THE MANAGEMENT OF NATURAL RESOURCE BASED CONFLICTS IN AFRICA: A CASE STUDY OF THE MAU FOREST COMPLEX, (KENYA), 1963 - 2010

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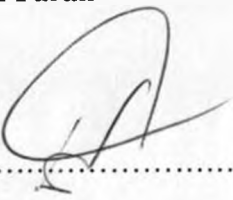
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Declaration

I, hereby declare that this project is my original work and has not been submitted for any other University

Signature..Date......2/8/2011

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Dedication

I wish to dedicate this work to my dear family, my wife Salina and to our children Saning'o, Siamanta and Lesinya for their overwhelming support and sacrifices they made to see me comfortably complete the study.

Acknowledgement

Abstract

This study examines the linkage between natural resource scarcity and conflicts in Kenya's Mau Forest Complex (MFC), focusing on land and forests. Like other forests, the Mau offers immense ecosystem and socio-economic benefits to local communities and to the entire nation, its neighboring countries and beyond. Despite this importance, the last five decades have seen large portions of forest land converted into human settlements through clearing. The degradation of the forest resource coupled with the diminishing land availability has precipitated conflicts in this Kenya's important forest ecosystem. The main aim of this study is to understand ways in which environmental scarcity leads to conflict. The study is framed along the hypotheses that forest and land based resource scarcities are the causes of conflicts in the Mau Forest Complex, and is informed by .the theoretical underpinnings founded on the eco-violence theory, advanced by T F Homer-Dixon. Based on the research question, the study employs survey research methodology which focused on the Mau Forest Complex as the case study. Primary data was obtained using structured questionnaires while secondary data was sourced from archival material. There have been concerns that the degradation of the MFC has affected the flow of benefits to the various economic sectors nationally and regionally, often resulting into conflicts amongst communities that are dependent on the ecosystem. This calls for the innovation of resource management interventions to mitigate the degradation and minimize competition for resources. This research has found that natural resources management in Kenya, like many other African countries have been influenced by the colonial legacy which stressed on "command and control" policies that have alienated local people from access to land and forest resources. This trend has persisted in the post-independence regimes, which have continued the colonial thrust of centralization in natural resources management, thereby resulting in skewed distribution of natural resources. The unequal distribution of natural resources is linked to the colonial legacy upon which current structural conflicts in the MFC are founded. Three types of resource scarcities have been shown to precipitate conflicts in the MFC; the supply induced scarcity which arises from the diminishing natural resource base, the demand induced scarcity arising from population increase and changes in consumption patterns of the population and finally, the structural scarcity that emanates from skewed distribution of resources, weak governance and inadequate policy and institutional set up in the management of natural resources. Structural scarcity of both land and forest resources has been identified as the most significant cause of conflicts in the MFC. The research proposes several mitigation measures to the management of conflicts that focus primarily on sustainable management of natural resources, as a conflict prevention measure. These include policy and institutional transformation, decentralization of natural resource management and applying modern science and technology innovations in natural resource management. This research recommends further examination of roles played by other conflict factors such as ethnicity and politics in the MFC in causing conflicts over natural resources.

List of Abbreviations

ANOVA	Analysis of Variance
CFAs	Community Forestry Associations
COMIFAC	Conference of Ministers in Charge of Forests in Central Africa
COP	Conference of the Parties
DMRT	Duncan's Multiple Range Test
EMCA	Environmental Management and Coordination Act
ENCOM	Enforcement and Compliance
FAO	Food Agricultural Organization
FAR	Forces Armées Rwandaises
FD	Forest Department
FRA	Forest Resource Assessment
FTLRP	Fast-Tract Land Reform Process
GDP	Gross Domestic Product
GNP	Gross National Product
GOK	Government of Kenya
ICRAF	International Centre for Research in Agro forestry

IMF	International Monetary Fund
IUCN	International Union for the Conservation of Nature
KARI	Kenya Agricultural Research Institute
KEFRI	Kenya Forest Research Institute
KFMP	Kenya Forestry Master Plan
KFS	Kenya Forest Service
KWFG	Kenya Forest Working Group
KWS	Kenya Wildlife Service
MFC	Mau Forest Complex
MFE	Mau Forest Ecosystem
NATO	North Atlantic Treaty Organization
NEMA	National Environmental Management Authority
NFPs	National Forest Programmes
NGO	Non Governmental Organization
NLP	National Land Policy
OAU	Organization of African Unity
PELIS	Plantation Establishment and Livelihood Improvement Scheme
RPF	Rwanda Patriotic Front

SAP	Structural Adjustment Programmes
SFM	Sustainable Forestry Management
SPSS	Statistical Package for the Social Sciences
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCHE	United Nations Conference on the Human Environment
UNDP	United Nations Environmental Program.
UNEP	United Nations Environmental Program.
UNHCR	United Nations High Commission for Refugees
USA	United States of America
WB	World Bank
WFP	World Food Programme
WWF	World Wide Fund

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Maasai Mau
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Maasai Mau
Medium density settlement: approx: 2,000 Ha

Legend

Forest Reserves / Trust Land Forest

2001 forest excisions

Affected areas

(Source: Kenya Forest Service, Annual Report, Nairobi, 2009)

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.0   Introduction

The term 'conflict' has been variously conceptualized. However, the multiplicity of definitions

has always pointed at one fact: that conflict is an enduring aspect of social existence. It is

believed that wherever a community of individuals is found, conflict is basically a part of their

experiences. Thus, most conflicts are social in character and usually arise as human beings

pursue their different survival and security needs.[1]

Africa has been described as a continent of conflict. Entire regions of the continent have

been caught up in violent conflict, sometimes so destructive and compromising to national

security that states themselves have collapsed.[2] The persistence of violent conflict in Africa may

serve as a pointer to the ineffectiveness in the approaches to the management of conflicts,

particularly those of environmental nature. Despite the increased attention and improved

knowledge about conflict management in the post Cold War era, African conflicts elude

international as well as domestic efforts to bring them under control.[3]

Africa's population stands at 1,033,042,510 People and is projected to reach

1,276,000,000 in the year 2020.[4] Population growth exerts substantial pressure on land and other

natural resources, and is a contributory factor to deforestation and forest degradation, more so,

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[1] R Stagner, *Psychological Aspects of International Conflicts*, (London, Belmont Brooks, 1967), p.16.
[2] W. Zartman, (ed), *Governance as Conflict Management: Politics and Violence in West Africa*, (Washington, DC: Brookings Institution, 1997), p.1.
[3] W. Zartman, (ed), *Traditional Cures for Modern Conflicts: African Conflict Medicine*, (Boulder, CO: Lynne Rienner, 2000), p.4.
[4] UN Population Division, *World Population Prospects*: The 2008 Revision, p.54.

where land is the primary source of livelihood and where technological advancements to enhance productivity are slow.

Population pressure in Africa has led to more conversion of forest land for agricultural development through the establishment of large scale farms, ranches and irrigation systems. This trend is undesirable as it leads to environmental degradation, arising from forest loss and reduced crop land productivity.[5] Since land forms a common base for crop production and forestry development, these two land use practices are bound to inevitably compete. This therefore calls for the two land use practices to be balanced so as to ensure sustainable supply of natural resources.

The unsustainable utilization of natural resources leads to the reduction of per capita availability of the essential resources to the local populations, a condition referred to as "resource scarcity". Severe environmental scarcity can constrain local food production, aggravate poverty of marginal groups, spur large migrations, and enrich elites. It can further deepen divisions among social groups, and undermine a state's moral authority and capacity to govern.[6]

Statistical analysis of data from over one hundred countries on land degradation, water pollution, and forest loss shows a significant correlation between environmental degradation and civil strife. With worsening scarcity trends, localized conflicts over the specific use of a resource can transform to ethnic conflict and may subsequently grow into insurgencies and coup d'états. Natural resource degradation must therefore be a matter of grave concern as its effect has a direct bearing on a state's national security.[7]

[5] J. P. Colin and P. Woodhouse. Interpreting Land Markets in Africa. *Africa Journal.* Vol.80.No.1 (2010).
[6] Q. Gausset, et al (eds), *Beyond Territory and Scarcity: Exploring Conflicts over Natural Resource Management* (Uppsala: Nordic Africa Institute. 2005). p.7.
[7] T.F. Homer-Dixon. *Environment. Scarcity. and Violence.* (Princeton. NJ: Princeton University Press. 1999). p.5.

There is therefore need for deeper examination of how the degradation of renewable natural resources can affect conflict dynamics. This knowledge will help in understanding how conservation provides opportunities to enhance security and stability in current conflicts and how long-term conservation strategies could preempt potentially fundamental threats to national and global security. Because of the often complex nature of interaction of factors causing conflicts over natural resources, a pluralistic approach in natural resource management is essential.

1.1   Statement of the research problem

In Kenya, land is important for agricultural production, development and environmental conservation. Land is becoming an increasingly scarce commodity due to a variety of pressures, including demographic dynamics. These pressures have resulted in conversion of forest conservation areas into fields for human settlements and agricultural crop production.

Like other forests, the Mau offers immense ecosystem and socio-economic benefits to local communities and to the entire nation, its neighboring countries and beyond. The forest is a catchment for thirteen rivers draining into the Rift valley lakes and Lake Victoria basin. It also has international importance as it is the main source of Mara River which serves the northern part of Tanzania and contributes to River Nile through its drainage to Lake Victoria.

Despite this importance, the last five decades have seen large portions of forest land converted into human settlements through clearing of forests. More recently, forest areas were converted to settlements in disregard to existing environmental conservation policies. The trend eventually encouraged gradual encroachment into the Mau Forest Ecosystem by politically instigated settlements. The crisis has triggered a mirage of threats to environmental conservation including; frequent forest fires, and loss of biodiversity, consequences thereof being the reduction of the forests' capacity to provide benefits to the society.

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Currently, Kenya experiences regular droughts, flooding, soil erosion, sediment load into rivers and lakes, and increased temperatures that have been attributed to the degradation in the Mau and other forests. Because of this diminishing natural resource base, conflicts have erupted arising from competing needs between various stake-holders within the Mau forest ecosystem. The degradation of the Mau forest also affects the flow of benefits to the various economic sectors both nationally and regionally.

The present situation in the Mau Forest Ecosystem calls for the understanding of the linkages between natural resource degradation and scarcities, how their use affect the relations amongst various stake holders and the kind of resource use conflicts that arise from those interactions. It is the access to various factors of production that is often the main contention between neighboring ethnic communities. These resources include land, water, pastures and forests are critical for the survival of the people living within the Mau Forest Ecosystem, both for subsistence and for economic mainstay. In many instances, access to or control of the resources have been contentious and frequently generating tensions and violent conflicts, thereby threatening to compromise national security.

1.2   Objectives of the study

This study broadly aims at examining ways in which environmental scarcity may contribute to conflict in the Communities living within the Mau Forest Complex. The key guiding question of the study is; whether forest and land resource scarcities contribute to conflicts in Africa with the Mau Forest Complex as the case study.

The specific objectives are thus to:

1. Critically analyze historical perspective of access to and control of land and forest resources use in the Mau Forest Complex,

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2. Investigate the effects of land scarcity on conflicts in the Mau Forest Complex

3. Examine the effects of forest resource scarcity on conflicts in the Mau Forest Complex

1.3 Literature review

This literature review section will be divided into four parts to provide views from various scholars, academics and independent contributors in the areas of environmental conflicts. The sections will entail reviews on various literatures on conflicts in general; natural resources and conflicts, environmental security and resource scarcity and lastly, literature on the effects of colonial legacy on conflicts in Africa.

1.3.1 Literature review on conflicts

Burton[8] describes "conflict" as a derivative of the Latin word *Confligere* which means to strike together. Originally it had a physical connation. He posits that historically, radical differences of religion, ideology, and institutions have tended to induce conflicts. He agrees with other scholars that it is not only inconsistency of opinion that may bring about conflict. He defines conflict as opposition among social entities directed against one another. He postulates that conflict is inevitable as there is always competition among orgasms in a world of limited resources and that violent conflict are not necessarily violent but can be in some other form but in some form. Burton sees conflicts as nested in human relations.

Mwagiru[9] alludes that the reason that there are conflicts is because of incompatible differences and posits that as long as there are people and communities living together there will always be conflicts. He alludes that conflicts cannot be eliminated from human and social

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[8] J. Burton, *Conflict: Resolution and Prevention*, (New York, St. Martin's Press, 1990), p.117.
[9] M. Mwagiru, *Peace and Conflict Management in Kenya*, (Nakuru, Catholic Justice and Peace Commission 2003), p.11.

relationship. Burton agrees with Mwagiru that conflicts have been part and parcel of the evolution of human societies for centuries.

Burton[10] makes a distinction between disputes that are over interests and conflicts from those that are over values. He further observes that conflicts of interests can be negotiated, mediated or subjected to judicial determination while conflicts involving needs, values and identity cannot be subject to compromise.

Mwagiru[11] concurs with Burton's definition about conflicts involving values, wants and interests. It is in view of this that conflicts over natural resource such as land, territories and forests will still be contentious issues for a long time. He highlighted that not all conflicts are harmful but others are beneficial. The harmful conflicts result in violence, maiming, killing and destruction of property. Beneficial conflicts are those that show that there is something wrong with the structure of our relationship and therefore we have to do something. It can suggest to policy makers that the policy or policies they are implementing are not working and therefore there is need for a different approach or different policies and strategies

Mwagiru[12] illustrates that the managers who are engaged in conflict prevention and resolution should first find out what conflict one is involved, the actors, causes, internal and external actors, management and mechanisms to be used in a particular case. An analysis framework was depicted with the underlying causes, which are either structural or proximate. Structural causes or underlying relationship are those that act as a soil in which a conflict takes its roots and grows. Proximate causes are those that worsen the underlying causes; this includes unemployment, inequalities in resource allocation, and others.

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[10] J. Burton, *Conflict: Resolution and Prevention*, op cit, p.119.
[11] M. Mwagiru, *Peace and Conflict Management in Kenya* , op cit, p.62.
[12] M. Mwagiru, Ibid, pp.121 – 126.

In Mwagiru's opinion, triggers are incidents that directly ignite conflicts as in the case of the recurrent violent conflicts in Molo and Kuresoi where such skirmishes are seen as indicators of more underlying causes. These spark the actual conflict behavior by incitement from politicians, death of a community member and other acts as was seen in the Kenya post-election in which some analysts believe the underlying causes were land issues.

He emphasizes that conflicts are organic and dynamic. They therefore have life of their own and also have a personality that keep on changing from time to time and therefore conflict managers needs to understand the conflict cycle and the realization of its changing dimensions and personality as this become a powerful tool in helping to design proper conflict methodology. He alludes that structural conflicts like the land issues have periods in which they are not violent, but which contain tension in the relationship involved and which while they appear outwardly peaceful, hide developing elements of violent conflicts.[13]

Galtung[14] puts forward an argument that peace that constitutes merely the cessation of violence is negative peace and says that attaining positive peace or peace building means to overcome the contradiction at the root of the conflict. He further says that conflict is not something that is resolved. Galtung proposes that the key to dealing with conflict is through transformation rather than conflict solution. The nature of how a conflict proceeds is something that can be altered, perhaps shifting the means by which opposing points of view and disagreements can be expressed through a political or governmental medium rather than through violence.

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[13] M Mwagiru, *Conflict in Africa: Theory, Processes and Institutions of Management*, (Nairobi, CCR, 2006), pp 6-8.
[14] J. Galtung., *Peace by Peaceful Means: Peace and Conflict Development*, (London, Sage Publications Ltd. 1996), pp.89-93.

This literature has provided a conceptual basis for understanding of conflicts, the actors, causes and its management. In this part, it can be deduced that conflict transformation is a useful approach to managing protracted conflicts especially structural conflicts experienced in natural resources management.

1.3 2 Literature review on natural resources and conflicts

Many scholars concerned with the environment see global environmental change as a security issue. This view is very widely shared among advocacy groups, and large segments of the popular media, and is underscored by the granting of the Nobel Peace Prize to the Kenyan environmental activist, Wangari Maathai.[15]

Gleiditchs[16] strongly believes that the growing environmental scarcity, particularly that of arable land and other renewable natural resources, perpetuate underdevelopment and promote violent conflict. Profligate consumption in the rich countries contributes to environmental pressure globally, and the adoption of mechanized farming practices among the poor African farmers exacerbates the pressure on land, hence eventually leading to societal collapse and violent conflicts.

Global threats to human security in the next century are said by Smith[17] to include a myriad of factors caused more by the actions of millions of people rather than deliberate aggression by specific states. He therefore links the notion of security to the human nature and the way man relates to the natural environment.

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[15] C. Connell. Voices: Changing the World. One Seedling at a Time. *International Educator*. March.-April. 2006.

[16] R.Nordas and N. P.Gleditsch. Climate Change and Conflict. *Political Geography*. Volume 26 No. 6, (2007). 627-638: 633.

[17] N. Smith. *Uneven Development: Nature. Capital. and the Production of Space*. (Oxford: Blackwell, 1990). p.187.

Simiyu[18] is in support of these ideas; he underscores the importance of land resource as a major factor in conflicts. As a natural asset, land is one property that man is prepared to fight for and die for. He posits that land is central to the economy, society and politics. He goes on to explain that for the rural population, land is the basic and often the only economic resource from which they make a living. It is around land that socio-economic, cultural and spiritual relations amongst different community members have developed sentimental attachments and is the most emotive and politicized issues all over the world. He alludes that the ever increasing population growth is putting pressure on the already scarce resource. He elaborated that Kenya's political history is in many ways intertwined with land issues.

Zartman[19] also observes that many African countries have witnessed violent conflicts and abuse of human rights in recent history and that these conflicts revolve around competition for access to and control of natural resources.

The point of congruence for the arguments portended by Zartman, Simiyu, and Smith is in the causal link of struggles for natural resources with conflicts. However they have no consensus on how the various factors interact to cause conflicts.

On the other hand, Gleidisch questions the scarcity-conflict links citing that previous studies failed to take into account other conflict generating factors that may have contributed to the conflicts. In his view, environmental scarcity is never a sole or sufficient cause of large migrations, poverty, or violence; it always joins with other economic, political, and social factors to produce its effects.

These studies have looked at the linkages between environmental change and conflicts by focusing degradation and the depletion of renewable resources and relating them to conflict.

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[18] R. Simiyu, Militarization of Resource Conflicts: The Case of Land Based Conflict in the Mt. Elgon Region of Western Kenya. *Institute of Security Studies* Monograph 152. October 2008.
[19] W. Zartman, *Ripe for Resolution: Conflict and Intervention in Africa*, (London, BP Press, 1989), p.22.

These resources are; water, land, forests and fish stocks. They all concluded that degradation and depletion are the most important types of environmental factors that lead to scarcities, thereby contributing to conflicts.

1.3.3 Literature review on environmental security and resource scarcity

In recent years, a number of analysts have argued that human-induced environmental pressures might result to violent conflicts and seriously affect national and international security. These experts include Brown; Myers, Mischel and Morgan.

Brown [20] sees the new types of national security threats as those arising from land degradation, shrinking forests, deteriorating grasslands, and climate alteration. He further asserts that these dangers threaten not only national economic and political security, but the stability of the international economy itself'.

Myers [21] supports this environment-security linkage and argues that, the dangers of environmental degradation are at least as severe as the military threats which we generally include under the security umbrella and the emergence of these new threats should cause us to rethink our concept of national security.

Others scholars like Mischel [22], have argued for a more basic redefinition of the concept of security in order to embrace and include environmental threats In her view, the traditional security definition fails to adequately link natural resource use and security.

[20] L. R. Brown, 'Redefining National Security', in L. Starke (ed.), *State of the World: A World Watch Institute report on progress toward a sustainable society*, (New York: W. W. Norton, 1986), pp.195-211.
[21] M. Norman, 'Environmental Security And How It Works', in K. Conca, M. Alberty, and G., *Green Planet Blues: Environmental politics from Stockholm to Rio*, (West View, Boulder co, 1995), p.55.
[22] P. M Mischel, 'Security Through Defending the Environment: Citizens Say Yes!', in Elise Boulding (ed.), *New Agendas For Peace Research: Conflict And Security Re-examined*, (Boulder, Lynne Rienner, 1992), pp.103-119.

Morgan's[23] view on environmental scarcity is that it tends to undermine the capacity of the state to adequately provide for its citizens, thereby resulting in the state's gradual loss of legitimacy vis-à-vis citizens. Scarcity therefore leads to a barrage of economic and political demands on government to alleviate the problems caused by the loss of renewable resources. He argues that environmental rehabilitation such as implementing reforestation programs entail expenditure of enormous resources that the state, in its diminished capacity, cannot provide. This condition increases the state's vulnerability and is often a security concern.

However, Deudney[24] has dismissed these argument that link environmental degradation and national security, terming them as rhetorically conjured. According to Deudney, the motive behind this definition is to urge states to respond to environmental threats with a sense of urgency. The scholar warns that other less benign sectors could join the bandwagon to demand for their securitization should Governments yield to the emotional appeals of national securitizing environmental issues. Deudney[25] later reinforces this thinking by arguing that the reliance upon a construct of environmental security can have the unfortunate effect of increasing the likelihood of military conflicts over pollution and resource use.

Homer-Dixon[26] posits that resource depletion and degradation usually produce a reduction in total resource supply, and views it as a decrease in the size of the total resource pie. This type of insufficiency is known as "Supply induced scarcity". Further, population growth and changes in the behavior of consumers can also cause scarcity by boosting the demand for a

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[23] E. Conteh-Morgan, *Collective Political Violence: An Introduction to the Theories and Cases of Violent Conflicts* (New York: Routledge, 2004), p.238.

[24] D. Daniel, Environment and security: Muddled thinking. *Bulletin of the Atomic Scientists*, Vol. 47 No.3, (April, 1991), 22-28: 25.

[25] D. Duedney, 'The case against linking environmental degradation and national security'. in Ken C., Michael Alberty, and Geoffrey Dableko (eds.), *Green planet blues: Environmental politics from Stockholm to Rio*. (Boulder, Westview, 1995), pp 47-55.

[26] T. Homer-Dixon and V. Percival, Environmental Scarcity and Violent Conflict: The Case of Rwanda, *Journal of Environment and Development* Vol. 5 No.3, (1996), 270-291.

resource. Thus, if a rapidly growing population depends on a fixed amount of land, the amount of the land per person falls inexorably. This condition is known as the "demand induced scarcity".

Homer-Dixon also observes that severe imbalance in the distribution of wealth and resources can cause scarcity. This results in some groups in a society getting disproportionately large slices of the resource pie, while others get slices that are too tiny to sustain their livelihoods. Such unequal distribution is termed as structural scarcity and is a key factor in virtually every case of scarcity contributing to conflict. These kinds of imbalances are often deeply rooted in institutions and in class or ethnic relations. Resource capture occurs when powerful groups or individuals within a society recognize that a key resource is becoming insufficient and use their power to shift in their favor the laws and institutions governing resource access. The shift then imposes severe structural scarcities on weaker groups.

Homer-Dixon observes that the three types of resource scarcities in the case of natural resources management may simultaneously or in different combinations cause conflicts among communities. However one type of scarcity may play a major role while another or others may play a peripheral role in causing conflicts. Natural resource managers should therefore endeavor to understand the type of scarcity at play while managing contested resources.

From the above arguments, environmental security may either be expressed in the claim that environmental degradation may cause security threats, such as tension and war, or in the claim that environmental degradation functionally constitutes a security threat. In both cases, expected reaction of managers to environmental degradation would be increased attention to the national and international importance of eco-system health. The environment is placed on the

agenda through identification with the conventional state interest in security. The issue of environment is therefore a strategic security matter that cannot simply be wished away.

1.3.4 Literature review on colonial legacy

Several scholars have been able to link conflicts in Africa to legacies left by the colonial rulers, most of who left after the independence. Perhaps the greatest lasting impact of colonialism in Africa, according to Adesoji [27] was the introduction of a destabilizing effect in a relatively peaceful coexistence of traditional communities. In his view, the territorial reconfigurations, modernization, and cultural denigration, which were direct consequences of colonial conquests and pacification, produced a revision of the existing social, economic, and political status quo.

