming of the new constitution and the widening democratic space, Kenyans are able to question all that is surrounding them, bearing in mind the media freedom available. The community is also enlightened as there has been many civil society groups involved in the creating awareness among Kenyans which is a plus for us.

#### **4.3. Conclusions**

The main issues affecting the environment are discussed, coming to a conclusion that, human related issues are in fact the main causes of conflict in the Mau forest. Environmental cooperation may have an important role to play: incorporating norms of peaceful dispute resolution, softening understandings of sovereign prerogatives to also include notions of sovereign responsibility, stimulating an increasingly robust global civil society, and drawing closed institutions into processes of informational exchange, greater transparency, and performance-based accountability. Again, not all forms of environmental cooperation have these

effects. But this suggests once again that environmental cooperation may be well positioned to generate positive spin-offs for peace and stability in Kenya's Mau region.

## CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

### 5.0 Summary

A number of conclusions can be made from the study as the analysis of environmental degradation has been given. Furthermore, the historical development of environmental degradation is explored to enable a broad spectrum of understanding the origin of the study. Environmental degradation as a discipline of conflict studies is consistent of varying views to its scope of analysis as since the creation of mankind, environmental issues have been of great concern.

The development of environmental degradation which is tackled in chapter Two, has been propelled by scholars such as Thomas, who have led in impacting the agenda for Environmental conflict management. Environmental degradation as a concept offers an alternative view to examining how environmental issues affect the societies resulting to conflict in a country. Thus the citizens participation in environmental issues as well as institutional roles should be included in the analysis of environmental degradation and conflict. According to the Minister for Environment and Mineral resources, Hon. Michuki, the environmental conservation should not be carried out by the forest officers themselves, but by every Kenyan who should ensure that trees are planted, the entire environment is cleaned and he led the way by involving the entire Kenyan leadership in the process. As the fallen Nobel Laureate winner reiterated in her fight to conserve the environment, if we destroy nature, nature will destroy us. There it is imperative to put in place community conservation groups to spearhead the conservation exercise and more importantly, zealously protect the already depleted resources.

Kenyans should in turn change their culture of 'using without replacement'. It has not been a Kenyan culture to replace any fallen tree. Rather, deforestation has occurred in the dazzling daylight, without the conscious efforts of afforestation. There should be a cultural overhaul whereby environmental conservation should be introduced in schools and also in all institutions of learning, including churches and mosques.

The threats discussed in chapter Three can be changed to positive aspects by dealing with them positively. A number of issues caused the degradation of Mau forest. Among them is the increased population in the Mau where people have settled practicing agriculture and deforestation. As much as there has been economic activities which have benefited the communities, the entire Kenya has been at stake. Consequently, the process of Mau degradation has not only been a concern of Kenya alone, but has been a concern of NGOs and neighboring countries that benefit from the Mau waters. Manifests of internationalization of Mau conflict is evident in the illegal black market involved where market for timber is available in the East Africa countries as clarified by the locals. Historical background is given in Chapter Three and Four, with discussions on the threats and challenges exuded.

Issues of ethnicity, poaching, laxity of government officials and weak institutions has come out clearly as the main threats. Consequently, issues of population and environmental degradation leading to conflict are found to be interlinked supporting the overall objective of the study which is to examine the relationship between environment degradation and conflict with a case study of the Mau forest complex, in Kenya, 1990-2000.

## 5.1 Key Findings

The study explores the livelihoods of the people living around the Mau to investigate how environmental degradation affects the communities who depend on Mau resources for their livelihoods. The study also shows that there is a great havoc caused by the infiltration of people in the forest and especially reduction of water resource due to the deforestation and agricultural practices coupled with human settlements. It is for this reason that the Kenyan citizens from all over the country had voiced their outcry to save the Mau. Human kinds raise in inheritance of shared resources is increasingly under stress in the absence of effective global institutions and policies to husband these resources. A growing world population has made deep incursions into them, placing some at risk of exhaustion or collapse. Sources of fresh water, fossil fuel reserves the ocean's fisheries and the continents' forests are all global resources on which the well being of billions depend on, and are all seriously threatened.

of money, prestige, and honour alone.

From the perspective of land argument, one of the problems that seem to be at the heart of the mayhem is the land issue, especially in the Rift Valley province. From this perspective, Gitau Warigi asks a pertinent question: "I have yet to see anywhere else where you wake up and start killing your neighbours because of a simple dispute. You don't set up barricades on the roads and slaughter travellers who you don't even know because they share 'your land'. How come



these so-called land clash rear their sinister heads only in an election year? Land becomes an issue only because it gets politicised that way<sup>203</sup>.

## 5.2 Recommendations

Environmental degradation is an issue of great concern that affects the social, political, economic sectors of a country: Society is about sustainable livelihood. All living things in the world survive on a one resource or another in the environment

In embracing the call for preserving nature by both Hon. Michuki and the fallen Nobel Laureate Prof. Wangari Maathai, there is need for incorporating the local communities, Community Based Organizations and NGOs to support the rehabilitation of the forest, to ensure that the future of residents and the country is improved in the fight against global warming and other problems associated with deforestation.

The government should put in place a clear land policy, with clear protection measures to forests and other gazetted regions to ensure that the same encroachments do not occur again. On the hand, the government should strengthen the institutions to ensure that upon any encroachments, they are dealt with ardently by both the government officials guarding the forest, the Foresters and even the Courts of law by imposing hefty penalties which would deter any law breaking. The government should deal with corrupt government officers, politicians sternly as corruption has contributed largely to loss of government money that could otherwise be used to develop infrastructure and social amenities for its citizens. The encroachment has also led to loss of revenue from tourism. This is because the Masaai Mau region has rivers that flow towards the

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<sup>203</sup> W. Gitau, "meditation: Annan has Struck the Right Note in Search for Answer," *sunder nation*, Kenya, (January 27, 2008):11.

Mara river which is home to one of the wonders of the world in the name of Wildebeests migration.

The National Cohesion and Integration committee should come up with ethnic integration programmes so as the local communities may come to appreciate that they are all Kenyans and that they should coexist peacefully without seeing the other communities as minor to them.

Collective values of patriotism should be cultivated and exhibited by all so as they may strive to protect Kenya without compromise or confronting each other. On the other hand, the government ensure that each Kenyan has food to eat as promised in the constitution promulgated in 2010 and provide land to the landless as it is the mandate of the government to provide land to the poor of its population.

In conclusion, the study argues that environmental degradation plays a major role in causing conflicts, but despite this, the populations around the Mau can co-exist with each other, if there is political goodwill and unity. The Kenyan government should put a lot of effort towards forest reclamation and protection, ensuring that both Flora and Fauna are nurtured.

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#### List of Interviewees

Wesley Korir - Chief Mau Location

Amphrey Kirui - Forest Officer

Jedida Munywa - Neema Officer

Kimani Mutwago - Business man

Hellen Mitei - District officer

Kipgetich Tonui - Game warden

## APPENDIX I

- Constitution of Kenya, 2010 – Chapter on Land Matters
- The Kenya Gazette Notice degazetting the Mau.
- The Draft Policy on Land Reforms

# **APPENDIX I: QUESTIONNAIRE**

## **STUDY ON ENVIRONMENTAL CONFLICTS**

**SERIAL NO: .....**

**Date: ...../...../2010**

### **INTRODUCTION**

Dear Respondent, this questionnaire is designed to gather data to assess environmental issues of Maasai Mau and Mara watershed in Mau Complex and its impacts on political conflicts, Ethnic tension and socio-economic strife. This is to request you to take a few minutes to reflect and answer the following questions. Note that the information given shall be exclusively used in a Masters Project paper on International Conflict management, being undertaken by the undersigned at the University of Nairobi. Please note that your views in form of answers to these questions will be treated confidentially and will go a long way in assisting the realization of this goal.

Your views will be highly appreciated.

**NAME: MBUGUA M.**

**R50/71434/08**

### **INSTRUCTIONS**

**PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY BEFORE YOU START FILLING THE QUESTIONNAIRE.**

1. Please read each statement carefully and give your honest answer(s).
2. For questions where there are no boxes to be ticked, kindly answer in your own honest words in the space provided.
3. Do not tick outside the box provided.
4. Do not indicate your name on the questionnaire
5. It is absolutely important that all the sections have a response.

**PERSONAL INFORMATION (Important -This is for analysis only).**

## ENVIRONMENTAL PERCEPTIONS

1. Please indicate by listing the major problems facing you in the area

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2. Please indicate your own definition of environment in reference to your area  
(You can add more to the list and can tick more than one)

- Trees
- Water/rivers
- Air
- Wild Animals
- People
- Livestock

Others (Specify) \_\_\_\_\_

## ENVIRONMENTAL TRENDS AND PATTERNS

3. In your own view, do you think Maasai Mau watershed is being degraded?

Yes       No

- 3b. If you agree, what is your rating of the problem?

- It is very critical and requires urgent attention
- It is critical but does not necessarily require urgent attention

7. In what way do you think the land uses are affecting the water resources? (Please tick the correct options.)

- |                                                                |                                                           |
|----------------------------------------------------------------|-----------------------------------------------------------|
| <input type="checkbox"/> Reductions in forest cover            | <input type="checkbox"/> Increase in surface water runoff |
| <input type="checkbox"/> Reduction in water infiltration       | <input type="checkbox"/> Ground water decline             |
| <input type="checkbox"/> Increase in soil erosion              | <input type="checkbox"/> Sedimentation of rivers          |
| <input type="checkbox"/> Sedimentation of lakes                | <input type="checkbox"/> Increasing Stream flow           |
| <input type="checkbox"/> Erosion of river banks and vegetation | <input type="checkbox"/> Drying of rivers                 |
| <input type="checkbox"/> Recession of lakes                    | <input type="checkbox"/> Pollution of the rivers          |
| <input type="checkbox"/> Decline in fish catches               | <input type="checkbox"/> Wildlife reduction               |
| <input type="checkbox"/> Changes in rainfall and temperatures  |                                                           |

Other \_\_\_\_\_

8. What do you think happens when forest cover declines? (Please tick the correct options)

- |                                                               |                                                             |
|---------------------------------------------------------------|-------------------------------------------------------------|
| <input type="checkbox"/> Water resources available reduce     | <input type="checkbox"/> Water resources available increase |
| <input type="checkbox"/> Precipitation increases              | <input type="checkbox"/> Precipitation declines             |
| <input type="checkbox"/> Maintain increased dry weather flows |                                                             |

9. What do you think are the impacts arising from Maasai Mau watershed impairment? (Please tick the correct options)

- Increase in water scarcity
- Low food production due to lack of water for irrigation and changes in climate
- Conflicts due to water scarcity
- Siltation of dams
- Reduced potential for hydropower generation

- (i) to investigate complaints of abuse of power, unfair treatment, manifest injustice or unlawful, oppressive, unfair or unresponsive official conduct;
  - (j) to report on complaints investigated under paragraphs (h) and (i) and take remedial action; and
  - (k) to perform any other functions prescribed by legislation.
- (3) Every person has the right to complain to the Commission, alleging that a right or fundamental freedom in the Bill of Rights has been denied, violated or infringed, or is threatened.
- (4) Parliament shall enact legislation to give full effect to this Part, and any such legislation may restructure the Commission into two or more separate commissions.
- (5) If Parliament enacts legislation restructuring the Commission under clause (4)—
- (a) that legislation shall assign each function of the Commission specified in this Article to one or the other of the successor commissions;
  - (b) each of the successor commissions shall have powers equivalent to the powers of the Commission under this Article; and
  - (c) each successor commission shall be a commission within the meaning of Chapter Fifteen, and shall have the status and powers of a commission under that Chapter.

## CHAPTER FIVE

### LAND AND ENVIRONMENT

#### Part 1—Land

##### Principles of land policy

60. (1) Land in Kenya shall be held, used and managed in a manner that is equitable, efficient, productive and sustainable, and in accordance with the following principles—
- (a) equitable access to land;
  - (b) security of land rights;

- (c) sustainable and productive management of land resources;
  - (d) transparent and cost effective administration of land;
  - (e) sound conservation and protection of ecologically sensitive areas;
  - (f) elimination of gender discrimination in law, customs and practices related to land and property in land; and
  - (g) encouragement of communities to settle land disputes through recognised local community initiatives consistent with this Constitution.
- (2) These principles shall be implemented through a national land policy developed and reviewed regularly by the national government and through legislation.

### **Classification of land**

61. (1) All land in Kenya belongs to the people of Kenya collectively as a nation, as communities and as individuals.
- (2) Land in Kenya is classified as public, community or private.

### **Public land**

62. (1) Public land is—
- (a) land which at the effective date was unalienated government land as defined by an Act of Parliament in force at the effective date;
  - (b) land lawfully held, used or occupied by any State organ, except any such land that is occupied by the State organ as lessee under a private lease;
  - (c) land transferred to the State by way of sale, reversion or surrender;
  - (d) land in respect of which no individual or community ownership can be established by any legal process;
  - (e) land in respect of which no heir can be identified by any legal process;
  - (f) all minerals and mineral oils as defined by law;
  - (g) government forests other than forests to which Article 63(2)(d)(i) applies, government game reserves, water



- catchment areas, national parks, government animal sanctuaries, and specially protected areas;
- (h) all roads and thoroughfares provided for by an Act of Parliament;
  - (i) all rivers, lakes and other water bodies as defined by an Act of Parliament;
  - (j) the territorial sea, the exclusive economic zone and the sea bed;
  - (k) the continental shelf;
  - (l) all land between the high and low water marks;
  - (m) any land not classified as private or community land under this Constitution; and
  - (n) any other land declared to be public land by an Act of Parliament—
    - (i) in force at the effective date; or
    - (ii) enacted after the effective date.
- (2) Public land shall vest in and be held by a county government in trust for the people resident in the county, and shall be administered on their behalf by the National Land Commission, if it is classified under—
- (a) clause (1) (a), (c), (d) or (e); and
  - (b) clause (1) (b), other than land held, used or occupied by a national State organ.
- (3) Public land classified under clause (1) (f) to (m) shall vest in and be held by the national government in trust for the people of Kenya and shall be administered on their behalf by the National Land Commission.
- (4) Public land shall not be disposed of or otherwise used except in terms of an Act of Parliament specifying the nature and terms of that disposal or use.

### **Community land**

63. (1) Community land shall vest in and be held by communities identified on the basis of ethnicity, culture or similar community of interest.
- (2) Community land consists of—

- (a) land lawfully registered in the name of group representatives under the provisions of any law;
  - (b) land lawfully transferred to a specific community by any process of law;
  - (c) any other land declared to be community land by an Act of Parliament; and
  - (d) land that is—
    - (i) lawfully held, managed or used by specific communities as community forests, grazing areas or shrines;
    - (ii) ancestral lands and lands traditionally occupied by hunter-gatherer communities; or
    - (iii) lawfully held as trust land by the county governments,but not including any public land held in trust by the county government under Article 62 (2).
- (3) Any unregistered community land shall be held in trust by county governments on behalf of the communities for which it is held.
- (4) Community land shall not be disposed of or otherwise used except in terms of legislation specifying the nature and extent of the rights of members of each community individually and collectively.
- (5) Parliament shall enact legislation to give effect to this Article.

### **Private land**

#### **64. Private land consists of—**

- (a) registered land held by any person under any freehold tenure;
- (b) land held by any person under leasehold tenure; and
- (c) any other land declared private land under an Act of Parliament.

### **Landholding by non-citizens**

65. (1) A person who is not a citizen may hold land on the basis of leasehold tenure only, and any such lease, however granted, shall not exceed ninety-nine years.
- (2) If a provision of any agreement, deed, conveyance or document of whatever nature purports to confer on a person who is not a citizen an interest in land greater than a ninety-nine year lease, the provision shall be regarded as conferring on the person a ninety-nine year leasehold interest, and no more.
- (3) For purposes of this Article –
- (a) a body corporate shall be regarded as a citizen only if the body corporate is wholly owned by one or more citizens; and
  - (b) property held in trust shall be regarded as being held by a citizen only if all of the beneficial interest of the trust is held by persons who are citizens.
- (4) Parliament may enact legislation to make further provision for the operation of this Article.

### **Regulation of land use and property**

66. (1) The State may regulate the use of any land, or any interest in or right over any land, in the interest of defence, public safety, public order, public morality, public health, or land use planning.
- (2) Parliament shall enact legislation ensuring that investments in property benefit local communities and their economies.

### **National Land Commission**

67. (1) There is established the National Land Commission.
- (2) The functions of the National Land Commission are—
- (a) to manage public land on behalf of the national and county governments;
  - (b) to recommend a national land policy to the national government;

**ENVIROMENTAL DEGRADATION AS A CAUSE OF CONFLICT: A CASE STUDY  
OF THE MAU FOREST DEGRADATION IN KENYA (1963-2010)**

**MBUGUA MARGARET W.**

**R50/71434/08**

**A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENTS FOR THE AWARD OF MASTER OF ARTS DEGREE IN  
INTERNATIONAL CONFLICT MANAGEMENT, INSTITUTE OF DIPLOMACY AND  
INTERNATIONAL STUDIES (IDIS), UNIVERSITY OF NAIROBI.**

University of NAIROBI Library



**NOVEMBER 2011**

## DECLARATION

I, Margaret W. MBUGUA, hereby declare that this research project is my original work and has not been submitted for a degree in any other University.



29/11/2011

Margaret W. MBUGUA

Date

Institute of Diplomacy and International Studies (IDIS)

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This research project has been submitted for examination with my approval as University Supervisor.



29/11/2011

Dr. Ibrahim Farah

Date

Institute of Diplomacy and International Studies (IDIS)

University of Nairobi

## **DEDICATION**

To my family, friends and colleague for their selfless support and patience that helped me through the program at the Institute of Diplomacy and International Studies (IDIS), University of Nairobi.

## **ACKNOWLEDGEMENTS**

I thank the Almighty God for all I have been able to attain at the Institute of Diplomacy and International Studies (IDIS), University of Nairobi. Next, I would like to thank my supervisor, Dr. Ibrahim Farah for his patience and guidance in carrying out my research project.

I am especially grateful to my family for the support that they have given me.

I would also like to acknowledge with gratitude the cooperation from IDIS and all those who assisted me in writing this project. Special thanks to my friends and colleagues for their encouragement and endurance.

## ABSTRACT

The evolution of the analysis of environmental degradation has been in favour of the broadening subject matter that constitutes the livelihoods of a person, group or a state. The evolution has seen a shift from the traditional approach of environmental degradation to one that is contemporary in approach. In this contemporary approach, there is the identification of human induced environmental degradation. In the analysis of human induced population degradation, population growth and displacement is the established component that seeks to show the extent of depletion and possible conflicts it leads to in a society. Through the analysis of the concept of environmental degradation, the major threat is man-made, characterized by human settlements and Agricultural practices. The threat is manifest where there are competing interests due to competition over natural resources. In the region, Kenya as state in East Africa has had to deal with these conflicts in ways that are reckoned favourabled and unfavourable to both the residents around the Mau and the entire nation. Information derived from the case study of the Mau forest degradation in Kenya 1963-2010; provide divergent views from the local citizens and officers in authority. Analysis of opinions show that there is indeed an environmental degradation issue that Kenya has to deal with, not through the traditional approach but rather with the contemporary approach. This contemporary approach caters for the examination of the effects of environmental degradation as a cause of conflict in Mau forest, Kenya. In addition, the contemporary approach also caters for the challenges of deforestation, ethnicity, water and food shortages; and the exploration of the conceptual linkage between environmental degradation and conflict. The information gathered in the study brings out the continuous assessment of the study of environment related conflicts and most importantly; on the impact of food security and development. Some environmental degradation issues and trends in Mau are indicated as being negative and positive. However, considering all circumstances, Kenya has the potential to improve her environmental issues that will lead to a robust economy, with resources for industrial development.



## LIST OF ABBREVIATIONS

EIA- Environmental Impact Assessment

ENCOP- Environmental Conflicts Project

ENDA- Ewaso Ngiro Development Authority

KFWG - Kenya Forest Working Group

KFS – Kenya Forest Service

KIFCON- Kenya Indigenous Forest Conservation Programme

KANU-Kenya African National Union

LVBO – Lake Victoria Basin Office of the Eastern African Community

MFC- Mau Forest Complex

MMF- Maasai Mau Forest

NCC- Narok County Council.