Adesoji demonstrates that, the divide-and-rule culture and violence were means of colonial control. This can account for the volatile nature of the contemporary intercommunity relations in many parts of Africa today. The post-colonial African governments have therefore been faced with challenge of how to manage the various dislocations of the colonial legacy and to resolve the crises arising there from.

Boahen posits that colonialism created in Africans a mentality that the Government and all public property belonged not to the people but to the white colonial rulers and should therefore be taken advantage of at the least opportunity. He noted that this mentality persists with most Africans even after decades of independence. This partly explains the reckless way in which Government property is handled in many independent African countries. These reckless

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[27] A. O. Adesoji, Colonialism and Intercommunity Relations: the Ifon-Ilobu Example. *Journal of African History*, Vol. 4.No.6, (2001), 36-68:44.

tendencies are a likely source of conflicts especially when resources such as land, forests and water are perceived to be scarce by the public.[28]

Eglebert[29] has also attributed African conflicts to the inheritance of artificial polities from colonialism. African leaders often resort to neo-patrimonial strategies to foster their power and prevent the dislocation of their peasant societies. These neo-patrimonial policies, essentially redistributive in nature, use the resources of the state to pursue their political and in essence, private aims of power maximization. As a consequence, the capacity of the state is weakened and growth enhancing policies are avoided, leading to discontent, unfair resource distribution and ultimately fostering a breeding ground for violent conflicts.

Observing that European colonialism triggered dramatic revolutions on African land, Colson[30] notes that the colonial rulers made land an object of economic value that could be bought and sold, while Africans considered land as sacred. Under British colonial rule for example, African land was partitioned into three categories; Crown land, Native land and Reserves.

Akinyi[31] concurs with Colson's view and further traces the land use and ownership changes in African countries to have been influenced by European settlement. The aliens ended up dictating patterns of economic development and types of crops produced. Akinyi goes ahead to give examples in the histories of British colonialism in Zimbabwe and Kenya, the French in Burkina Faso and Senegal, the Belgians in Rwanda, the Italians in Somalia, and apartheid South Africa.

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[28] A. Adu Boahen. (ed), *General History of Africa.VII Africa Under Colonial Domination* 1880-1935. (Nairobi, EAEP, 1990), p.330.

[29] P. Englebert, Pre-colonial Institutions, Post-colonial States and Economic Development in Tropical Africa, *Political Research Quarterly*, Vol.53.No.1, (2000).

[30] C. Elizabeth. 'The impact of the Colonial period on the Definition of Land Rights', in Victor Tuner (ed.), Colonialism in Africa, 1870-1980 vol. 3, *Profiles of Change: African Society and Colonial Rule*, (London, APC publishers,1971).p.77.

[31] N. E Akinyi, *Land Policies in Sub-Saharan Africa*, (Nairobi, CFLRW, 2006), p.33.

Akinyi further notes that these countries exhibit diverse tenure arrangements and varying rules governing access to land, its utilization and transfer. Upon attaining political independence, the countries declared some policy changes and enacted legislations affecting land tenure. Although the extent to which these laws have affected inequality in land distribution also differs widely, elements of former colonial approaches still exist in them.

According to Deng[32], the colonial conception of land had a materialistic perspective aimed at meeting the goals of exploitation. Early European governments needed to attain rapid economic development through European enterprise that engaged on resource exploitation without giving indigenous African much consideration. Such narrow definition, categorization, partition and misconception of the notion of land resulted into a triple impact; Firstly it kept Africans off the most fertile lands; Secondly it limited development to crown lands reserved for whites and thirdly, it sowed the seeds of segregation throughout colonial Africa, a concept that still lingers in Africa today.

With a new thinking and perception of land resources based on interpretations advanced by the colonial masters, traditional Africans legal, law enforcement and dispute resolution mechanisms were further thrown into disarray. Furthermore the post independence reforms were aided by experts from Europe.

Ferguson[33] observes that most foreign experts, who formulate development policies in Africa, often demonstrate a startling ignorance of the realities of the locale that their policies are intended to help. Indeed, development "experts" and institutions generate their own forms of discourse, and this discourse simultaneously constructs the locality as a particular kind of

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[32] F. M. Deng, et al., *Sovereignty as Responsibility: Conflict Management in Africa*, (Washington, DC: Brookings Institution, 1996), p.99.
[33] J. Ferguson., *The Anti Politics Machine: Development: De-politicization and Bureaucratic Power in Lesotho*, (Minneapolis, University of Minnesota Press, 1994), p.44.

knowledge while creating a structure of knowledge around the object of development. Development policies are therefore organized on the basis of this inadequately conceptualized structure of knowledge.

Although attainment of political independence brought about some structural changes where Africans became the managers of their respective states, the postcolonial state retained most features of the colonial state. They have largely remained authoritarian and primarily preoccupied with maintaining law and order. Various instruments of coercion were used to ensure compliance on the part of the citizens. The postcolonial state remained the primary instrument for production, surplus accumulation and capitalist development.[34]

While the negative impacts of colonialism, particularly those that have midwifed conflicts in Africa have been clearly outlined, these writers have also sort to suggest solutions to the predicaments. They have linked the Conflicts which had been an integral part of the independence experience, to the recent Political violence, which have persisted in the African state. Chazzan and others[35] relates the conflicts in Ethiopia, Chad, Nigeria, Congo, Sudan, and Angola not only to ethnicity and nationality but also to competition over access to and control of state resources. The writers all seem to agree on the need to developing African solutions to African problems by advocating for policies that encourage sustainable resource management.

The various writers have been able to show how colonialists came in to disrupt African administration that governed access to and control of their resources and replaced them with alien systems that brought about confusion. The post colonial era also saw further the extension of the European policies through legislation and development programs in post colonial Africa.

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[34] W. D. Graf, *The Nigerian State: Political Economy, State Class and Political System in the Post-Colonial Era*, (London. Heinemann Press, 1988), p.224.
[35] N. Chazan et al.. *Politics and Society in Contemporary Africa*. 3rd ed. (Boulder, CO: Lynne Rienner, 1999), pp.6-12.

In general, these factors have encouraged skewed distribution of natural resources, a key prerequisite for the occurrence of conflicts.

From the literature cited, conflicts have been shown to occur when there is incompatibility of goals between groups. The colonial rule in Africa ended up disrupting the traditional natural resources management and left a discriminatory legacy that was further extended into the post colonial Africa. These policies have encouraged skewed distribution of natural resources, and therefore brewed conflicts. The degradation of natural resources have also been shown to cause conflicts since all the actors in the natural resource arena need to continue accruing benefits from the diminishing resource base.

Scarcity of the resources may therefore come as a result of decrease in supply, increase in demand or by uneven distribution of the resources by the authorities. The reduction of the pie amongst the various actors may result in competitions over the scarce resources, leading to either violent or structural conflicts. In this way, the management of natural resources can therefore be linked with issues of national security. Scarcities resulting from structures put in place by governing authorities can also induce structural scarcities which may lead to resource capture, where wealthy and powerful groups may tilt the laws to their favour in terms of access to the resources.

1.4   Justification of the study

The study contributes to the ongoing debate amongst scholars as to how scarcity of natural resources results to conflicts, particularly in Africa. Frequent upsurge of conflicts is normally a pointer to either unresolved or poorly managed conflicts. An effective management of natural resource based conflict calls for a clear understanding of the resource itself, how conflicts arise

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from its use, and the underlying causes of conflicts. From the reviewed literature, it has been gathered that scarcity of resources can cause conflicts.

Resource scarcity may generally be categorized into three types; the supply induced scarcities, demand induced scarcities and structural scarcities. These scarcities have been shown to interact and reinforce each other although one or two of these scarcities may take prominence as a major cause of conflicts. This study attempts to understand whether resource scarcities in the Mau Forest Ecosystem cause conflicts and further to identify the prominent type of scarcity at play. By identifying the scarcity type that has more effect on conflicts in the study area, the research will help in the development and institunalization of an integrated natural resource management that is more focused in the prevention of natural resource based conflicts.

This study will contribute towards updating the existing literature on natural resource conflict management in Africa. The findings will form the basis for recommendations to Government and natural resource practitioners. It is hoped that this study will be able to make some contributions to the existing knowledge on the management on natural resources in Kenya.

1.5   Theoretical framework
The link between Natural resources and conflicts has engaged the mind of scholars as Suhrke [36], Baechler, [37] Percival and Homer-Dixon, [38] Homer-Dixon [39] and Gleditsch. [40] Against this background, Homer-Dixon articulated the theory of eco-violence. Homer-Dixon and Blitt [41]

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[36] A. Suhrke, 'Environmental Change, Migration and Conflict: A lethal Feedback Dynamic', in C. Crocker, F. Hampson, and P. Aall (eds.), *Managing Global Chaos II*, (Washington DC, United States Institute of Peace Press, 1996.), p.56.
[37] G. Baechler.. Why environmental transformation causes violence: A synthesis. *Environmental change and security projects of the Woodrow Wilson Centre*. Issue No. 4. (1998).
[38] V. Percival & T.F Homer-Dixon,. Environmental scarcity and violent conflict: The case of South Africa. *Journal of Peace Researc*, Vol. 35 No.3. (1998).
[39] T. F. Homer-Dixon, *Environment, Scarcity and Violence*, (Princeton, Princeton University Press, 1999), p.104.
[40] N.P Gleditsch., 'Environmental change, security and conflict'. In C. Crocker, F Hampson, and P. Aall (eds.) *Managing global chaos II*, (Washington DC: United States Institute of Peace Press, 2001), p.85.
[41] T.F Homer-Dixon, & J Blitt., *Ecoviolence: Links Among Environment, Population and Security*, (Lanham, Rowman and Littlefield, 1998), p.33.

portend that large populations in many developing countries are highly dependent on key environmental resources which are fundamental to people's livelihoods.

The Homer-Dixon model is as shown in the diagram below.

According to Homer-Dixon, the shrinking of natural resources as a result of misuse, over-use or degradation under certain circumstances will trigger off conflicts. The shrinking is represented by the decreases in the quality and/or quantity of renewable resources, population growth, and unequal resource access. These factors then act singly or in various combinations to increase the shortage of resources for certain population groups.

Resource shortages can reduce economic productivity, both for the local groups experiencing the scarcity and for the larger regional and national economies. The affected people may migrate or be expelled to new lands. Migrating groups often trigger ethnic conflicts when they move to new areas. Similarly, decreases in wealth can cause deprivation, which is a recipe of conflicts.[42]

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[42] T.F Homer-Dixon, & J Blitt., *Ecoviolence: Links Among Environment, Population and Security*, op cit, p.36.

Figure 1 The Homer-Dixon model.
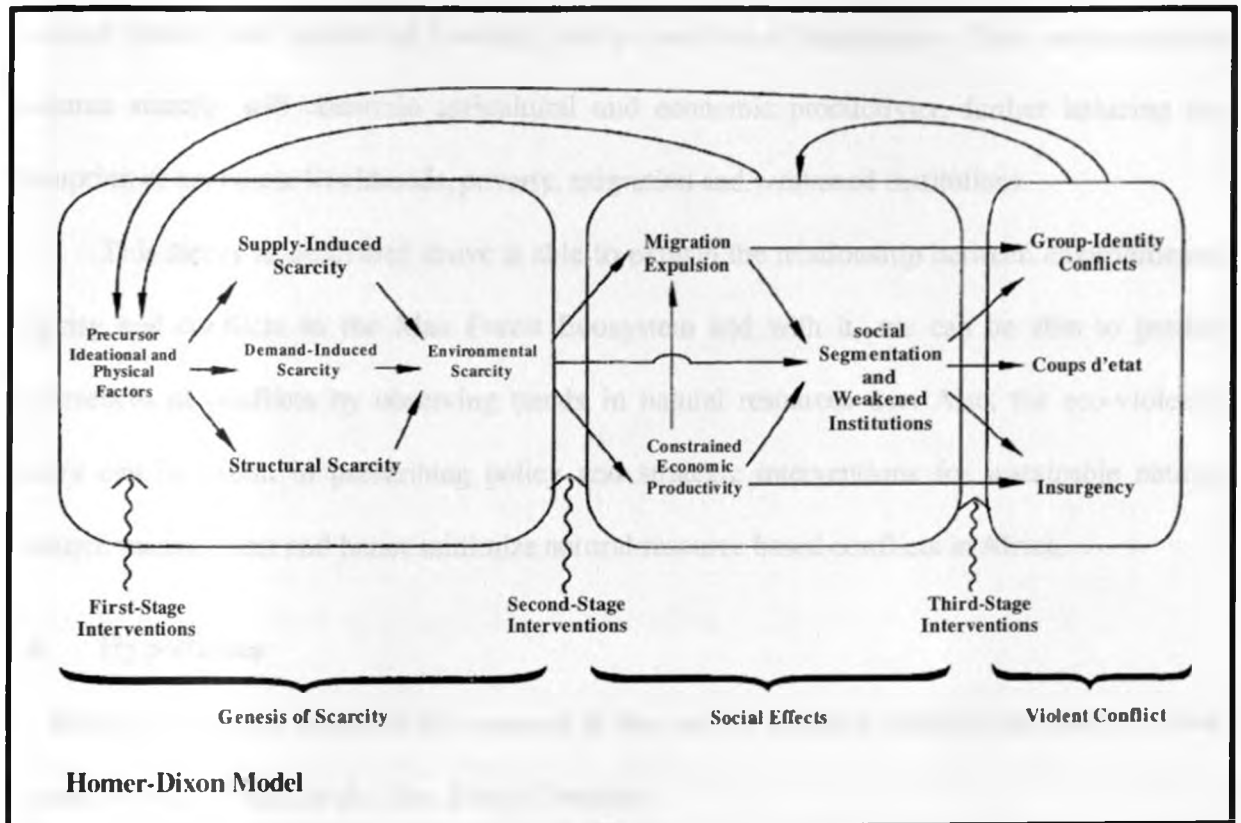
(Source: T. F. Homer-Dixon, Princeton, 1999).[43]

The fundamental theoretical assumption of the eco-violence theory is that resource scarcity is precipitated by three conditions; first is the supply-induced scarcity caused by the degradation and depletion of an environmental resource, for example, the erosion of cropland. Secondly, the demand-induced scarcity caused by population growth within a region or increased per capita consumption of a resource, either of which increases the demand for the resource. Finally, structural scarcity arising from unequal social distribution of a resource that concentrates it in the hands of relatively few people while the remaining population suffers from serious shortages.[44]

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[43]T. F. Homer-Dixon, *Environment, Scarcity, and Violence,* (Princeton, NJ: Princeton University Press, 1999), p.134.
[44]T. F. Homer Dixon, *Environment, Scarcity, and Violence,* Op Cit, pp.47-48.

The product of an insufficient supply, too much demand or an unequal distribution of a resource forces some sectors of a society into a condition of deprivation. Thus, environmental resource scarcity will constrain agricultural and economic productivity, further inducing the disruption of economic livelihoods, poverty, migration and weakened institutions.

This theory as described above is able to explain the relationship between environmental scarcity and conflicts in the Mau Forest Ecosystem and with it, we can be able to predict occurrences of conflicts by observing trends in natural resources use. Also, the eco-violence theory can be useful in prescribing policy and strategic interventions for sustainable natural resource management and hence minimize natural resource based conflicts in Africa.

1.6   Hypotheses

Broadly stated, the thesis of this research is that natural resource scarcities are likely to lead to conflict and violence in the Mau Forest Complex.

The following hypotheses will be tested;

1. The manner of access to and control of land and forest resources in the Mau Forest Complex has lead to conflicts.

2. Land scarcity is a cause of conflicts in the Mau Forest Complex.

3. Scarcity of forest resources is a cause of conflicts in the Mau Forest Complex.

1.7   Research Methodology

In this study, data was collected from both primary and secondary sources and the target population were; international organizations, Government agencies, communities and local Non Governmental Organizations (NGOs). These are institutions that actively participate in development activities within the greater Mau Forest Ecosystem and are considered to be key stake holders in natural resource management.

Primary data was obtained by using a survey research methodology where structured questionnaires were administered to respondents within the study area. There were five categories of respondents interviewed within the study area thus: International organizations, Government agencies, communities, Provincial Administration and local NGOs. Within each category, two members were selected, of which three questionnaires were administered to each. However, for communities, five questionnaires were administered to each, making a total of thirty four questionnaires as shown in Table 1.

Since the communities from which the data was collected were not homogenous, the stratified random sampling method was used to determine t areas where the questionnaires were administered and the number of respondents interviewed.

Secondary data was obtained from the internet (websites), academic journals and publications (from Government ministries, international and regional natural resources management bodies) and from libraries of institutions dealing with natural resource management These included Kenya Forest Service, Kenya Forest Research Institute, Kenya Agricultural Research Institute, International Centre for Research in Agro forestry, Kenya Wildlife Service, United Nations Environmental Program, Non Governmental Organizations and local universities.

Two main approaches were used to acquire data on land use and land cover dynamics in the Mau Forest Complex area thus mapping based on satellite images and Documented studies of archival materials.

Satellite images were selected as a source of information in order to create a contemporary land cover map as well as for monitoring major forest cover changes in the last 20 years. The archival sources were triangulated with oral histories of the forest reserves using

semi-structured interviewing techniques with Local community representatives, Government officials, as well as Local and International NGOs.

Project execution involved field excursion, interviews and collaboration with stakeholders in the Mau forest ecosystem in data collection. The questionnaire data was entered in an SPSS spreadsheet, subjected to Analysis of Variance (ANOVA), frequencies, triangulation and cross-tabulation done on data using SPSS analysis programme (SPSS, 1999) and means separated by the Duncan's Multiple Range Test (DMRT), (Gomez and Gomez, 1984).[45] This enabled conclusions and recommendations to be drawn.

Table 1: Experimental Design.

Category of respondents	Number of respondents	Number of questionnaires
International organization	2(UNEP/WWF)	6
Government agencies	2(KFS/Provincial Admin.)	6
Community	2(Indigenous/Settlers)	10
Provincial Administration	2(DC/PC)	6
Local NGOs (2)	2(Friends of Mau/KFWG)	6
Total 10	**10**	**34**

In terms of scope and limitation, this study was confined to the Kenyan post independent period from 1963 to 2010 as this period coincides with three political regimes whose policies on natural resource management have different characteristics. In order to appreciate the link between resource scarcities and conflicts, the research was confined to land and forest resources. Within the context of this study, the terms, 'Mau Forest Ecosystem' and Mau Forest Complex

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[45] K.A. Gomez and A. A. Gomez. *Statistical Procedure for Agricultural Research*, (New York, Chichester, 1984), p.77.

are used interchangeable as they represent the entirety of biological and abiological resources, including the human activities, all of which interact in a complex manner.

1.8   Chapter outline

The study is structured into five Chapters. Chapter two explores historical developments in natural resources use, the challenges that have faced various societies and also, some modern approaches in the management of these resources. The resources are analyzed with a view to link natural resource use and conflicts. Some experiences of natural resource scarcities and conflict management approaches for selected African countries are further outlined. The Chapter further explores some management practices which might help reduce conflicts over natural resources in Africa.

Chapter three provides an in-depth examination of the conflict over natural resources in the Mau Forest Ecosystem. A synopsis of the background of experiences of natural resource conflicts in sub Saharan Africa is outlined before narrowing to the case study area. The Chapter also looks at various interventions put in place to address conflicts in the forest complex.

In Chapter four, results from both primary and secondary data are critically interrogated and compared in order to answer the research question. The two types of information are triangulated so as to determine the underlying causes of conflicts in the Mau Forest Ecosystem. The resource scarcities that are induced by supply, demand and structural forces are examined in order to arrive at conclusions on their roles in conflicts over natural resources in the Mau Forest Ecosystem. Chapter five is dedicated for the articulation of various issues arising from the study and includes the conclusions and recommendations of the study.

CHAPTER TWO

THE MANAGEMENT OF NATURAL RESOURCE BASED CONFLICTS IN AFRICA: AN OVERVIEW

2.0   Natural resource management

This chapter will analyze land and forest resource management in Africa within the context of sustainable development. It includes the exploration of historical developments in natural resources use, the challenges that have faced various societies and then, some modern approaches in the management of these resources. Each resource will be analyzed separately so as to link natural resource use and conflicts. Some experiences of natural resource scarcities and conflict management approaches for selected African countries will be outlined. The chapter also explores some management practices which might help reduce conflicts over natural resources in Africa.

2.1   Concepts of land management

Land has remained the base for human survival on earth for as long as history can tell. The ancient Civilizations made use of land resources for settlement, food production and protected their territorial frontiers whenever in threat. Various societies globally have been able to manage their land resources with minimal conflicts. This they managed by putting in place effective governance systems of resource management that ensure sustained benefits for the present and future generations.

In the American continent for example, land played a central role in the post conquest Maya and Nahuas societies, who lived in the present day Guatemala and Honduras, in early 16th century. Their economy revolved around agriculture, animal husbandry, and cloth production on

a cottage-industry level.[1] The Mayas had a straightforward system of land classification according to types of use and tenure. They divided land into two categories of use: the solar, which was the land on which the family houses were located and where various social and economic activities took place, and secondly, land that was used exclusively for cultivation.[2] This ancient land management system has been preserved for long and as a result, the single largest expanse of this original wealth of Mesoamerican biological diversity is now the Maya Tropical Forest of southern Mexico, northern Guatemala, and Belize.[3]

In Africa the management of land is rooted in religious and sacred beliefs. Most tribes share a common reverence for land as the foundation of community existence. The earth was regarded as a sanctuary of the souls of the departed ancestors who commanded the living to use the land wisely. The Akyem Abuakwa peoples of Ghana believed that land belonged to "a vast family of whom many are dead, a few are living and countless hosts are still unborn". To them, land was the sanctuary of the departed souls of the ancestors, who commanded the living to use the land wisely. The living, particularly their chiefs and earth priests are the custodians of the land.[4]

A vast majority of households, especially in developing countries, depend on land and other natural resources for satisfying their immediate needs and achieving their long-term livelihood ambitions. Agriculture remains a major activity in most countries except in the industrialized world. Hence, crop production, use and commercialization of forest products, wild food gathering and fishing as well as extensive grazing are substantially contributing to the Gross

[1] M. Restall, *The Maya World Yucatec Culture and Society,* (Stanford, Stanford University Press, 1997), p.169.
[2] Ibid, p.206.
[3] D. James, Nations, *The Maya Tropical Forest: People, Parks, and Ancient Cities* (Austin, TX: University of Texas Press, 2006), p.49.
[4] K. S. Amanor, *Land, Labour and the Family in Southern Ghana: A Critique of Land Policy under Neo-Liberalization,* (Uppsala: Nordic African Institute, 2001), p.25.