NEMA- National Environment and Management Authority

NELSAP- Nile Equatorial Subsidiary Action Plan

UNEP- United Nation Environment Program

UNHCR – United Nations High Commission for Refugees

WRMA- Water Resource Management Authority

WWFN- World Wide Fund for Nature

GOK – Government of Kenya

NGO – Non-Governmental Organization

Kshs. – Kenya Shillings

# TABLE OF CONTENTS

<b>DECLARATION .....</b>	<b>ii</b>
<b>DEDICATION .....</b>	<b>iii</b>
<b>ACKNOWLEDGEMENTS .....</b>	<b>iv</b>
<b>ABSTRACT.....</b>	<b>v</b>
<b>LIST OF ABBREVIATIONS .....</b>	<b>vi</b>
<b>TABLE OF CONTENTS .....</b>	<b>vii</b>
<b>CHAPTER ONE: INTRODUCTION TO THE STUDY .....</b>	<b>1</b>
1.0 Introduction.....	1
1.1 Background of the study .....	2
1.2 Statement of the Research Problem .....	5
1.3 Research Objectives.....	8
1.4 Literature Review .....	8
1.4.1 Environment .....	8
1.4.2 Environmental Degradation.....	9
1.4.3 Environmental Degradation and Conflict.....	11
1.4.4 Environmental degradation and conflict in Mau Forest - Kenya .....	14
1.5 Hypotheses.....	18
1.6 Justification of the Study .....	18
1.7 Conceptual Framework.....	19
1.8 Research Methodology .....	20
1.9 Chapter Outline.....	21
<b>CHAPTER TWO: ENVIRONMENTAL DEGRADATION AND CONFLICT - A CONCEPTUALIZATION .....</b>	<b>22</b>
2.0. Introduction.....	22
2.1. Environmental Conflicts: An Overview .....	23
2.2 Concept of Environmental Degradation and Conflict .....	28

2.3. Threats to the environment .....	30
2.3.1 Depletion of the environment .....	31
2.3.2 Population growth and displacement.....	32
2.3.3 Competition as a Source of Conflict.....	36
2.4. Environmental Conflict Management: Issues and interests.....	39
2.5 Conclusions.....	41

**CHAPTER THREE: ENVIRONMENTAL DEGRADATION AS A CAUSE OF CONFLICT IN KENYA: THE CASE OF THE MAU FOREST, 1990-2010.....43**

3.0 Introduction.....	43
3.1 History of the Mau Forest.....	43
3.1.1 Colonial Mau Forest .....	45
3.1.2 Post-Colonial Mau Forest .....	46
3.2. Settlement, trends and issues of the of the local residents in Mau water catchment .....	50
Encroachment .....	50
3.3 Positive trends and issues .....	50
3.3.1 Increased food productivity .....	51
3.3.2 Business in timber products.....	51
3.3.3 Negative trends and Issues.....	55
3.3.3.1 River water shortages .....	56
3.3.3.2 Deforestation.....	57
3.3.3.3 National crises .....	59
3.3.3.4 Food shortages .....	60
3.3.4 Kenya's response to environmental degradation.....	60
3.3.5 Other responses.....	61
3.5 Environmental degradation as a cause of conflict .....	62
3.5.1. Interests, issues and concerns .....	64
3.5.2. Managing the problem of the Mau Forest Complex.....	65
3.6 Conclusions .....	66

<b>CHAPTER FOUR- ENVIRONMENTAL DEGRADATION AS A CAUSE OF CONFLICT IN KENYA: A CRITICAL ANALYSIS .....</b>	<b>68</b>
4.0 Introduction.....	68
4.1 Emerging Issues and Trends.....	68
4.1.1. Environmental degradation and conflict.....	70
4.1.2. Trends and Issues.....	73
4.1.3. Ethnicity.....	73
4.1.4. Laxity of government officials and forest guards.....	77
4.1.5. Political Interference.....	77
4.1.6. Poaching .....	79
4.2. Other issues.....	80
4.2.1 Loopholes .....	81
4.2.2 Kenya land reforms.....	82
4.3. Conclusions.....	83
<b>CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>85</b>
5.0 Summary .....	85
5.1 Key Findings.....	87
5.2 Recommendations.....	88
<b>BIBLIOGRAPHY .....</b>	<b>90</b>
<b>APPENDIX I .....</b>	<b>98</b>

# CHAPTER ONE: INTRODUCTION TO THE STUDY

## 1.0 Introduction

The concept of environmental issues has for decades been widely discussed and has come in circles. To draw from a global perspective, Environmental issues have traditionally been viewed as a matter of concern in the International arena.<sup>1</sup> This view is seen as realist in nature, as the understanding of environmental issues is perceived to be the extent to which the environment is depleted of resources such as air, water, soil, the destruction of the ecosystem and the extinction of wildlife.<sup>2</sup>

Discussions of the relationship between environment and society date back to the classical Greeks. In the early twentieth century, many explanations tended towards a simplistic "environmental determinism" that gave little regard to the role of human-environmental systems in feedback loops, human adaptability, and social institutions<sup>3</sup>. According to Arthur Westing, a lot of writings were influenced by environmental issues, and this elevated environment to a level of international concern.<sup>4</sup> He begins his discussion with the First World War, and then followed the Algerian War and other environmental wars of the last decade. There has since been a revision of environmental concerns over the years, due to the rising threats of environmental degradation all over the world. Thomas Matthews predicted about the fate of growing environmental issues in a finite physical world which originated more than two centuries ago and

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<sup>1</sup> K. Butts, Ed., *Environmental change and regional and Regional Security*, Carlisle, Penn., 199

<sup>2</sup> N. Myers, "Environment and Security." *Foreign policy* No. 74 Spring 1989, pp 23-41

<sup>3</sup> *Ibid*

<sup>4</sup> A. Westing, *Environmental factors in Strategic Policy and Action: an Overview*, in: the same (ed.): *Global Resource and International Conflict*. Oxford 1986, pp. 3-20

have since undergone endless revision and reinterpretation especially from 1960s onward.<sup>5</sup> However, Forrester worked on increased awareness about the environmental effects of industrial resource use resulting in amongst other things – the Pessimistic ‘World’ Models of the 1970s.<sup>6</sup> Environment change in this context means a destabilizing interference in the ecosystem’s equilibrium.

While environmental conflicts manifest themselves as conflicts over resources, there is a general tendency among scholars to interpret the linkages between environment and conflicts as an issue of struggle for scarce natural resources<sup>7</sup>. But the context in which the concept ‘Environmental’ will be used is based on the ecosystems and change in climate.

Environmental conflict is a conflict caused by environmental scarcity of a resource; usually caused by human disturbance<sup>8</sup>. There happens to be a direct correlation between environmental conflicts in recent time which has been associated with low struggles over shrinking environmental resources as a result of overuse, unfair distribution, misuse or degradation and build up stresses which trigger conflict.<sup>9</sup> In light of the definitions given above, the study seeks to look at Environmental degradation in Kenya and the role it plays to cause conflict.

## **1.1 Background of the study**

To understand the environment degradation predicament, an overview of the subject Environmental and Environmental conflict is given. The analysis of conflict through the

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<sup>5</sup> Thomas Matthews

<sup>6</sup> J. Forrester, Counterintuitive behaviour of Social Systems; *Tecnology Review*’ Vol.1.73, No. 3, 1971 pp52-68

<sup>7</sup> L. Brock: *Peace through Parks*, 1987 pp 408-409

<sup>8</sup> Renner P. et al.; *International Conflict and Environmental Degradation*” p. 109

<sup>9</sup> Homer Dixon (1996: 359). p7.

industrialized world definitions is the starting point, as this analysis gives rise to the study of environmental issues and threats. However, mankind's encounter with the environment is as old as man himself. Environmental degradation became an issue of global concern in 1989.

Aristotle and Montesquieu were the two major pre-industrial writers to cast light on natural environment as a factor of shaping human institutions of politics.<sup>10</sup> For Example, Montesquieu declared 'the empire of climate as the greatest empire'. Neo-realists have however sought to downplay environmental issues and exclude them from security studies, yet, recent environmental conflict and security literature emphasizes conflict as a an outcome of natural forces which is in consistent with realism's assumption that scarcity, insecurity and conflict are endemic in the world's institutions.<sup>11</sup>

Recent years have witnessed an explosion of interest in relationship between physical environment and human affairs. In 3<sup>rd</sup> world countries, fewer efforts have been put in place by groups working on environmental issues or citizens towards environment sustainability. This is due to democratic processes that are controlled or repressed by those in power. African states have largely concentrated on security of its citizens.

Michel Frederick is of the view that unreliability of International Institutions, mechanisms and Rules, Regulations and law to manage the environment has recapulated to state's primacy in providing security to its people against the environmental threats<sup>12</sup>. Huge populations in many developing countries are highly dependent on some key environmental

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<sup>10</sup> Montesquieu B., *Spirit of the Laws*, Cambridge:Cambridge University press, 1989 pp 182-229

<sup>11</sup> Daniel Deudney, Richard Anthony; *Contested Grounds; Security and Conflict in the new environmental politics*.

<sup>12</sup> Frederick Michel

resources that are very critical to livelihood: fresh or safe water, fish, arable land, plants, animals, mineral resources, air, among others.

Human beings thus exploit these resources for survival and sustenance. The misuse or over-use of these resources affects their quality and/or quantity in comparison with their perfect availability in the environment. Therefore, the issue of environmental degradation comes into play when resources diminish in quantity or quality, or both. The decrease in the quality and quantity of renewable resources, population growth, and unequal resource access act in a single way, or in various combinations to increase the scarcity, for certain population groups of these resources.

This can reduce economic productivity, both for the local groups experiencing the scarcity and for the larger regional and international economies. The affected people may migrate or be expelled to new lands. This in most cases will trigger off conflicts<sup>13</sup>. Migrating groups often trigger ethnic conflicts when they move to new areas, while decreases in wealth can cause deprivation conflicts.

In Kenya, one major implication of environmental degradation for social existence is that it usually disrupts the socio-economic life of the human population who are immediately dependent on natural resources for sustenance<sup>14</sup>. In most social contexts where there are weak regulatory mechanisms or institutions in a society, it can worsen the level of competition

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<sup>13</sup> T.F Homer-Dixon & J. Blitt, *Eco-violence: Links among environment, population and security*. Lanham: 1998 Rowman and Littlefield.

<sup>14</sup> F. Onuoha; *Environmental Degradation, Livelihood and Conflicts*. (2008)



amongst the dependent population, and may engender conflicts.<sup>15</sup> One such scenario is evident in Mau Forest in Rift Valley, Kenya.

The Mau Forests Complex (MFC) is considered the most important of the five main watershed areas in Kenya because of its economic, social and environmental contribution to the country. These watershed areas are commonly referred to as “Water Towers”. The Mau forests ecosystem has a high and rapidly growing population with irregular and ill planned settlements, encroachments and illegal forest resource exploitation. Over the last decades, approx. 25% of Mau forest has been lost to excisions and encroachment<sup>16</sup>.

Of the three main threats, the study focuses on the role that environmental degradation plays in causing conflicts in Kenya.

## 1.2 Statement of the Research Problem

Environmental issues have over the years been confined to communities while states concentrated on military to protect itself. However, with progressive development, countries have come to realize that a lot of effort must be put in place to ensure that environmental issues are taken care of. According to Homer Dixon, many countries have the ability to adapt to environmental change; some countries, particularly poor and institutionally weak states, are likely to be more vulnerable to environmentally related violence<sup>17</sup>.

With progressive development in the analysis of environmental conflict, students of International conflict management have a new platform to study conflicts. This approach allows

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<sup>15</sup> Ibid.

<sup>16</sup> Maasai Mau Status Report 2005 p 5

<sup>17</sup> Homer-Dixon, Thomas F. and Jessica Blitt, eds, 1998. *Ecoviolence: Links Among Environment, Population and Security*. Lanham, MD: Rowman and Littlefield.

for individual analysis of state sectors and environmental organizations that are accorded to each other.<sup>18</sup> The approach brings to reality the issues and treats that environmental degradation poses to a community or a nation and subsequent future consequences. The challenges include population displacement, competition over the scarce resources and subsequent depletion of the already strained resources.

It is from understanding the concept of environmental degradation, that we are able to conserve the environment to avert extinction. The concept caters for the analysis of resource depletion within a state and internationally. The study seeks to show the relationship between environmental degradation and conflict and how it can involve the communities in the conservation of the environment, since no single country or individual can claim to manage the environment exclusively.

The central element in this is to understand the concept of degradation with regard to the environment and the repercussions of negligence and ignorance to nature's demands, as Wangari Maathai constantly said, "if we destroy nature, nature will destroy us".<sup>19</sup> Natural resources form the factors of production basis, as well as a basis for survival for both animals and human beings. Further, resources like water are critical for survival.

While it is generally agreed in the environmental security literature that effects of resource scarcity is modified through political, economic and social structures, the resource scarcity and conflict scenario has been theoretically underspecified<sup>20</sup>. Resource scarcity is seen

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<sup>18</sup> J. Baylis, "International and Global Security" in J. Baylis and S. Smith (ed), *The Globalization of World Politics* (New York): Oxford University Press, 2001), p.225

<sup>19</sup> Remarks constantly repeated by the fallen Nobel Laureate, Prof. Wangari Maathai

<sup>20</sup> D. Homer, F. Thomas, *Environment, Scarcity, and Violence*. Princeton, NJ and Oxford: Princeton, 1999 pp 35-48

as a product of three different factors interacting: population growth, resource degradation, and the distribution of resources between individuals and groups. Homer-Dixon has called this demand-induced, supply-induced and structural scarcity respectively<sup>21</sup>.

The three effects of environmental degradation in Kenya as discussed in this research may have different impacts on the community, although they may frequently interact. Homer-Dixon argues that two types of interactions are particularly common<sup>22</sup>. Resource capture occurs in a situation of resource degradation and population growth, providing incentives for powerful groups to take control over scarce resources on the expense of weaker and poorer groups. Ecological marginalization denotes a situation where great land inequality and population growth leads people to move into more ecologically fragile areas.

While many countries have the ability to adapt to environmental change, some countries, particularly poor and institutionally weak states, are likely to be more vulnerable to environmentally related violence<sup>23</sup>. Resource scarcity possibly also has the potential to worsen social sections. While demographic and environmental pressures are seen as unlikely causes of international wars, it is claimed that such factors may spur local violent low-intensity disputes<sup>24</sup>. Further, the social consequences of population growth may produce absolute deprivation, meaning that people do not get what they need in order to survive, as well as relative deprivation, a situation in which they do not get what they feel they are entitled to. Both forms of deprivation may produce grievances among rural and urban populations in Kenya.

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<sup>21</sup> Ibid.

<sup>22</sup> Ibid.

<sup>23</sup> D. Homer, F. Thomas and J. Blitt, eds, *Ecoviolence: Links Among Environment, Population and Security*, Lanham, MD: Rowman and Littlefield. 1998.

<sup>24</sup> H. Kahl, H. Colin ; *States, Scarcity, and Civil Strife in the Developing World*. Princeton, NJ and Oxford: 2006: Princeton University Press.

With all the above taken into consideration, the guiding question is whether environmental degradation plays a role in causing conflicts.

### **1.3 Research Objectives**

The general objective of the study is to examine the relationship between environmental degradation and conflict with a case study of the Mau forest degradation, 1990-2000. More specifically, the study aims to:

- To identify the factors that contribute to environmental degradation in and around the Mau Forest Complex.
- To identify the effects and challenges of the Mau degradation and
- To explore the theoretical linkages between environmental degradation and conflicts.

### **1.4 Literature Review**

This section has four main sections that form the basis of the proposal as well as the analysis of the case study. The focus of the review is to gain theoretical information that will guide the case study. The themes are: Environment, Environmental degradation, Environmental degradation as a cause of conflict and Environmental degradation as a cause of conflict in Kenya's Mau forest. Emphasis is based on the International views of authors and academia with reference to Kenya.

#### **1.4.1 Environment**

Environment refers to the surroundings of an object, or the natural environment of all living and non-living things that occur naturally on Earth. It may also be considered as the physical and biological factors along with their chemical interactions that affect an organism or the

surroundings of a physical system that may interact with the system by exchanging mass, energy, or other properties.

It is an environment that encompasses the interaction of all living species according to Johnson the concept of the natural environment can be distinguished by some components: Complete ecological units that function as natural systems without massive human intervention, including all vegetation, microorganisms, soil, rocks, atmosphere and natural phenomena that occur within their boundaries.<sup>25</sup> They can as well be universal natural phenomena that lack clear-cut boundaries, such as air, water, and climate as well as energy not originating from human beings.

#### 1.4.2 Environmental Degradation

Environmental degradation is the deterioration of the environment through depletion of resources such as air, water, and soil; the destruction of the eco-system and the extinction of wildlife according to the report on the ecology of increasing disease population growth environmental degradation<sup>26</sup>. Environmental degradation is increasingly been called a 'security' problem, and there has been speculation that it may increase the risk of violent conflict.

This research identifies the inter linkage between environmental degradation, livelihoods and conflict. The scarcity of resources increasingly undermines human security in the present day, and will increasingly do so in the future, by reducing access to, and the quality of, these natural resources that are important to sustain livelihoods. Johnson also argues that resource scarcity and environmental degradation are increasingly understood to play an important role in

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<sup>25</sup> Johnson. D.L et al 1997. Meanings of environmental terms. *Journal of Environmental Quality* 26:pp 581-589

<sup>26</sup> Ibid

generating or exacerbating conflicts.<sup>27</sup> The depletion of water resources, overexploitation of fisheries, degradation of arable land, decimation of forests, and growing interference in ecosystems from forests to wetlands to coral reefs are among the principal processes of human-induced environmental change.

Environmental change further augments already-observable challenges, by raising sea levels, shifting vegetation zones, dwindling natural habitats, changing precipitation patterns, and generating more frequent and more intense storms, floods, and droughts<sup>28</sup>.

According to John Reid, water can indeed play a role in the conflicts between people sharing the water resource as neighbors.<sup>29</sup> For a number of reasons, he discussed that cooperation, rather than conflict, has so far been the norm among riparian states. One is that a militarily weak downstream country is unlikely to challenge its upstream neighbour over water allocation issues. And riparian countries often conclude that a diplomatic solution— working out an agreed plan to share available water resources— is far preferable to a violent solution. Still, this may not necessarily hold true in the future.<sup>30</sup>

Parts of the Middle East and Africa are among the countries and regions in which growing water scarcities have caused considerable internal disputes and, in some cases, violent confrontations as indicated by Brown.<sup>31</sup> The literature review on Environmental degradation focuses on

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<sup>27</sup> Ibid

<sup>28</sup> T.Homer-Dixon and V. Percival, *Environmental Scarcity and Violent Conflict: Briefing Book*, American Association for the Advancement of Science and University College, University of Toronto, 1996

<sup>29</sup> J. Reid, "Water Wars: Climate Change May Spark Conflict," *Independent*, 28 February 2006

<sup>30</sup> Ibid. 26

<sup>31</sup> L.Brown L. *Redefining Security* World watch Institute (1977)

depletion of natural resources which is largely man-made. This is largely because human beings have deliberately made choices to substitute human selection for natural selection.<sup>32</sup>

### 1.4.3 Environmental Degradation and Conflict

The rationale behind environmental security is that with an increasing human population and continuing growth in the global economy, pressure on the world's natural resources will increase between countries<sup>33</sup>, especially in the developing world since it is deemed as more vulnerable to environmental change and scarcity<sup>34</sup>. Conflict is defined as a dispute or incompatibility caused by the actual or perceived opposition of need or interests according to Mwangiru<sup>35</sup>.

The idea of environmental security is closely associated with two research groups. The Swiss based Environmental Conflicts Project (ENCOP) and more commonly with a research group led by Thomas Homer-Dixon, at the University of Toronto. The two groups investigated the relationships between the environment and violence. The main conclusion of the research was that the world would face shortages of key natural resources: land for growing food, fresh water, oil, forests and so on, and as a result of such eco-scarcities the world will experience more and more violence in the form of rebellions, ethnic clashes and unrest especially in the developing world<sup>36</sup>.