National Product (GNP) of these countries. Agriculture remains the economic base for the majority of the poor in Africa as it constitutes a key economic sector in most African countries. Its importance in poverty reduction and sustainable development cannot be overstressed. According to the European Union, agriculture accounts for about a third of Africa's GDP, while in many countries the sector provides 60-90% of employment.[5]

In traditional African societies the concept of land extends beyond the production purposes and holds important social and spiritual values. Land is often the only available resource on which rural families can rely to build their lives. Contrary to western mechanisms of land markets, access to land is often regulated through belonging to a social group like a tribe, clan or community as a whole. Whereas informal land markets are a reality in rural Africa, its perception differs from the western context, because African land does not only belong to present users but also to the ancestors and the unborn.[6]

Pressure on land and its impact on agricultural production and the environment pre-occupies almost every government, both in developed and developing countries. At world level, the per capita available land has been reduced from 0.39 ha in 1961 to 0.27 ha in the 1990s. The land to man ratio for the African continent has decreased from 0.62 ha in 1965 to merely 0.26 ha in 1995. In countries like Rwanda and Malawi this figure has even dropped to almost 0.15 ha.[7]

One of the consequences of increasing pressure on agricultural lands is the exploitation of marginal land resulting in degradation. Intensification of agricultural production has not yet given the desired results to respond to this decreasing land/man ratio, mainly because most

[5] EU. Advancing African Agriculture: Proposal for continental and regional level cooperation on agricultural development in Africa. *Policies for Sustainable Management of Natural Resources.* DG Development Unit B2, (2007), p.77.
[6] K. S. Amanor, *Land, Labour and the Family in Southern Ghana: A Critique of Land Policy under Neo-Liberalization.* Op Cit, p.36.
[7] W. Verheye. From Soil Survey to Land Use Planning and National Soils Policies. *Tropicultura.* Vol.15No.2, (1997), 74-99: 83.

modern techniques and farming systems are not within the reach of the average African farmer. Moreover, agricultural extension services in these countries only target the better-off rural households, because immediate results are easier to obtain. [8]

The economic reform processes, initiated in many developing countries in the mid-1980s, have aggravated the land access problem in Africa. These have induced more poverty for the vulnerable layers of the society. In some countries, there is rising pressure on community lands from commercial entrepreneurs who see land as a resource base that can easily be acquired at little or no cost. Faulty land legislation and outdated tax systems allow wealthy land speculation, depriving ordinary farmers from using these lands and hence inducing skewed land access. Within this new economic setting, options for alternative land uses such as eco-tourism are becoming important. Big tracts of land are being allocated to new economic agents, but direct benefits for the local populations, who are to be considered as the main historical guardians of these resources, are still scarce. [9]

Political and social conflicts oftenly result in mass movements of populations, undermining operational systems of land access. This often leads to the creation of "open access" systems, land degradation and uncontrolled natural resource use. Conflict resolution does not automatically and immediately lead to the restoration of these areas. Opportunistic entrepreneurs take advantage of transitional periods of indecisiveness to mine the last remaining natural resources within these reserves. [10]

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[8] B. L. Turner et al. *Population Growth and Agricultural Change in Africa*, (eds), (Gainesville. University Press of Florida, 1993), p.1.
[9] R. Kingwill, et al. Mysteries and Myths: De Soto, Property and Poverty in South Africa. *Gatekeeper Series* 124. (2006).
[10] A. Chimhowu, & P. Woodhouse, Customary vs. Private Property Rights? Dynamics and Trajectories of Vernacular Land Markets in Sub-Saharan Africa. *Journal of Agrarian Change,* Vol. 6 No.3, (2006), 346-371.

Many African countries had adopted the top-down central planning system for land planning purposes. This planning presents a number of weaknesses and shortcomings which have been identified in the contemporary context of sustainable development. The top-down approach clearly fails to address the legitimate goals and priorities of land users and to involve them in the planning process. It does not tap local knowledge and inventiveness for identifying land use options. [11]

A top-down approach installs a dependency syndrome on government services. Such an approach undermines existing, functional and legitimate land management institutions, often embedded in customary structures. Their eventual marginalization induces reluctance for peoples in government involvement at the local level, and this can jeopardize the implementation of rural development activities. [12] In relation to conservation, a top-down approach fails to engender local accountability for sound resource management. Without any direct benefit or incentive it will be difficult to promote environmental sustainability

Many countries have tenure systems for land and resources that either reflect historical inequities in wealth and political power or have been recently modified to encourage large scale industrial agriculture and capital investment. The interests of small-scale and marginalized farmers have been widely ignored. As a result, these people become involved in disputes over resources that they have traditionally used or managed, but to which they have no legal claim. Such conflicts have frequently arisen as a direct result of government policies intended to promote industrial agriculture or forest plantations. [13]

[11] S. Holden, R. Kaarhus and R. Lunduka., *Land Policy Reform: The Role of Land markets and Women's Land Rights in Malawi. Norwegian University of Life Sciences Noragric Report*. No. 36, (2006), 200-295.
[12] Ibid
[13] D. Buckles, (ed). *Cultivating Peace: Conflict and Collaboration in Natural Resource Management* (Ottawa: International Development Research Centre, 1999), p.266.

2.2   Modern Land management

National and international institutions including the United Nations have for many years focused on promoting a more sustainable and equitable land use. They have urged the formulation of land and land use policies aimed at both conserving land resources and optimizing their production in its largest context. Over the past two decades sustainable development has been a major topic on the political agenda of governments and international organizations. The significance and approaches to sustainable development have been extensively discussed in international literature.[14] In this discussion some major milestones can be identified along the conceptual road to sustainable natural resource management.

The UN Conference on the Human Environment, commonly known as the Stockholm Conference (UNCHE), (1972) was one of the first initiatives of the industrialized countries to address concern about the rapidly shrinking world's resource base, both qualitatively and quantitatively, either through pollution in the developed world or population explosion in the developing countries.[15]

The Stockholm Conference resulted in a strong environmental action-oriented approach to sustainable development, with the needs of the third world capturing much less attention.

The second milestone was the publication of the World Conservation Strategy at the initiative of International Union for the Conservation of Nature (IUCN), Food Agricultural Organization (FAO) and the United Nations Environmental Program (UNDP). It promoted development objectives through the sustainable utilization of species and ecosystems, while maintaining essential ecological processes and life support systems, including the preservation of

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[14] T. Morita. Sustainable Development: Its Definitions and Goals, *Mita Journal of Economics*, Vol. 4 No. 85, (1993).
[15] R. A. Coate, The John W. Holmes Lecture: Growing the "Third UN" for People-Centered Development-The United Nations, Civil Society. and Beyond. *Global Governance*, Vol.15 No.2. (2009).

genetic diversity. Its key emphasis was that development must be compatible with conservation.[16] The wise use of land resources was an important component of this conference.

The Brundtland Commission of 1987, in its "Our Common Future" emphasized that it is the present generation's responsibility to safeguard future generation's options and opportunities for development by protecting the planet's environment and natural resources.

The commission was followed by the Earth Summit also known as the United Nations Conference on Environment and Development (UNCED) in 1992 in Rio De Jennairo. It is in this forum that the international community formally embraced sustainable development as the standard for measuring development objectives and performance in both developed and developing countries. It reflected the developing and less developed countries perspective in emphasizing that basic development is part of a framework that includes environmental issues.[17]

The major output of the conference is enormous and includes, amongst others: a set of global conventions on climatic change and biodiversity, a set of principles for governments and people, an action program to promote sustainability. The agenda 21 is the institutional arrangements to implement programs and awareness raising amongst policy makers at the highest level. [18] The importance of the use of land and other natural resources in the economy of rural populations is recognized.

With a continuing degrading land resource base that is clearly finite, its allocation and use must aim at satisfying the needs in the most equitable and sustainable way. Chapter 10 of Agenda 21 considers that an integrated approach to the planning and management of land

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[16] IUCN, World Conservation Strategy. *Report on International Union for Conservation of Nature and Natural Resources*, Gland, Switzerland (edited in cooperation with FAO, UNEP and UNESCO), (1980).

[17] S. Raslanas, et al., Land Value Tax in the Context of Sustainable Urban Development and Assessment. Part I, Policy Analysis and Conceptual Model for the Taxation System on Real Property. *International Journal of Strategic Property Management* Vol.14.No.1, (2010).

[18] Ibid

resources, more popularly called 'land use planning', is essential for achieving the said goals. Over the years, a series of guidelines have been produced to deal with land evaluation for different land uses such as rain-fed agriculture, irrigated agriculture, grazing, and forestry.[19]

Many third world countries, particularly in Africa have adopted a food security strategy, which is in line with the livelihood strategies of rural households, implies that more options are open than just crop production. Diversification of income sources is crucial and includes activities that are not traditionally carried out by rural dwellers such as conservation forestry and eco-tourism.[20]

A comprehensive land use plan considers implications for the environment and public health as an integral part of the overall framework. The science of ecology has given valuable information concerning the relationship of organisms and their environment. Therefore, land use planning that incorporates these dimensions is a complex, multidisciplinary activity that impacts many aspects of the legal, social, and economic fabric of a nation and is a multidimensional problem with apparently conflicting interests. This apparent conflict can be resolved by shifting paradigms from exclusively considering immediate impacts to addressing long-term implications in a comprehensive manner..[21]

An important initial step in identifying potential policy contributions to the management of local resource conflicts is to recognize the ways public policy can exacerbate such conflicts. There is ample evidence from case studies of how specific policies, government programs, and their implementation have generated or aggravated conflicts, even when the intention was to

[19] FAO, FAO Guidelines on Land Evaluation for Rain-fed Agriculture. *Soils Bulletin*, FAO Vol.52,No.4, (1983),237.
[20] FAO. Planning for Sustainable Use of Land Resources. *FAO Land and Water Bulletin*, Vol. 55 No.2. (1995), 55.
[21] A. E.A. M. Qayoumi, and R. Dowd, *The Impact of Public Policy on Environmental Quality and Health: The Case of Land Use Management and Planning.* (Westport, Quorum Books, 1999), p.115.

reduce the conflict. Such contradictions suggest that the nature and dynamics of local resource conflicts are poorly understood and that conventional interventions can be counterproductive.[22]

Although fair policy frameworks for natural resource management may be in place, such policies may be ignored or perverted in their implementation under the pressure of influential elites. This situation may persist because of traditional cultural deference, opaque government procedures, or lack of information. These are some of the many ways in which the direct actions or inactions of policy driven government agencies can contribute to local resource conflicts.[23]

Land policies the world over contain general statements on proposed land uses that have to conform to prescribed environmental conservation principles and guidelines. Practical regulations and local and site-specific incentives or disincentives to promote these on the ground are less common.

2.3   Concepts of forest management

Forests play a crucial role in providing livelihood opportunities to a large human population all over the world. They provide productive as well as protective functions to human society and other organisms of the global ecosystem. They are source of fuel, fodder, timber and numerous minor products such as medicinal herbs, gums, resins and food items. Their protective functions include; storing atmospheric moisture, regulating water flows, reducing soil erosion, conserving biological diversity and mitigation of global climate change. Forests cover almost 25% of the world's land and are critical in meeting human needs.[24].

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[22] D.Buckles (ed), *Cultivating Peace: Conflict and Collaboration in Natural Resource Management* (Ottawa: International Development Research Centre, 1999), p.264.

[23] Ibid, p.265.

[24] N Landell-Mills and LT Porras, Silver bullet or fools' gold? A global review of markets for forest environmental services and their impact on the poor. *IIED*, (2002), p.254.

Due to their economic and ecological importance, forests have become highly contested spaces, and have become the arena of struggles and conflicts. These struggles usually attract attention from the public, and through the media, some have been elevated to national and international profiles. This high visibility of the unresolved conflicts has in the past spurred theoretical debates on policy interventions and institutional changes in forest management strategies all over the world.[25]

It has been argued that forests are found today where people could not farm sustainably in the past because of difficult market access, poor soils, slope or lack of water and the perception of even meager economic returns. Over the past two to three centuries, vast swathes of forest were cleared for cereals and cotton production in Europe and North America, and for cattle pasture and plantation production of sugar cane, tea, coffee, rubber trees and oil palm in Latin America and the Caribbean, Africa and Asia. Starting in the 1930s, after more than a hundred years of volatile fluctuation in agricultural product prices with harmful social consequences, a number of countries introduced various types of agricultural practices.[26]

Over time, however, a great deal of forest area has been converted to other uses. A main motivating factor appears to be legislations allowing public land to go into private hands. In many countries, an obvious measure of agricultural production improvement is the removal of forest cover and its replacement with agricultural crops.

The conflict in logic here is that this conversion may not be quite legal, but since forests, especially in remote areas, suffer from weakness in law enforcement over vast areas, conversion is difficult to control as it is driven by the need to replace forest areas with agricultural land. It is

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[25] F. James and M. Leach. Desiccation and Domination: Science and Struggles over Environment and Development in Colonial Guinea. *The Journal of African History.* Vol.No.1. (2000), 35-54: 41.

[26] FAO. Global Forest Resources Assessment 2005. Progress towards sustainable forest management. *FAO Forestry Paper* No.147, (2006).

likely that a number of the wildfires occurring in the Mediterranean region each summer are related to attempts to remove the vegetation as part of a land claim process. The situation of the Mau forest degradation in Kenya generally follows this trend.

Forest degradation largely affects rural inhabitants in developing countries. Land degradation coupled with unequal patterns of land ownership intensifies poverty by depriving numerous peasants of productive land. Their easier option is to continue farming fragile lands, cutting down forests and plowing in semi-arid areas. The annual increase in the numbers of these land-deprived peasants puts further strain on their security.[27]

According to the United Nations forest resource assessment (FRA) for the year 2010, the estimated forest area in Africa was close to 675 million hectares, accounting for about 17 percent of global forest area and 23 percent of the total land area in the region. At the sub regional level, Central Africa accounted for 37 percent of the total forest area, Southern Africa for 29 percent, North Africa for 12 percent, and East and West Africa for 11 percent each. [28] However, the forest cover is reducing, with Africa having lost a total of 7,481,000 hectares of forests between 1990 and 2010. This amounts to an annual loss of 374,050 hectares.

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[27] Conteh-Morgan, *Collective Political Violence: An Introduction to the Theories and Cases of Violent Conflicts,* (New York, Routledge, 2004), p. 244.
[28] FAO, *State of the World's Forests: A regional Analysis,* (Rome, FAO, 2011),p. 3.

Table 2: Changes of forest cover in Africa, 1990-2010.

Sub Region	Area (1 000 ha)			Annual change (1 000 ha)		Annual change rate (%)	
	1990	2000	2010	1990–2000	2000–2010	1990–2000	2000–2010
Central Africa	**268 214**	**261 455**	**254 854**	**-676**	**-660**	**-0.25**	**-0.26**
East Africa	88 865	81 027	73 197	-784	-783	-0.92	-1.01
North Africa	85 123	79 224	78 814	-590	-41	-0.72	-0.05
Southern Africa	215 447	204 879	194 320	-1 057	-1 056	-0.50	-0.53
West Africa	91 589	81 979	73 234	-961	-875	-1.10	-1.12
Total Africa	749 238	708 564	674 419	-4 067	-3 414	-0.56	-0.49
World	4 168 399	4 085 063	4 032 905	-8 334	-5 216	-0.20	-0.13

(Source: FAO, Rome, 2011).[29]

[29] FAO, Global Forest Resources Assessment 2010, *FAO Forestry Paper* No.147, Rome. (2011).

The above table shows trends based on the Eastern Africa countries for the years; 1990, 2000, 2005 and 2010. The annual change rate is the gain or loss in percent of the remaining forest area each year within the given period.

There are many records of traditional and indigenous forest management systems with which people have managed forestlands sustainably for centuries. Indigenous systems vary depending on the type of forest the climate, slopes, markets for forest products and the cultural significance of forests. Some systems are integrated with farming systems, some are designed purely for timber production, and some provide a wide range of products and services. A great deal of these systems is still actively practiced while a few can only be reconstructed from historical evidence. Most of these management systems were not recognized by the conventional forestry profession until very recently. In Central and South America, there is archaeological evidence that forest-based systems were the economic basis for a culture such as that of the Maya people. [30]

Governance of forest resources is critical in that any mismanagement may results in serious social crises that can affect the national internal security of developing states. In the 1970s, a major factor in the mass opposition against the Shah leadership of Iran was the demographic pressure on the agricultural sector of the economy. The lack of land for the millions of peasants led to a rural exodus, which in turn contributed to unemployment and a strong feeling of relative deprivation as transitional in the cities became aware of growing disparities.[31].

In Africa, the colonial administration engaged in indiscriminate exploitation of forestry and wildlife resources and concomitantly restricted their use by local inhabitants, mainly in the settler colonies like Rhodesia and Kenya. The idea of conservation made an appearance at mid

[30] J. D. Nations, *The Maya Tropical Forest: People, Parks, and Ancient Cities* op cit. p.52.
[31] R. Burbach, *Chiapas and the Crisis of Mexican Agriculture*, (Oakland, CA: Institute for Food and Development Policy, 1994), p.34.

19th century with the establishment of a number of forest reserves and national parks, although it appears that these were not as exclusionary as conservation areas in other parts of southern Africa.[32]

The old colonial policies have had a negative effect on forest conservation in Africa. The challenge for the 21st century Africa is to develop and implement policies that take into cognizance the peculiar African local conditions while at the same time incorporating regional and international management norms. These policies will undoubtedly minimize conflicts relating to natural resource use.

2.3.1 The management of forests

The management of resources from nature has been of growing concern throughout the world, particularly over the past half century. This concern has been driven by the increasing awareness of the damage that is inflicted upon the environment through human use of nature as a resource. The damage occurs at local and global levels and is not only immediate in some of its effects but also persistent, even irreversible in others. The most alarming of all man's assaults upon the environment is the depletion of forests and the contamination of air, earth, rivers, and sea with dangerous and even lethal materials.[33]

International anxieties concerning global environmental degradation culminated in the Earth Summit convened in Rio de Janeiro in 1994. All nations of the world were issued with a mandate to protect the environment for the benefit of present and future generations. The alarm, based upon worries for the future environments and, therefore, the lives and livelihoods of

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[32] J. Schafer, and R. Black, Conflict, Peace and the History of Natural Resource Management in Sussundenga District, Mozambique, *African Studies Review* Issue.6 No.3, (2003),44-79: 56.

[33] R. Carson, (ed), Silent Spring, in D. Ravitch, *The American Reader: Words that Moved a Nation*, (New York: Harper Collins, 1990), pp.323-325.

human beings, led to a series of explanations focusing in the first instance upon population and then widening into considerations of the very process of economic development.[34]

The need to incorporate environmental protection, into sustainable development strategies has therefore become necessary. This intention has however not been without controversy as different national institutions engage in competition for national financial resources. The rejection of the Kyoto agreement on climate change by the United States in 2001 shows once again the difficulties involved in international consensus building.[35]

The global concern on the declining state of tropical forests and its impacts on societal welfare is reflected in the discussions relating to African forests, especially in view of the rapid rate of forest loss in the region and its multifarious consequences. Loss of forest cover and degradation of land and forests in Africa are important topics that have been discussed at the national, regional and global levels. International processes have drawn global attention to the need for adopting sustainable forest management.

Conventional forest management has historically considered biological issues with a strong focus upon tree husbandry for the production of wood. As the forestry profession has grown, an understanding of the term "forest management" has broadened to span wider environmental issues, such as conservation of biological diversity, social and economic matters and, more generally, the concept of sustainability. [36]

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[34] I. Goodbody, and E. Thomas-Hope, (eds), *Natural Resource Management for Sustainable Development in the Caribbean*, (Barbados: Canoe Press, 2002), p.1.
[35] I. Goodbody, and E. Thomas-Hope, (eds), *Natural Resource Management for Sustainable Development in the Caribbean*, op cit, p.2.
[36] FAO, Proceedings of the Second Expert Meeting on Harmonizing Forest-Related Laws, 11–13 September 2002, Rome, Italy.

Prior to the 1972 Stockholm Conference on the Human Environment (UNCHE), there was very limited international activity in the field of the environment, but the past three decades have seen a great deal of useful international treaties on environmental conservation. Key to this study is the Forest Principles developed at the Earth Summit and the United Nations Conference on Environment and Development (UNCED) held in Brazil in 1992. These have defined forest management as part of a Statement of Principles for a global consensus on the management, conservation and Sustainable development of all types of forests[37]

The Rio accord of 1994 recognized that forest resources and forest lands should be sustainably managed to meet the social, economic, cultural and spiritual human needs of present and future generations. These needs are for forest products and services, such as wood and - wood products, water, food, fodder, medicine, fuel, shelter, employment, recreation, habitats for wildlife, landscape diversity, carbon sinks and reservoirs, and for other forest products. It further recommended that appropriate measures be taken to protect forests against harmful effects of pollution, including air-borne pollution, fires, pests and diseases in order to maintain their full multiple values.[38]

In this regard, regional and sub-regional agreements, partnerships and programmes to promote Sustainable Forestry Management (SFM) have been established. For example, the Convergence Plan of the Conference of Ministers in Charge of Forests in Central Africa (COMIFAC) has been developed and approved. The Plan provides a framework for harmonizing forest policies and programmes and serves as a basis for the formulation of national forest programmes.

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[37] G. P. Sampson. *The WTO and Sustainable Development.* (Tokyo, United Nations University Press, 2005), p.265.
[38] UN. Drafts Agenda 21, Rio Declaration, *Forest Principles* (New York: United Nations, 1992), p.55.

African Countries have undertaken a wide range of measures and actions aimed at mitigating and reversing the trend of forest loss through the implementation of national forest programmes (NFPs). The NFPs translate the principles of Sustainable Forest Management into domestic action. According to the State of World's Forest report of 2007, a majority of countries in Africa have adopted new forest policies and forest laws, and efforts are being made in many countries to improve law enforcement. [39]. Countries are also making progress in integrating forestry issues into poverty reduction strategies. Namibia, Niger, Tanzania, Kenya and Uganda are well advanced in this regard.[40].

National forest policies have shifted from the current view of natural capital as unproductive or low potential for development, towards taking up the challenge that it presents; recognizing its current contribution and supporting opportunities for sustaining present and future livelihoods. The Rio guidelines strongly recommend the entrenchment of a national forest policy in the national land use policy, in order to ensure balanced forest use and conservation with agriculture and other land uses. The guidelines Policies should also reflect development patterns for a country, regional and international policies where appropriate. Forest policies are basically statements of goals for the forestry sector without going into detail about how they will be implemented.[41]

Although each country decides best how to translate development themes which balance human activities with resource management into development policies, a basic feature for sustainable management is a firm and consistent commitment, including management plans and

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[39] FAO. State of World's Forests, (Rome, FAO, 2007), p.272.
[40] S. Geller and R. McConnell, Linking National Forest Programmes and Poverty Reduction Strategies, *Unasylva* Vol. 57/3 No. 225, (2006), 88-120:97.
[41] FAO. Guidelines for Forest Policy Formulation, *FAO Forestry Paper* No.81, (1987).

budgetary support, by governments to implement the forest policies it has formulated and approved. [42]

Laws and regulations comprising forest legislation are the legal instruments which are necessary to put into effect many of the objectives of a forest policy. Legislation permits the translation of policy objectives into specific legal provisions affecting both forest use and forest land and the way forest resources enter into the life and development of communities and countries.[43]

A fundamental component of national land use planning is the identification of a permanent forest estate, comprising forests of all ownership types, based on secure, long-term land tenure for local communities, concession holders and other forest users. Sustainable management of tropical forests, irrespective of purpose, cannot be planned and effectively implemented in the absence of a permanent forest estate. Land use planning should balance the developmental needs of the country as a whole, or for specific states or provinces within a country, with those of natural resources conservation, including sustainable forest management.[44]

For the purposes of maintaining sound forest estates, management planning is a necessity. A forest management plan translates national or regional forest policies into a thoughtfully prepared and well coordinated operational programme for a forest and for regulating forestry activities for a set time period through the application of prescriptions that specify targets, action and control arrangements. It is an indispensable part of a forest management system and should

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[42] Ibid.
[43] L A.Wily Conference of the Parties (COP), Montreal in 2005, talks on reducing emissions from and S. Mbaya, *Land, people, and forests in eastern and southern Africa at the beginning of the 21* century: The impact of land relations on the role of communities in forest future,* (Nairobi, SEA ltd. 2001), p.83.
[44] Ibid. p.88.

regulate protection, inventory, yield determination, harvesting, silviculture, monitoring and other forest operations. [45]

Opportunities for adding stimulus to forest conservation abound for the African countries especially in the wake of the debates on climate change. At the eleventh session of the deforestation in developing countries began and parties recognized the importance of the issue in relation to addressing climate change. [46]

Lastly, incorporation of Communities in forest management promotes improved livelihoods of rural communities, especially those which have a traditional dependency upon forests, through more effective management of tree and forest resources. Rural communities and forest users who depend on tree and forest resources for their survival and for economic development are the primary beneficiaries of community forestry activities. Any policy framework for managing and reversing environmental degradation must contain elements that address the sustainability, international norms and the local community needs. [47]

2.4 Conclusion

In this Chapter, it is gathered that natural resource management policies the world over contain general statements on proposed land uses that have to conform to prescribed environmental conservation principles and guidelines. Practical regulations and local country-specific incentives to promote these policies on the ground are less common in many African countries. Experiences of natural resource scarcities and conflict management approaches in the Sub Sahara Africa (SSA) show that the combination of traditional and modern natural resource management

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[45] V. Broch-Due, and R. A. Schroeder (eds), *Producing Nature and Poverty in Africa,* (Uppsala: Nordic Africa Institute, 2000), pp.43-45.
[46] FAO, *Forest Resources Assessment,* 2005. http://www.fao.org/docrep/008/a0400e/a0400e00.htm .12 February 2011.
[47] K. R. Hope, *From Crisis to Renewal: Development Policy and Management in Africa,* (Boston: Brill, 2002). p.141.

approaches can minimize conflicts over those resources. This chapter identifies the need to have comprehensive natural resource policies and institutions that engender local communities, primarily by decentralizing the management of resources. Community participation in natural resource management is a gateway to equitable distribution of resources.

CHAPTER THREE

THE MANAGEMENT OF NATURAL RESOURCE BASED CONFLICTS IN AFRICA: A CASE STUDY OF THE MAU FOREST COMPLEX, (KENYA), 1963-2010

3.0. Introduction

The previous chapter generally looked at a wide scope of the historical developments in natural resources use, the challenges that have faced various world societies and some modern approaches in the management of these resources. Emphasis was on land and forest resources management in the context of sustainable development. Further, the chapter explored policy and institutional arrangements that have been recommended by the international community to attain sustainability and minimize conflicts over natural resources.

The main objective of chapter three is to provide an in-depth examination of the conflict over natural resources in the Mau Forest Complex. A synopsis of the background of experiences of natural resource conflicts in sub Saharan Africa shall be outlined before narrowing to the case study area. This chapter elucidates an account of Kenya's historical experiences in the management of land based natural resources, particularly, forests and land. Issues of natural resource management, scarcities and conflicts arising from the utilization of land and forest resources in the Mau forest ecosystem are further analyzed and elaborated.

3.1 Natural resource conflicts and approaches to management in Sub Saharan Africa

A large literature has described causes and impacts of land related conflicts in countries that inherited a highly unequal distribution of land ownership in Africa such as Zimbabwe, and South Africa. More recently, evidence from these settings has been complemented by increased

awareness of the economic and political importance of land related conflicts in African countries such as Rwanda and Burundi.[1]

Current research shows that competition and conflict over land resources in Africa are increasing because of a confluence of factors as follows: Many rural-based families need to draw more from their land even in the face of declining inputs; entrenched and pensioned off civil servants and other workers look to family and other land as a source of food and/or cash cropping; governments and environmentalists seek to demarcate conservation areas; and internal and external groups intensify their exploitation of valuable resources from/in/under the land (minerals, trees, wildlife, crops, water).[2]

Many scholars have shown that Africa is entering an era of warfare driven by resource scarcity; a global scramble for oil, natural gas, minerals, and water, particularly where competition for valuable resources overlaps with deep-rooted ethnic, religious, or tribal cleavages. Resource or environmental scarcity, while not sufficient as a cause of violent conflict, is more likely to be a trigger when accompanied by increases in population density or large-scale population displacements, which in turn give rise to changes in resource access or distribution.[3]

In Rwanda for example, a distinctly agrarian economy, where several arguments suggest that the 1994 genocide was caused, in no small measure, by the scarcity of arable land, plummeting prices for agricultural produce, and poor institutional quality.[4]

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[1] K. Deininger and R Castagani, Incidence and Impact of Land Conflict in Uganda, *World Bank Regional Workshop on Land Issues in Africa and Middle East*, April,29th -2nd May 2007,Kampala , Uganda
[2] P. Peters, *Beyond Embededness: A challenge Raised by a Comparison of the Struggles Over Land in Africa*, (London, Berghahn Books, 2006), p.94.
[3] G. J. Castrogiovanni, et al, Resource Scarcity and Agency Theory Predictions concerning the Continued Use of Franchising in Multi-Outlet Networks, *Journal of Small Business Management* Vol.44.No.1 (2006).

[4] C. G. Wagner, Innovation and Creativity in a Complex World: Attendees at the World Future Society's 2009 Annual Conference in Chicago Learned New Ways to Understand and Manage Complexity, *The Futurist*, Nov.-Dec. 2009.

A related argument suggests that violence associated with agricultural production is more likely to be structural whereby given social structures or institutions systematically deprive people of their basic needs, implying that the link between agriculture and violence may not be direct, running instead through factors such as poverty, an urban bias that results in excessive taxation of the agricultural sector, through the state and its finances, or through environmental scarcity.[5]

Among the most common causes of conflict, particularly in developing countries, are land scarcity, unequal distribution of land, land degradation, and increased population. All of these factors are interlinked. In South Africa, land reform is addressing, to some extent, the disenchantment with unequal access to land created during the apartheid era. Experience from elsewhere, notably El Salvador and Mozambique, serves to illustrate that unless emerging democracies address the issue of land reform, violent unrest is likely to follow [6]

3.2   The Kenyan experience

Issues related to forest conflict are multidimensional and often complex, and cannot be addressed in isolation from larger issues of natural resource management, national economic development, rural development, land tenure, and poverty alleviation. Access to forest resources and tenure over land by forest neighbouring communities are two closely linked Issues in the Kenyan context and the two issues will be addressed as such in the study.

Conflict over forest resources at the community level can occur in many forms and at many levels of severity. Conflicts may assume the form of denial or restriction of community use of forest resources or forestland necessary for their material or spiritual needs through forest

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[5] R. Bhavnani, Scarcity, Abundance, and Conflict: a Complex New World, *The Whitehead Journal of Diplomacy and International Relations*, Vol.10.No. 2, (2009).
[6] M. Singh, Environmental Security and Displaced People in Southern Africa, *Social Justice Journal*, Vol. 23.No. 4, (1996).

degradation, access restrictions, or land appropriation. Under this definition, a livelihood or social impact constitutes a conflict even if the conflict is not expressed publicly or does not lead to direct confrontation between the parties. This type of conflict is known as structural conflict.

3.2.1 Land issues

A historical analysis of conflict over resources in Kenya, and the role of the state, suggests similarities in colonial and the post colonial governments in terms of controls and how the communities access natural resources. The concept that land in Kenya was 'terra nullius' (vacant land), and its citizens 'tenants at the will of the crown', was at the heart of colonial land tenure system.[7]

By 1934, European settlers, who represented less than a quarter of one percent of the population at that time, controlled about a third of the arable land in the country.[8]

While African customary rights remained unregistered, the colonial authorities established a system which allowed only for the registration of individual title. The 'Swynnerton' Plan of 1954 concerning the Reform of African Land Tenure became the fundamental blueprint for many of the land tenure reforms which have been implemented in the post colonial governments in Kenya.

The post independence land plans were guided by a number of programmes for settlement schemes, including the 'Million Acre Scheme', which was established in 1962. The scheme aimed to defuse tensions and ensure that the colonial land-holding structure, dominated as it was by large farms could be preserved more-or-less intact, without a radical redistribution

[7] O. Ogendo, Tenants of the Crown: Evolution of agrarian law and institutions in Kenya. *ACTS Press*, 1991;

[8] B. Berman, *Control and Crisis in Colonial Kenya: The Dialectic of Domination*, (Nairobi, EAEP, 1990), p.189.

taking place. The scheme was designed more to aid those Europeans who wanted to leave the country, than those indigenous Africans who were to receive the land.[9]

By 1977, about 95% of the former "white highlands" had been transferred to black African ownership. Settlement schemes, which were often located on the site of former 'white settler' farms, generally benefited those with some capital, rather than the poor and landless. The 'high density' settlements provided some access to land for landless households, but the poor quality land and scarce extension services made a "sham" of the ostensible aim of enabling landless households to succeed economically. The settlement schemes program in the period between the late 1970s and 1980s was marred with extensive corruption.[10]

Elites with political connections soon accumulated very large landholdings, through legal and illegal means. However, a large landless or land-poor population, including former Mau Mau militants, remained without land or compensation for colonial era alienations. The settlement programme was explicitly designed along ethnic lines, and resulted in the consolidation of ethnic homogeneity in many areas. Evidence shows that members of the Kikuyu community were able to gain access to resettlement schemes across the country, in Coast Province, Rift Valley Province, and other locations. It has been estimated that some 95 percent of recent violence in the Rift Valley has occurred in areas where settlement schemes are located.[11]

Much of the violence witnessed in the Rift Valley was centered around farms which were formerly part of the so-called 'white highlands', land appropriated from those communities who customarily owned and occupied it before being taken by the colonial government for white

[9] Government of Kenya. An Economic Appraisal of Settlement Schemes. Farm Economic Surveys, *Government Printers, Nairobi.* No. 27, (1971).

[10] Government of Kenya, *Report of the Commission of Inquiry into Illegally and Irregular Allocation of Public Land*, (2005), p.265.

[11] Human Rights Watch. From Ballots to Bullets: *Organized Political Violence and Kenya's Crisis of Governance.* HRW. Vol. 20 No. 1(A), (2008), 1-81: 12-13.

settler farming. This led to a situation where the households who purchased the land were seen as 'immigrants'.[12]

On December 3, 2009, the Kenyan Parliament approved the National Land Policy (NLP). The NLP is the result of a long and intensive process to develop a fair and equitable land policy that seeks to re-balance customary and statutory land tenure. The policy identifies the unequal distribution of land as the critical problem facing Kenya's land tenure system [13]

The policy is recognized by the Kenya constitution 2010 and its implementation will focus on the institutional transformation of the Ministry of Lands, and the setting up of a National Land Commission a constitutional body created to implement land management and administration in a manner that is sustainable, equitable, efficient, and cost effective. It will now be the question as to whether the new policy will be implemented or not.

3.2.2 Forestry issues

Prior to the onset of colonialism, forests in Kenya were managed by indigenous communities. Forest management officially began when Kenya was declared a British Protectorate in 1895. The management of forest resources moved through a series of stages; colonial and post-colonial, each reflecting the social, economic and political realities of the time. The main objectives of forest demarcation in the colonial period was to protect forests from destructive indigenous land use practices while the post-colonial objectives were catchment protection, industrial forestry development, and protection from encroachment by local communities.[14]

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[12] Ibid. p.15.
[13] F. Ayieko, Kenya: Radical reforms Kenya land policy coming soon. *The East African*, 12 October. 2009, 1 April 2011.
[14] P Ongugo. and E.N Mwangi. Common property and Forest Resource Management in Kenya. *Paper presented to the East African Symposium on Common Property Management..* 26th- 28th March 1996. International Conference Centre. *Uganda.*

By 1908, 26, 4410 acres of prime forest land had been alienated to settlers, and much forest was in private ownership By 1930s, over 10 000 square miles of agricultural land had been handed over to a few thousand European settlers. However the forest reservation process which had earlier began in 1902 increased forest areas under government control to an area covering 830 000 hectares by 1932. This trend continued into 1940s by the time when 43 forests had been re-defined as Government forests, resulting to the gross total of gazetted forest land attaining 1,050, 000 hectares. [15]

In some cases, the areas alienated as state forest reserves had customarily been home to forest-dwelling people (the Dorobo), while others had been utilized by non-forest dwellers for fuel, water, grazing, honey, salt- licks, refuge or territory for expansion and protection. The displacement of indigenous peoples resulted in their being confined within native reserves, under the Native Lands Trust Ordinance of 1930. Under this Ordinance, forests within native reserves were declared as native forest reserves.[16]

3.2.3 Post colonial period

Until 2005, the legal framework for forest management in Kenya was provided by the Forest Policy of 1968 and Forest Act, Chapter 385 of the Laws of Kenya of 1942 (revised in 1982 and 1992). The Act was enacted by Parliament to provide for "the establishment, control and regulation of central forests, and forest areas in the Nairobi area and any un alienated government land." A conspicuously contentious provision in the Act was the authority conferred on the Minister for de-gazetting forest areas, via a 28-day public notice.[17] This power was abused

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[15] P Wass, *Kenya's Indigenous Forests: Status, Management and Conservation.* (London, O D A, 1995), p.98.
[16] L. Obare and J. B. Wangwe Underlying Causes of Deforestation and Forest Degradation in Kenya, *World Rain forest Movement,* 2006.
[17] Government of Kenya, The Kenya Forestry Masterplan, Forest Department, *Ministry of Environment and Natural Resources,* Nairobi (1994).

by the postcolonial governments and is responsible for the forest boundary alterations that have continued to shrink forest reserves in the country.

The recent positive development in Kenya's forest management is attributable to the Kenya Forestry Master Plan (KFMP), a blueprint that projected the forestry sector in the country beyond the year 2000. The plan had a broad objective of enhancing the role of forestry sector in socio-economic development and to contribute to environmental conservation in Kenya.

Between 1985 and 1989 the Shamba system was wound down and officially terminated after a Presidential directive. In Shamba system, landless labourers were allowed to live in villages located in the forest and were a source of cheap labour for replanting of forests. The squatter status of the laborers became a source of strong political pressure to convert forest land to permanent settlement. Despite problems inherent in the Shamba system, its abandonment reduced reforestation rates, resulting in large tracts of cleared forests areas.[18]

3.2.4 Forest loss

The forest estate in Kenya has shown a steady decline over the years. Since the 1970s a 10-year running average has been computed at 5000 hectares per year. Earlier estimates between 1972-1980 indicate an average loss of 2% per year. For the 1980-1992 period, a ten year running average was 3700 ha per annum, ranging from 2000 hectares per year, increasing to 5000 ha per year at the end of the 1970s and early 1980s. In addition to diminishing forest cover, socio-economic surveys show declining forest biological diversity [19]

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[18], Ibid.

[19] O Luukkanen, et al. *Kenya forestry beyond 2000. An overview of the Kenya Forestry Master Plan. Ministry of Environment and Natural Resources*, (Nairobi, GP, 1994), p.44.

3.2.5 Notable conflicts

The presence of traditional hunter-gatherer communities dwelling within forest areas has posed a dilemma ever since the creation of forest reserves. In the South-West Mau forest, there exists the largest population, about 15,000 of forest-dwellers, Okiek Dorobo, who are raising a claim to forest ownership. Their occupation of the forests was originally ignored by government authorities, but was later deemed incompatible with forest conservation. Attempts by the government to evict the Ogieks have met with resistance; while attempts at resettling them have also been unsuccessful due to political interests.[20]

The continued government's restrictions on forest use by forest-adjacent communities lead to restriction in terms of access to forest resources by various communities. This resulted in deep resentment by communities towards the government, a condition responsible for a number of confrontations between the forest officers and local communities over the use of resources. The conflict is exacerbated by a mix of issues such as, declining land availability, increasing population, and declining economic conditions.

3.2.6 Conflict management approach

More recently, there have been changes in Kenya's forest management owing to the implementation of the recommendations contained in the Kenya Forestry master plan (KFMP) which in 1994 introduced radical changes in forest management approach. The master plan recommended policy and legislation changes, new institutional arrangements and new forest management programs and institutional reforms. It was not until 2005 that the Government

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[20] Ibid. p.230.

enacted a new legislation governing modern approaches to forest management, the Forest Act, 2005. The act largely includes communities and other stakeholders in forest management.[21]

The revised Forest Policy and the new Forests Act, 2005, together provide a new framework for forestry governance in Kenya. The new policy is still in draft form although the revised Forests Act 2005 has been passed by parliament and came into force in February 2007. The new framework is the result of almost two decades of planning and consultation and paves the way for a new era in Kenyan forestry. [22]

Kenya's peoples' competitive struggles over land and land-based resources clearly show the critical roles of the state, as a monopoly of resource distribution and control. In this case, members of elites and a national 'dominant class' persons are able to use state bureaucracies and procedures for their own benefit. Indeed the role of the state is paramount in ensuring equitable allocation of national resources in order to minimize conflicts among the local populations.[23] The influence of colonial policies on the subsequent post independence governments has evidently been heavy.

3.3   The Mau Forest Complex

The Mau forest is one of few remaining indigenous forests in Kenya with high deforestation rate. The forest supports the livelihood of the indigenous and surrounding communities and is a water catchment for the Eastern Africa region. The degradation of the forest stems from human related activities of the surrounding communities, over exploitation of resources, weak institutional arrangements and weak enforcement of the existing environmental legislation. Several mitigation

[21] H. Mogaka, et al, *Economic Aspects of Economic Development in Sustainable Forest Management in Eastern and Southern Africa*, (Nairobi, IUCN, 2001), p.82.
[22] S. Geller, R.McConnell, J. Wanyiri. Linking National Forest Programmes and Poverty Reduction Strategies in Kenya. *FAO Forestry Policy and Institutions Service*, 2007.
[23] D. B Moore, The Ideological Formation of the Zimbabwean Ruling Class. *Journal of Southern African Studies*, Vol.17 No.3, (1991), 472–495.

strategies have in the past been suggested; including involvement of the indigenous community in forest management, integrated approach to natural resource management and development of new institutional programs.[24]

Forestry conservation has often been subjected to competing land uses in Kenya, where agricultural production is viewed as a more profitable land use system due to the short agricultural crop rotations and quicker returns. The post independence governments in Kenya failed to put in place a land program that met popular expectations. Instead, land was systematically used as a tool of political patronage. Huge tracts of public land, including forests were allocated to political elites and to political supporters. [25]

This has led to shrinking of forest cover in Kenya to just 1.7 per cent of the total land mass. Lack of adequate alternative livelihood opportunities in most Kenyan rural areas has left land as the only exploitable resource for people's basic needs. Without a comprehensive approach to sustainable livelihoods, rural communities are degrading the very environment on which they depend. [26]

The Mau Forest Complex forms the largest forest block in Kenya, and the largest single block of closed-canopy forest in Eastern Africa. The Forest is one of the five water towers in the country, providing the upper catchments of major watercourses, including the Nzoia, Yala, Nyando, Sondu, Mara, Kerio, Molo, Ewaso Ngiro, Njoro, Nderit, Makalia, and Naishi Rivers. In turn these rivers feed major lakes, including Natron, Victoria, Turkana, Baringo and Nakuru. These lakes support various sectors of national economic importance. [27]

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[24] R. Ochieng, *A Review of Degradation Status of the Mau Forest and Possible Remedial Measures,* (Norderstedt, Grin Veriag, 2009), p.1.

[25] V. Matiru, Forest cover and forest reserves in Kenya: policy and practice. *Forest and social perspectives in conservation,* IUCN Issue 5 East Africa Regional Office. IUCN Eastern Africa Programme, (2000),p.2.

[26] *The Nairobi Chronicle,* July, 30, 2009, p.17.

[27] F. M. Nkako, C. Lambrechts, M.Gachanja, and B Woodley, *Maasai Mau Forest Status Report.* (Nairobi, E N S D A. 2005), p.7.

3.3.1. History of resource scarcity

The assault on the Mau forest began with colonialist, who established the first settlement schemes as early as 1940s aimed at protecting their needs for fertile land in the so called white highland areas and beyond. The post colonialist Governments land policy would later see more scramble for forests whereby they were converted into human settlement.[28]

The colonial government alienated land suitable for its citizens which became known as the white highlands. The attainment of independence also meant that land was to be given back to the indigenous Africans, but it found its way into the hands of those Kenyans who had seen the light earlier through exposure, thereby denying reparations to the original victims of European settlements program. This in essence meant that the tribal territories initially under some indigenous groups finally collapsed within the white occupied land.

Similarly through the open market of willing buyer, willing seller program, ancestral lands ended up now belonging to non-indigenous members. Certain groups like the Ogiek and the Maasai have woken up to the realization that they can claim rights over this kind of land. Unfortunately for them, their claims to land where there are forest and wildlife resources have become more complex with the emergence of considerations about environmental sustainability. Indeed the process of alienation of land and the demarcation of rights largely took place before sustainable development was internalized as a guiding principle in land management.[29]

The discontent and feeling of deprivation amongst the aggrieved communities has often bred tensions between these traditional claimants of the ancestral lands and the perceived new settlers.

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[28] R. Kaguamba et al., Fighting for the Mau Forest: Land. Climate Change and the Politics of Kibaki Succession. *Africa Policy Report.* (2010), p.4.
[29] P. K.Mbote & J. A. Oduor. Following God's Constitution. The Gender Dimensions:The Ogiek Claim To Mau Forest Complex., In Anne Hellum et. al, *Paths are Made by Walking:Human Rights Interfacing Gendered Realities and Plural Legalitie.s* (Harare: Weaver Press. 2006),pp.76-88.

3.3.2. Land scarcity and conflict

Mau Forest Complex has undergone extensive deforestation in the past three decades attributed to timber companies, and communities living around and inside the forest illegally. The various communities that have stake in the Mau conflicts include the Maasai and Ogieks, who claim legitimate ownership of the forests and Kipsigis, Kikuyu and Kisii communities whose migration to the area is recent. These groups migrated there at different times, ranging from five decades to a few years ago[30]. It is in the interactions amongst these groups that conflict often arises because of feelings of relative deprivation by some groups in terms of land allocations.

Insecure land tenure and inequitable access to land and natural resources has been linked to the violence which occurred in Kenya following the disputed December 2007 elections. Tension often surrounds the management and use of Kenya's water and forest resources. This happens when the Government's management approaches are in conflict with the community's expectations. The situation is further aggravated by the degradation of water catchment areas which leads to chronic water scarcity in the lower riparian communities, a condition which leads to violent conflict in drought-stricken areas down stream. Conservation policies have tended to compete with pastoralists for land and water resources near protected areas. These competing needs have threatened conservation of Kenya's forests.[31]

Land distribution is a high profile issue, in part because of the skewed appropriations of public land by the elite during the late 1980s through the 1990s and failure of the Government to balance conservation needs with agricultural production. Conflict in the MFC is therefore the

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[30] E.Thenya and S.Kiama. *Maasai Mau Survey Draft Report. In: KFWG-COMIFORM Project, 22-23rd September 2008,* Narok,Kenya.
[31] J.M. Klopp and P. Kamungi, Violence and Elections: Will Kenya Collapse? *World Policy Journal,* Vol.1 No.24, (2008),15.

result of a complex interaction of factors including Government conservation policies, unmet community needs, environmental degradation and inequitable resource distribution.

3.3.3 Forest scarcity and conflicts.

Conflicts are a feature of natural resource management because: Ecological systems and social structures are complex and overlap in ways that can result in conflicts; Where resources are finite there is competition between individuals, groups and institutions; Natural resources are valued differently depending on the varying interests of individuals, groups and organizations.

In the last few decades, the management of natural resources in Kenya has depicted a fundamental conflict between policy and practice. While the policy clearly emphasizes the conservation of forests without further degradation, the actions contradict the policy.[32]

Since 1993, the government has been carving out huge parts of the Mau Forest for settlement for the landless and the hunter gatherer communities. This was because the Government needed first to deal with landlessness and secondly to free the forest of dwellers who were already living in environmentally sensitive forest zones. So far, the Ogieks have not been settled effectively. Instead, influential Kenyans have ended up securing huge portions of the land, and senior Rift Valley politicians have used the land issues as a political tool for seeking support.[33]

This idea of settling the landless people was initially of good intention but it later ended being a flop when the Minister for environment issued a gazette notice in February 2001of the Government's intention to degazette 167,742 hectares from the country's 14 forests, ostensibly to settle landless people. 61,587 hectares were to be curved out of the Mau forest reserve.

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[32] M.K. Gachanja, Public perception of forests as a motor for change: the case of Kenya. (Nairobi, KFWG, 2003), p.5.
[33] *The Daily Nation*. May 30, 2002.24.

(22.798 ha in South West Mau and 35,301 ha from Eastern Mau forest reserves) This was for resettling landless people displaced by the colonial government, victims of the ethnic clashes and the Ogiek community who regard the Mau as their ancestral home. Despite protests by environmentalists and a High Court injunction obtained by civil society, the government went ahead and allocated the land to settlers.[34]

3.3.4 External influence on scarcity

Since the mid-eighties, Kenya, like all other developing countries, has felt the weight of the world economic order, which subsequently took on a political dimension. For instance, the Bretton Woods Institutions; the World Bank and the International Monetary Fund (IMF) since the mid-eighties prevailed upon the country to adopt economic reforms within the broad framework of the Structural Adjustment Programmes (SAPs).

These institutions and other donor agencies then put tags such as "human rights record", "transparency and accountability" ingredients of good governance to aid thereby withdrawing from funding many aid-and grants-supported development programmes. These have triggered economic disempowerment, and political instability, which in turn precipitates conflict order.[35].

The reforms caused the reduction of public service staff and financial allocations for forestry development. The reduction in semi-skilled labour in turn affected the capacity for the Forest authorities to sustainably manage the forest areas. Uncontrolled exploitation and competition for resources then occur, causing conflicts.

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[34] *The Quarterly Peace Monitor*, January, 2, 2002, p.20.
[35] J. O. Oucho, *Undercurrents of Ethnic Conflicts in Kenya* , (Boston. Brill, 2002), p.105.