Although Homer-Dixon does acknowledge the influence of social, political and economic stresses as contributing factors to 'eco-violence', they are not the primary causes. The work of

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<sup>32</sup> A. Jeffery et al, Conservation Atlas of Tropical Forests Africa, Macmillan Publications Ltd, 1992.

<sup>33</sup> G. Tyler, G. Miller Jr, Environmental Science: Working with the Earth, Toronto: Jack Carey, 2004

<sup>34</sup> C. Ayodele, "Towards Solving problems of environmental stress in Developing Countries, Environmental Management, Vol. 3(1997) pp 479-482

<sup>35</sup> M. Mwangiru, "The greater Horn Of Africa Conflict System: Conflict patterns, Strategies and Management Practises", Revised September, 1997.

<sup>36</sup> Ibid- Homer-Dixon, - 1999

Homer-Dixon's research group suggests that developing countries will be more prone to environmental change than rich states, particular, Homer-Dixon argues that the developing world experiences the four main pressures: reduced agricultural production, economic decline, population displacement and disruption of regularized social relations as a result of atmospheric, terrestrial and aquatic environmental pressures; and as human populations grow, governments will have less and less opportunity to intervene through the use of market based mechanisms to alleviate the effects of environmental change<sup>37</sup>.

On the other hand, and depending on the circumstances, the outcome of food insecurity may in some cases be a violent one. In Sudan's Sahel region, there are increasing clashes between herders and farmers competing for scarce productive land, particularly as desertification increases. Examples include conflicts in northern Nigeria, Kenya, and in Sudan's Darfur region. The clashes may be reported as ethnic and religious struggles or even be perceived as such by the protagonists, but it is clear that resource scarcities play an important role<sup>38</sup>.

Conflict may arise over access to renewable natural resources such as water, arable land, forests, and fisheries. This may be the result of a tightening of supplies (depletion or degradation of natural resources), an unsustainable increase in demand (due to population pressures or increased per capita consumption, often related to export-led economic models), distributive inequities, or a combination of these factors.

Developing countries, like Kenya, whose economy has particularly geared heavily towards agriculture and other sectors that directly depend on the health of the natural resource

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<sup>37</sup> Ibid- H. Dixon, 1991: 78-79

<sup>38</sup> E. Stoddard, "Scarce, Degraded Land Is Spark for Africa Conflict," (2005)



base, are most immediately affected by environmental problems.<sup>39</sup> In Kenya, the needs and interests of contending groups are tied closely to the land— farmers, nomadic pastoralists, ranchers, and resources extractors— are often incompatible<sup>40</sup>. In this context, Mau forest has served as an important water catchment area, not only in Kenya, but in East and Northern parts of Africa due to the importance these countries attach to the Nile River waters.<sup>41</sup>

In Rwanda, according to Michael Renner, mass violence in the mid-1990s grew out of a set of circumstances that included explosive population growth, severe land shortages and inequality, land degradation, lack of non-agricultural employment, a crisis in the country's coffee and tea export sector, and pain inflicted by structural adjustment programs. Against this backdrop, opposing elites engaged in savage competition and extremist politics that led to civil war and genocide.<sup>42</sup>

In Chiapas, Mexico's southernmost state, marginalized peasants, predominantly drawn from Mayan indigenous communities rose up in 1994. The conflict, which took more political than violent forms, was driven by rampant inequality (widespread poverty in the face of natural wealth), demands for land reform, population pressures, inappropriate farming and ranching methods, rapid deforestation, austerity and lack of rural credit, and the domination of the political system by narrowly-based elites<sup>43</sup>. These examples are in line with my study as similar issues happen to arise in this conflict.

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<sup>39</sup> R. Matthew et al.; *From Conflict to Peace building: The Role of Natural Resources and The Environment*

<sup>40</sup> L. Ohlsson, *Livelihood Conflicts: Linking Poverty and Environment as Causes of Conflict* (Stockholm: Swedish International Development Agency) 2000.

<sup>41</sup> See the world water wars, the case of the Nile.

<sup>42</sup> M. Renner, *Fighting for Survival. Environmental Decline, Social Conflict, and the New Age of Insecurity* (New York: W.W. Norton & Co) 1996, pp. 114-122.

<sup>43</sup> *Ibid.*, pp. 122-130.

#### 1.4.4 Environmental degradation and conflict in Mau Forest - Kenya

The Mau Forests Complex covers approx. 416,542 hectares<sup>44</sup>. It is the largest closed-canopy mountain forest ecosystem in East Africa, and prior to recent deforestation, was larger than Mt. Kenya and the Aberdares combined. Historically, the Mau was overlooked when the forest was intact and when land pressure was low. As land pressure increased, the forest was viewed as an untapped area with high potential agricultural value waiting to be exploited.

In addition, the Mau ecosystem is considered as the most important of the five water towers in Kenya, being the upper catchments of many major rivers, which feed, partially or exclusively, the lakes of Natron, Turkana, Baringo, Naivasha, Nakuru and Victoria. The Mau is arguably of even greater importance than Mt. Kenya since the water that flows from it, is part of the Lake Victoria catchment, which in turn provides water to the White Nile. The trans-boundary significance of the Complex therefore has to be considered not only in terms of providing water to its neighbour Tanzania but also to the whole Nile basin<sup>45</sup>.

The Mau Complex is a particularly degraded catchment area in Kenya. Despite its critical role in sustaining current economic development, the Mau has been affected by widespread ill-planned settlements, encroachments and illegal extraction of forest resources. Degazettement of forest reserves (excisions) and continuous widespread encroachments have led to the destruction of over 107,000 ha over the last two decades, representing over 25 percent of the Mau.<sup>46</sup>

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<sup>44</sup> KWS Journal, 1994

<sup>45</sup> See Ibid

<sup>46</sup> see UNEP 2001

The Kenya Indigenous Forest Conservation Programme (KIFCON) of 1991-1994 estimated Kenya's closed canopy forests to cover 1.24 million hectares, or roughly two percent of the country. Recent estimates based on remote sensing indicate that against a global forest cover average of 21.43 percent, and an average for Africa of 9.25 percent, Kenya's closed canopy forest cover stands at a critical 1.7 percent according to the UNEP report of 2001.<sup>47</sup>

The loss of forest cover has been caused by a number of factors: degradation, settlement (both legal and illegal), urbanization, unsustainable extraction of timber and forest products, lack of land use policy, and corruption, among others. During the last decade of the Kenya Africa National Union (KANU) regime there was an increase in illegal and irregular forestland allocation due to political interference, exacerbating an already critical situation. The Mau Forest Complex (MCF), and the Maasai Mau Forest (MMF) in particular, were no exception (Republic of Kenya, 2004).<sup>48</sup>

The Mau Forests Complex covers approx. 416,542 ha.<sup>49</sup> It is the largest closed-canopy mountain forest ecosystem in East Africa, and prior to recent deforestation was larger than Mt. Kenya and the Aberdares combined. Historically, the Mau was overlooked when the forest was intact and when land pressure was low. As land pressure increased, the forest was viewed as an untapped area with high potential agricultural value waiting to be exploited.<sup>50</sup>

Forests that constitute the complex include Transmara, Ol Posimoru, Maasai Mau, Eastern Mau, Mau Narok, South West Mau, Western Mau, Mt. Londiani, Eburru, Molo and

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<sup>47</sup> Ibid

<sup>48</sup> Ibid

<sup>49</sup> Ibid

<sup>50</sup> Ibid

South Molo. The northern part comprises Tinderet, Northern Tinderet, Timboroa, Nabkoi, Kilombe Hill, Metkei, Maji Mazuri, Chemorogok and Lembus forests.<sup>51</sup> The Mau Forest Complex is one of the five water towers in Kenya, providing the upper catchments of many major rivers, including Nzoia, Yala, Nyando, Sondu, Mara, Kerio, Molo, Ewaso Ngiro, Njoro, Nderit, Makalia, and Naishi. These rivers in turn feed major lakes, including Natron, Victoria, Turkana, Baringo and Nakuru.<sup>52</sup>

While most of the forest blocks in the Mau Forest Complex have been gazetted and are managed by the Forest Department (KFS - formerly the Forest Department), the Maasai Mau Forest is Trust Land, managed by the Narok County Council (NCC). The Maasai Mau Forest covers 46,278 hectares, and is located some 17 kilometres north of Narok Town.<sup>53</sup>

In addition, the Mau ecosystem is considered as the most important of the five water towers in Kenya, being the upper catchments of many major rivers, which feed, partially or exclusively, the lakes of Natron, Turkana, Baringo, Naivasha, Nakuru and Victoria. The Mau is arguably of even greater importance than Mt. Kenya since the water that flows from it, is part of the Lake Victoria catchment, which in turn provides water to the White Nile. The trans-boundary significance of the Complex therefore has to be considered not only in terms of providing water to its neighbour Tanzania but also to the whole Nile basin.<sup>54</sup>

The importance of the Mau is related to the ecosystem services it provides, such as river flow regulation, flood mitigation, water storage, water purification, recharge of groundwater,

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<sup>51</sup> Ibid

<sup>52</sup> Ibid

<sup>53</sup> Ibid

<sup>54</sup> Ibid

reduced soil erosion and siltation, protection of biodiversity, carbon sequestration, carbon reservoir and regulation of microclimate which provides favourable conditions for optimum crop production.<sup>55</sup>

The critical role of the Mau is in the water it provides to urban centres and some of the most densely populated regions of Kenya supporting livelihoods and economic development. Africa is facing an unprecedented water crisis: about 25 percent of Africa's population is living in water stressed area and this figure will rise dramatically to an estimated 500 million people by 2050<sup>56</sup>. While some of this will be caused by climate change in arid and semi-arid lands, the water stress in the Mau area is largely the result of land degradation and deforestation whose effects are to be felt far beyond the Mau complex.<sup>57</sup>

The impact of the excisions has not been assessed since no environmental impact assessment (EIA) was carried out despite the requirements for such EIAs in accordance with the 1999 Environment Management Coordination Act. In addition to the excisions, approx. 41,122 ha have been encroached by settlements in the Mau, in particular in Maasai Mau trust land forest, Ol Pusimoru Forest Reserve and South West Mau Forest Reserve. Illegal logging and charcoal production are rampant in and around the encroached areas.

The on-going destruction of a vital natural and nationally important asset is a matter of concern to GoK. The increasing environmental and economic problems, if not reversed, may result in breakdown of law and order, ethnic conflicts and threats to internal security.

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<sup>55</sup> Ibid

<sup>56</sup> Climate Change Report on the Intergovernmental Panel on Climate Change, 2007

<sup>57</sup> Ibid

## **1.5 Hypotheses**

The study will test the following hypotheses:

- i) Environmental degradation leads to conflict in a country.
- ii). Environmental degradation is a cause of conflict in the Mau Forest.
- iii). There is a direct correlation between environmental degradation and conflict.

This shows that there is a correlation between environmental degradation and conflict.

## **1.6 Justification of the Study**

The study was important because from observations done there was need to develop documented information by bringing out public and individual awareness on the social tensions, economic stress and political strife caused by environmental degradation. This would ensure positive action to avert further degradation of Mau Forest and also foster environmental sustainability.

The study intends to bring under microscope the issue of the impacts of environmental degradation on social, economic and political spectrums. One of the significance of the study is that it will help test my research writing skills as far as this Masters in International conflict Management is concerned, and could help to identify ways in which governments' agencies as well as local, national and international organizations can work in environment related field in an effort to improve their strategies and methods in dealing with the impacts. This could lead to the establishment of programs that can benefit local communities in regions that have experienced environmental dilapidation in an effort to promote and enhance a sustainable allocation of the already scarce resources.

## 1.7 Conceptual Framework

A social perspective on environment according to Redcliff exposes some limitations in that it draws attention to the relationship between man and the environment as resource based and located environmental conflict as an outcome of struggles between socio-economically defined groups for control of resources.<sup>58</sup> However, in my view, there are many more survival for the fittest and social deprivation theory may push individuals to look for alternatives in order to survive limitations that instigate conflicts in the theory of Tragedy of the commons. Many more conflicts emerge due to scarce resources namely, ethnic tensions and groups unrests, mostly attributed to poor institutional frameworks.<sup>59</sup>

Causal effects also are key they are dependent on each other. In order to address the objectives of the study, the data was analysed by reading through field notes, documents and interview questionnaires reflectively while taking notes. This examination of the empirical data thereafter resulted in a categorisation, where the responses and other data was put in several groups through coding, i.e. giving a name to the group. Thereafter relationships between the codes were established in line with the research questions of the study. This was followed by re-categorising the data in a more general way focussing on the specific case<sup>60</sup>.

In the following section, linkages between the framework will be between environmental degradation and conflict.

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<sup>58</sup> Y. Redcliff *Case study research: Design and methods*. Thousands Oaks, London, Sage, Publications, Inc.2008

<sup>59</sup> Ibid

<sup>60</sup> Ibid

The main assumption of the theory of relative deprivation in relation to environmental degradation is that resource scarcity is the product of environmental degradation causing an insufficient supply, too much demand or an unequal distribution of a resource that forces some sector of a society into a condition of deprivation. Thus, environmental resource scarcity will

## **1.8 Research Methodology**

The study explored the impact of environmental degradation on the population to cause conflict. The study was carried out in Mau Forest Region, of the Rift Valley Province, Nairobi, and its immediate environs and both primary and secondary Data were used for the study. Primary data was collected from the carrying out of personal interviews with identified officials at the Kenya Wildlife Service, The Ministry of Environment and Mineral Resources, The Kenya police Service, Provincial Administrators, other pursued offices and the random population residing and operating within the Mau region.

Secondary data was obtained from the analysis of publications from scholars who have written about, environment, environmental degradation and environmental conflicts and other relevant sources from the government department of Forestry and wildlife, as well as Environment. The gaps that this project has overcome include the minimal amount of the secondary data that deal with environmental issues, especially on third world countries. In addition, the project does not include efforts by the government beyond the year 2000 and above. However, the decade given provides substantial knowledge for the analysis of the study.



## **1.9 Chapter Outline**

The study is structured around five chapters

1. Chapter One – Introduction of the Study.
2. Chapter Two – Environmental Degradation and Conflicts. A conceptualization
3. Chapter Three – Environmental Degradation as a Cause of Conflict. A case study of the Mau Forest
4. Chapter Four- Environmental Degradation as a cause of conflict. A Critical Analysis.
5. Chapter Five – Conclusion and Recommendations

## CONCEPTUALIZATION

### 2.0. Introduction

Chapter one introduces the groundwork of the project through the identification of the emerging divergent issues of Environmental degradation. From these divergent issues, the concept of environmental conflict was established. Chapter one draws a distinction of the variables of environmental degradation and conflict and how they inter-relate the dependent of communities living in the Mau Forest and its environment, which would lead to conflict. An introduction to the case study was given with the choice of Mau forest which is indicative of the effects of the environment related conflict. The negative aspect here is the impact of the degradation to the economy and the social set up of the community.

Along with this, Chapter two seeks to analyze the concept of environmental degradation, and show through a concept that environmental degradation plays a role in causing conflicts. It seeks to explain how populations can deplete natural resources through the encroachers, the competition aspect of it and the impact that the population increase in forest settlement.

As earlier indicated, large-scale human induced environmental pressures may seriously affect national and international security.<sup>61</sup> Unfortunately, the environment – security theme encompasses for about unmanageable array of sub-issues especially if we define ‘Security’ broadly to include human physical social and economic well being.<sup>62</sup>

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<sup>61</sup> N. Myers, “Environment and security,” Foreign policy No. 74 (Spring 1989)Spring pp. 23-41

<sup>62</sup> R. Ullman, “Redefining Security”, International Security Vol.8 No. 1 (Summer 1983). Pp 133-143

Environmental change may contribute to conflicts as diverse as war, terrorism, or diplomats and trade disputes. Furthermore, it may have different causal roles in some cases, it may be a proximate and powerful cause while in others; it may only be a minor and distant player in a tangled story that involves many political, economic and physical factors. There is need to accept the promise that environmental change may play a variety of roles as a Cause of Conflict, but this analysis is bound by focusing on the acute National and International Conflict is defined as involving a substantial probability of violence.

### 2.1. Environmental Conflicts: An Overview

Recent years have witnessed an explosion of interest in relationships between physical environment and human affairs – one area of environmental security and conflict. Aristotle and Montesquies were two major pre- industrial writers universally identified as predecessors to cast light on natural environmental as a factor in shaping human institutions of politics for example Montesquie declared the empire of environment as the first and greatest empire.<sup>63</sup>

Stephen Walt has argued that Neo-realists have sought to downplay environmental issues and exclude them from security studies,<sup>64</sup> yet recent environmental conflict and security literature emphasizes conflict as an outcome of natural fences, which is consistent with realism assumption that scarcity, security and conflict are endemic in the world's politics.<sup>65</sup> There is a proposition that environmental change may shift the balance of power between states either regionally or globally, producing, instabilities that could lead to war.

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<sup>63</sup> B. Martequieu, spirit of the laws, Cambridge: Cambridge University Press, 1989) book 19 section 14

<sup>64</sup> M. Stephen , The Renaissance of Security Studies Intl Studies Quarterly Vo. 35, No. 2 (1991). Pp 211-39

<sup>65</sup> Ibid - 2

As global environmental damage increases the disparity between the North and the South, poor nations may militarily confront the rich for a greater share of the World's wealth.<sup>66</sup> Environmental Change may hold ultimately causes of the gradual improvement of societies in both the North and South, which could aggravate class and ethnic cleavages, undermine liberal regimes and spawn insurgencies<sup>67</sup>

Using the above frame work, the hypothesis could be the likely links between environmental change and acute conflict. The proposition is therefore that poor countries will in general be more vulnerable to environmental change than rich ones, thus environmentally induced Conflicts are likely to arise final in the developing world.

In these countries, a range of atmospheric, terrestrial and aquatic environmental pressures will in time probably produce either singly or in combination, four main causally interrelated social effects, reduced agricultural production economic decline, displacement and disruption of regular and legitimized social relations. These social effects in turns may cause several specific types of acute conflict including scarcity dispute, between countries. Clashes between ethnic groups and civil strife and insurgency , each with potentially serious repercussions for the security interests of the developed world.

As anti-Malthus have argued for long, numerous intervening factors – physical, technological, economic and social often permit great resilience, variability and adaptability in human – environmental systems.<sup>68</sup>

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<sup>66</sup> D. Wirth, "Climate Chaos" Foreign Policy No. 74 (Spring 1989). P. 10

<sup>67</sup> *ibid*

Norman Meyers emphasizes vulnerabilities of developing nations by arguing that environmental weaknesses serve as determinants of sources of conflict, intensifies other primary causes of conflict, and largely help to shape the nature of conflict<sup>69</sup>. He particularly outlines the major causes of conflict as: access and availability of water, deforestation, desertification extinction of species and gene depletion and green house gases. He says that environmental issues destabilize societies. They may be triggers to violent conflict when coupled with disjointed economics, unjust social systems, coercive political systems and population explosion.

Jill W. Goodrich and Peter Brecke, in their framework linking environmental change and violent conflict, emphasize environmental consequences as extensive anthropogenic activities - Human activities.<sup>70</sup> The pressures in turn produce negative effects or physical and social consequences. Physical consequences result into negative social effects, either due to direct or indirect social consequences. Eventually, Environmental conflict is the outcome of these negative social effects.

According to Stephan Libiszewski, the type of scarcity produced by environmental degradation determines the role of environment in a conflict. He outlines physical scarcity, geopolitical scarcity, socioeconomic scarcity and environmental scarcity<sup>71</sup>. He argues in physical scarcity, a resource is available in a finite amount. Geopolitical is the unequal distribution of a resource, a socio-economic scarcity has a lot to do with inequality between and within societies

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<sup>68</sup> T. Gurr, "On the Political Consequences of Scarcity and Economic Decline," *International Studies Quarterly*, Vol. 29, No. 1 (March 1985), pp. 51-75.

<sup>69</sup> N. Myers "The Environmental Dimension to security Issues," *The Environmentalist* Vol. 6, Winter 1986, p.253

<sup>70</sup> Goodrich J. W. & Brecke P

<sup>71</sup> S. Libiszewski: What is an Environmental Conflict? ENCOP Occasional paper Nr. I Zurich 1992

in the distribution of purchasing power and of property rights in relation to access to natural resources.

According to him, these types of scarcity are traditional conflicts of resource distribution whereby he argues that resources that have traditionally been regarded as plentiful and naturally renewable are becoming scarce because of failure of human beings to adapt to sustainable methods of their management.<sup>72</sup> However, Angus Mac Kay examined the relationship between climate change and civil violence in Spain.<sup>73</sup>

The unrest in Spain was seen to have been produced by climate – induced food shortages. For instance in March of 1462, rioters rampaged through Seville after floods forced the price of bread beyond the environmental fabric of religious and social beliefs held by the people and promoted by preachers especially those beliefs attributing weather fluctuations to the sin of someone in the community.<sup>74</sup> Mac Kay argues against a simplistic response model of environment – conflict linkages and one that allows for culturally mediated behavior.<sup>75</sup> William Durham has also analysed environmental pressures and population, behind the 1969 “Soccer War” between El Salvador and Honduras.<sup>76</sup>, trying to strike an evidence of population growth and land stress in the two countries. This was an ecologically driven conflict.

Durham also shows that changes in Agricultural practice and land distribution to the detriment of poor farmers were more powerful induced by migration than sheer population

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<sup>72</sup> Ibid  
<sup>73</sup> A. McKay, *The Impact of Humanism on Western Europe*; New York; Longman 1990

<sup>74</sup> A. MacKay, "Climate and Popular Unrest in Late Medieval Castile," in T.M. Wigley, M.J. Ingram, and G. Farmer, *Climate and History: Studies in Past Climates and Their Impact on Man* (Cambridge: Cambridge University Press, 1981), pp. 356-376.

<sup>75</sup> H. Lamb, *Weather, Climate and Human Affairs*; London: Routledge, 1988

<sup>76</sup> W. Durham, *Scarcity and Survival in Central America: The Ecological Origins of the Soccer War* (Stanford, Calif.: Stanford University Press, 1979).

growth.<sup>77</sup> Land scarcity developed not because there was too little to go around, but because of the process of competitive exclusion by which the small farmers were increasingly squeezed off the land by large owners.<sup>78</sup> In Philippines, the country has suffered from serious internal strife for many decades. Its underlying causes may be changing population displacement, deforestation and land degradation which powerfully led the community insurgency.<sup>79</sup> Here, the linkages between environmental change and conflict are complex involving various intervening variables, both physical and social. The Phillipines growth rate grew at a high rate and in order to help pay massive foreign debt, the government encouraged the expansion of large scale agriculture on the lowland. People migrated to steeper areas and more ecologically vulnerable uplands cleared land or established plots on previously logged land.<sup>80</sup> This led to increased soil erosion, falling food production and further clearance of the land to allow for human settlements. This shows that human-induced climate change and ozone depletion due to the negligence of severe terrestrial and aquatic environmental problems are on the increase.

Although the underlying influence of environmental factors on conflict may be great, the complex and indirect causation in these systems means that the scarcity evidence is open to many interpretations<sup>81</sup>.

Despite this, the emergent environmental security paradigm has a great deal in common with realism. The sources of the peculiar estrangement between contemporary realists and analysts of

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<sup>77</sup> Ibid

<sup>78</sup> W. Durham, *Scarcity and Survival*, p. 54.

<sup>79</sup> Other works on the Philippines used in this article are Gary Hawes, "Theories of Peasant Revolution: A Critique and Contribution from the Philippines," *World Politics*, Vol. 42, No. 1 (January 1990), pp. 261-298; Gregg Jones, *Red Revolution: Inside the Philippine Guerrilla Movement* (Boulder, Colo.: West view, 1989); World Bank, *Philippines: Environment and Natural Resource Management Study* (Washington, D.C.: World Bank, 1989).

<sup>80</sup> Ibid

<sup>81</sup> Margaret Biswas and Arit Biswas, eds., *Food, Climate and Man* (New York: Wiley, 1979).

environmental security are to be found in the recent realist theory and conceptual under development of environmental security theory.<sup>82</sup> Environmental issues have become a widened concept of security and on the other hand, assumed to play rapidly increasing role as causes of violent conflict<sup>83</sup>. Arthur Westings discussed first and 2<sup>nd</sup> World war, then Algerian war and several other decolonization, territorial, civil and other secession wars of the last decades<sup>84</sup>. The common aspect in all these wars is that natural resources such as minerals, fuels, fish stocks, products of the land and land itself played an important role. Westings list ends with Falkland war but could be prolonged nearly definitely both to the past and the present since access to and distribution of natural resources have been the object of contention and violent conflict between social groups and states during the whole human history.

According to Brock, there is a tendency to interpret the linkage between environment and conflicts as a question of struggle for scarce resources<sup>85</sup>. The term environmental degradation is understood as a human made environmental change, having a negative impact on human society.

## 2.2 Concept of Environmental Degradation and Conflict

Unnatural or harsh weather conditions stifle an economy, displacing populations and can cause misery and discontent. Deforestation on the other hand is a cause of tension in some parts of the world. According to Homer, depletion of fish stocks forces farmers to migrate, or change to different methods of operation to earn a living. Decreases in crop yield due to inefficient

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<sup>82</sup> Daniel Deudney, Richard Anthony : Contested Security and Conflict in the new environmental politics

<sup>83</sup> Larhan B: Peace through Parks: The environment on the Peace Resource Agenda, 1991 pp 135 -142

<sup>84</sup> Westings

<sup>85</sup> Ibid- 65



Agricultural practices may also cause strife in some communities. Interregional or interstate conflicts can emanate from upstream pollution or appropriation of upstream freshwater.

Population growth affects the scarce natural resources which can impact negatively on the environment. Local renewable resources are depleted by logging, over-grazing, over-cultivation or pollution among others. In other words, there is a growing link between increased scarcity and violent conflict. Environmental degradation can be caused by over use, overstrain or impoverishment of either resources or living space.<sup>86</sup> Homer Dixon identifies six environmental issues that have implications for violent conflicts. He discussed on water and land degradation, deforestation, decline in fisheries and to some extent, global warming and depletion of the ozone layer.

On the other hand, Peter Gleick argues that global climate change is the ultimate cause of all environmental conflicts, by identifying four consequences of climate change caused by human activities, availability of fresh water resources , quality fresh water resources and changes in Agricultural productivity and trade, and rise in sea level<sup>87</sup>. But Homer-Dixon and Gleick underscore the vulnerability of developing countries the effects of environmental deficiencies and violent conflict. Economic activities impact negatively on environment through use of non-renewable environmental goods and services by converting environmental resources to other used and by adding waste and effluent to the environment.

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<sup>86</sup> T.F. Homer, "Environmental scarcities and Violent Conflict: Evidence from Crises", *International Security* Vol. 19, 1994, pp 5-40.

<sup>87</sup> P. Gleick, "Water in 21st Century", in Gleick ed., *Water in Crisis*

This in turn leads to a decline on environmental quality and resources impacts on economic activities to diminishing the amount of goods and services available for future production and consumption and by progressively precluding economic activities.

There is a downward trend of economic opportunities as the environment becomes

The downward trend has implications for both economic efficiency (Sound use and management of scarce resources to generate output) and equity –the access of different groups and individuals to secure livelihoods and economic activities.

### **2.3. Threats to the environment**

A threat can generally be defined as any object that affects the stability and security of an individual, state or group. There are threats that exist within the environmental arena that can terribly dilapidate the environment. In the context of this study, threats that will be discussed are depletion of the environment, population displacement and competition for scarce natural resources. Over the years, the depletion of natural resources has become a major focus of governments and organizations such as the United Nations. This is evident in the UN's Agenda 21 Section Two which outlines the necessary steps to be taken by countries to sustain their natural resources. The depletion of natural resources is considered to be a sustainable development issue.<sup>88</sup> When natural resources are threatened, there is need for speedy action because they can easily lead to conflict. In the Mau forest, there are resources of fresh water, land, forest cover, living organisms and the atmosphere that are directly threatened, not forgetting the indirect resources like the fish in dams and lakes that the forest rivers drain into.

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<sup>88</sup> Ibid

### 2.3.1 Depletion of the environment

According to Von Braun, depletion of Natural Resources is associated with social inequity. Considering most biodiversity are located in developing countries,<sup>89</sup> depletion of this resource could result in losses of ecosystem services for these countries.<sup>90</sup> Some view this depletion as a major source of social unrest and conflicts in developing nations.<sup>91</sup>

Theodore Roosevelt in regards to natural resources, discussed that depletion is of concern for sustainable development as it has the ability to degrade current environments<sup>92</sup> and conquers with Salvati and Marco who exudes a similar opinion that on the potential to impact the needs of future generations<sup>93</sup>

The term sustainable development has many interpretations, most notably the Brundtland Commission's 'to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs according to the world report on Environment and development. Schilling and Chiang argues that in broad terms it is balancing the needs of the planet's people and species now and in the future that matters.'<sup>94</sup>

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<sup>89</sup> V. Braun J. cited in Inforesources Trends; Depletion of Natural Resources – Implications for Development: Switzerland, 2005

<sup>90</sup> UNEP, 2011 'International Year of Forests, 2011

<sup>91</sup> L. Nelson. Drivers of the Ecosystem Change: Millenium Ecosystem Assessment, Chapter 3, 2005

<sup>92</sup> T. Roosevelt, The Deep Waterway Convention, TN, 1907

<sup>93</sup> L. Salvato L & Z. Marco, Journal of Sustainable Development and World Ecology 15(6): pp 518-523

<sup>94</sup> M. Schilling M & L. Chiang L, The Effects of Natural Resources on Sustainable development: Energy Policy 39: pp 990- 998

### 2.3.2 Population growth and displacement

Population growth may put severe pressure on both local communities and state institutions at large. When the interaction between resource degradation, population growth and unequal distribution of resources leads to lower per capita availability of land resources and expansions into more marginal land, this is assumed to put a greater pressure on agricultural wages and contribute to economic marginalization as a first-order effect. Such hardship can, as a second-order effect, lead both to rural-to-rural migration, potentially causing inter-ethnic conflicts over land, and to rural-to-urban migration. While urban populations generally enjoy material standards above those in rural areas, urbanization often puts a pressure on a state's ability to provide vital services such as housing, clean water and health services.

The root causes of migration to forest lands are: political instability; economic tensions; ethnic conflict; and environmental degradation<sup>95</sup>. The claim that environmental degradation was a root cause of migration was a direct response to a growing number of articles positing a link between environmental degradation and population movement, and recognition that the numbers of displaced persons internationally was much larger than indicated by the statistics on refugee flows.<sup>96</sup>

According to many writers, the number of people who have been displaced by environmental degradation is immense. Jacobson notes that, "environmental refugees have become the single largest class of displaced persons in the world<sup>97</sup>." Homer-Dixon further

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<sup>95</sup> The UNHCR state of the world's refugees(1993)

<sup>96</sup> Ibid

<sup>97</sup> J. Jacobson, "Environmental Refugees: A Yardstick of Habitability." Washington, D.C.: World watch Institute 1988

argues that environmental degradation is likely to produce “waves of environmental refugees that spill across borders with destabilizing effects”<sup>98</sup> on domestic order and international relations. Speaking of displaced persons unaccounted for in official refugee figures, the Executive Director of UNEP at the time, Mustafa Tolba (1985), stated that “these people are the millions fleeing the droughts of northern Africa, the victims of Bhopal and the thousands made homeless by the Mexico earthquake. They are environmental refugees.”

Since the end of the Cold War, there has been a dramatic increase in civil conflicts resulting in approximately 50 million refugees and internally displaced civilians.<sup>99</sup> According to the United Nations, the public health impact of these situations has been immense, comprising high rates of communicable diseases, elevated prevalence of acute malnutrition, and high excess mortality rates. The prevention of these adverse public health effects includes early warning and intervention; prompt supply of adequate food, water, and sanitation; measles immunization; effective management of epidemic communicable diseases; and simple and timely information systems.

Beginning with the use of the phrase 'environmental refugee' by Lester Brown<sup>100</sup>, there has been a proliferation in the use of the term, and later 'environmental migrant' and a cluster of similar categories, including "forced environmental migrant", "environmentally motivated migrant", "climate refugee", "climate change refugee", "environmentally displaced person (EDP)", "disaster refugee", "environmental displacee", "eco-refugee", "ecologically displaced

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<sup>98</sup> H. Dixon Environmental Changes as causes of Acute Conflict 1991

<sup>99</sup> W. Easterly W. Can institutions resolve conflicts, vol. 49: 682

<sup>100</sup> L. Brown L. 1976

person" and "environmental-refugee-to-be (ERTB)"<sup>101</sup> The differences between these terms are less important than what they have in common: according to Boano and Zeta, they all suggest that there is a determinable relationship between environmental drivers and human migration which is analytically useful, policy-relevant and possibly grounds for the expansion of refugee law.

The International Organisation for migration proposes the following definition for environmental migrants: "Environmental migrants are persons or groups of persons who, for compelling reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad."

There have been a number of attempts over the decades to enumerate 'environmental migrants/ refugees'. Jodi Jacobson is cited as the first researcher to enumerate the issue<sup>102</sup>, stating that there were already up to 10 million 'Environmental Refugees'. Drawing on 'worst case scenarios' about sea-level rise, she argued that all forms of 'Environmental Refugees' would be six times as numerous as political refugees.<sup>103</sup> (1988: 38). By 1989, Executive Director of UNEP, was claiming that 'as many as 50 million people could become environmental refugees' if the world did not act to support sustainable development<sup>104</sup>

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<sup>101</sup> B. Zeta et al, *Environmentally Displaced People: Understanding the linkages between environmental change, livelihoods and forced migration*, Policy Brief No.1 (RSC: Oxford),(2008) pg.4

<sup>102</sup> J. Jacobson, *Environmental Refugees: a Yardstick of Habitability*, Worldwatch paper 86, Worldwatch Institute, Washington DC. (1998)

<sup>103</sup> Ibid

<sup>104</sup> M. Tolba,; *Our biological heritage under siege*. Bioscience 39, (1989)pp.725–728

In 1990, the Intergovernmental Panel on Climate Change declared that the greatest single consequence of climate change could be migration, 'with millions of people displaced by shoreline erosion, coastal flooding and severe drought'<sup>105</sup> In the mid-1990s, Norman Myers became the most prominent proponent of this 'maximalist' school<sup>106</sup> stating that there were 25 million environmental refugees in the mid-1990s, and claiming that this figure could double by 2010, with an upper limit of 200 million by 2050.<sup>107</sup>

Myers argued that the causes of environmental displacement would include desertification, lack of water, salination of irrigated lands and the depletion of bio-diversity. He also hypothesised that displacement would amount to 30m in China, 30m in India, 15m in Bangladesh, 14m in Egypt, 10m in other delta areas and coastal zones, 1m in island states, and More recently, Myers has suggested that the figure by 2050 might be as high as 250 million.<sup>108</sup>

Displacement-related environment issues are widespread and often highly visible in establishment of camps, settlements, urban slums and return areas. The most significant are: environmental issues as a cause for displacement; impacts related to the concentrations of people in camps or settlements: deforestation and the fuel wood crisis in dry-land areas; land degradation; unsustainable groundwater extraction; other impacts related to the initial displacement; uncontrolled urban and slum growth; and fallow area regeneration.<sup>109</sup>

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<sup>105</sup> K. Warner and F. Laczko. 'Migration, Environment and Development: New Directions for Research', in Chamie J, Dall'Oglio L (eds.), (2008): 235 *International Migration and Development, Continuing the Dialogue: Legal and Policy Perspectives*, IOM

<sup>106</sup> S. Gemenne, 'Environmental Migration: Normative Frameworks and Policy (1993)

<sup>107</sup> N. Myers, 'Environmental Refugees', *Population and Environment* 19(2): (1997)167-82

<sup>108</sup> A. Christian ; 'Human Tide: The Real Migration Crisis' (CA: London), (2007).

<sup>109</sup> Ibid

There is a need to predict complex emergencies earlier. Effective intervention methods will require information on the quantity and content of relief commodities and analysis of the impact of relief on the health and nutrition of the affected population. The goal should be to prevent excess mortality among the affected populations. The public health challenge is to improve the health status of populations caught in the cycle of war, intimidation, hunger, migration, and death. The poor people are the most affected by the displacement, while population growth as well impacts negatively on the resources as there is competition for resources.

### 2.3.3 Competition as a Source of Conflict

The ideas of struggle over increasingly scarce resources which is often used to characterize the linkage between environment and conflict. This can be explained in the relative deprivation theory, frustration-aggression theory or by the tragedy of the commons.

Resource competition commonly used by biologists to study animal population cannot be applied directly to human societies. The scarcity for resources is a major challenge for every society. How this leads to conflicts is socially and historically conditions. Social facts such as conflicts cannot be explained by national facts by but only by other social facts<sup>110</sup>

Where resources are scarce, competition for limited supplies can lead groups, communities, and even nations to see access to resources as a matter of highest concern. The negative impacts of overuse of a resource can be devastating and sometimes abrupt. According to Hardin 1968, there is no right defined to a property, even when the marginal benefit of that

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<sup>110</sup> F. Dixon "Getting Mainstream Invertors to Thinkable Sustainability, Earth Times Views Service. Environment dispute Resolution an anthropology of Practical Solutions.



resource is close to Zero and yet its return tomorrow is lower than today's. Example is like when a large population depends on green pasture for their livestock, overgrazing due to increased population leads to a tragedy among the commons living in that particular region.

Aggression is used to describe a number of functionally different behaviours that have in common the infliction of harm upon another person.<sup>111</sup> Some varieties of aggression have been identified, such as angry retaliation, self defence, and violence carried out. Cognition is required to recognize the stimulus according to Cairns.<sup>112</sup> Negative effects do not necessarily cause aggression, it may create an impulse to flee from the unpleasant situation in cases of migration, or either fight back.<sup>113</sup> He argues that both tendencies are elicited simultaneously but that each one of them depends either on a person's genetic endowment, prior conditioning and learning or recognition of aspects of the situation that inhibit or facilitate aggression.

Biological factors in aggression increase the probability of a person's reacting to increased negative effect with impulsive aggression.<sup>114</sup>

Aggression is moderated to a larger extent by social and cultural factors. A provocation that evokes a violent and destructive response in one culture or society may elicit a more controlled reaction in another that follows different norms for aggressive behaviour.

Relative deprivation is the experience of being deprived of something to which one believes oneself to be entitled to have<sup>115</sup> It refers to the discontent people feel when they compare their

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<sup>111</sup> M. Baron & C. Richardson, 'Environmental issues to deal' 1994, p.5)

<sup>112</sup> Ibid

<sup>113</sup> Berkowitz, 1993

<sup>114</sup> D. Berman et al, 1993

positions to others and realize that they have less than them.<sup>116</sup> Relative deprivation is used to describe the feelings or measures of political, economic and social deprivation that are relative, rather than absolute.<sup>117</sup> Relative deprivation conflicts are manifested in civil strife and insurgency caused by unequal distribution of resources. This occurs because society's level of resource and wealth production decreases due to environmental deficiencies, as an individual's level of discontent increases due to the widening gap between their actual level of achievement and the level they feel they deserve.<sup>118</sup> This results to class animosity within the lower classes towards the elites.

Schaefer defines it as "the conscious experience of a negative discrepancy between legitimate expectations and present actualities"<sup>119</sup>. This concept of relative deprivation has important consequences for both behaviour and attitudes including feelings of stress, political attitudes, and participation in collective action. This is highly propagated by competition. It is a potential cause of social movements and deviance which can lead to violence of one form or another. When the environment is highly depleted, grievances arise from people who feel deprived<sup>120</sup>. Their engagement in deviant behaviour occurs when their means do not meet their g

Resources are unevenly distributed throughout the world. Water resources are unevenly distributed by the natural hydrological cycle, with some regions receiving enormous amounts of rainfall or river flow, while others are extremely dry. Human factors, such as high population densities or intensive industrial development may cause conditions of "relative" scarcity.