3.3.5 Impacts of environmental degradation

The first decade of the 21st century saw continuous encroachment of settlements into the forest area through livestock grazing, illegal cultivation, illegal logging and deliberate setting of fires in the forest area.[36] .On the overall, the competing land use between forestry conservation and agriculture has resulted into gradual reduction of the size of Mau forest complex from 445,481.91 Ha in the 1930s to 403,000 Ha in 1980, and currently at 331,322.55 Ha, after the 2001excisions of 61,224 Ha. [37] This shows that the forest cover has been a steady decline of protected forest areas in the MFC by 114,159.36 Ha, which have been converted mainly to agricultural and settlement areas.

Figure 2 Changes in forest areas in the MFC, 1932-2010
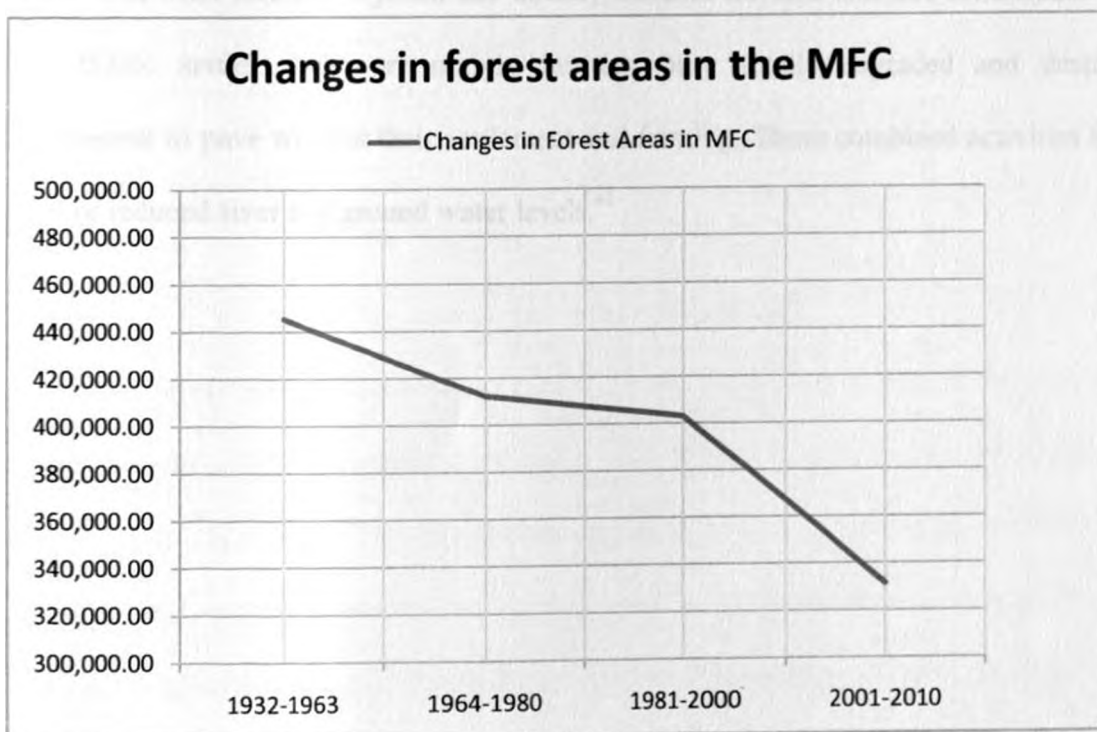
[36] *The Quarterly Peace Monitor*, February 1, 2002. p.23.
[37] D. K. Mbugua. (Unpublished). The Mau Forest Complex, An Overview. *PowerPoint Presentation to Mau Forest Stake Holders*, 21-22 July, 2008. KICC, Nairobi.

(Source: Kenya Forest Service, Nairobi, 2009).[38]

The forests lost to settlements are water catchment areas, and are highly erodible terrains that are unsuitable for cultivation. Agricultural activities impact negatively on the ability of the forests to continue providing environmental goods and services. This action of settling of persons in the watershed are likely to continually breed conflict of interest between those settled populations and those living in the lower riparian areas due to reduced water flows from rivers.[39]

Forest excisions on a large scale have been shown to induce a rapid decrease in humidity, guided by the consequent rise of temperatures within the affected environment. The said climatic changes do not only appear in the clear cut forest areas but also in the entire adjacent settled areas.[40] The Mau forest ecosystem has already suffered adverse climatic conditions. The more than 25,000 settlers, who are mainly farmers, have totally degraded and destroyed the environment to pave way for their settlement and farming. These combined activities have a net effect of reduced river and ground water levels.[41]

[38] Kenya Forest Service. (Unpublished) Proposed Action Plan for Mau Forest Complex-2009 to 2013, *Project Development Document*. February 2009.
[39] ibid
[40] J.Vymazal, *Water and Nutrient Management and Constructed Wetlands*, (London, Springer SBM, 2010), p.271.
[41] *The Nairobi Chronicle*, op cit

Table 3: Excisions from Government forest reserves in the MFC in 2001.

No.	EXCISION	AREA (HA)	Remarks
1	Western and S/W. Mau	24,109.01	Settled & the subject of a Court Case
2	Eastern Mau	35,301.01	
3	Molo East	901.62	
4	Kibunja Extension	124.90	Reclaimed
5	Others	787.46	-
6	Gazetted Total	61,224	

(Source: Kenya Forest Service, annual report, Nairobi, 2003).[42]

In Eastern Mau the impact of excisions resulted in the loss of 49% of the vegetation cover of lake Nakuru catchment between 1973 and 2003. (Fig. 3.1) This translates to 36,780 hectares of dense vegetation cover. This has also led to reduction of water levels of boreholes with some already drying in the Egerton University, Njoro and river flows have reduced considerably, some becoming seasonal such as the Njoro River. As a result of continued forest degradation, the size of Lake Nakuru has reduced considerably and rivers feeding into it have reduced in volume flows.

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[42] Government of Kenya, *Kenya Forest Service Annual Report*, Nairobi,2003

Figure 3 Forest decline in Lake Nakuru catchment area, 1973-2003
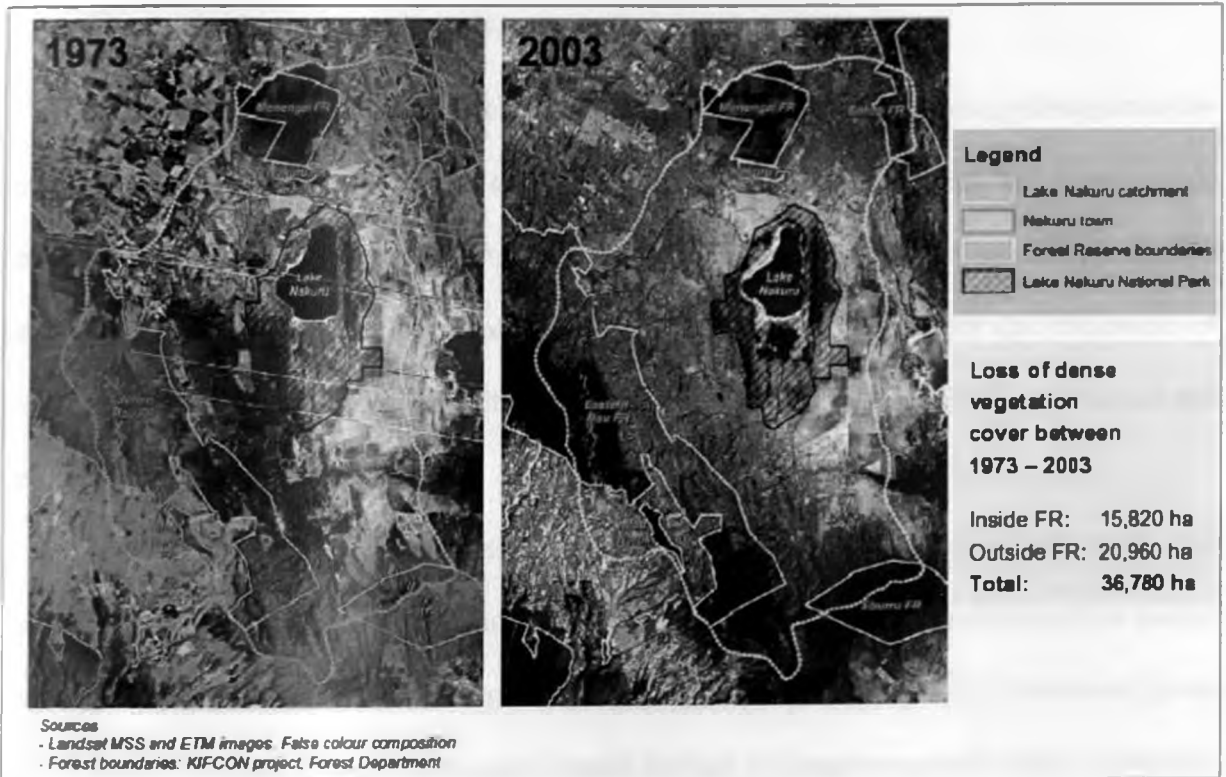
(Source: UNEP, Nairobi, 2005).[43]

3.3.6 Response by Government.

The planning and execution of the forest degazettement process did not involve conservation experts and as a result, some farms were located in the bamboo forest zones which are ideally suitable for conservation purposes. The new settlers needed to clear indigenous and exotic forest plantations to give way for agriculture. But still some people felt left out in the land allocation and this stimulated further subsequent encroachments on the Mau Forest Complex[44]

The 2004 Ndung'u Report and the 2009 Mau Task Force report acknowledged that most of the land was not allocated to the landless and the needy population but to the local political

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[43] UNEP. *Eastern and South Western Mau Forest Reserves: Assessment and Way Forward.* Nairobi. 2005.

[44] P. Kantai. Saving Kenya's Mau Forest. *Africa Reports.* Nairobi. 21 September 2009.

leaders where about 90 percent of the title deeds were issued unprocedurally. The land allocation process was marred with corruption. .[45]

The Ndungu Commission recommended that the large majority of the land grabbed should be revoked, stating in relation to forests that; firstly, all excisions of forestland which were made contrary to the provisions of the Forests Act and the Government Lands Act should be cancelled secondly, all titles which were acquired consequent upon the illegal excisions and allocations of forestland should be revoked and thirdly that the forest lands affected should be repossessed and restored to their original purpose.[46]

Nevertheless, the Commission made provision for addressing situations where forest land had been set aside in order to settle landless people. In such cases, where genuine landless people had been settled, the Commission recommended that while the titles should be revoked (given their inherent illegality), the Government should, subject to compliance with other legislation, issue new titles to the landless settlers. Government went ahead to implement repossession process but the response was politicized to the extent that forest land repossession has remained just but a mirage for Kenya.[47]

On December 3, 2009, the Kenyan Parliament approved the National Land Policy (NLP). The NLP is the result of a long and intensive process to develop a fair and equitable land policy that seeks to re-balance customary and statutory land tenure. The policy identifies the unequal distribution of land as the critical problem facing Kenya's land tenure system.[48]

[45] P. Kantai. Saving Kenya's Mau Forest, *Africa Reports*, op cit.
[46] J. Klopp. Pilfering the Pubic: The Problem of Land Grabbing in Contemporary Kenya. *Africa Today*, Vol.47 No. 1, (2000).
[47] Government of Kenya. National Land Policy: The Formulation Process, Draft National Land Policy, *National Land Secretariat*, Ministry of Lands, Nairobi (2009).
[48] F. Ayieko, Kenya: Radical reforms, Kenya land policy Coming Soon. *The East African*, 12 October, 2009.

Pending implementation of the NLP, the government will have to focus its efforts on the institutional transformation of the Ministry of Lands, and the setting up of a National Land Commission a constitutional body created to implement land management and administration in a manner that is sustainable, equitable, efficient, and cost effective. Other focus areas include land-policy finalization and preparation for implementation; local mechanisms for sustainable land rights administration and management; improvements to the land information management system; and the implementation of the recommendations of the Ndungu Commission (on illegal and irregular allocation of Public Land) [49]

Should the recent Forestry sector reforms be successfully implemented, it will hopefully contribute significantly to a better management of the MFC. This is based on the assumption that the new reforms will enhance conservation of forestry resources, which in turn will significantly contribute to conservation of both land and water resources. The act provides for the formation of institutional mechanisms such as the Kenya forestry service board, Forest conservancy committees and Community Forestry Associations (CFAs) that facilitate representation of various stakeholders from government agencies, the local community and members of the private sector. [50]

This also ensures that the local communities rights of using the forests such as protection of consecrated areas, gathering of medicinal herbs, honey, timber, grass and grazing, forest raw materials for local industries, recreational activities and educational excursions by the local

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[49] A. Martin, and R. Palmer, (eds). Independent review of land issues, Volume III. 2006–2007: Southern and Eastern Africa. *Southern African Regional Poverty Network*, (SARPN), 2007.
[50] C. Ludeki et al., *Environmental Management in Kenya: A Framework for sustainable Forest Management in Kenya-Understanding the New Forest Policy and Forest Act, 2005*, (Nairobi, GP, 2006).

communities are secured, provided the rights granted, do not compromise the integrity of the ecosystem.[51]

Kenya like other African countries has experienced various complex situations of natural resource management. These experiences arise from policies inherited from the colonial Governments. Kenya's peoples' competitive struggles over land-based resources clearly show the critical roles that is played by three main actors; the State, the elitist class in the society and the general public. The state has the monopoly of decision making while the elitist dominant class have the ability to use state bureaucracies and procedures for their own benefit. The general public often is left at the mercy of the state and the influential elites both of who have a bigger role in determining how resources are distributed amongst the citizenry.[52] Therefore the role of state is paramount in resolving conflicts alongside the local population needs and in line with the international community's norms.

Recent developments that reflect Governments commitment to conservation includes the appointment of a Task Force on the Conservation of the Mau Forests Complex. After commissioning studies of the Mau, the Task Force issued recommendations for stopping and reversing the deforestation and unsustainable land use practices occurring there.

The Task Force also made recommendations applicable to all of Kenya's forest reserves, which include:- making funds available for implementation of the Forests Act; strengthening the technical and financial capacity of the Kenya Forest Service; identifying, demarcating, and securing forest reserve boundaries; relocating landowners of former forest reserves; and restoring degraded forests and critical water-catchment areas. The Prime Minister established the Interim

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[51] Government of Kenya. *Forest Act.* (Nairobi: GP. 2005).
[52] D. B Moore. The Ideological Formation of the Zimbabwean Ruling Class. *Journal of Southern African Studies.* Vol.17 No.3, (1991), 472–95.

Coordinating Secretariat.[53] This initiative has however been confronted with severe political opposition and is yet to have a practical impact on the ground, particularly on the issue of coordinating various actors in the ecosystem.

3.4   Conclusion

As shown in this Chapter, conflicts in the Mau Forest Ecosystem are attributed to scarcity of land based natural resources. Scarcity induced conflicts are a common experience in many sub Saharan Africa states. Kenya's historical experiences in the management of land and forest based natural resources is shown as having been heavily influenced by the colonial legacy. In general, natural resource management interventions have failed to achieve desired objectives due to highly centralized approaches where stakeholder participation has been minimal. From the historical account, there is considerable evidence of significantly skewed pattern of access to scarce resources. This has made the Mau forest ecosystem an arena of both violent and structural conflicts. However, Kenya has made considerable reforms in natural resource management in that a three key new laws, have been enacted; the land policy, the Forest Act and the Water Act. Positive impacts of these laws depend on how soon the Government will fully implement them. These laws can be coordinated under the auspices of the National Environment Management Authority (NEMA) for efficient and sustainable natural resources management in the Mau Forest Complex.

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[53] Government of Kenya, Report of the Government's Task Force on the Conservation of the Mau Forest Complex, *Government Printers*, Nairobi, (2009).

CHAPTER FOUR

THE MANAGEMENT OF NATURAL RESOURCE BASED CONFLICTS IN AFRICA: A CRITICAL ANALYSIS

4.0   Introduction

The previous chapter dwelt on the historical perspective of natural resource use and the conflicts associated with resource management from the Sub Saharan African experience in general and in the Kenya's Mau Forest Ecosystem (MFE) specifically. An in-depth analysis of issues and actors in the Mau Forest Ecosystem has been outlined. It reveals that Kenya is still in the process of transforming its policies and institutions to address issues of equity and fairness. The Kenyan experiences in the land and forest sectors have been explored and the linkages between natural resource degradation, scarcity and conflicts are explained in details.

From the ensuing research findings and discussions in chapters two and three, this chapter further discusses and analyses the main themes and debates emanating both from secondary and primary data on natural resource conflicts. The areas of focus are; the historical perspective of resource access and controls, the supply induced scarcity, demand induced scarcity and structural scarcity in the MFE. It is in this chapter that the three types of resource scarcities are identified, analyzed and categorized in order to determine the extent to which they cause conflicts in the Mau Forest Ecosystem.

4.1   Importance of the Mau Forest Complex

The social and economic importance of the Mau Forest Complex (MFC) can not be over emphasized. The forest does not just meet the interests of Kenya, but also that of the Great Lakes

Region and Northern Africa because of Lake Victoria and the River Nile wetlands. The MFC covers the single most important water catchment in Rift Valley and western Kenya.

It forms the upper catchments of all, but one, rivers that drain west of the Rift Valley, including Nzoia, Yala, Nyando and Sondu, which flow into Lake Victoria. It is also the main catchment of critical lakes and wetlands in the Rift Valley, including lakes Baringo, Nakuru, Naivasha, Natron and Turkana. Mara River, whose source is in the Mau serves the lush Maasai Mara Game Reserve and across the borders to Tanzania's Serengeti National Park. [1]

The forests of the MFC are also rich in flora and fauna. Through the ecological services provided by its forests, the MFC is a natural asset of national importance and it supports key economic sectors in Rift Valley and Western Kenya include energy, tourism, agriculture (cash crops such as tea, sugar, rice, pyrethrum, subsistence crops, and livestock) and water supply.

The ecosystem also supports a wide range of environmental services essential for crop production (continuous river flow, favorable micro-climate conditions) and goods such as medicinal plants and grazing. Tea growing areas are located near the wet montane forests in the MFC where conditions for optimal production (constant moisture, soil temperature between 16 and 25 °C and air temperature between 10 and 30 °C) are prevalent. [2]

4.2   Historical perspective of access to and control of natural resources

The period of colonial rule in Africa gave rise to centralized government policies in the Management of natural resources. These policies had the sole objective of controlling activities by local people because the native populations were viewed as destructive to the environment. The controls were also put in place to provide raw material for the colonial timber industry. The

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[1] F. M. Nkako, C. Lambrechts, M.Gachanja, and B Woodley, *Maasai Mau Forest Status Report*, (Nairobi, E N S D A. 2005), p.7.
[2] Government of Kenya, Rehabilitation Of The Mau Forest Ecosystem *Project Concept Prepared by the Interim Coordinating Secretariat, Office of the Prime Minister, On Behalf Of The Government Of Kenya*, September 2009, Nairobi

central government approach ignored the cultural and social-economic importance of forests to local communities.

The resulting "command and control" policies alienated local people from access to forest resources and undermined traditional management practices. The local communities' loss of power over the resources reduced their ability to participate fully and fairly in forest management. Post-independence policies, adopted by newly independent governments continued the colonial thrust of centralization. These policies also became instruments for achieving state control over land, forests, resources and socio-economic development. In some cases they have increased local peoples' alienation from ancestral land and public forests as is in the case of the Ogieks and the Maasai. [3]

Successive Governments have been reluctant to develop policies that would allow communities to use or manage forest land. Subsequent policy changes tended to emphasize economic extraction through legalized logging while only recognizing the importance of environmental services in theory. The forest Act Cap 385 broadly focused on wood production and protection of the state forests. Even where the Forest Policy spelled out the need to promote community involvement, they were not backed up by legislation until 2005 when the new Forest Act was passed in parliament. Legislative review has been slow, despite the growing evidence that communities could, and do manage forests on a sustainable basis. [4]

Access to natural resources, and especially forest and wildlife in the MFC have been historically under the control of the state. Results obtained show that the State has the biggest say in terms of controlling uses and the access to the Mau Forest natural resources (60%), followed by rich and influential people in the society (30%), while local communities control only 10%.

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[3] F.M. Nkako, C. Lambrechts, M.Gachanja, and B Woodley, *Maasai Mau Forest Status Report*, op cit, p.19.
[4] Government of Kenya, *The Forest Act*, 2005.

(Figure 4). The state is mainly represented by the Kenya Forest Service (KFS), and the Narok County Council (NCC) through legislative mandate.

Other support institutions are the Kenya Wildlife Service (KWS), and the Provincial administration that have from time to time reinforced the existing institutions on the ground. Government control is achieved primarily through systems of licenses, permits and Ranger patrols. From these results, it is evident that the local communities have expressed their feeling that they do not have much authority over forest resources in their area. This expression is that of deprivation or at least that of relative deprivation. Whichever the case, a community that believes that it is being deprived of certain resources is a potentially violent actor in a conflict situation.

Figure 4 Monopoly of access to resources in the MFC
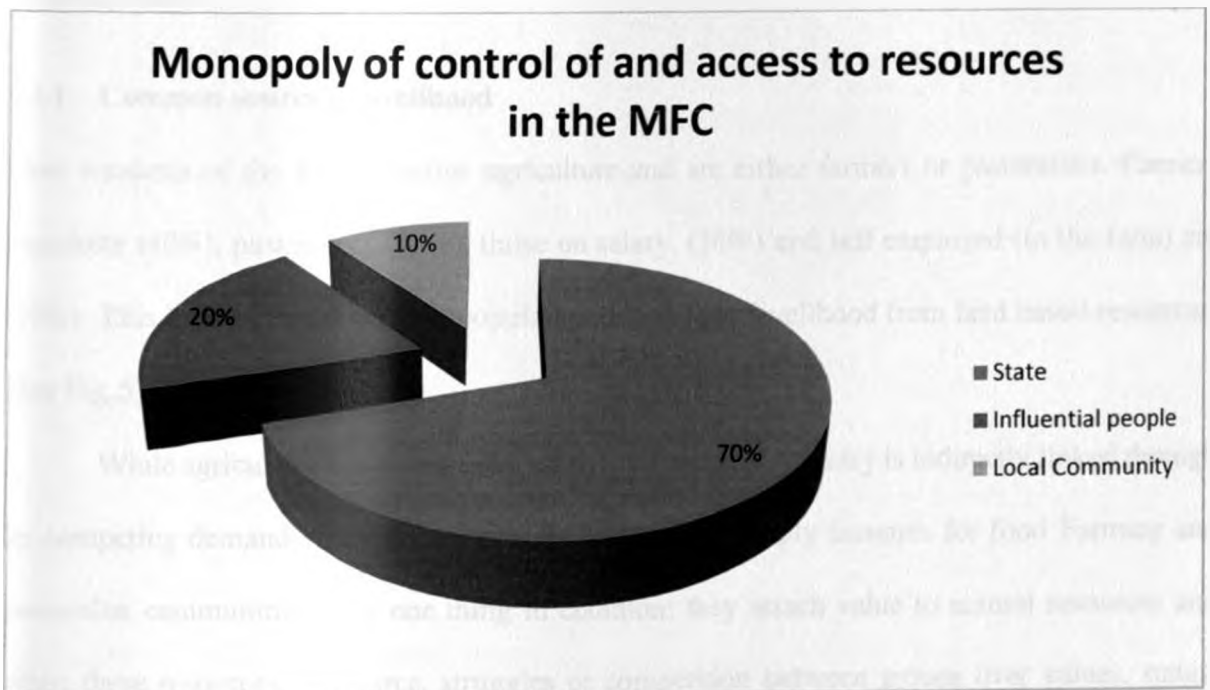
(Source: Primary data collected by researcher, March 2011).

The state uses various legal frameworks to govern natural resources management like Forest Act 2005, Local authority Act, Wildlife Act, Water Act 2002, and Environmental Management and Coordination Act (EMCA) among others. The role of Non Governmental

organizations and civil rights institutions has also been on the increase. Government forest management practices have in the past years denied communities access and control rights, including participation in forest management. 70% of respondents indicated that they were not involved in decisions on access and control of the Mau Forest Ecosystem resources and in issues of community participation in forest management.