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<sup>115</sup> L. Walker, Heather J. Smith, *Relative Deprivation: Specification, Development, and Integration*, Cambridge University Press, 2001

<sup>116</sup> K. Bayetz, *Solidarity*, Springer, 1999

<sup>117</sup> *Ibid*

<sup>118</sup> *Ibid*

<sup>119</sup> T. Richard, *Racial and Ethnic Groups, 11th Ed.*, Pearson Education, 2008, p.69

<sup>120</sup> R. Jerry *Outbreaks, the sociology of collective behavior*, 1982, New York Free Press

The problem of shared resources complicates the problem of scarcity. When a resource base extends across a political border, misunderstandings or lack of agreement about allocations are more likely.

#### **2.4. Environmental Conflict Management: Issues and interests**

Sustainable development in a global economy requires a delicate long term balance between human activity and nature's ability to renew itself<sup>121</sup> Future prosperity depends both on preserving ecological treasures for the benefit of future generation and on continued economic growth and innovation<sup>122</sup> There is need to improve systems for managing the inevitable conflicts and develop techniques resolving the inevitable disputes since there will always be tension between individual development and preservation of the environment.

This provides an overview of significant analytical framework for improving environmental dispute Resolution outcomes on overview of how environmental management systems can be used to improve EDR Results. Over three decades ago protection of environmental resources has become a worldwide concern<sup>123</sup> . Contaminated soils air and water are perceived as serious threats in industrialized that previously measured quality of life in terms of materials output.

According to Ann Mac Naughton and Gray Morton, the late twentieth century witnessed three fundamental changes of significance to the development of sustainable solutions both

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<sup>121</sup> K. Lynton, International environment . Environmental policy (3rded 1996 p.243

<sup>122</sup> R. Unro. & J. Tammers 'For Protection and sustainable development Legal see Principles and Recommendations (London ; Graham and Tratman,1987)

<sup>123</sup> Ibid

domestically and internationally. They argued that environmental protection and economic development are no longer regarded as mutually excessive goals. Systems and strategies are being developed to achieve sustainable economic development objectives. They were of the view that Conflict Management and dispute resolution are no longer solely as cost centers they are seen as potential sources of seminal creativity solutions and improved relationships as well. Further they argued that technological application transform global business realities by networking people in radically redefined patterns of interaction<sup>124</sup>.

Long term sustainable solutions are required. Environmental Conflicts have a common scientific and technical fact, whereby stakeholders have different but overlapping interests for example. Soil and water contamination from single industrial area may give rare to enforcement and compliance dispute with local authorities or international regulatory to authorities. They must also be subject matter that crosses geographic EDR and professional borders, affect large economic stakes have multiparty dynamics have optimum solutions and stakeholders outside the scope of judicial reach.

Caldwell argues that while natural resources are distributed and impacted though complex interactive systems of oceans islands species and ecosystems geopolitical borders are created by the interaction of people, committees cultures and sovereign states<sup>125</sup> Increasing awareness about the risks of ground water contamination, deforestation, soil erosion and either changes let the late twentieth century to dramatically expanded international structures.<sup>126</sup>

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<sup>124</sup> Ibid

<sup>125</sup> Ibid

<sup>126</sup> Ibid

Different disputes dynamics require different conflict management and dispute resolution resources depending on the nature extent of any emotional or values conflict, constructing ideas and facts, different needs and interests, power struggles and other valuables.<sup>127</sup> Experiences in

EDR context relies or how to maximize results through use of State of The Art ADR systems, strategies and tactics.<sup>128</sup> There is need to understand the nature of the dispute, outcome desired. EDR process and the resources to assist EDR process Chosen.<sup>129</sup> In Mau forest, the only strategy is to evict all those who have encroached, and involve the local communities

NGOs working on environmental issues have advocated to achieving improved environmental performance and compliance through continual improvement of regulation of policy on Environment protection.<sup>130</sup> Top government officials should establish a policy and commitment to continuous environmental improvement. The government should analyze all environmental laws and regulations that potentially affect its facilities and business practices like air pollution.

## 2.5 Conclusions

Simply by existing, people have made major impacts on the world's living ecosystems. This summary attempts to list most of these, so that the enormity of the situation can be observed. A century ago, this list would have been quite short, because human use of the planet's resources was much less, and not perceived as damaging. Today, not only can damage be seen or predicted, it can also be felt personally in the form of shortages and hindrance. Little do we

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<sup>127</sup> B. William et al, effective settlement advocacy In Mass tort Disputes Chapter 7

<sup>128</sup> Macnaughton ANNL: Practical Dispute Resolutions: Skill Tips and Tactics (ABA SEER) 1999

<sup>129</sup> Macnaughton ANNL, Collaborative problem solving in Environment Dispute Resolution

<sup>130</sup> C. Campbell, " II Natural resources and Environment" F(1996) P 3

realize, however, to what extent we have changed this planet. Not all changes to the planet's ecosystems are perceived as problems. Only those that affect us are, particularly those that affect us now. All our problems are caused by people, for without people there would be no problems. Thus the more people and the more affluent their lifestyle, the more resources they will use and the more numerous and severe our problems will become. Politicians in Kenya are the main culprits in the Mau degradation.

# CHAPTER THREE: ENVIRONMENTAL DEGRADATION AS A CAUSE OF CONFLICT IN KENYA: THE CASE OF THE MAU FOREST, 1990-2010

## 3.0 Introduction

Chapter one and two gives and Introduction to environmental degradation which is a concept of conflict the interrelation of Environmental degradation in communities degradation are discussed through the analysis of various concepts. The threats to environment are discussed in chapter two, that shows the interlinkages between many variables of competition, population and ethnicity. Chapter three is the case study and will present both secondary and primary data collected with regard to the Mau Forest Encroachment from the Years 1990-1999. However, the chapter gives information on the years before the case study, as background information. These years are categorized as the colonial years and the post colonial years and the influence they had on the Mau forest.

## 3.1 History of the Mau Forest

The Kenya Indigenous Forest Conservation Programme (KIFCON) of 1991-1994 estimated Kenya's closed canopy forests to cover 1.24 million hectares, or roughly two percent of the country<sup>131</sup>. Recent estimates based on remote sensing indicate that against a global forest cover average of 21.43 percent, and an average for Africa of 9.25 percent, Kenya's closed canopy forest cover stands at a critical 1.7 percent<sup>132</sup>.

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<sup>131</sup> Ibid

<sup>132</sup> Nkako et al (2005) *Maasai Mau Forest Status Report*. Narok, Kenya, Ewaso Ngiro South Development Authority.

The loss of forest cover has been caused by a number of factors: degradation, settlement (both legal and illegal), urbanization, unsustainable extraction of timber and forest products, lack of land use policy, and corruption, among others. During the last decade there was an increase in illegal and irregular forestland allocation due to political interference, exacerbating an already critical situation. The Mau Forest Complex (MCF), and the Maasai Mau Forest (MMF) in particular, were no exception<sup>133</sup>.

The Mau Forests Complex covers approx. 416,542 ha<sup>3</sup>. It is the largest closed-canopy mountain forest ecosystem in East Africa, and prior to recent deforestation was larger than Mt. Kenya and the Aberdares combined. Historically, the Mau was overlooked when the forest was intact and when land pressure was low. As land pressure increased, the forest was viewed as an untapped area with high potential agricultural value waiting to be exploited<sup>134</sup>.

Most of the forest blocks in the Mau Forest Complex have been gazetted and are managed by the Forest Department (KFS - formerly the Forest Department). In addition, the Mau ecosystem is considered as the most important of the five water towers in Kenya, being the upper catchments of many major rivers, which feed, partially or exclusively, the lakes of Natron, Turkana, Baringo, Naivasha, Nakuru and Victoria. The Mau is arguably of even greater importance than Mt. Kenya since the water that flows from it, is part of the Lake Victoria catchment, which in turn provides water to the White Nile. The trans-boundary significance of the Complex therefore has to be considered not only in terms of providing water to its neighbour Tanzania but also to the whole Nile basin.

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<sup>133</sup> Ibid 13

<sup>134</sup> Ibid 13 p. 5



The importance of the Mau is related to the ecosystem with the services it provides, such as river flow regulation, flood mitigation, water storage, water purification, recharge of groundwater, reduced soil erosion and siltation, protection of biodiversity, carbon sequestration, carbon reservoir and regulation of microclimate which provides favourable conditions for optimum crop production.

The critical role of the Mau is in the water it provides to urban centres and some of the most densely populated regions of Kenya supporting livelihoods and economic development. With a high leaf area index, Mau forest has over the years been able to intercept all the water falling on the forest canopy and slowly channel the same to the forest floor and eventually to the ground aquifers. Natural forest reduces the erosive impact of rainfall which leads to soil erosion<sup>135</sup>. Leaf litter prevents erosion and forest soils provide the sponge for the entrapment of water.

### 3.1.1 Colonial Mau Forest

The assault on the Mau forests began with colonialism, which established the first settlement schemes as early as the 1940s to protect the colonialists' needs for fertile land in the so-called White Highland areas and beyond. Such schemes continued in the post-colonial period and culminated with the Moi regime's actions of de-gazetting parts of the Mau Forest to reward loyal politicians and entice the Kalenjin community to vote for KANU in the 1997 elections<sup>136</sup>.

The new scramble for the Mau and its steady obliteration is closely related to the protracted challenge of landlessness in the Rift Valley Province that originated from the colonial and post-colonial land policies. The colonial policy of land appropriation displaced thousands of

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<sup>135</sup> Ibid

<sup>136</sup> H. Gisemba, "The Lie of the Land: Evictions and Kenya's Crisis", *Africa Policy Institute (API)*, Policy Brief No.2, February, 2008. Available at <http://www.africapi.org> (accessed 23 Nov, 2011)

people and triggered unprecedented migration in the 1900s, with thousands of Kikuyus, Luos, Luhyas and Kisiis moving to the White Highlands as squatters and sharecroppers.

But many Kikuyu squatters became successful farmers and threatened the white settler's smooth access to land and cheap labour. The colonial state responded with forceful evictions that exterminated the competition and left majority of the Kikuyu squatters landless and available for cheap labour<sup>137</sup>.

In an attempt to resettle the displaced squatters, the colonial government established the first wave of government re-settlement schemes in 1941 in Olenguruone, North of Nakuru and part of the Mau forests. But over 100,000 squatters were viciously repatriated to Central Kenya between 1946 and 1952, a pattern now considered cyclical after recurring during the 1991/92, 1997 and 2007/2008 electoral cycles<sup>138</sup>. The landless population increased with more evictions in 1955 during the second wave of African re-settlement schemes, when Kikuyu peasants in Olenguruone were evicted to pave the way for a re-settlement scheme of the loyalist black farmhands, an exclusive strategy designed to purge suspects of the Mau Mau uprising<sup>139</sup>.

### 3.1.2 Post-Colonial Mau Forest

The post-colonial government land policy of willing-buyer-willing-seller alienated the landless squatters and attracted the wealthy middle class, land buying companies and cooperative societies from predominantly agricultural communities of the Agikuyu, Maragoli, Abagusii, and

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<sup>137</sup> N. S. Carey Jones, "The Decolonization of the White Highlands of Kenya", *The Geographical Journal*, Vol. 131, No. 2 (Jun., 1965), pp. 186-201.

<sup>138</sup> Ibid

<sup>139</sup> Ibid

Abanyore<sup>140</sup>. At the same time, the government land re-settlement schemes were strongly opposed by the indigenous Kalenjin ethnic group, protesting against invasions of their ancestral land by “foreigners”. To pacify the ‘native’ opposition, the Kenyatta regime imprisoned the leading critics, including Honorable Jean Marie Seroney, the MP for Tinderet, who authored the controversial “Nandi Declaration” in 1969 that ordered all foreigners to vacate the Nandi’s ancestral land. Kenyatta also used senior Kalenjin leaders led by Vice-President Daniel arap Moi to mollify the discontented Nandis, a key explanation factor for the absence of land-related clashes in the Rift Valley during Kenyatta’s presidency<sup>141</sup>.

But historical analysis of land ownership in Rift Valley by the supra-ethnic Kalenjin grouping and systematic evictions during the former regime continues to face criticism due to notable distortions and historical misrepresentation. Contrary to numerous reports that identify the land question as the root cause of the post-election violence in Rift Valley Province, the key driver of systematic evictions has been the struggle for power within the political class in the multi-party era.

Evidently, the etymology of geographical Maasai names such as Sirikwa, Eldoret, Kipkaren and Uasin Gishu in the North Rift region indicates the Maasai were the earliest inhabitants before the brutal colonial displacements took place. Secondly, the displacement of Kikuyus from Central Kenya by the colonialists took place in the early 1900s, creating second and third generations of Kikuyu squatters in Rift Valley. Finally, Kenyans from diverse ethnic and class backgrounds took advantage of the government’s willing-buyer-willing-seller policy to

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<sup>140</sup> W. Oyugi, “Politicised Ethnic Conflict in Kenya: A Periodic Phenomenon”, 2000.

<sup>141</sup> Ibid

buy tracts of land in the region, making the Rift Valley one of the most populous and cosmopolitan provinces in the country<sup>142</sup>.

Continued encroachment and forest excisions of the 400,000 hectares complex led to the loss of at least 107,000 hectares of forest cover, leading to the current degradation status that puts at risk the political stability and economic progress of Kenya and the entire East African region. Despite protests by environmentalists and a High Court injunction obtained by civil society, the Moi administration went ahead and allocated a total of 61,587ha.<sup>11</sup> But instead of benefiting the landless population, the resettlement programmes became a political strategy to reward Moi's loyalists and safeguard grassroots political support within his Kalenjin community. The 2004 Ndung'u Report and the 2009 multi-stakeholder Mau Task Force acknowledged that most of the land was not allocated to the landless and needy population but to the local political leaders and 99% of title deeds were issued illegally<sup>143</sup>.

The approval of illegal land allocations by the Moi regime stimulated subsequent encroachments on the Mau Complex, largely by the landless Kalenjins. Despite efforts by environmental activists to block the invasion of forest reserves through judicial and parliamentary interventions, the government failed to take decisive action as thousands of people moved into the forests, cut down trees and built homes<sup>144</sup>.

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<sup>142</sup> G. Horace "The Lie of the Land: Evictions and Kenya's Crisis", *Africa Policy Institute (API)*, Policy Brief No.2, February, 2008. Available at <http://www.africapi.org> (accessed 22 November, 2011)

<sup>143</sup> P. Kantai, "Saving Kenya's Mau Forest", *Africa Report*, 21 September 2009.

<sup>144</sup> Ibid

### 3.1.3 Mau forest from the 1990's

The major threat to Maasai Mau Forest was identified as encroachment for settlement, which dates back to early 1980s when part of the forest was settled and destruction began. Following environmental concerns, e.g., water conservation and deforestation, the Presidential (Ntutu) Commission was formed in 1986 to review the boundaries in order to conserve the water catchment areas and recover lost forest areas. As recommended by the Commission, a total of five regions were reclaimed from Ol Posimoru 'A', Kamrar, Olokurto, Nkareta and Naisoya Adjudication Sections.<sup>145</sup>

Pressure on Maasai Mau Forest started again in 1999 when five forest adjacent Group Ranches that had been adjudicated in 1970s, applied for consent from the local Land Control Board to subdivide their land among members. The affected ranches were Sisiyan (Ilmotiok Adjudication Section), Nkaroni, Enoosokon and Enakishomi (Ololulunga Adjudication Section) and Reiyo (Nkoban Adjudication Section). The boundaries of these sections were well defined during land adjudication and therefore adopted at First Registration.<sup>146</sup>

After consents were issued, government officers, politicians, private surveyors and influential people irregularly increased the sizes of the Group Ranches far in excess of their registered areas. After expansion, this added land, all in the Maasai Mau.<sup>147</sup>

Forest, was sold to unsuspecting outsiders who had no information on the status of the forest. The new members were referred to as "acceptees." Most of these people obtained title deeds fraudulently, while others squatted, awaiting ratification of their occupancy. By 2005, illegal extension into the Maasai Mau Forest due to expansion of Group Ranches had created

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<sup>145</sup> Ibid

<sup>146</sup> Ibid

<sup>147</sup> Ibid

1,962 parcels of land, amounting to 14,103.7 hectares of the forest. No resolution to give away the forestland was made by the Narok County Council (NCC), as required by law. However, letters of no objection by the NCC were fraudulently obtained stating that the areas to be subdivided did not encroach onto Council land, including the forest.<sup>148</sup>

### **3.2. Settlement, trends and issues of the of the local residents in Mau water catchment**

#### **Encroachment**

Large-scale encroachment was observed on the western side of the Maasai Mau Forest, where 11,095 hectares has been heavily impacted. On the lower slopes of the western section, over 90 percent of the forest canopy has been destroyed (Photograph 2). Destroyed forest cover decreases progressively from approximately 90 to 50 percent towards the upper slopes, while clearing activities intensify tremendously<sup>149</sup>

### **3.3 Positive trends and issues**

There has been a few positive trends for those that have been benefiting from the forest reserved. The study revealed that a number of residents had benefited from the crises in that they were able to grow foodstuffs, sell timber and therefore the gains to them were positive. However, the national gains out weight the individual gains and therefore the environmental degradation was an issue of national security and hence a need for immediate halt.

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<sup>148</sup> Ibid  
<sup>149</sup> Ibid

### 3.3.1 Increased food productivity

Food production had gone up for the communities farming tea and other food crops, although in the study, they vehemently refused to admit that they had made quite some fortune from the proceeds. This was observed as a cultural way of protecting their wealth as they could not reveal it. However, the local administration was quick to confirm that the land was very fertile for crop production and therefore had increasingly practiced commercial farming without use of advanced farm inputs and chemicals.

### 3.3.2 Business in timber products

Logging in the Mau forest must be understood against the background of forest excisions whereby the government periodically hives off large chunks of forest land, ostensibly for “landless” Kenyans but actually for distribution to powerful, well connected individuals.<sup>150</sup>

Under Kenya’s Forest Act, which was in force from colonial times until mid-2005, when a new forest law was enacted (read more about this below), all forests belonged to the state and were managed on its behalf by the Forest Department.<sup>151</sup> By all accounts, the Forest Department has made a mess of managing forests. Huge chunks of forest areas were routinely excised. During the colonial period, and for a couple of decades after independence, large chunks of the Mau forest were destroyed in order to establish tea plantations in the parts of the forest under Kericho and Bomet county councils. This resulted in the largest tea-growing areas in Kenya being found within the forest.

From 1973 to 2003, 36,780 ha were lost in the Eastern Mau forest and, as recently as 2001 for example, the government excised over 67,000 ha for logging and to settle agricultural

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<sup>150</sup> Ibid

<sup>151</sup> Ibid

communities. Excisions have also taken place in various other parts of the forest, including the Transmara area where, in a Gazette Notice of 3 March 1989, 937.7 ha were set aside for timber and tea plantations. The gazette notice was not accompanied by a legal notice - a mandatory requirement. From 1996 to 2003, over 30% of the Maasai Mau forest was lost to logging and agricultural activities. Maasai Mau measures approximately 46,278 ha.<sup>152</sup>

Excisions continue to this day for political reasons. With the next scheduled elections in December 2007 fast approaching, the government, through the Ministry of Lands, is considering excising a further 7,000 ha from Maasai Mau for the settlement of "landless" potential voters. The government action is illegal, against the well-being of the country's environment and the economy, and will definitely result in conflicts of jurisdiction and interests between the Ministry of Lands and the Ministry of Environment and between the central government and local authorities.<sup>153</sup>

Nearly five years ago, the government imposed a ban on logging in order to curb deforestation and to conserve the country's major water catchment areas. Despite the ban, there is alarm at the rate at which the country's forest cover continues to be depleted through logging activities. Camphor and cedar trees, which produce prized varieties of wood products are said to be particular targets for loggers. Other types of wood are also used for carving artefacts for the tourism industry.

The Mau forest complex is the most heavily logged forest in Kenya. When the government imposed the ban on logging in the country, it exempted three multi-national logging companies: Pan African Paper Mills, Raiply Timber and Timsales Ltd, the biggest loggers in the Mau forest. According to government explanations, the three firms were exempted

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<sup>152</sup> Ibid

<sup>153</sup> Ibid



because Raiply and Timsales employ over 30,000 Kenyans, while "the government has shares in [the Pan African Paper Mills] and it is important to the economy," explained Kimaiyo Towett, a leading Ogiek activist. While the ban subsists, the three companies continue to cut down thousands of trees every month from Eastern Mau for the national and Middle East market. On 20 August 2006 for example, Ms Letitia Zobel, a UNEP (United Nations Environment Programme) policy adviser visited the Mariashoni area of Eastern Mau. "In the one hour that I stood there on a Sunday morning, I counted 7 ten-ton trucks ferrying logs to the three companies' plants in Elburgon town," she explained in shock. "The swamp that is the source of the Mara River is drying up!" she added.

The Mara River waters both the Maasai Mara and Serengeti game reserves and drains into Lake Victoria. Eastern Mau is also the water catchment area for Lake Nakuru, which supports one of Kenya's most visited wildlife parks with the biggest concentration of flamingos in the world. In a press conference on 17 August 2006, the Director of Kenya Wildlife Service and the top civil servant in the Ministry of Environment expressed concerns that, at the current rate of Eastern Mau forest destruction, Lake Nakuru would no longer be there in 20 years' time.

<sup>154</sup>Ironically, a major daily newspaper featured a leading story the next day in which forest and other government officials in Nakuru district were demanding that loggers immediately pay the US \$ 450,000 royalty fees they owed the government for timber harvested in Eastern Mau. The officials particularly accused a local politician of owing the government in excess of US \$ 115,000 in logging fees royalty arrears! Both Lake Nakuru and Eastern Mau are located in Nakuru district. By allowing logging that is destroying one of Kenya's prime tourist destinations, the government is systematically chopping off the hand that feeds it.

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<sup>154</sup> Ibid

Logging activities are also rampant in other parts of the forest. Logging in parts of the forest found in Kericho district is undertaken to supply the tea industry.

Tea factories daily need undocumented large quantities of timber to roast tea leaves. In Maasai Mau, logging is mostly done by small-scale poor locals desperate to put food on their tables. But when small-scale loggers are many, they add up to something big. In a 2005 report prepared jointly by UNEP, Kenya Wildlife Service, Kenya Forestry Working Group and Ewaso Nyiro South Development Authority on the status of the Maasai Mau, "logging was so intense in the western parts of the forest that it was impossible to count the number of trees cut. In the eastern part, some 2,343 recently logged indigenous trees were counted, in addition to some 573 hectares on which logging was so heavy that individual trees logged could not be counted," stated Mr. Koriata, the then Principal Administrative Officer of Narok county council. The government authorities in Narok district, where the forest is found, are alleged to be deeply involved in the logging activities. The biggest culprits are said to be officials from the forestry department and Narok county council.<sup>155</sup>

But when they take action and arrest a few private loggers and impound their timber, the court fines are small and not an effective deterrent. The impounded timber is often channelled back into the black market by the very same government officials who impounded it.

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<sup>155</sup> Ibid

### 3.3.3 Negative trends and Issues

Degazettement of forest reserves (excisions) and continuous widespread encroachments have led to the destruction of over 107,000 ha over the last two decades, representing over 25 percent of the Mau<sup>156</sup>.

Out of the approx. 416,542 ha of the protected forests, 61,586.5 ha were excised in 2001 alone. The excised areas are critical upper catchments areas for the rivers and lakes that are fed by the Mau. The excised areas included both the bamboo forests with high catchment values and biodiversity-rich areas, as well as parts of the summit of the Mau escarpment. The excisions are starting to impact negatively on major natural assets and development investments, including Lake Nakuru National Park, Maasai Mara National Reserve, Sondu-Miriu Hydropower Scheme (60MW), geothermal plants near Naivasha, small hydropower plants in the Kericho tea estates (4MW) and the tea growing areas in Kericho Highlands<sup>157</sup>.

The impact of the excisions has not been assessed since no environmental impact assessment (EIA) was carried out despite the requirements for such EIAs in accordance with the 1999 Environment Management Coordination Act. In addition to the excisions, approx. 41,122 ha had been encroached by settlements in the Mau, in particular in Maasai Mau trust land forest, Ol Pusimoru Forest Reserve and South West Mau Forest Reserve. Illegal logging and charcoal production are rampant in and around the encroached areas<sup>158</sup>.

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<sup>156</sup> A. Thenya and W. Kiama. Maasai Mau Survey Draft Report. In: KFWG-COMIFORM Project, 22-23rd (2008) September 2008, . Narok, Kenya.

<sup>157</sup> Ibid

<sup>158</sup> Ibid

The on-going destruction of a vital natural and nationally important asset is a matter of concern to GoK. The increasing environmental and economic problems, if not reversed, may result in breakdown of law and order, ethnic conflicts and threats to internal security.

The destruction had threatened the river-dependant wildlife in the Maasai Mara and the Serengeti ecosystems; and, many streams in the Mau Forests Complex have their flows changed significantly or have dried up. Most of the changes have occurred around the years 1996-2001. For example, in Njoro area, 13 of the 32 streams identified by the communities have dried up completely signaling a major threat to the rivers they fed. Twenty-seven other water sources or streams have also dried up completely in Elburgon, Kuresoi, Keringet, Kiptagich and Ol Pusimoru areas<sup>159</sup>.

### **3.3.3.1 River water shortages**

Africa is facing an unprecedented water crisis: about 25 percent of Africa's population is living in water stressed area and this figure will rise dramatically to an estimated 500 million people by 2050<sup>160</sup>. While some of this will be caused by climate change, the water stress in the Mau area is largely the result of land degradation and deforestation whose effects are to be felt far beyond the Mau complex.

It has become clear in recent years that the continuous provision of water is directly related to the existence of the natural forest: water towers and mountain forests are closely linked but the relation between the two has not always been fully recognized. Once the forest has gone, water infiltration is greatly reduced and aquifer level lowered causing springs to dry, and rivers to

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<sup>159</sup> Ibid

<sup>160</sup> Climate Change 2007. *Report on the Intergovernmental Panel on Climate Change*

become highly seasonal. Increased runoff and storm flow frequency and amplitude causes soil erosion and downstream flooding. The social impacts are water shortage, infrastructural damage, poverty, ill-health, conflict and regional insecurity.<sup>161</sup>

### 3.3.3.2 Deforestation

The conversion of forest into agriculture and built-up land in the MFC has led to noteworthy environmental impacts. Generally, increased impervious and hardened surface areas such as roads, parking lots, sidewalks and rooftops diminishes infiltration based processes and, consequently, recharge to the groundwater systems. These processes not only impair the ability of the system to cleanse runoff and protect wetlands, but also amplify the potential for soil erosion and floods, thereby contributing to the degradation of streams and other water bodies<sup>162</sup>.

The replacement of forest and woodland by depletive subsistence agriculture has also caused massive inflow of sediments into the nearby Lakes<sup>163</sup>.

The rising nutrient levels from the sediment have affected the growth of blue-green algae (*spirulina platensis*), which forms the main food for flamingo birds, known to be a major touristic attraction for Lake Nakuru. Apart from reduced revenues associated with ecotourism in the area, the ecological effect of this has been the loss of biodiversity through migration of the birds to other water bodies within the rift valley where complimentary food is available. Conversion from forest to agriculture and grazing land has also disrupted the hydrological cycle of the river drainage basins through increased evaporation and runoff process, especially during

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<sup>161</sup> Ibid

<sup>162</sup> Kundu P. M., China S. S. & Chemelil, M. C. (2008). Automated extraction of morphologic and hydrologic properties for River Njoro catchment in Eastern Mau, Kenya. *Journal of Science, Technology, Education and Management*, 1 (2), 14-27

<sup>163</sup> Ramesh, T.(1998). Lake Nakuru Ramsar Project. World Wide Fund for Nature (WWF) ([www.aaas.org/international/ehn/biod/thampy.htm](http://www.aaas.org/international/ehn/biod/thampy.htm))

rainy seasons. Generally, low-productivity grass types from natural grassland pastures have lesser leaf area and produce a smaller amount of biomass compared to the forested vegetation. With reduced leaf area and biomass consequent of the land degradation, rainfall interception and surface detention capacity are bound to significantly decrease. This reduces the soil moisture retention capacities, further contributing to the decline in the general evapotranspiration rates (ET<sub>o</sub>) of the area. Changes in land use may also affect the groundwater recharge of a system. <sup>164</sup>

This however, depends on the groundwater recharge area, which may be different from the surface water catchments. However, studies have also shown that logging or conversion of forest to grassland for grazing can result into rising water table as a result of decreased evapotranspiration. In some cases, the water table may fall as a result of decreased soil infiltration from soil compaction and non-conservation farming techniques. If the infiltration capacity is substantially reduced, the long term effect can be severe cases of drought and desertification <sup>165</sup>.

Removal of forest from a catchment can also cause significant hydrologic consequences such as decreased rainfall interception leading to variations in the stream water quality and quantity <sup>166</sup>. Research has shown that tree canopies can intercept 10-40% of incoming precipitation depending on the age, location and density of stand, tree species, rainfall intensity and evaporation rates.

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<sup>164</sup> Ibid

<sup>165</sup> D. Maidment, Handbook of hydrology. McGraw Hill, New York, San Francisco, USA(1993).

<sup>166</sup> B. Mutua. & A. Klik,. Predicting daily streamflow in ungauged rural catchments: the case of Masinga catchment, (2007). Kenya. *Hydrological Sciences*, 52(2), 292-304

### 3.3.3.3 National crises

The Enosupukia case demonstrates how environmental factors have been used as causal explanation for systematic evictions in Kenya's Rift Valley Province during the multi-party period. But the Akiwumi Commission established in 1998 to investigate ethnic-related clashes dismissed environmental stress and other proximate causes of Ennosupukia ethnic clashes, and stressed that evictions of non-Maasai communities were primarily driven by political reasons<sup>167</sup>.

Found in the Rift Valley Province and Narok District, Ennosupukia lies at the southern end of the Mau Escarpment and was declared government settlement land in 1970 and subsequently demarcated for the indigenous Dorobo and Maasai communities. But the land was unsuitable for pastoralism, forcing the nomadic groups to sell their land to agriculturalists who were mainly Kikuyus<sup>168</sup>.

In October 1993, Maasai morans invaded the settlement, killing more than 20 people and displacing over 30,000 others<sup>169</sup>. Prior to the invasions, influential Maasai leaders declared Ennosupukia a water-catchment area and blamed the predominantly Kikuyu settlers for engaging in charcoal burning and agricultural activities that contributed to deforestation and adversely affected their cattle economy. KANU leaders, still bitter with the settlers for supporting opposition parties in the 1992 elections, found the right excuse to declare the Ennosupukia area trust land for the Narok County Council and subsequently drove out all 'foreigners' from their ancestral home area<sup>170</sup>. Some of the evictees were sheltered in the Maela and Moi Ndabi camps

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<sup>167</sup> Report of the Judicial Commission Appointed to Inquire Into Tribal Clashes in Kenya (the Akiwumi Report), Nairobi: Government Printer, 31 July 1999; Republic of Kenya

<sup>168</sup> P. Kagwanja, "Blaming the Environment: Ethnic Violence and the Political Economy of Displacement in Kenya", *Centre for Refugee Studies*, Occasional Paper Series Vol. 1 No.2 2002, Moi University Press

<sup>169</sup> Ibid

<sup>170</sup> M.Njeru, "Ministers Got Land Meant for Clash Victims", *Daily Nation*, 11 July, 2008

within the Rift Valley, but majority were forcibly transported to and dumped in Central Province, the ancestral home of the Kikuyus<sup>171</sup>.

#### **3.3.3.4 Food shortages**

Globally, all living things require food to survive. All over Kenya, the effect of Mau degradation was felt by and large, as there came persistent droughts and famine. The agrarian communities were directly hurt, and this made the government take quick action to save the Mau. This concluded the debate that 'if we destroy nature, it will destroy us'. Many farmers lost their livestock during this period. However, it was shocking to hear a former head of state explain on the National Media that 'rain did not come from the trees, but rather came from the clouds'. This was rather absurd, as he was protecting his interests.

#### **3.3.4 Kenya's response to environmental degradation**

The Mau evictions in 2009 became the major news items internationally and replaced the debate on prosecution of 2008 post-election perpetrators in the news headlines. The politicization of the Mau and the absence of common approach by the Coalition Government turned the international community increasingly cautious regarding taking strong positions on the Mau evictions.

The international community, emphasising the regional value of the Mau eco-system, has criticised President Kibaki's lethargic approach and divisive actions of ministers and MPs inciting illegal squatters to oppose evictions before compensations and "turning poor peasants in the Mau into human shields".<sup>83</sup> Western diplomats in Nairobi, especially from the European Union and the US, have been accused of leaning towards Mr. Odinga while China, the African Union and the Asian Group remain non-aligned, at the moment. The international community is

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<sup>171</sup> Ibid



therefore caught up in the Mau politics and its involvement is potentially capable of having unintended consequences of exacerbating inter-community conflicts and elite fragmentation in the run up to 2012 polls, contributing to election related violence.

### 3.3.5 Other responses

In October 2009, the European Union (EU) pledged to fund the restoration of Mau Forest and eviction of squatters living in Mau Forests. The 23 EU member countries have also demanded key politicians, civil servants and “untouchable” businessmen in the current and previous regime to surrender their illegally acquired land in Mau to facilitate effective rehabilitation of Kenya’s leading water tower. The United Nations Environment Programme (UNEP) has also supported evictions<sup>172</sup>.

But as the EU continues to demand Mau evictions, human right NGOs, led by the Minority Rights Group International (MRG), have demanded respect of minority rights, especially the Ogiek indigenous community that is threatened by illegal evictions from their ancestral home in Mau Forests. The international community should therefore be the voice of the voiceless in the controversial Mau evictions that have huge humanitarian implications<sup>173</sup>.

As the third phase of Mau evictions unfolds, the US ambassador to Kenya, Mr. Michael Ranneberger participated actively in the tree planting ceremony of 22 April 2010 led by Prime Minister Raila Odinga and donated America’s gift of Sh532 million to assist in rehabilitation of

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<sup>172</sup> Kipngeno Ruto. “Not scared: Kenya PM Raila Says He’s Ready to Pay the Political Price for Stand on Mau,” *majimbokenya.com*, 29 July, 2009. Available at <http://majimbokenya.com> (accessed 23 November, 2011)

<sup>173</sup> “Illegal Eviction of Ogiek Indigenous Community from Ancestral Home in Mau Forest, Kenya”, *minorityrights*, 28 October 2009. Available at <http://www.minorityrights.org> (accessed 22 November, 2011)

the Mau ecosystem, a move that resonates with the US geo-political interests in the Horn region where fragile states and terrorism threatens access to oil and other resources<sup>174</sup>.

### 3.5 Environmental degradation as a cause of conflict

The Mau Forest has been a very important water catchment area for the major rivers and lakes in Kenya. The Ogiek community has used the area sustainably with no environmental conflict. The Ogiek, through their customary tenure system, have managed their forests communally. A clan who in turn divides into families communally owns the land. Each family is then responsible for each and every living thing – animals and plants – in the allocated land. No one is supposed to hunt, or cut any tree without permission from the family responsible for that particular forest land. Apart from being home to thousands of Ogiek people the forest has and still plays a bigger environmental role in the region. Before encroachment, the Ogiek lived with all the ‘forest treasures’ intact. The settlement has not only introduced conflict over land, but has also generated other conflicts. Social conflict is one of them. Conflicting interests and different cultural and traditional beliefs are the cause. The Kalenjins have introduced their cultures and traditions, which are totally unheard of in Mau Forest. For example, the Kalenjins have renamed most parts they have occupied while the original names from the original owner are disregarded. In a recent meeting, a respected 57-year-old Ogiek elder, Lenduse Oldaisaba reiterated, “*We have lost our land, identity and our moral values with the coming of Kipsigis [referring to Kalenjins]. They have polluted all our clean water, they have cleared all our forests for farming and they are now very busy digging our graves. Since I was born, I have never seen such a*

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<sup>174</sup> Muchemi Wachira & George Sayagie, “US in Surprise Sh532 Million Gift for Mau Restoration”, Daily Nation, 23 April, 2010.

*situation. This is not what we expected in our motherland. . . . they have taken our birthright and now we have nowhere to call home and soon, we are going to become their slaves<sup>175</sup>”*

Mau (East) Forest is a haven of biodiversity. The forest is also an important water catchment area for major rivers and lakes supporting the lives of more than five million people. The government initiated its settlement scheme without conducting the necessary Environmental Impact Assessment (EIA) to measure any possible environmental disasters posed by the scheme. The more than 30,000 new settlers, who are mainly farmers, have totally degraded and destroyed the environment to pave way for their settlement and farming. These combined activities have caused several rivers to dry up permanently. This has resulted in conflict with environmentalists who argue that the scheme is unsustainable. The environmentalists have since gone to court to challenge the scheme.

In addition, the Ogiek argue that the new settlers have destroyed thousands of beehives through their destruction of the environment, severely straining relations between the two groups, as asserted by 37-year-old Mr William Kalegu, accompanied by Isaiah Sanet: *“We no longer get enough honey for our needs. They [referring to the new settlers] have destroyed our beehives by burning and felling our trees . . . We are now starving for their greed. They have teamed up with local foresters to loot and sell our trees just because the government ‘belongsto’ them. We have nobody to turn to since all of them are against us. It’s only by God’s mercy that we live<sup>176</sup>”*.

About 10% of Ogiek fully lead their traditional way of life by honey gathering and hunting, while the rest combine this old way with peasant farming and livestock rearing.

#### ***Case study: Maasai-Kalenjin Clashes over the Mau***

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<sup>175</sup> *F. Kemei & 9 others vs the Attorney General & 4 others* in HCCA 227/99. High Court of Kenya, Nairobi.

<sup>176</sup> M. Gichuki. 1999. ‘Ogiek Elders struggle to reposes their ancestral lands’ in *The People Daily*, 9 April 1999.

The Mau Complex is a source of livelihood for several communities, both pastoralists and agriculturalists. Its degradation and drying up have escalated competition for access to water, grazing and farming spaces between the Maasai and Kipsigis communities inhabiting the Mau. This growing competition for scarce resources threatens ethnic violence between the two communities. The Maasai support evictions of squatters to restore the forest which is the basis of their cattle economy. The stand has led to political fallout between the two communities, with the Kalenjins urging caution in the manner of evictions and emphasizing the need to compensate and resettle all settlers and squatters before the evictions<sup>177</sup>.

### **3.5.1. Interests, issues and concerns**

The war of words over the Mau affair has intensified between political leaders from both communities, with Parliamentarian Nkoidila ole Lankas (Narok South) declaring that “some people are chest-thumping because they think they have the numbers; but we have the right to reclaim our source of livelihood”<sup>178</sup>. In September 2009 during the discussions by Parliament to adopt the report on the Mau Forest Complex, Ntimama strongly opposed compensation as against the Land Adjudication Act that allows adjudicated land to be given to residents but “nobody was born on the Mau and nobody can claim to be a genuine ordinary resident of the Mau”<sup>179</sup>. Proposing speedy evictions, Mr. Ntimama argued for equity in evictions as squatters

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<sup>177</sup> J. Morgan, “Kenya’s Heart Stops Pumping”, BBC News, 29 September 2009. Available at <http://news.bbc.co.uk> (accessed 23 November, 2011).

<sup>178</sup> A. Shiundu, “Mau Report Up for House Debate”, Daily Nation, 30 August 2009

<sup>179</sup> Motion on the Adoption of the Report on Conservation of the Mau Forest Complex, Hansard Report, 15 September, 2009.

forcibly evicted from the Aberdares and Mt. Kenya water towers were not compensated. Mau squatters, argued Ntimama, are “not more special human beings than others”<sup>180</sup>.

### **3.5.2. Managing the problem of the Mau Forest Complex**

Near South West Mau Forest Reserve, Kenya Forest Service has established a tree nursery with several million trees seedlings to be planted shortly. Some 5,000 hectares of forest will be rehabilitated by KFS during the long rains. This is in addition to the approx 1,400 hectares that were replanted before and during the short rains in 2009.

Kenya Wildlife Service, in partnership with East African Breweries Ltd, Equity Bank, Nation Media Group and the Green Belt Movement, established the *Save the Mau Trust Fund*. The five partners have committed Kshs50 million. The Trust Fund has already enabled the planting of 25,000 trees in the Mau.