4.3   Main cause of conflicts

The study identified several issues that contribute to conflicts in the MFC. These issues are related to the access to and control of natural resources in the area. Conflicts arise when the manner in which access of communities to critical resources is curtailed by scarcities as discussed below.

4.3.1   Common source of livelihood

Most residents of the MFC practice agriculture and are either farmers or pastoralists. Farmers constitute (40%), pastoralists (40%), those on salary, (10%) and self employed (in the farm) are (10%). This implies that 90% f the population derive their livelihood from land based resources. (See Fig.5)

While agriculture has direct linkages to food security, forestry is indirectly linked through its competing demands for land use and its potential to supply incomes for food Farming and pastoralist communities have one thing in common; they attach value to natural resources and when these resources are scarce, struggles or competition between groups over values, status, power and scarce resources ensues.

Pastoralists generally have large herds of cattle and view the forest as dry season grazing grounds. Making payment to the Forest authorities for grazing is viewed as expensive and they usually drive the herds in the forest during drought conditions for pasture and watering. The

demand by KFS for grazing payment sets the communities on a collusion course with it, which may turn bloody, is some instances. On the other hand the demand for more arable land has exerted pressure for converting forest land into settlement schemes.

As has been shown, the main occupation for 80% of the residents of the study area is farming and livestock keeping and since land is a factor of production, conflicts are a likely occurrence when there are competing needs over common land based resources.

Figure 5 Main occupation of MFC residents

Main occupation of residents in Mau

- Farmers
- Pastoralists
- Salaried
- Self Employed
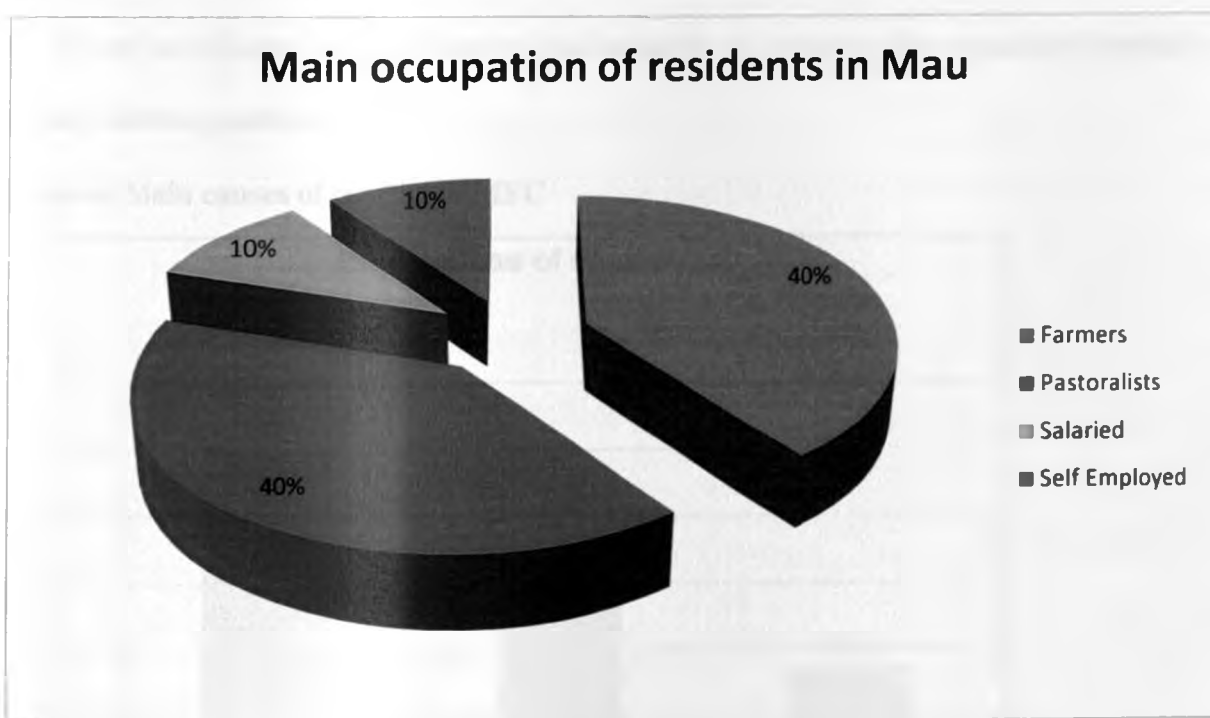
(Source: Primary data collected by researcher, March 2011).

4.3.2 Land politics and ethnicity

When comparing land, politics and ethnicity, land availability was found to be the main issue of interest, (50%), which precipitates competition amongst communities and hence the main cause of conflicts in the area. However, political reasons and ethnicity have also played a part and when combined, they account to 50% causes of conflicts. These findings clearly confirm that

competition for land resources plays a major role in conflict development in the Mau forest ecosystem. This implies that issues of political and ethnic differentiation are secondary to land resources when it comes to causes of conflicts.

Conflicts in the Mau area can be said to revolve around land scarcity arising from how it is distributed amongst different interest groups. As Oucho observes, the centrality of the land question in the political transition in Kenya has even influenced the formation of political parties[5] In this case, political parties and ethnic enclaves may be used by influential members of the society to influence and tilt access to land resources in a manner that precipitate inequality, thereby breeding conflicts.

Figure 6 Main causes of conflict in MFC
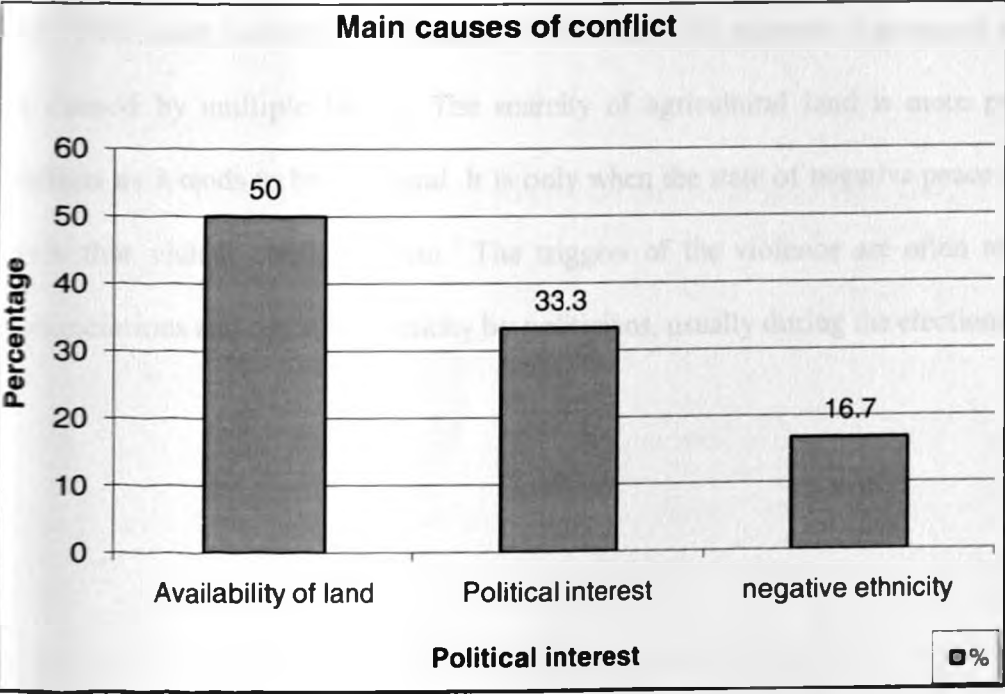
Respondents also identified conflict arising from use of forest resources to be more frequent with a score of (40%) as compared to agricultural land use (10%) and water use (20%).

[5] J. O. Oucho, *Undercurrents of Ethnic Conflicts in Kenya.* (Boston, Brill, 2002), p.167.

This is probably because competition for forest resources often tends to take the form of illegal logging and un-authorized extraction of other forest produce. Conflicts arise when some groups contest the access or removal of the forest resources by those they are opposed to. Sometimes, opposing groups provide intelligence information on their opponents to the Forest enforcement officers. Such types of conflicts are obvious easily noticeable and are proximate in nature. Conflicts related to land are often structural in nature and are less frequent, and as seen in chapter one, structural conflicts represent a condition of negative peace that can only turn violent when triggered by proximate causes. For this reason the communities may interpret the nonexistence of violence as absence of conflicts over land resources.[6]

The other important causes that were not specified by the respondents scored a significant 30%. This result confirms the findings of Gleditsch who portends that natural resource conflicts are caused by multiple factors. The scarcity of agricultural land is more powerful cause of conflicts as it tends to be structural. It is only when the state of negative peace escalates to crisis levels that violent conflicts occur.[7] The triggers of the violence are often related to political pronunciations and negative ethnicity by politicians, usually during the electioneering period.

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[6] M. Mwagiru, *Peace and Conflict Management in Kenya*, (Nakuru, Catholic Justice and Peace Commission, 2003) pp.121-126.

[7] N.P Gleditsch, 'Environmental change, security and conflict'. In C. Crocker, F Hampson, and P. Aall (eds.), *Managing global chaos II*, (Washington DC, United States Institute of Peace Press, 2001), p.85.

Figure 7 Length of residence in the MFC
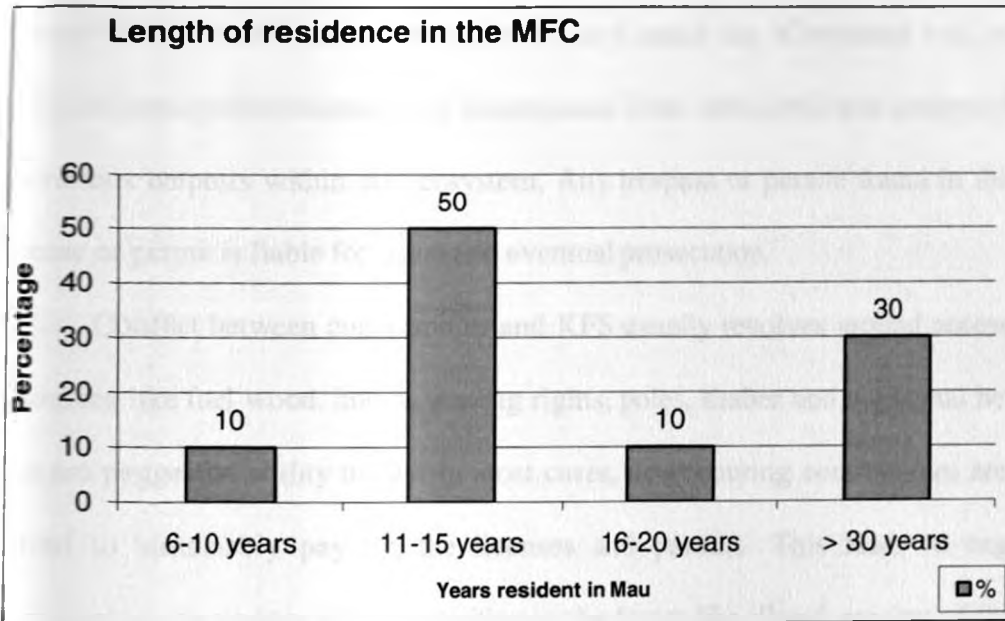
(Source: Primary data collected by researcher, March 2011).

4.4 Supply induced scarcity

Supply induced scarcity occurs when a resource shrinks or is degraded to the extent that it is no longer able to satisfy the demand by its users.

4.4.1 Conflicts related to forest land use:

The conflicts related to land use is evident among actors in the Mau Forest Complex. As seen in chapter three the forests have been gazetted as National forest reserves and are managed by Kenya Forest Service (KFS). The Maasai Mau forest is managed by the Narok county council as it is a local authority forest. The forest authorities control the access to forest resources based on the availability of products. Grazing rites by communities is determined by the land carrying capacity. This helps to control the number of livestock allowable for grazing in any particular forest area.

KFS controls access to the forest resources by communities and other stakeholders through issuance of licenses and permits, at a small fee. Command and control by KFS is enforced through Enforcement and Compliance Unit (ENCOM) that deploys Forest Rangers in its various outposts within the ecosystem. Any trespass or person found in the forest without a license or permit is liable for arrest and eventual prosecution.

Conflict between communities and KFS usually revolves around access to critical forest resources like fuel wood, honey, grazing rights, poles, timber and medicinal herbs among others that are pegged on ability to pay. In most cases, neighbouring communities are poor and cannot afford to sustainably pay for the licenses and permits. This leads to engagement by the communities on various illegal activities in the forest like illegal grazing of livestock, poaching of valuable tree species, and illegal collection of firewood, honey and medicinal herbs. Conflict with KFS occurs when members of the community are arrested by Forest rangers and charged in court. Working relationship between KFS and the local communities become frosty and strained, in some cases turning bloody.

4.4.2   Conflicts related to water use

Kenya is classified as a chronically water-scarce country. The country's natural endowment of freshwater is limited by an annual renewable freshwater supply of only 647 cubic meters per capita. Globally, a country is categorized as "water-stressed" if its annual renewable freshwater supplies are between 1,000 and 1,700 cubic meters per capita and "water-scarce" if its renewable freshwater supplies are less than 1,000 cubic meters per capita

Mau Forest Complex is bordered by several large scale Tea and Flower farms which abstract large volumes of irrigation water from the steams and river. The extraction tends to reduce the available water flow in streams and rivers for domestic and watering of livestock,

especially during severe drought seasons. Several armed conflicts between pastoralists and investors have been reported in Mau and if not checked has potential of escalation in future.

Water scarcity is compounded by extensive degradation of existing water resources, increasing volatility of rainfall amounts, and periodic droughts and floods. The shortage is chronic and leads to conflict (sometimes violent) among users. The few existing rivers emanating from the MFC have been exploited intensively, and the resulting environmental damage is already irreversible. Having been damaged by logging, encroachment of settlements, and changing borders, in addition to government policy changes that de-gazetted National Forests in the early 1990s, the water flows have reduced in River Njoro, Mara, Euwaso Ng'iro, Sondu, Molo and Perkerra. There are already conflicts relating to water scarcity in Nakuru, Koibatek, Narok and Baringo counties. [8]

4.4.3 Conflicts related to agricultural use

Agricultural use is limited mainly to land for cultivation purposes. Previously, within the Mau, the then Forest Department (FD) used to practice the "Taungya" system (Shamba system) whereby communities were issued with forest land to cultivate for a specified period after which the department came in to plant trees as part of plantation establishment method. This policy helped in the establishment of vast plantations of soft and hardwood species at reduced costs to the government.

The respondents have observed that during the allocation of land process to farmers, fairness was sometimes not practiced and this resulted in conflicts between the then forest officers and farmers. Under the new institutional outfit (Kenya Forest Service), Taungya system

[8] M. Scott et al. Sustainable Management of Watersheds: The River Njoro, Kenya. Annual Report of Sustainable Management of Watersheds (SUMAWA) project, *Global Livestock Collaborative Research Support Programme*.Nairobi, (2003).

was rebranded to Plantation Establishment and Livelihood Improvement Scheme (PELIS) in which farmers no longer reside in the forest area, but access the forest to plant food crops on allocated fallow forest land that is being prepared for tree planting.

Conflicts between farmers and KFS also occur due to feeling of unfairness in land allocation process, where certain communities tend to be favored over others.[9] Further, small scale farmers in the Study area feel that the Government has not subsidized farm production inputs such as fertilizer. This has led to declining farm productivity in their farms while the large scale farmers are able to improve their farm outputs as they have the necessary capital. Like other parts of Africa, the underdeveloped state of smallholder agriculture in the MFC has largely been shaped by economic policies which disfavor them but promote the larger farmers. Through policies which set prices and control marketing systems, regulating the flow of information and credit-making mechanisms oriented to large farmers, the State has constrained the manner in which small and medium farmers are linked to national and international markets [10]

4.4.4   Conflicts related to community exclusion in forest management

In Chapter three, it was shown that non inclusion of communities in forest management issues is likely to encourage negative attitude towards forest conservation. The deliberate forest fires witnessed in Kenya in the year 2007 and early 2008 were linked to the Governments declared intention to evict persons who had settled in the forest. While the Government's intention was logically good, the fact that the public did not identify themselves in the Government's policy could have been the salient cause of the blaze. In Costa Rica for example the Government's

[9] T. Thenya, E. Nahama & B. Wandago, Participatory Forest Management Experience in Kenya (1996-2006), *Proceedings of the 1st National Participatory Forest Management Conference*, 6–8 June, 2007, Kenya Forestry Research Institute (KEFRI) Headquarters, Nairobi, Kenya.
[10] D. Reed, Economic Change, Governance and Natural Resource Wealth: The Political Economy of Change in Southern Africa, *Earthscan Publications* London, (2001)

declared intention to expand the system of protected areas may have contributed to accelerating deforestation in the country.[11]

According to the respondents, some forest destruction is carried out deliberately by people who feel deprived of the forest resources by the authorities. Hence denial of access to the resources in itself has caused further degradation and therefore the supply induced scarcity of forest resources.

Figure 8 Decision making on access to and control of resources

Decision making on access to and control: Community concerns on forest management
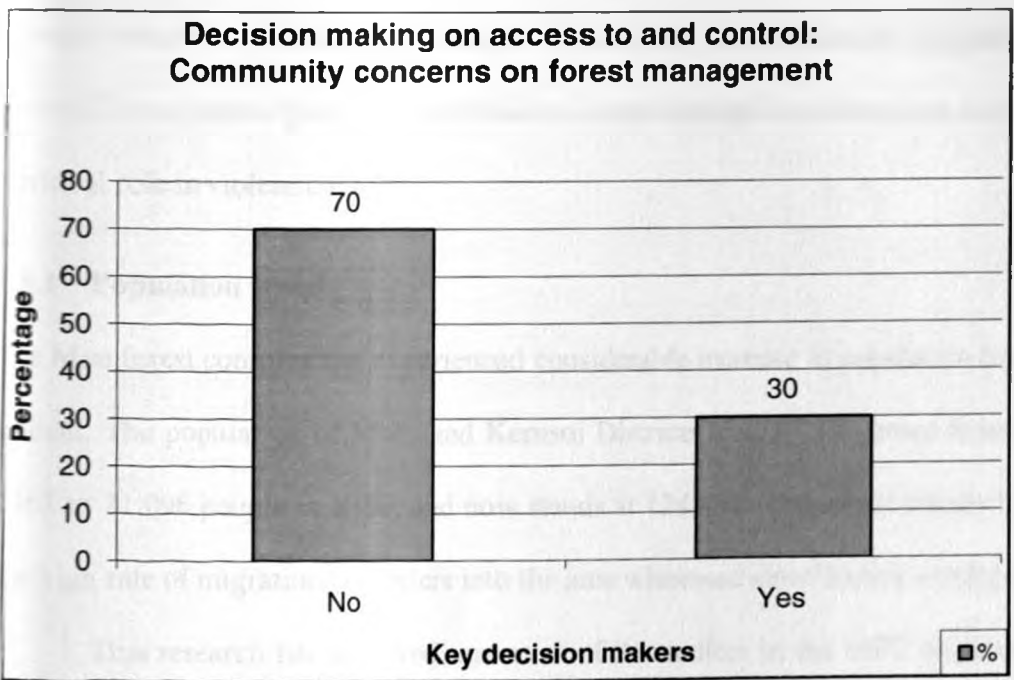
(Source: Primary data collected by researcher, March 2011).

If government policies do not recognize the need for community involvement in Forest management either formally or informally, and if there is little possibility to enforce existing laws, then the propensity to abuse forest resources may increase. Community exclusion reduces the incentive to manage forests in sustainable ways. The World Bank 1991 Forest Policy states

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[11] World Bank. Natural resources management project. *Draft notes.* Washington, D.C., (1996).

that the absence or unimplemented participatory forest management policies are behind deforestation and degradation in many areas.[12] The degradation leads to supply induced scarcity, and therefore has been an important cause of conflicts in the MFC.

4.5 Demand induced scarcity

Demand-induced scarcity refers to the relative lack of a resource due to its overuse by consumers. Population growth and its corresponding increase in consumption levels tend to reduce the amount of limited natural resources available to each individual. The population increase results in shrinking the amount of land and other resources available to the average person. Demographic pressures can therefore create extreme environmental scarcity that can play a critical role in violent conflicts.

4.5.1 Population trend

The Mau forest complex has experienced considerable increase in population from independence to date. The population of Molo and Kerusoi Districts has rapidly grown from 4,560 people in 1963 to 21,096 people in 1980, and now stands at 124,438. This could mainly been attributed to the high rate of migration of settlers into the area witnessed since Kenya's independence.

This research has gathered that most of the settlers in the MFC originated from outside Nakuru County (83.4%) while only 16.6% originated from Nakuru (Figure.12). This migration increase into the area was probably related to a number of reasons as identified in the literature review; first, land availability within the Mau Forest Complex, secondly, population pressure and

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[12] D. K. Vajpeyi, (ed.), *Deforestation, Environment, and Sustainable Development: A Comparative Analysis,* (Westport, CT: Praeger, 2001). p.208.

land scarcity in the areas the settlers came from and lastly, political expediency in support of elections.[13]

Figure 9 Trend of population increase in Molo and Kuresoi

Trend of population increase in Molo and Kerusoi area

Polulation (y-axis): 0, 20000, 40000, 60000, 80000, 100000, 120000, 140000	Years (x-axis): 1963, 1980, 2009

Legend: ——— People
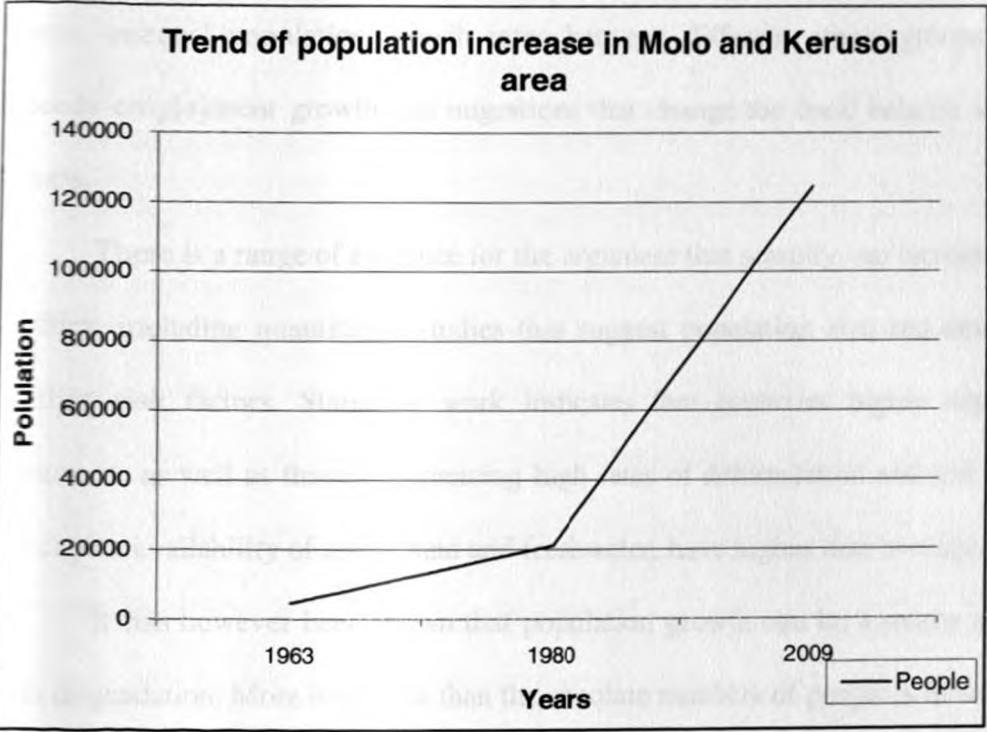
(Source: Primary data collected by researcher, from District Commissioner, Molo, March 2011).

Population increase has a tendency of producing 'Demand Induced Scarcity'. This means that; as population increases, there is a corresponding increase in consumption of forest goods and services. Since land is fixed, assuming all other factors are constant, the forest will supply only a given quantity of goods and services for a period, after which the law of diminishing sets in. As population further increases, forest land will not be able to supply goods and services optimally, thereby resulting in reduced productivity. As witnessed in other developing countries, the degradation of forestland also can cause scarcity of forest resources and set in intense competition for the limited available resources among users, thereby creating conflict.