The Ministry of Forestry and Wildlife and the Secretariat have established a Committee on Rehabilitation and Livelihoods. The Committee is currently actively involved in establishing agreements between Kenya Forest Service and partners. Four organizations have signed three-year agreements with the Kenya Forest Service to rehabilitate sections of Mau forests Complex, while other organizations are finalizing the terms of the agreements intended to be signed shortly. These organizations that have signed include African Wildlife Foundation (13,500 acres), Malaika Ecotourism & Coral Cay Conservation UK (375 acres), Save the Mau Trust Fund (21,518 acres), and the Ministry of State for Defense (2,500 acres).

The Ministry of Energy is in an advance stage in the consideration of signing an agreement with the Kenya Forest Service to rehabilitate 47,500 acres.

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<sup>180</sup> Ibid

The Ministry of Water and Irrigation has gazetted two catchment management strategies covering the Mau Forests Complex and identified degraded water catchments. Eight Water Resource Users Association (WRUAs) covering the entire Mau Forests Complex have been formed. The WRUAs are currently involved in (i) raising awareness on catchment restoration and equitable water allocations; (ii) pegging riparian reserves; and, (iii) establishing tree nurseries to assist the restoration of the riparian reserves. The Ministry has also formulated Sub-catchment Management Plans (SCMP), particularly focusing on seriously affected rivers feeding Lake Nakuru.

With support of USD 2 million from the Ministry of Environment and Mineral Resources, the rehabilitation of the watersheds of Makalia, Naishi, Nderit and Njoro rivers has been launched on 25 November 2010. These rivers are the main rivers flowing in the catchment of Lake Nakuru. The project will rehabilitate the riparian reserves along the four rivers and promote sustainable rural development, in particular alternative livelihoods – i.e. bio-enterprises - that are compatible with natural resources conservation.

With the support of WWF, the capacity of the WRUA' for the Mara River is being strengthened. This includes strengthening the governance arrangements and establishing a service delivery contract between the WRUA and the Water Resources Management Authority (WRMA).

### **3.6 Conclusions**

The negative environmental impacts on the MFC, have reached crisis level. Presently, the riparian communities and the Kenya government through key economic sectors that directly depend on goods and services of the region are paying the price of over three decades of negligence and improper land use management. The ongoing restoration efforts, including

educating the general public about the need for sustainable environmental conservation in such areas is highly essential and should be sustained.

It is imperative that the restoration and rehabilitation efforts are fortified through integration with potential socio-economic activities that can support the survival of the riparian rural communities. Exploring the role of eco-tourism, in relation to natural forested ecosystem, followed by putting in place appropriate and sustainable management framework are hence important in this respect. In order to further support the rural communities it is crucial to initiate long-term agro-forestry based practices such as production of sustainable wood products, and non-timber products such as medicinal plants and honey for commercialization purposes. Also, worth mentioning as a fundamental aspect of the conservation would be the unavoidable role of continued research in the region. Further studies that go hand in hand with the restoration and rehabilitation process would be a key support tool that enables necessary and appropriate adjustment as need arises. Evaluating the interactions of the rehabilitated forest ecology in relation with the biological and hydrological systems' will be important at every stage.

# CHAPTER FOUR- ENVIRONMENTAL DEGRADATION AS A CAUSE OF CONFLICT IN KENYA: A CRITICAL ANALYSIS

## 4.0 Introduction

The case study of Environmental Degradation in Mau Forest is given in Chapter Three. The positive and the negative trends and issues are discussed, taking into consideration the historical development of the Mau forest, as well as the settlement of people in the area. The records are traced down to before the British colonial years, when the Maasai and Ogiek communities protected the forest, and only used the forest as lifeline through its permanent water supply and grazing. Over time, and with the coming of the colonial regime, the Mau was encroached into, and in 1970's the forest had been shrinking at an annual rate of 1%.<sup>181</sup>

Chapter four analyses the issues leading to environmental degradation, and the role of the Kenyan Government and the citizens in the Mau forest degradation. The analysis takes into account trends and issues identified in the case study as the basis for explanation.

## 4.1 Immerging Issues and Trends

The study is investigating the Mau forest degradation and its impacts on the Kenyan people as well as how the continued degradation affects the East Africa region and its citizens. And in distinguishing the major factors leading to the degradation, the study establishes that there are four major factors that has contributed immensely in the degradation. The first category is the Ethnic factor whereby much of the encroachment is done by the Kalenjin community and left out

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<sup>181</sup> Information from : "Mau Complex under siege. Continous destruction of Kenya's largest forest", UNEP, Kenya Wildlife working group, June 2005.



the Maasai and the Ogieks who were the indigenous people in the forest. The second is the laxity of government officials who have the mandate to protect the forest. The third is the political interference by the local politicians have infiltrated into the forest. The fourth is the poaching, while greed and unequal distribution of the national resources has led the poor people encroach on the forest for their livelihood. Degradation as a cause of conflict, an overview of the objectives is introduced in chapter one of the study and specific objectives are given so as to draw attention to the outcomes that the case study has established.

According to Gurr, the rise in conflicts cannot be taken simply as turbulence resulting from regime transitions<sup>182</sup> at the end of the Cold War. Most do involve authority struggles as opposed to traditional territorial or geopolitical dimensions.

These trends suggest important themes for understanding and responding to problems linking resources and environment to conflict as indicated by Zachary.<sup>183</sup> It becomes critically important to pay attention to the relationship between, on the one hand, potential triggering events of environmental degradation or resource scarcity and, on the other hand, such “intervening variables” as pre-existing social, political, or cultural cleavages, regime types, economic circumstances, and the incentives and disincentives elites face regarding the use of violence.

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<sup>182</sup> G. Ted, 1993. *Minorities at Risk: A Global View of Ethnopolitical Conflicts* (Washington, DC: United States Institute of Peace Press).

<sup>183</sup> Zachary, G.P. 1997. Water pressure: Nations scramble to defuse fights over supplies. *The Wall Street Journal*, December 4, p. A17

#### 4.1.1. Environmental degradation and conflict

The study is investigating the environmental degradation of the Mau forest and its impact to the community as well as the effect it has on the Kenyan people. The Overall objective examines the relationship between environment and conflict with a case study of the Mau Forest in Kenya. According to Myers, environmental degradation affects the availability of freshwater, the productive capacity of soils, and patterns of human settlement. However, most predictions warn that environmental degradation may greatly increase the risk of violent conflict over increasingly scarce resources, such as freshwater and arable land.<sup>184</sup> These predictions were affirmed while conducting the research and these findings were more accurate and less astounding when establishing relationships between population, environment, and conflicts between 1990-2000 in the Mau

From the overall objective, three sub-objectives are established whereby the first examines the effects of environmental degradation to cause conflict within societies in the Mau, the second is to analyse the issues and threats emerging from the degradation, while the third explores the conceptual linkages between environmental degradation and conflict. From the guidelines that the objectives give for the study, the collected data largely affirms that Environmental degradation does play a role in causing acute conflicts within societies. The maintenance of sustainable environmental development is through community driven approaches with great support from the government, ensuring that the institutions that protect the environment are empowered.

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<sup>184</sup> Obi 1997C: 2-3

During the 1990's the destruction of the forest reached its peak with politicians and government official allocating the forest land to themselves which aggravated the environmental and economic problems, and if not reversed, may result in breakdown of law and order, ethnic conflicts and threats to internal security as unemployed and landless people turn to crime and other illegal activities for survival.

In understanding the present issue in the Mau, the loopholes due to corrupt government officials, ethnicity, laxity of law enforcement agencies and poaching need to be addressed.

The Mau Forests Complex supports key economic sectors in Rift Valley and western Kenya, including energy, tourism, agriculture and water supply. The Mau Complex is particularly important for two of the three largest foreign currency earners: tea and tourism. The market value of goods and services generated annually in the tea, tourism and energy sectors. If the water table declines, the geothermal potential diminishes correspondingly. Many of the high potential geothermal sites are around the Mau. The tourist potential of the Mau has never been exploited despite its proximity to the world-famous wildlife areas of the Maasai Mara National Reserve and the adjoining Serengeti National Park in Tanzania.<sup>185</sup>

Inequities in resource distribution, use, and consequences of resources management and use have been sources of tension and dispute.<sup>186</sup> However, there has been distinctions between the scales at which resource conflicts may occur throughout the Mau depending on the degradation.

When it was brought to the attention of all Kenyans that Mau had been encroached, the politicians opted to negotiate with the government so as they may surrender the Title Deeds.

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<sup>185</sup> Ibid

<sup>186</sup> P. Gleick, Water and conflict. *International Security* 18, no. 1,(1993) pp. 79-112 (Summer).

This confirms the debate by Wolf that when adversaries are equally matched economically or militarily, negotiation and cooperation are more common outcomes.<sup>187</sup>

There had also been a reduction in the water levels for geo-thermal power and therefore all Kenyans were up in arms to conserve the Mau. This is so because according to Falkenmark, if there are few technologically or economically attractive alternative sources of supply, the potential for conflict is higher<sup>188</sup>. If an energy or water resource is scarce and shared, but alternative sources exist, such as renewable energy systems, alternative suppliers, other rivers, groundwater aquifers, or even expensive desalination, conflicts are less likely to occur. There is a high economic, social, and political cost to conflicts.

Water remains an important factor in the politics of the region. The lake Victoria waters and the Nile river have been faced with talks by neighbor states. Disputes over the allocation of water confirming that disputes may occur at the subnational level as well, and have the potential to turn violent. For example In California in the mid-1920s, farmers repeatedly destroyed an aqueduct taking water from their region to the urban centers of southern California. The governor of Arizona called out the local militia in the 1930s to protest the construction of water diversion facilities on the Colorado River between Arizona and California.<sup>189</sup> That dispute was eventually resolved in court.

Court decisions do not always successfully end disputes in Kenya. There is need for cooperation to avert conflicts over resources.

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<sup>187</sup> H. Wolf, 1997. *Water wars and water reality*

<sup>188</sup> Falkenmark, M. 1986. Fresh waters as a factor in strategic policy and action. In A.H. Westing, ed., *Global Resources and International Conflict: Environmental Factors in Strategic Policy and Action*. Oxford University Press, New York, pp. 85-113

<sup>189</sup> Reisner, Marc, 1986. *Cadillac Desert*, Viking Penguin, New York.

### **4.1.2. Trends and Issues**

From the case study carried out, the categorization of the identified issues and trends largely turned out to be negative as degradation and conflict are in themselves negative. The issues identified were ethnicity whereby the diverse ethnic groups in Kenya have deep rooted differences that have not allowed them to embrace patriotism and seeing Kenya as one, but rather have seen their tribes men as their own and other tribes as 'others'. This challenge can be seen as the one that led to protection of politicians as they continued to grab the forest as they have seen the politicians as their clansmen who should be protected even when they commit criminal acts. Others include: Laxity of government officials and forest guards, Poaching, Political interference and corruption.

### **4.1.3. Ethnicity**

Ethnicity is the groupings of people in ethnic groups. An ethnic group usually affiliates itself with a common language, common origin and ancestral background. Kenya has 42 Ethnic groups, with a majority living on farming as a main source of livelihood. Before the coming of the British colony, each ethnic group lived on its own geographical boundary and hardly crossed over to other regions except when an inter-marriage occurred. Soon after the coming of colonialism, the education was highly emphasized by the missionaries, who later employed them in their schools, and in government. Those who did not go to school were working as farm workers in the white Highlands and in the Ranches which happened to be on low lying fertile lands.

Bearing in mind that the forests that constitute the complex include Transmara, Ol Posimoru, Maasai Mau, Eastern Mau, Mau Narok, South West Mau, Western Mau, Mt. Londiani, Eburru, Molo and South Molo. The northern part comprises Tinderet, Northern Tinderet, Timboroa, Nabkoi, Kilombe Hill, Metkei, Maji Mazuri, Chemorogok and Lembus forests, a number of ethnic groups have great interest in the forest.

More so, the Mau Forest Complex is one of the five water towers in Kenya, providing the upper catchments of many major rivers, including Nzoia, Yala, Nyando, Sondu, Mara, Kerio, Molo, Ewaso Ngiro, Njoro, Nderit, Makalia, and Naishi. These rivers in turn feed major lakes, including Natron, Victoria, Turkana, Baringo and Nakuru.<sup>190</sup>

Since the ethnic groups living in these areas depend on the Mau for survival, it is therefore a very sensitive region, given that it can heighten tension and subsequent conflict if destroyed. The original ethnic groups to settle in the Mau are Maasai's and Ogiek's as earlier indicated in Chapter One. Later other ethnic groups encroached in the forest, for settlement, Agriculture and harvesting of the forest timber. These include mainly the Kalenjins of various sub-tribes, the Kisiis, Kikuyus and politicians from the region. In the study, it was shocking to note that a number of the settlers had title deeds issued by the Ministry of Lands, with authority from the head Commissioner and a former Head of state.

Ethnic groups who feel that they initially owned the Mau had started to feel that their rights were being denied and therefore were agitating for forceful eviction of the new comers. This is an ethnic issues as those who had inhabited the forest were feeling that they had a legal right to be

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<sup>190</sup> Ibid

in the forest since they had purchased land. This is so because close association of land and identity has received much attention in the country over the years.

Land and natural resources are not merely assets, sources of income and commodities but represent reposition of ancestral spirits. Sacred rituals and historical landmarks that tie the individuals to particular landscapes and locations led to the Maasai's campaign to want the Mau conserved.<sup>191</sup> At the same time, the ethnic diversity and the rich variety of local institutional systems found throughout Kenya have provided platform for numerous assertions about identity and conflict. This may over represent ethnicity in theories on human conflict. The ethnic and national boundaries lack congruency, thus the readiness for other ethnic

There is also lack of congruence between ethnic and national boundaries and explain conflict as the result of this groups intermingling as the constitution allowed any Kenyan to own land anywhere. Horowitz argued that the concept of African ethnicity is an overworked legacy of colonial times when the portrayal of local populations as backward and stateless provided grounds for modernizing and civilizing interventions, in many cases leading not only to the formulization of ethnic groups and their customs but also their creation.<sup>192</sup> Kenya in particular suffers from this colonial legacy, whereby the political boundaries are divided into ethnic regions. The administrative boundaries too followed the same route and ended up dividing Kenyans rather than uniting them more.

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<sup>191</sup> Ibid

<sup>192</sup> Ibid

Among some scholars Harowitz (1985) (k) has argued that ethnicity can be seen as the root of violence<sup>193</sup>; ethnic division both overwhelm and direct politics and tend to dissolve relations necessary for peaceful co-existence<sup>194</sup>. Ethnic diversity and fractionalization have also been used to explain a number of African ills. From corruption and lack of investment in public goods to economic stagnation and regression.<sup>195</sup> In the forest vicinity, there are seven tribes who benefit directly from the water tower. Harowitz refined his views in 1998 by representing the continuation of the theory that African Politics are different from those of other regions. But such theories have the tendency not take African Strivings for democracy seriously enough. These views are however opposed. One criticism is typified by Horowitz who criticizes the ideas of Horowitz on the grounds that he neglects important political, historical and economic factors: It is possible and we would even argue necessary to accept the presumption that most civil wars in Africa are centered around ethnic identities as the subjectification of power, and still question whether this in itself can explain the causes behind violence

Braathen et al emphasizes the need to consider other underlying factors. In particular, they point to the personal and Mercurial (rather than ethnic) nature of African Politics whereby leading politicians 'buy' political support for purposes of material gain. These can be challenged by the move towards democracy. In times of economic hardship caused for example by donor imposed reduction in public spending by the general reduction in foreign aid that followed the end of Cold War; African government that can no longer afford to secure continued support by economic means may react to divisive discourages and to coercion or violence.

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<sup>193</sup> Ibid

<sup>194</sup> ibid

<sup>195</sup> ibid



#### **4.1.4. Laxity of government officials and forest guards**

Since Kenya gained independence, her citizens took over the seats that were held by the British government. Initially during Kenyatta's regime, Kenya has very strong institutions and people upheld the rule of law. This continued for some time and Kenya was rated among the most improved countries, even ahead of Singapore among others. In the 1990's the government institutions were affected by the structural adjustment programme by the World Bank that required the government to reduce the size of the civil service in exchange for funding. This brought fears among the civil service and they realized that they were prone to firing any time. This came with drawbacks as a drawback as the forest officers argued that, during this time, there was laxity of the civil servants and they were equally part of the encroachments in the Mau forest, with little attention to the repercussions ahead. The forest officers had colluded with encroachers and failed to implement their mandate. The forest guards worked in cohort with the illegal loggers who paid 'protection fees' in order to continue carrying out the illegal business.

However, in the process, those who took position in the government took over the land previously owned by the colonial government and continued to retain the worked though in exchange for a small piece of land for settlement.

#### **4.1.5. Political Interference**

Countries in the world are governed by the political elites who own the factors of production, mainly land. In most cases, politicians have influenced the way in which countries are driven. Kenya was a British Colony and the systems governing the nation was borrowed from the British

culture. Kenyan politicians have all along been engaged in making laws in the country. Most of the laws made have had no consultation from the citizens, rather they made laws that favoured their survival in most cases. This led to non representation of the minority groups which fell under women and children, youth and the minority ethnic group. The issue of Mau forest was rampant because politicians were involved in the allocation process, and so efforts by the conservationists to bring to light the issue was thwarted by the cover-ups by politicians who downplayed the issue in the public arena.

Lack of political goodwill to save the Mau meant that the forest was to face encroachment without support from politicians. Politicians on the other hand have the culture of amassing wealth to stay in power. This is because Kenyan politics are characterized by voter buying and bribing. Those who have more money were almost sure to capture a parliamentary seat in the elections. In cases where there were economic crisis in the country, there were political instabilities in the country especially before 1992 and 1997 general elections.

Seymour Martin Lipset shows that this variable mediates the relationship between economic crisis and political instability: economic crisis must first lead to a crisis of legitimacy before widespread strife can occur.<sup>196</sup> This was confirmed by the study as there had existed a perception that the political and economic system is legitimate and had moderated a citizen's sense of relative deprivation and had hinder the mass mobilization of discontent.

Later in 2009, the political wing moved in to save the mau, and only then were there some efforts made by polititans and the governemtn to save part of the Mau forest. Some people were evicted

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<sup>196</sup> Seymour M.L., *Political Man: The Social Buses of Politics*, Garden City, N.Y.: Doubleday, 1959

as those who held title deeds returned them to the Ministry of lands. This confirms the argument that through various techniques of persuasion and distraction, policymakers may be able to sustain a perception of legitimacy even in the face of environmentally induced economic decline<sup>197</sup> as upheld by Mitchell and Edward Muller..

The Kenyan coalition government to my opinion somehow influenced the reclamation of the Mau because there is a major role in shaping a society's response to social stress. For example, while analyzing variance in the effects of the depression on European societies in the 1930s, Ekkart Zimmermann and Thomas Saalfeld emphasize the explanatory power of coalitions between politically powerful groups such as agrarian classes, labor, the bourgeoisie/ business class, and the state<sup>198</sup>. There is need for the Kenyan people to change their perceptions of corrupt politicians, who had acquired their wealth from looting public goods.

#### **4.1.6. Poaching**

Kenya's fauna is well known for its biological diversity. The number of different species of animals and plants is by far above the average of other African countries. However, all animals and plants are threatened by poaching. There has been a lot of attention given to the Kenya's wildlife and biodiversity by Europe and other developed countries. In this analysis, Poaching is illegal taking of wild animals contrary to the local and international conservation. The clashes between the poachers and forests guards is considered as conflict in this context. and it concerns

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<sup>197</sup> Mitchell S. and Edward M., "Democratic Stability and Economic Crisis: Costa Rica, 1978, p 83.

<sup>198</sup> Ekkart Z. and Thomas S., Economic and Political Reactions to the World Economic Crisis of the 1930's in Six European Countries, *International Studies Quarterly*, Vol. 32, No.3, p. 326.

the environment because poachers have killed off a large part of the elephants and rhino population.<sup>199</sup>

According to the Kenya wildlife officials, the number of different species of animals and plants is by far above the average of the other African countries. However, they argued that 15 of the 314 known mammals and 1124 plants are threatened.<sup>200</sup> According to the World resource institute, poaching decimated the population of elephants from 160,000 to 16,000 between 1973 and 1989. The number of rhinos sank greatly during the same period from 20,000 to 500. This is a conflict because the poachers are armed with modern sophisticated weapons , communication facilities and vehicles. They often engage forest guards in shoot-outs with the game rangers. However, the rangers have been provided with better equipment to handle the poachers including firearms and helicopters.<sup>201</sup> The poaching resulted in black market for hunted restricted animals.

#### 4.2. Other issues

Inequities in Resource Distribution, Use, and Development are some of the other issues of concern in the study. Tensions and conflicts may also result from such indirect factors as the inequitable distribution, use, and development of resources. Energy, water, food, minerals, and other resources are shared by many people, while a lot of wealth is also concentrated in hands of a few individual elites. This creates discontent among the people as they struggle in abject poverty for survival. This much as this is blamed on the colonial government, the current government has a responsibility in availing land to its citizens.

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<sup>199</sup> Frankfurter Allgemeine Zeitung, 1994

<sup>200</sup> The Kenya wildlife service, quoting from the World Resources Institute, pp 304-306.

<sup>201</sup> Cf Hecklau, P. 102ff; p 24

Finally, there are often adverse consequences of water development and use, and people who do not receive the benefits from water projects may feel these consequences. Examples include contamination of downstream water supplies or groundwater aquifers, dislocation of people because of dam construction, and the destruction of fishery resources that support local populations.

The connections between these issues and conflict is that, inequities will lead to poverty, shortened lives, and misery, but perhaps not to direct conflict. But in some cases, they will increase local, regional, or international disputes, create refugees that cross or try to cross borders, and decrease the ability of a nation or society to resist economic and military aggression.<sup>202</sup>

#### **4.2.1 Loopholes**

There has been rampant corruption in the government ministries of land and forest that contributed to the encroachment.

Loopholes in the Law that make the poor victims of eviction since they have no representation in decision making processes. On the Other hand, there exists a loophole in the supremacy of Titles over the rights of persons squatting on a land. Those who had title deeds were seen as bonafide owners, regardless of the way in which the land was acquired.

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<sup>202</sup> P. Gleick, 1993. Water and conflict; Homer-Dixon, 1994. Environmental scarcities and violent conflict.

Politicians have also used the illegal allocation as a bait to woo voters with the aim of getting back to power. Land is also one of the most important ways through which political influence is practised. For example, the discretionary allocation of publicly-owned land to individuals or organizations has become one of the means through which political patronage is rewarded. This in fact renders the land upon which informal settlements are situated prime for "grabbing".

"Land grabbing" — a term commonly used by Kenyans to describe the irregular allocation or sale of public land to individuals to reward political patronage — has escalated in recent years. This has resulted not only in mass forced evictions but has also led to a deterioration in the landscape as public spaces such as parks, playgrounds and even public toilets are sold or allocated to people who then build on this property. Out of the research, others confirmed that they were in the Mau because everyone else had encroached and thus did not have a congruent reason as to why.

#### **4.2.2 Kenya land reforms**

The question of land in the urban context is not only very broad and complex but also economically and politically sensitive. Land is not only a basic- component of human activity but is also, in most cases, the most important means of livelihood. It is the foundation for shelter, food, work and a sense of nationhood. The government of Kenya has come up with a Draft paper on Land reforms which is yet to become law. However, the constitution of Kenya has a lot to do with the reforms and with the National land policy on board, a lot is going to change.

Again the Issue of Title Deed occurs whereby the Title is said to be supreme : in Section 23 of the Registration of Titles Act Cap.281 of the Laws of Kenya provides that "Certificate of Titles issued by the registrar to a purchaser of land ... shall be taken by all courts as conclusive evidence that the person named in it as the proprietor of land is the absolute and indivisible owner ...". In this sense, even if Government land is irregularly allocated, those who occupied were recognized. In fact, our courts have held that squatters occupying the land which has in time been irregularly privatised do not have any locus standi. This means they have no right to be heard by the courts because according to the judges, they have lost nothing. This has victimised the urban poor and placed them in a very vulnerable position.

With the coming of the new constitution and the widening democratic space, Kenyans are able to question all that is surrounding them, bearing in mind the media freedom available. The community is also enlightened as there has been many civil society groups involved in the creating awareness among Kenyans which is a plus for us.

### **4.3. Conclusions**

The main issues affecting the environment are discussed, coming to a conclusion that, human related issues are in fact the main causes of conflict in the Mau forest. Environmental cooperation may have an important role to play: incorporating norms of peaceful dispute resolution, softening understandings of sovereign prerogatives to also include notions of sovereign responsibility, stimulating an increasingly robust global civil society, and drawing closed institutions into processes of informational exchange, greater transparency, and performance-based accountability. Again, not all forms of environmental cooperation have these

effects. But this suggests once again that environmental cooperation may be well positioned to generate positive spin-offs for peace and stability in Kenya's Mau region.



### 5.0 Summary

A number of conclusions can be made from the study as the analysis of environmental degradation has been given. Furthermore, the historical development of environmental degradation is explored to enable a broad spectrum of understanding the origin of the study. Environmental degradation as a discipline of conflict studies is consistent of varying views to its scope of analysis as since the creation of mankind, environmental issues have been of great concern.

The development of environmental degradation which is tackled in chapter Two, has been propelled by scholars such as Thomas, who have led in impacting the agenda for Environmental conflict management. Environmental degradation as a concept offers an alternative view to examining how environmental issues affect the societies resulting to conflict in a country. Thus the citizens participation in environmental issues as well as institutional roles should be included in the analysis of environmental degradation and conflict. According to the Minister for Environment and Mineral resources, Hon. Michuki, the environmental conservation should not be carried out by the forest officers themselves, but by every Kenyan who should ensure that trees are planted, the entire environment is cleaned and he led the way by involving the entire Kenyan leadership in the process. As the fallen Nobel Laureate winner reiterated in her fight to conserve the environment, if we destroy nature, nature will destroy us. There it is imperative to put in place community conservation groups to spearhead the conservation exercise and more importantly, zealously protect the already depleted resources.

Kenyans should in turn change their culture of 'using without replacement'. It has not been a Kenyan culture to replace any fallen tree. Rather, deforestation has occurred in the dazzling daylight, without the conscious efforts of afforestation. There should be a cultural overhaul whereby environmental conservation should be introduced in schools and also in all institutions of learning, including churches and mosques.

The threats discussed in chapter Three can be changed to positive aspects by dealing with them positively. A number of issues caused the degradation of Mau forest. Among them is the increased population in the Mau where people have settled practicing agriculture and deforestation. As much as there has been economic activities which have benefited the communities, the entire Kenya has been at stake. Consequently, the process of Mau degradation has not only been a concern of Kenya alone, but has been a concern of NGOs and neighboring countries that benefit from the Mau waters. Manifests of internationalization of Mau conflict is evident in the illegal black market involved where market for timber is available in the East Africa countries as clarified by the locals. Historical background is given in Chapter Three and Four, with discussions on the threats and challenges exuded.

Issues of ethnicity, poaching, laxity of government officials and weak institutions has come out clearly as the main threats. Consequently, issues of population and environmental degradation leading to conflict are found to be interlinked supporting the overall objective of the study which is to examine the relationship between environment degradation and conflict with a case study of the Mau forest complex, in Kenya, 1990-2000.

## 5.1 Key Findings

The study explores the livelihoods of the people living around the Mau to investigate how environmental degradation affects the communities who depend on Mau resources for their livelihoods. The study also shows that there is a great havoc caused by the infiltration of people in the forest and especially reduction of water resource due to the deforestation and agricultural practices coupled with human settlements. It is for this reason that the Kenyan citizens from all over the country had voiced their outcry to save the Mau. Human kinds raise in inheritance of shared resources is increasingly under stress in the absence of effective global institutions and policies to husband these resources. A growing world population has made deep incursions into them, placing some at risk of exhaustion or collapse. Sources of fresh water, fossil fuel reserves the ocean's fisheries and the continents' forests are all global resources on which the well being of billions depend on, and are all seriously threatened.

of money, prestige, and honour alone.

From the perspective of land argument, one of the problems that seem to be at the heart of the mayhem is the land issue, especially in the Rift Valley province. From this perspective, Gitau Warigi asks a pertinent question: "I have yet to see anywhere else where you wake up and start killing your neighbours because of a simple dispute. You don't set up barricades on the roads and slaughter travellers who you don't even know because they share 'your land'. How come

these so-called land clash rear their sinister heads only in an election year? Land becomes an issue only because it gets politicised that way<sup>203</sup>.

## 5.2 Recommendations

Environmental degradation is an issue of great concern that affects the social, political, economic sectors of a country: Society is about sustainable livelihood. All living things in the world survive on a one resource or another in the environment

In embracing the call for preserving nature by both Hon. Michuki and the fallen Nobel Laureate Prof. Wangari Maathai, there is need for incorporating the local communities, Community Based Organizations and NGOs to support the rehabilitation of the forest, to ensure that the future of residents and the country is improved in the fight against global warming and other problems associated with deforestation.

The government should put in place a clear land policy, with clear protection measures to forests and other gazetted regions to ensure that the same encroachments do not occur again. On the hand, the government should strengthen the institutions to ensure that upon any encroachments, they are dealt with ardently by both the government officials guarding the forest, the Foresters and even the Courts of law by imposing heft penalties which would deter any law breaking. The government should deal with corrupt government officers, politicians sternly as corruption has contributed largely to loss of government money that could otherwise be used to develop infrastructure and social amenities for its citizens. The encroachment has also led to loss of revenue from tourism. This is because the Masaai Mau region has rivers that flow towards the

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<sup>203</sup> W. Gitau, "meditation: Annan has Struck the Right Note in Search for Answer," *sunder nation*, Kenya, (January 27, 2008):11.

Mara river which is home to one of the wonders of the world in the name of Wildebeests migration.

The National Cohesion and Integration committee should come up with ethnic integration programmes so as the local communities may come to appreciate that they are all Kenyans and that they should coexist peacefully without seeing the other communities as minor to them.

Collective values of patriotism should be cultivated and exhibited by all so as they may strive to protect Kenya without compromise or confronting each other. On the other hand, the government ensure that each Kenyan has food to eat as promised in the constitution promulgated in 2010 and provide land to the landless as it is the mandate of the government to provide land to the poor of its population.

In conclusion, the study argues that environmental degradation plays a major role in causing conflicts, but despite this, the populations around the Mau can co-exist with each other, if there is political goodwill and unity. The Kenyan government should put a lot of effort towards forest reclamation and protection, ensuring that both Flora and Fauna are nurtured.

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#### List of Interviewees

Wesley Korir - Chief Mau Location

Amphrey Kirui - Forest Officer

Jedida Munywa - Neema Officer

Kimani Mutwago - Business man

Hellen Mitei - District officer

Kipgetich Tonui - Game warden

## APPENDIX I

- Constitution of Kenya, 2010 – Chapter on Land Matters
- The Kenya Gazette Notice degazetting the Mau.
- The Draft Policy on Land Reforms

# APPENDIX I: QUESTIONNAIRE

## STUDY ON ENVIRONMENTAL CONFLICTS

SERIAL NO: .....

Date: ...../...../2010

### INTRODUCTION

Dear Respondent, this questionnaire is designed to gather data to assess environmental issues of Maasai Mau and Mara watershed in Mau Complex and its impacts on political conflicts, Ethnic tension and socio-economic strife. This is to request you to take a few minutes to reflect and answer the following questions. Note that the information given shall be exclusively used in a Masters Project paper on International Conflict management, being undertaken by the undersigned at the University of Nairobi. Please note that your views in form of answers to these questions will be treated confidentially and will go a long way in assisting the realization of this goal.

Your views will be highly appreciated.

NAME: MBUGUA M.

R50/71434/08

### INSTRUCTIONS

**PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY BEFORE YOU START FILLING THE QUESTIONNAIRE.**

1. Please read each statement carefully and give your honest answer(s).
2. For questions where there are no boxes to be ticked, kindly answer in your own honest words in the space provided.
3. Do not tick outside the box provided.
4. Do not indicate your name on the questionnaire
5. It is absolutely important that all the sections have a response.

**PERSONAL INFORMATION (Important -This is for analysis only).**

## ENVIRONMENTAL PERCEPTIONS

1. Please indicate by listing the major problems facing you in the area

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2. Please indicate your own definition of environment in reference to your area  
(You can add more to the list and can tick more than one)

Trees

Water/rivers

Air

Wild Animals

People

Livestock

Others (Specify) \_\_\_\_\_

## ENVIRONMENTAL TRENDS AND PATTERNS

3. In your own view, do you think Maasai Mau watershed is being degraded?

Yes

No

3b. If you agree, what is your rating of the problem?

It is very critical and requires urgent attention

It is critical but does not necessarily require urgent attention



7. In what way do you think the land uses are affecting the water resources? (Please tick the correct options.)

- |                                                                |                                                           |
|----------------------------------------------------------------|-----------------------------------------------------------|
| <input type="checkbox"/> Reductions in forest cover            | <input type="checkbox"/> Increase in surface water runoff |
| <input type="checkbox"/> Reduction in water infiltration       | <input type="checkbox"/> Ground water decline             |
| <input type="checkbox"/> Increase in soil erosion              | <input type="checkbox"/> Sedimentation of rivers          |
| <input type="checkbox"/> Sedimentation of lakes                | <input type="checkbox"/> Increasing Stream flow           |
| <input type="checkbox"/> Erosion of river banks and vegetation | <input type="checkbox"/> Drying of rivers                 |
| <input type="checkbox"/> Recession of lakes                    | <input type="checkbox"/> Pollution of the rivers          |
| <input type="checkbox"/> Decline in fish catches               | <input type="checkbox"/> Wildlife reduction               |
| <input type="checkbox"/> Changes in rainfall and temperatures  |                                                           |

Other \_\_\_\_\_

8. What do you think happens when forest cover declines? (Please tick the correct options)

- |                                                               |                                                             |
|---------------------------------------------------------------|-------------------------------------------------------------|
| <input type="checkbox"/> Water resources available reduce     | <input type="checkbox"/> Water resources available increase |
| <input type="checkbox"/> Precipitation increases              | <input type="checkbox"/> Precipitation declines             |
| <input type="checkbox"/> Maintain increased dry weather flows |                                                             |

9. What do you think are the impacts arising from Maasai Mau watershed impairment? (Please tick the correct options)

- Increase in water scarcity
- Low food production due to lack of water for irrigation and changes in climate
- Conflicts due to water scarcity
- Siltation of dams
- Reduced potential for hydropower generation

- (i) to investigate complaints of abuse of power, unfair treatment, manifest injustice or unlawful, oppressive, unfair or unresponsive official conduct;
  - (j) to report on complaints investigated under paragraphs (h) and (i) and take remedial action; and
  - (k) to perform any other functions prescribed by legislation.
- (3) Every person has the right to complain to the Commission, alleging that a right or fundamental freedom in the Bill of Rights has been denied, violated or infringed, or is threatened.
- (4) Parliament shall enact legislation to give full effect to this Part, and any such legislation may restructure the Commission into two or more separate commissions.
- (5) If Parliament enacts legislation restructuring the Commission under clause (4)—
- (a) that legislation shall assign each function of the Commission specified in this Article to one or the other of the successor commissions;
  - (b) each of the successor commissions shall have powers equivalent to the powers of the Commission under this Article; and
  - (c) each successor commission shall be a commission within the meaning of Chapter Fifteen, and shall have the status and powers of a commission under that Chapter.

## CHAPTER FIVE

### LAND AND ENVIRONMENT

#### Part 1—Land

##### Principles of land policy

60. (1) Land in Kenya shall be held, used and managed in a manner that is equitable, efficient, productive and sustainable, and in accordance with the following principles—
- (a) equitable access to land;
  - (b) security of land rights;

- (c) sustainable and productive management of land resources;
  - (d) transparent and cost effective administration of land;
  - (e) sound conservation and protection of ecologically sensitive areas;
  - (f) elimination of gender discrimination in law, customs and practices related to land and property in land; and
  - (g) encouragement of communities to settle land disputes through recognised local community initiatives consistent with this Constitution.
- (2) These principles shall be implemented through a national land policy developed and reviewed regularly by the national government and through legislation.

### **Classification of land**

61. (1) All land in Kenya belongs to the people of Kenya collectively as a nation, as communities and as individuals.
- (2) Land in Kenya is classified as public, community or private.

### **Public land**

62. (1) Public land is—
- (a) land which at the effective date was unalienated government land as defined by an Act of Parliament in force at the effective date;
  - (b) land lawfully held, used or occupied by any State organ, except any such land that is occupied by the State organ as lessee under a private lease;
  - (c) land transferred to the State by way of sale, reversion or surrender;
  - (d) land in respect of which no individual or community ownership can be established by any legal process;
  - (e) land in respect of which no heir can be identified by any legal process;
  - (f) all minerals and mineral oils as defined by law;
  - (g) government forests other than forests to which Article 63(2)(d)(i) applies, government game reserves, water

- catchment areas, national parks, government animal sanctuaries, and specially protected areas;
- (h) all roads and thoroughfares provided for by an Act of Parliament;
  - (i) all rivers, lakes and other water bodies as defined by an Act of Parliament;
  - (j) the territorial sea, the exclusive economic zone and the sea bed;
  - (k) the continental shelf;
  - (l) all land between the high and low water marks;
  - (m) any land not classified as private or community land under this Constitution; and
  - (n) any other land declared to be public land by an Act of Parliament—
    - (i) in force at the effective date; or
    - (ii) enacted after the effective date.
- (2) Public land shall vest in and be held by a county government in trust for the people resident in the county, and shall be administered on their behalf by the National Land Commission, if it is classified under—
- (a) clause (1) (a), (c), (d) or (e); and
  - (b) clause (1) (b), other than land held, used or occupied by a national State organ.
- (3) Public land classified under clause (1) (f) to (m) shall vest in and be held by the national government in trust for the people of Kenya and shall be administered on their behalf by the National Land Commission.
- (4) Public land shall not be disposed of or otherwise used except in terms of an Act of Parliament specifying the nature and terms of that disposal or use.

### **Community land**

63. (1) Community land shall vest in and be held by communities identified on the basis of ethnicity, culture or similar community of interest.
- (2) Community land consists of—

- (a) land lawfully registered in the name of group representatives under the provisions of any law;
  - (b) land lawfully transferred to a specific community by any process of law;
  - (c) any other land declared to be community land by an Act of Parliament; and
  - (d) land that is—
    - (i) lawfully held, managed or used by specific communities as community forests, grazing areas or shrines;
    - (ii) ancestral lands and lands traditionally occupied by hunter-gatherer communities; or
    - (iii) lawfully held as trust land by the county governments,but not including any public land held in trust by the county government under Article 62 (2).
- (3) Any unregistered community land shall be held in trust by county governments on behalf of the communities for which it is held.
- (4) Community land shall not be disposed of or otherwise used except in terms of legislation specifying the nature and extent of the rights of members of each community individually and collectively.
- (5) Parliament shall enact legislation to give effect to this Article.

### **Private land**

#### **64. Private land consists of —**

- (a) registered land held by any person under any freehold tenure;
- (b) land held by any person under leasehold tenure; and
- (c) any other land declared private land under an Act of Parliament.

**Landholding by non-citizens**

65. (1) A person who is not a citizen may hold land on the basis of leasehold tenure only, and any such lease, however granted, shall not exceed ninety-nine years.
- (2) If a provision of any agreement, deed, conveyance or document of whatever nature purports to confer on a person who is not a citizen an interest in land greater than a ninety-nine year lease, the provision shall be regarded as conferring on the person a ninety-nine year leasehold interest, and no more.
- (3) For purposes of this Article –
- (a) a body corporate shall be regarded as a citizen only if the body corporate is wholly owned by one or more citizens; and
  - (b) property held in trust shall be regarded as being held by a citizen only if all of the beneficial interest of the trust is held by persons who are citizens.
- (4) Parliament may enact legislation to make further provision for the operation of this Article.

**Regulation of land use and property**

66. (1) The State may regulate the use of any land, or any interest in or right over any land, in the interest of defence, public safety, public order, public morality, public health, or land use planning.
- (2) Parliament shall enact legislation ensuring that investments in property benefit local communities and their economies.

**National Land Commission**

67. (1) There is established the National Land Commission.
- (2) The functions of the National Land Commission are—
- (a) to manage public land on behalf of the national and county governments;
  - (b) to recommend a national land policy to the national government;