[13] T. F. Homer-Dixon, *Environment, Scarcity, and Violence,* (Princeton, NJ: Princeton University Press, 1999), p.134.

Population growth and population density as reflected in demographic changes in the Mau orest cosystem may come in the form of rapid growth in the labor force in the slow-growing economy, a rapid increase in educated youth aspiring to elite positions when such positions are scarce, unequal population growth rates between different ethnic groups, urbanization that exceeds employment growth and migrations that change the local balance among major ethnic groups.

There is a range of evidence for the argument that scarcity can increase the risk of violent conflict, including quantitative studies that suggest population size and density are significant conflict risk factors. Statistical work indicates that countries highly dependent on natural resources, as well as those experiencing high rates of deforestation and soil degradation or low per capita availability of arable land and freshwater, have higher than average risks of conflict. [14]

It has however been shown that population growth can be a source of innovation rather than degradation. More important than the absolute numbers of people is how they are organized. Poverty is also often considered a source of degradation since the poor are thought to lack options other than sustainable use of natural resources. In the case of Mau forest, the poor are not mostly responsible for environmental abuse but they certainly suffer most from it.

The large-scale forest degradation witnessed in Mau in the form of degazettment was more as the result of powerful and richer people's interests, who have sometimes used the poor as proxies to forest destruction to satisfy their increasing demands for forest resources. Most of the people prosecuted for forest offences are the poor and powerless. They have often been blamed, and punished for forest degradation, while the real culprits go unpunished. From this experience, it can be deduced that demand induced scarcity can lead to conflict between the local

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[14] C Kahl. *States, Scarcity and Civil Strife in the Developing World.* (Princeton. Princeton University Press. 2006), pp.23-30.

population and the enforcement authorities since peasant farmers have to look for ways to meet their livelihood needs irrespective of whether access is provided or not.

4.6   Structural scarcity and conflicts

Structural scarcity comes about as a consequence of unequal distribution of resources within and between communities. It occurs when resources become concentrated in the hands of a few people while the remaining population suffers resource shortages. It also occurs when policies and laws discriminate against certain categories of the society in resource distribution.

4.6.1   Key decision makers who influence land distribution

The Mau Forest Complex has witnessed increase influx of migrant populations in the last five decades. All the respondents have indicated that the land has been unfairly distributed, thereby leaving out certain communities in the process. Secondly, the average land size has ranges between one to two hectares for small scale landownership while most large scale land ownership is above 5 ha.

Results obtained in this study indicate that key decision makers in terms of land distribution in Mau are government officials (60%), followed by politicians (30%) and rich and influential people (10%), (Fig 10). Government officials who include and especially officers of the Ministry of Lands and Settlement have been responsible for allocation and distribution of both public and private land in Kenya. The previous Forest Act Cap 385 accorded the minister powers to alter forest boundaries and change land use from conservation to settlement. They were also mandated to carry out all legally related land transactions, including adjudication, demarcation and final issuance of Title Deeds.

Most respondents feel the politicians and influential people have played a major role in land distribution since they have influence over government officers in terms of their

promotions, transfers and other land related services. Therefore, the public has fewer roles in land distribution.

Land distribution reforms in Kenya have not addressed the challenges of landlessness adequately. Through the resettlement efforts following independence, the political and economic elites acquired more land at the expense of the landless people. This biases led to a framework for recurrent inter ethnic conflicts that repeatedly threatened national cohesion. The objectives of land distribution therefore ought first to examine the possible unintended land consequences of land being anchored in a continually changing socioeconomic and political context.[15]

Figure 10: Key decision makers who influence land distribution in MFC
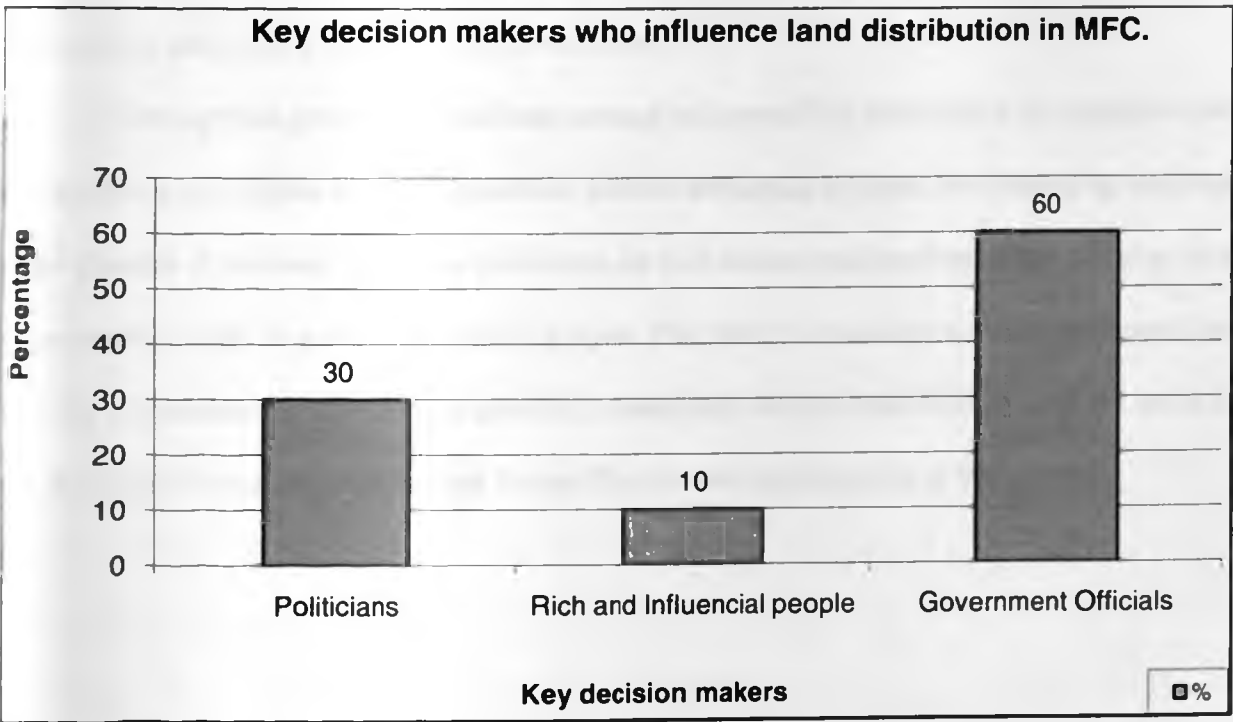
(Source: Primary data collected by researcher, March 2011).

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[15] H. P. Binswanger-Mkhize, *Agricultural Land Redistribution: Toward Greater Consensus*, (Washington DC, INBA, 2009), p.115.

1.6.2   Land distribution and conflict

As already seen, the main occupations of people in Mau forest complex are farmers (40%) and pastoralists (40%). Others are employed, salaried (10%) and self employed (10%), (Fig. 5) Most residents have stayed in the area for between 11-15 years (50%). However, as indicated above, the distribution of land in Mau settled areas was unfairly done and this has led to several conflicts related to land scarcity and usage for livelihoods

Results indicated that successive governments have marginalized a hunter gatherer community, the Ogiek, since independence in term of land distribution (Fig. 11). The Ogiek are traditional forest dwellers earning their livelihood by gathering honey, fruits, herbs, and vegetables, and tending their livestock in the forest.

Although the government has been carving out parts of the Mau Forest for settlement for the landless, the Ogieks have not benefited. Instead influential Kenyans have ended up securing huge chunks of the land, and senior politicians are said to have used the land issues to settle their supporters in order to garner for political support. The 1988, Government's attempt to resettle the Ogieks at Ndoinet forest settlement scheme in South and Western Mau failed to succeed and it is the Kipsigis community mainly from Bomet District who were resettled in the scheme.

Figure 11: Categories of communities left out in land distribution.
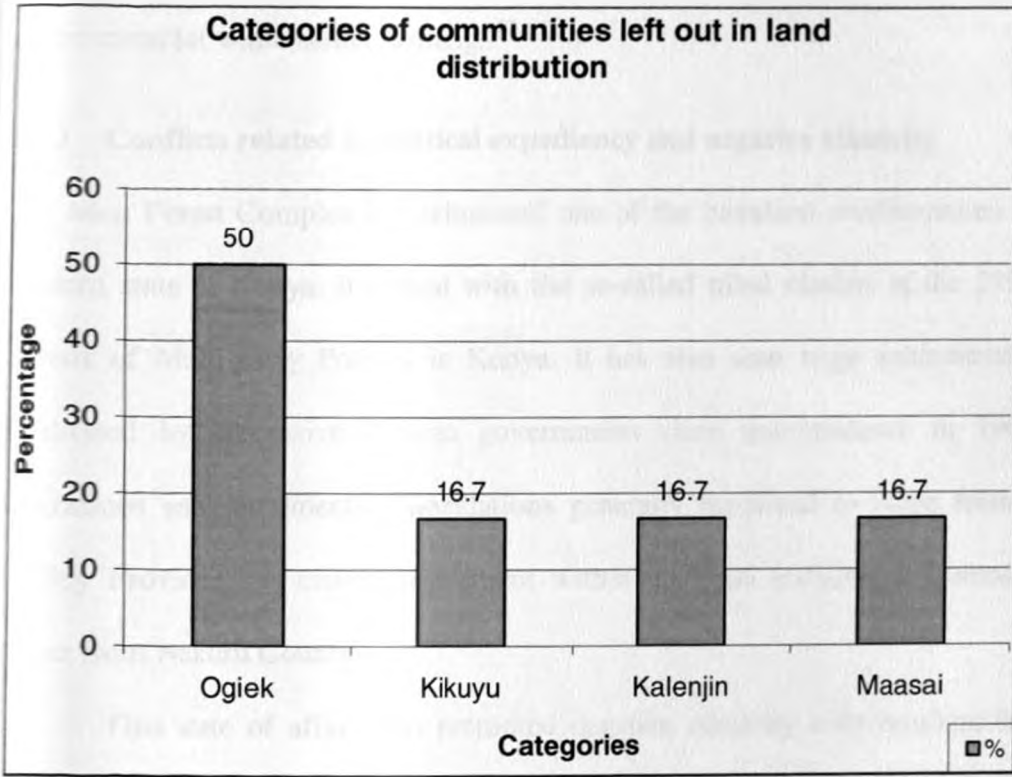
(Source: Primary data collected by researcher, March 2011).

As was earlier mentioned in Chapter three, Kenya's settlement programmes were designed along ethnic lines. This has resulted in the consolidation of ethnic homogeneity in many areas where certain communities were viewed as privileged whenever the sitting president was from that community. Respondents have claimed that the Kikuyu community was favoured during the Kenyatta era since Kenyatta was a Kikuyu. The Kalenjin were also favoured in the Mau forest allocation since the then president, Daniel Moi was a Kalenjin. It has been estimated that some 95 percent of recent violence in the Rift Valley has occurred in areas where settlement schemes are located.[16] Much of the violence witnessed in the Rift Valley was centered around farms which were formerly part of the so-called 'white highlands', land appropriated from those

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[16] Human Rights Watch. From Ballots to Bullets: *Organized Political Violence and Kenya's Crisis of Governance.* HRW, Vol. 20 No. 1(A), (2008), 1-81: 12-13.

communities who customarily owned and occupied it before being taken by the colonial government for white settler farming..[17]

4.6.3 Conflicts related to political expediency and negative ethnicity

The Mau Forest Complex has witnessed one of the bloodiest confrontations in the history of modern state of Kenya. It started with the so-called tribal clashes of the 1990s following the advent of Multi-party Politics in Kenya. It has also seen huge settlements of communities facilitated by successive Kenyan governments since independence in 1963 to date. This migrations and settlement of populations generally perceived to come from outside the Rift Valley Province has caused resentment within the local indigenous communities, especially those from Nakuru County.

This state of affairs has promoted negative ethnicity with resultant hostility promoted among different communities resident within Mau. Politicians who want to ensure their communities vote them in elections have exploited this negative ethnicity. Tribal clashes may have been fueled in Mau to ensure certain communities became displaced thus denying them voting opportunities in elections. This could probably explain the constant recurrence of political conflicts every election year (1992, 1997, 1982, 1987, 2001.).[18]

4.6.4 Migration triggered by resource scarcities and environmental stress

An interesting finding from this research was that 83.4% of the migrant populations into the Nakuru side of the Mau Forest Complex came from other counties, namely, Narok, Baringo and Kericho (Fig. 13). The immigration was attributed to the Governments land allocation policies. However as to why the immigrants opted to leave their original homes, the main reasons given

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[17] Ibid. p.15.
[18] K. Macharia, Tensions Created by the Formal and Informal Use of Urban Space: The Case of Nairobi, Kenya, *Journal of Third World Studies* Vol.24.No.2. (2007).

was due to diminishing land sizes and reduced farm productivity in their home Districts and therefore they were seeking more fertile land.

Figure 12: Original and migrant settlers.
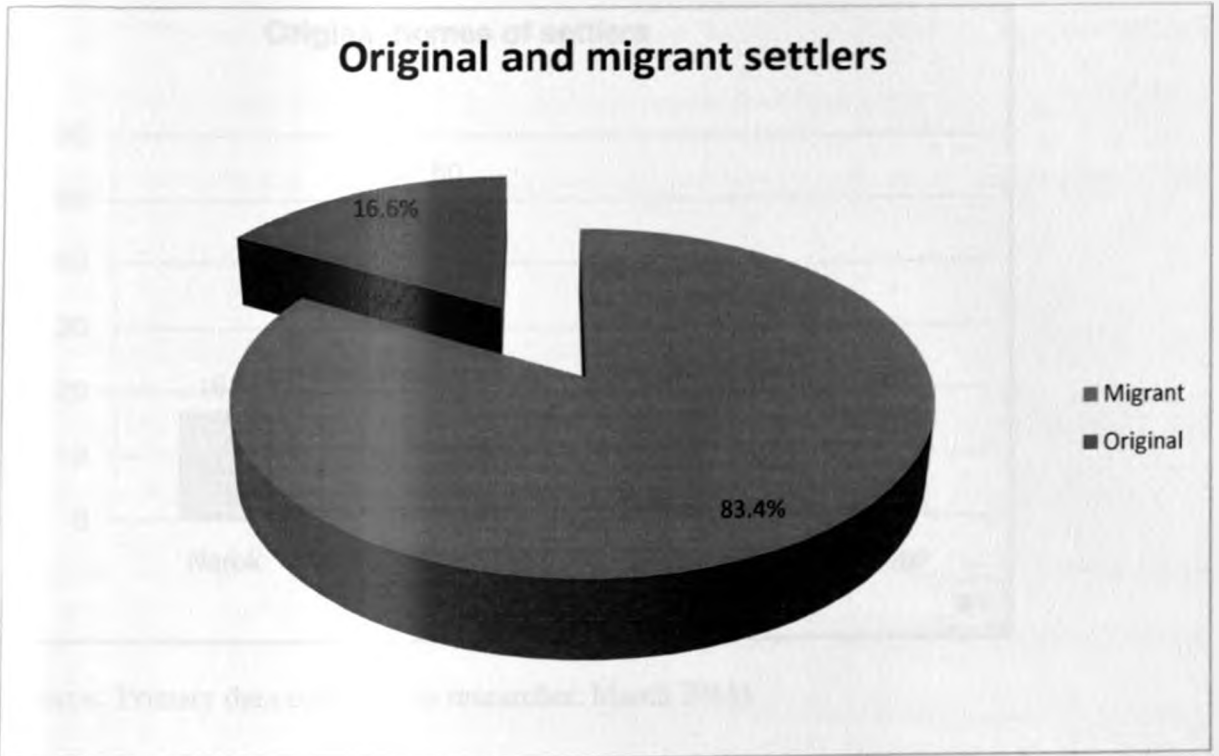
(Source: Primary data collected by researcher, March 2011).

This is an indication that these populations came from areas already affected by environmental stress, thus demonstrating the linkage of environmental resource scarcity to induced immigration. The scarcities in their former settlements may have constrained agricultural and economic productivity, further inducing the disruption of economic livelihoods, poverty and migration. Migration occurs either because the environmental quality of their habitat has become unbearable or, because the migrant's economic outcome is likely to be better in the new farms in Mau which have greater resource availability. Both constrained productivity and

migration are likely to strengthen the segmentation around already existing religious, class, ethnic or linguistic cleavages in a society [19] and thus precipitate conflicts.

Figure 13: Original homes of settlers.
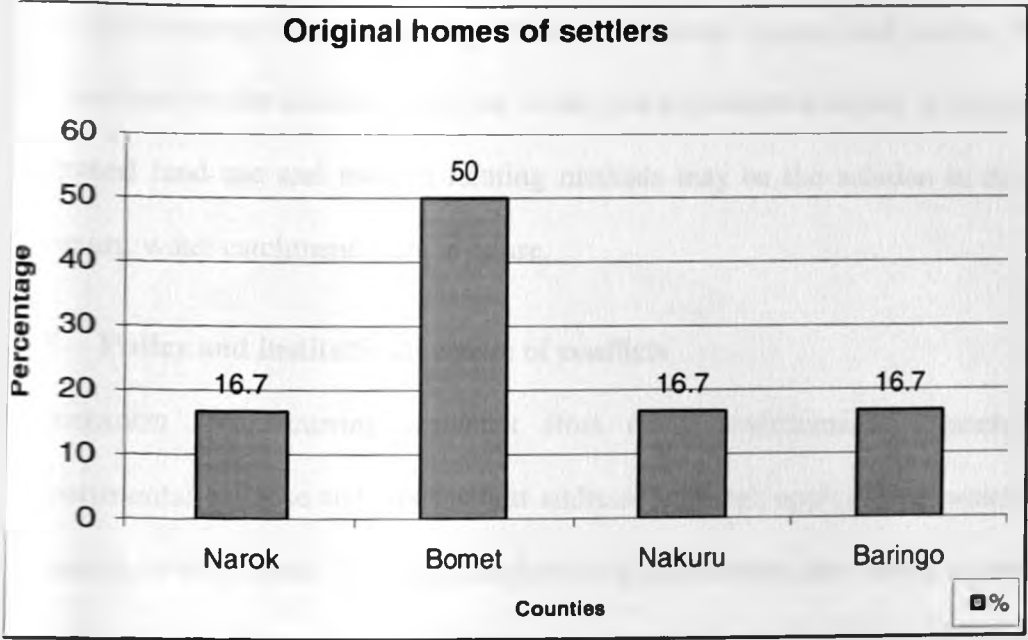
Source: Primary data collected by researcher, March 2011).

The link between environmental pressure and conflict is mediated in part by the ability of societies to achieve such collective goods as economic growth and innovation, thereby adapting to changing conditions generated by resource scarcity. Since most of the population in the Mau forest ecosystem are dependent on a forest for sustenance, economic modernization can reduce their dependence on that forest. However, modernity may bring other kinds of consumption that harms the ecological basis for the sustenance of life. The Neo Malthusian argument as suggested

[19] N.P Gleditsch.. & H Urdal.. Ecoviolence? Links between population growth. environmental scarcity and violent conflict in Thomas Homer-Dixon's Work. *Journal of International Affairs No.*56 Vol.1,(2002), p.286.

y Homer-Dixon[20] is that to deal with scarcity, a society needs ingenuity but the very scarcities demanding social ingenuity act as constraints on innovation.

As he claims, an 'ingenuity gap' develops over time, because society is unable to deal with environmental scarcity, leading ultimately to social disarray and conflict. The Governments interventions on the conflicts have not in the past explored the aspect of ingenuity. Research on integrated land use and modern farming methods may be the solution to the conflicts in this important water catchment areas in future.

4.6.5   Policy and institutional causes of conflicts

A common and recurring argument from many environmental conservationists is that environmental collapse and crisis is best addressed through applying the principle of exclusivity in regards to the threats. The forest neighbouring communities are viewed as threats to the forest. This has led to advancement of Solutions suggesting forced repossession of encroached lands and resorting to central control in order to avert catastrophe of severe environmental degradation. This logic has existed since at least the 1920s in many parts of Africa, but it has been shown to be exaggerated.[21] Some suggestions by recent studies in the Mau Forest Ecosystem are geared towards excluding communities in the management of the forest resources.

Results show that all the categories of the respondents are aware of the current laws governing natural resources management in the Mau forest environment. The respondents were aware of the Forest Act (40%), Wildlife management Act1989, (10%), the Environmental Management and Act (EMCA) (10%), Water Act (20%) and the Land Act(20%), (Fig. 14) Most

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[20] T. F Homer-Dixon., *Environment. Scarcity, and Violence*, (Princeton, NJ: Princeton University Press. 1999), p.107.

[21] USAID. Nature. Wealth and Power: *Emerging Best Practice for Revitalizing Rural Africa.* Washington. DC, (2002), p.33.

spondents believed that the laws that are in place are adequate to prevent the loss and egradation of the Mau forest but they were not enforced fully.

Figure 14 Awareness of environmental conservation laws.

Awareness of environmental conservation laws

- Forest Act
- EMCA
- Wildlife Conservation Act
- Lands Acts
- Water Act
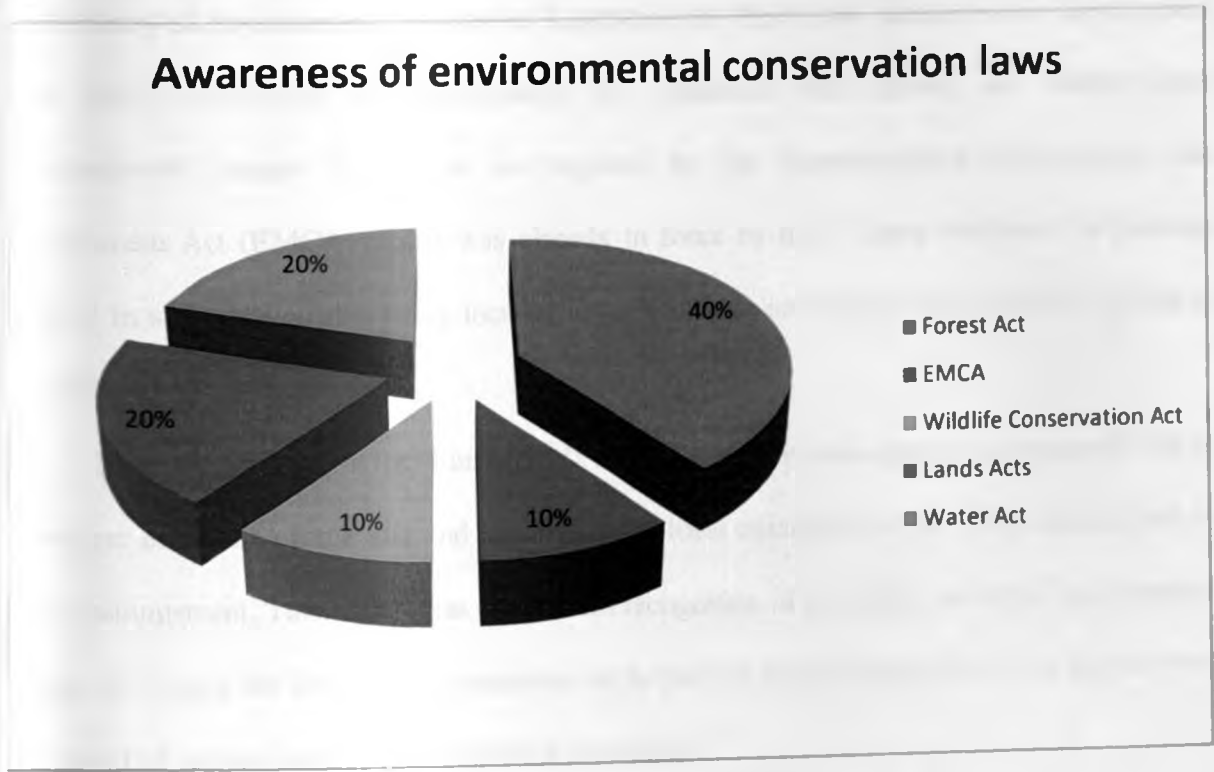
(Source: Primary data collected by researcher, March 2011).

Forest Act, Chapter 385 of the Laws of Kenya conferred on the Minister power to de-gazette forest areas, subject to a 28-day public notice, in which members of the public were to give their views on the intention. In the Mau case, there was official contestation of the gazette notice yet settlements took place anyway. The Ministers powers as conferred by the Act were therefore abused by the post-colonial governments and this is responsible for the forest boundary alterations that have continued to shrink forest reserves in the country.

While forest policies have often been blamed for failing to halt degradation and deforestation, policies relating to other sectors, including land tenure, industrial development,

agriculture and public service restructuring have tended to have a greater impact. Most of these policies failed to acknowledge or address forest conservation concerns.[22]

The effects of such policies were exacerbated by poor coordination of activities between the Ministry of Environment, Ministry of Lands and the Provincial administration. In this case, forest land conversion and demarcation for settlement was carried out without prior Environmental Impact Assessment as required by the Environmental Coordination and Management Act (EMCA) which was already in force by then. These omissions in planning resulted in some settlements being located in high altitude and sloppy terrain that is unsuitable for cultivation and settlement.

However the current trend in Africa's natural resources management is a general shift to a stronger emphasis on the role and importance of local communities and other stakeholders in forest management. This change has come from recognition of the failure of central governments to stop or reverse the loss of forest resources or to prevent their degradation. It has also evolved as a result of lessons learned from practical experience.[23]

4.6.6 Role of stake holders

The role of other stakeholders in the Mau forest ecosystem has had positive impacts on reducing conflicts. All of the Non Governmental Organizations interviewed have shown an informed focus on the conservation of the Mau Forest Ecosystem. They have however largely operated independently from the Government agencies although they have all had some degree of consultations.

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[22] F. Kigenyi, P. Gondo and J. Mugabe. Practice Before Policy: An Analysis Of Policy And Institutional Changes Enabling Community Involvement In Forest Management In Eastern And Southern Africa Analysis Of Policies And Institutions. *IUCN-EARO.Forest and Social Perspectives in Conservation. No. 10.*(2002),8.
[23] Ibid, p.12.

The Catholic Diocese of Nakuru, Kenya Forest Working Group and the Friends of Mau Watershed have engaged in public education, advocacy and mediation in times of conflicts. Other international organizations that have participated actively in the conservation efforts are the World Wide Fund for Conservation (WWF) and he International Union for conservation of Nature (IUCN).

The Provincial administration's role has been that of security coordination and public mobilization. They are well spread into the society and are the most represented government organ in the Mau Forest Ecosystem.

4.6.7 Community participation

On the role of the community in decision making, 70% of the respondents said that communities did not participate in decision making in the management of forest and land resources in the area, (Fig. 8). 30% said that the community is usually consulted in decision making. The Key decision makers in terms of land distribution in Mau are government officials (60%), followed by politicians (30%), while the rich and influential people account for (10%). This implies that members of the forest neighbouring communities are seldom involved in planning and execution of policies that are supposed to benefit them.

The study has also been able to establish that the government policies on public administration, forest, wildlife and land management have largely excluded the public in key decision making and in most cases they have ignored their concerns. Experience with community-based forest management show that it holds great potential to promote good local governance by increasing participation, accountability and transparency Involving communities

n natural resource management processes empowers individuals and communities to make decisions about the very resources upon which their livelihoods depend.[24]

Community no longer waits to be 'planned for', organized, or controlled, in order to participate in Natural resource management. They only need to be offered choices of, and access to, appropriate technologies, practices, information and experience within a rewarding economic and institutional environment. The objective of Government policies should be about empowering, allowing people the opportunity to explore natural resource management options for themselves. The Ogiek community has a wealth of Indigenous Knowledge on forest management and conservation which the Government can explore.

The other strategy employed by many local people is diversification, whereby households spread their livelihood base amongst a number of activities, so as to avoid having 'all of their eggs in one basket' and to seize passing opportunities that offer a better return to their labour and skills. Owing to outdated policies and poor governance, the Mau Forest Ecosystem has been degraded and has shrunk by a quarter in the last 80 years. This has therefore reduced the national forest's capacity to supply forest based goods and services to consumers, thereby creating a supply induced scarcity. The participation of communities in natural resource conservation will enhance collaborative and participatory resource management.

4.7   Conclusion

This Chapter has identified key issues that have contributed to conflicts in the Mau Forest Ecosystem. The conflicts are caused by environmental scarcity in interaction with a variety of, often situation-specific, contextual factors such as political expediency, ethnicity and poor governance. As has been outlined, resource scarcity in the MFC appears in three forms. First, the

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[24] J. B. Loomis, *Integrated Public Lands Management: Principles and Applications to National Forests, Parks, Wildlife Refuges, and BLM Lands,* (New York, Columbia University Press, 2002), p.11.

emand-induced scarcity which arises from increases in demand caused by population growth or

hanges in resource consumption patterns by the general public. Secondly, supply-induced

carcity emanating from reduced total availability of land and forest resources due to degradation

r depletion, and thirdly, structural scarcity which arises from the unequal distribution of, or

ccess to resources. The structural scarcity is rooted on historical experiences whereby colonial

olicies have influenced the management, distribution and ownership of natural resources in the

cosystem. Similarly, policy and institutional arrangements left by the colonial powers have not

hanged much in Kenya. Consequently, the top down approach to natural resource management

has continued to exist in the state's styles of resource management.

CHAPTER FIVE

CONCLUSIONS

5.0   Summary

This research set out to examine the linkage between natural resource scarcity and conflicts in the Mau Forest Ecosystem, within the period of 1963 to 2010. It focused on two key natural resources, land and forests. The overall objective was to determine ways in which environmental scarcity may contribute to conflict among Communities living within the Mau Forest ecosystem.

The specific objectives were; firstly, to analyze historical perspective of access to and control of land and forest resources use in the Mau Forest Ecosystem, secondly, to investigate the effects of land scarcity on conflicts in the Mau Forest Complex and finally, to examine the effects of forest resource scarcity on conflicts in the Mau Forest Complex.

In addressing these objectives, chapter one laid out the problem and through literature review, provided a background and justification of the research. It identified the eco violence theory as relevant in explaining the study[1]. The methodology adopted made use of both primary and secondary data while questionnaires and interviews were employed as instruments of data collection. Three types of scarcities were identified as important causes of natural resource conflicts, each type with varying degree of effect on conflicts. This then led to the justification of the study, which sort to understand how the three types of scarcities cause conflicts and which of the three is critical.

Chapter two dwelt on an examination of a wide scope of the historical developments in natural resources use, the challenges that have faced various world societies and some modern

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[1] See chapter one on literature review

pproaches in the management of these resources. The key output of this Chapter was the identification of the need for state authorities to adopt policy and institutional arrangements that re inclusive of stake holders in natural resource management, and the importance of ternational protocols in guiding national programs in managing natural resources.[2]

In Chapter three, the study focused on natural resource management in Kenya's Mau forest Ecosystem, in which the discussions were based on mainly secondary data collected by the researcher. Using the data, the Chapter addressed the historical perspective of natural resource and conflict management. The linkages between resource degradation, scarcity and conflicts were clearly identified where conflicts in the Mau Forest Complex were attributed to colonial legacy, weak institutional and policy arrangements, and scarcity of natural resources.

Chapter four provided a critical analysis of the management of natural resource conflicts in the Mau Forest Ecosystem as the case study. The broad themes built on the earlier Chapters' discussions and the analyzed primary data collected by the researcher. The main objective of the study, which was to establish how scarcities of natural resources contribute to conflicts in the MFC has been adequately addressed in the mentioned Chapters.

On the first objective, it emerged that the historical experiences on the access to and control of natural resource has had significant effect on conflict over natural resources in the MFC. Poor resource management in the MFC has been informed by residual colonial policies that have persisted even long after independence. Resource distribution has generally been skewed and has tended to favor certain groups based on ethnic considerations, political and economic influences.[3]

See chapter three.
Refer to chapter four.

On the second objective of investigating effect of land scarcity on conflicts, it has been adequately addressed in Chapters three, and four through analysis of primary data. All the three scarcity types are at play in causing conflicts over land although structural scarcity in terms of policies and historical experiences is a more pronounced cause of conflicts.[4] On the third objective, it also emerged that scarcity of forest based goods and services have caused conflicts in the MFC, arising from degradation of the forest resource. From these results, all the three hypotheses of the study have been adequately addressed and were found to be true.

5.1   Key findings

What has emerged from the study is that structural scarcity is the main cause of conflicts in the Mau Forest Complex. Structural scarcity, primarily results from skewed distribution of resources amongst the citizens. Dissatisfaction and a feeling of deprivation within the disgruntled groups then lead to conflicts. Since conflicts in MFE are structural in nature, they present an opportunity for the Government of Kenya to transform the conflict from the state of negative peace to that of positive peace. Conflict prevention measures that are primarily focused on policies and national institutions in environmental conservation will be useful in conflict resolution in the Mau Forest Complex.

The research findings indicate that the historical influences of the inherited colonial land use policies have had considerable influence on the existing African national policies that are responsible for management of land and forest resources. The slow pace in redrawing of national land and forest policies in Kenya has in effect meant that the colonial based policies continued to influence land use in Kenya well after independence. However, it is not just the absence or inadequacy of policies that is responsible for conflicts in the ecosystem. It is to a greater extent the non

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[4] See chapters three and four

mplementation of the existing laws that has resulted in environmental degradation which in turn has led to the conflict.

Currently, there is poor institutional and policy arrangements and there lacks coordination and political direction in addressing environmental degradation and equitable resource distribution in the Mau Forest Ecosystem. The colonial legacy has had a residual negative influence on land and forest management programs in Kenya which have largely excluded public participation.[5]

The violent conflicts witnessed in the Mau Forest Ecosystem have been periodical, uncommon and associated with political electioneering period. However the prevalent nature of conflicts is in the form of standoffs between parties to the conflicts. Political tensions have therefore basically acted as triggers to the underlying structural conflicts over land and forest resources. These non violent conflicts have remained within the communities for which the Mau forest is a common resource. [6]

The threat-based approaches to the environmental problems in Mau forests have proved ineffective both as an intervention and as a corrective action, and could in fact deter the resolution of conflicts. The 2009 evictions carried out by the Government in the MFC has created nine camps of internally displaced persons (IDPs) numbering 8248. The camps have continued to pose threats to forest conservation.[7] This study establishes that there haven't been deliberate efforts to closely examine the reasons for failures in implementation of the existing conservation laws in the MFC. Instead, current interventions in the MFC are seeking to introduce other laws and institutions that may also face the same dilemma of non or part implementation.

[5] M. L. Dudziak, Working toward Democracy: Thurgood Marshall and the Constitution of Kenya. *Duke Law Journal*, Vol. 56. No. 3 (2006).
[6] See chapter four.
[7] Government of Kenya, *(Unpublished) Kenya Forest Service report on the Mau forest*, Nairobi, May, 2010.

The protected forest area in the MFC has reduced by about a quarter within a period of 50 years. This implies a reduction of forest based benefits to the society. Forest degradation and unequal land distribution in the Mau forest ecosystem further resulted in shortages in the availability of natural resources for public use.[8] Similarly, the declining farm productivity leaves the farmers with fewer livelihood alternative and they have turned to the forest as a soft target for quicker access to livelihood. This situation of supply induced scarcity was further enhanced when the Government proclaimed the ban on timber harvesting in government forests in 1999, despite which the communities continued to engage in unsustainable removal of forest products.[9]

It has also been observed that land scarcity is the trigger to migration of farmers from the other districts to the Mau forest environs. Since land is a key factor of production, land shortage created a rush by politicians to acquire more land for themselves and to settle their political supporters.

The demand for the forest and land resources have increased due to increase in population and diversified needs by the consumer communities. The population growth in the Mau Forest Ecosystem and changes in forest and land utilization behavior of the populations has caused greater scarcity by boosting the demand for land and forest resource. Thus, the rapidly growing population continues to depend on a fixed amount of cropland, and a diminishing available forest resources; meaning that the size of each person's slice of the resource pie in the ecosystem keeps shrinking.[10]

This research has established that resources have not been distributed fairly amongst the deserving public owing to the nature of the state monopoly in resource distribution and the

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[8] Government of Kenya, *Report of the Government's Task Force on the Conservation of the Mau Forest Complex*, Government Printers, Nairobi, (2009).
[9] Government of Kenya, *Ministry of Environment and Natural resources Annual Report*, Nairobi 2005.
[10] Refer to Chapter four. Population for Kuresoi division increased five times in twenty years.

manner of its policy implementation. The forest resources that are on high demand; timber, firewood, water and grass have been extracted through procedures that are under the State's control.

The local residents feel that the government has favored large multinational corporations in timber harvesting licensing and has denied the local saw millers the license to operate.[11] On the other hand, the Ogiek and Maasai communities also feel the recent allocation of forest land to migrant communities from other Districts has denied them their ancestral forest land ownership rights. The pastoralist communities in the lower riparian areas have also expressed concerns of reducing river flows as a result of the degradation of the forest areas and have attributed the scarcity to Government policies of forest Excision.[12]

While forest policies have often been blamed for failing to halt degradation and deforestation in the Mau forest ecosystem, policies relating to other economic sectors have resulted in a 25 per cent permanent loss of the Mau since Kenya's independence. These include land and agricultural laws that were invoked in allocating forest land for settlements and agriculture development. In the 2001 excision, forest degazetement could have been avoided if the Minister declined to sign the legal gazette notice to alter forest boundaries, following public objections.

A significant finding of this study is that the Structural induced scarcity is more prevalent and is the most important source of conflict in the Mau Forest Ecosystem. It is in the manner of controls, distribution and regulation of access to natural resources that has precipitated the feeling of deprivation among the parties to the conflicts in the Mau Forest Ecosystem. Decision

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[11] *Daily Nation. Nairobi*, Tuesday, 30 May 2006.
[12] A.Barume, 'Indigenous Battling for Land Rights: The Case of the Ogiek in Kenya', in J. Castellino et al. (eds), *International Law and Indigenous People*, Leiden, Nijhoff, (2005), pp.365-391.

aking on resource distribution has remained in the monopoly of the government, politicians and influential people. This has been the main cause of resentments and the feeling of relative deprivation, where the public sees resources as belonging to the state.

5.2   Recommendations

Conflicts in the Mau Forest Complex are closely tied to livelihoods of the populations who largely depend on primary production with land resources as the main factor of production. Interventions to the conflicts must therefore focus on human security by addressing the individual basic, economic and development needs. There is need to implement policies that aim at strengthening the linkages between local livelihoods and the wider national economic goals.

Forestry and land use conflicts are better handled through strategic approaches that address the real needs of the society which can trigger unsustainable resource use. This way the command and control attitudes such as the recent evictions that have taken place in the Mau forest ecosystem will be avoided and more consultative programs put in place. Having identified structural scarcity as the dominant cause of natural resource conflicts, the point of departure for conflict management in the MFC is to address structural scarcity that affect land and forest resources. This study therefore makes recommendations as follows:-

First, there must be political will as a precondition for an enhanced pace and quality of land and natural resources policy reforms and implementation. Primarily, the means by which political will is demonstrated is through budgetary allocation and also through delegating sufficient authority to the implementing agencies to enable them function efficiently. Adequate funding need to be allocated for support of reforms in forestry, lands and water sectors within the Mau Forest Ecosystem.

Land reforms, as guided by the new constitution and the national lands policy need to be implemented without further delay. Lessons learnt from other African countries and within Kenya's history reveal that slow land reforms are usually ineffective. If implemented, the new Kenyan constitution, which advocates for equity in resource access by the Kenyan citizens, can sufficiently minimize conflicts in the MFC.

As has been shown, conflicts over natural resources in the MFC have resulted more from failure to implement, or poor implementation of the existing laws rather than from the inadequacy of the laws. This is why in 2001, 61,224 Ha. were excised from the MFC in contravention of the existing Forest Act Cap 385 and the EMCA Act of 1999. The existing natural resource conservation laws should as a matter of urgency be implemented The National Environmental Management Authority (NEMA), is mandated to coordinate and provide oversight over the environmental conservation in the country.

NEMA should exert its authority and provide the leading role of coordinating the environmental conflict resolutions and sustainable management of natural resources in the Mau Forest Ecosystem. The laws that need to be coordinated include: the Forest Act, 2005, Water conservation Act 2002, Wildlife conservation Act 1989 and the National Land policy of 2010, all of which adequately address the issues of equity in access to resources.

Kenya Government needs to embark on a people-centered long term approach to developing rural areas. Such an approach will help in avoiding reactive responses to environmental 'crises' as has been the case in Mau Forest Ecosystem. Management interventions should aim to diversify livelihood alternatives and opportunities for the peoples, and to reduce their vulnerability to economic hardships. Programmes aimed at reducing the dependence of communities in the forest and land resources for subsistence should be enhanced.

Decentralization efforts, which are outlined in the Forest Act, National Land Policy and the Water Act place emphasis on devolved natural resource governance through grass root institution such as Community Forest Associations (CFAs) and Water Resource users Associations, (WRUAs). These efforts should be enhanced in order to provide local people with better procedural access to forest and water resources. The Government has been quite slow in implementing the decentralization programmes due to meager resource allocated to forestry and water conservation programmes. This process needs to be hastened if meaningful societal participation in natural resource management is to be achieved.

In order to reduce both supply induced and demand induced scarcity over forest resources in the MFC, deliberate and aggressive reforestation efforts should be up scaled so as to increase access to forest products by the local population. The government's national programs on environmental conservation need to explore innovative means of reforestation. This will entail going for smart methods of forest resource management. Innovative technology can be applied in tree nursery management, tree biotechnology, tree husbandry, forest harvesting, and wood processing technologies. For resource protection, modern surveillance and monitoring approaches should be introduced to relevant institutions in the MFC.

In conclusion this study established that scarcity alone is not the sole cause of conflicts in the MFC and that other factors are at play. It is therefore recommended that further examination of roles played by other conflict factors such as ethnicity and politics in the MFC be undertaken. Further, although population increase is expected to increase the demand for resources, this research did not establish evidence to link population growth and conflicts in the Mau Forest ecosystem. This gap is a pointer to the need for further studies on how demographic factors affect conflicts in the MFC.

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Appendix

Questionnaires

THE MANAGEMENT OF NATURAL RESOURCE BASED CONFLICTS IN AFRICA; 1963 TO 2010.

A CASE STUDY OF THE MAU FOREST COMPLEX IN KENYA

QUESTIONNAIRE FORMAT(Members of Community)

Dear respondent

This is to kindly take a few minutes to reflect and answer the following question. Note that the information given shall exclusively be used for the sake of a Masters thesis being undertaken by the undersigned at University in Nairobi.

Thank you for your cooperation.

A L   Lemarkoko.

Background Information

Date ....District..............................Division...........................

Location.....................Sub location.....................Village...........................

Name of respondent...

Sex of Respondent

Male   b) Female

Household characteristic

Male-headed   b) Female-headed

Marital status........................Age.................Size of family (No.)................

Educational level: a) Primary b) Secondary c) College/Tertiary d) University

Occupation: a) Farmer b) Pastoralist c) Employed d) Self-Employed e) Any other

2:      Land and Conflict

1). How long have you been resident in the area?.....................

2). What is your land size in Ha?

Less than one acre

Between one acre and five acres

Between 5 acres and 20 acres

Over 20 acres

3).How did you acquire the land? (Tick one)

a) Inherited

 b) Bought

c) Allocated by Government

 d) Any other

4). Has there ever been conflicts over land in your area? (Tick one).

a) Yes

b) No

If yes, what has been the nature of the conflict (s)? (Tick three that you consider most important)

Related to forest land use

Related to water use

Related to agricultural land use

Related to land ownership and distribution

Attributed to politicians /leadership (ethnic) tension

Others (Specify)

5). Do people own equal sizes of land in your area?   a). Yes b). No

If yes, why is this the case? ....
....
....
.....

If no, why is this the case?...
....
....

Comment on the land distribution during the Kenyatta administration:............................
....
....
....

Comment on the land distribution during the Moi administration:..................................
....
....
....

Comment on the land distribution during the Kibaki administration:...............................
....
....
.

2. Socio-Economic Issues

What are your main income sources?...

How does the forest contribute to your income?..

How does your land size contribute to your income?...

Is your land productivity increasing with time or declining with time?(Tick one).

a). Increasing

b). Declining

Scarcity of Forest Resources and Conflicts

Are you able to access the forest area for any forest products or benefits? a) Yes b) No

If no, Since when and why?

....

....

....

If yes, how have you been benefiting from the forest?(Tick where necessary)

Grazing of livestock

Collection of forest products (firewood, timber, poles, posts, etc)

Gathering of honey

Collection of medicinal herbs

Cultural, religious sites/ceremonies

Eco-Tourism

Any other

Are these forest products and benefits sufficient for the area residents? a) Yes b) No

If No, What do you think are the main causes of the inadequacy of forest resources......

....

....

How can we increase the availability of the scarce forest products and services to the people people?...

....

Have you ever experienced any conflicts resulting in the utilization of these forest resources? b) Yes b) No

If yes, what was the seriousness of the conflicts?

Tension

Violence

Stand off

Others (Specify)

What are these conflicts related to?(Tick 3)

Shortage of forest resources

Ethnic considerations in access and distribution of forest resources amongst communities

Partiality of government officials towards certain categories access to forest resources

Land distribution

Forest degradation

Any other (Specify)

4: **Decision making and resources**

Who are the key decision makers who influence land distribution in your area? (Tick the first three).

Politicians

Common man

The rich and influential people

Government officials

Who are the key decision makers who influence access to forest resources in your area? (Tick the first three).

Politicians

Common man

The rich and influential people

Government officials

Do you know of any land law that concerns land tenure and management in Kenya?

Yes

No

If Yes, which one(s) ....

Does it (Do they) address your concerns on land effectively/?(Explain)
....
....
....

Do you know of any Law(s) that governs forest management?

Yes

No

If Yes, which one(s) ....

Does it (Do they) address your concerns on community participation in forest
management?(Explain)
....
....
....

THE MANAGEMENT OF NATURAL RESOURCE BASED CONFLICTS IN AFRICA; 1963 TO 2010.

A CASE STUDY OF THE MAU FOREST COMPLEX IN KENYA

QUESTIONNAIRE FORMAT (FOREST MANAGERS)

Dear respondent

This is to kindly take a few minutes to reflect and answer the following question. Note that the information given shall exclusively be used for the sake of a Masters thesis being undertaken by the undersigned at University in Nairobi.

Thank you for your cooperation.

A L Lemarkoko.

Background Information

Date ....District............................ Zone ....

Station .... Forest Block ....

Name of respondent...

Designation/Position...

1) What was the size of forest reserve under your station in 1963?.................Ha.

2) What was the size of forest reserve under your station before 1980?...........Ha.

3) What is the current size of forest reserve under your station?.......................Ha.

4) How much forest area was lost to excisions in your station?...........................Ha.

5) What is your rating of the main cause of shrinking forest area in your jurisdiction (Assign No. 1 for the major cause and no. 5 for the least cause)
   a) Logging

b) Charcoal burning
c) Forest management
d) Excision
e) Illegal grazing

6) For the forest land already converted into settlement, what is the current main land use type? (Tick one)

a) Agriculture

b) Conservation

d) Industry

7) What are three main forest resources that have competing interests between different users in your area?

a)...

b)...

c)...

8) List 5 important stakeholders in your area in terms of forest management and who utilize forest resources in your area?

a)...

b)...

c)...

d)...

e)...

9) What are the natural resource laws governing land and forest management
....
....
....
....

a) Are they being implemented soundly or not? ....

b) Are they adequate or not? ....

c) If not what are your suggestions on required changes or improvement?

....
....

THE MANAGEMENT OF NATURAL RESOURCE BASED CONFLICTS IN AFRICA: 1963 TO 2010.

A CASE STUDY OF THE MAU FOREST COMPLEX IN KENYA

QUESTIONNAIRE FORMAT (PROVINCIAL ADMINISTRATION)

Dear respondent

This is to kindly take a few minutes to reflect and answer the following question. Note that the information given shall exclusively be used for the sake of a Masters thesis being undertaken by the undersigned at University in Nairobi.

Thank you for your cooperation.

A L Lemarkoko.

Background Information   (Fill where appropriate)

Date ....District...........................Division..........................

Location...................Sub location....................Village..........................

Name of respondent...

Designation...

What is the total area of your administrative jurisdiction? ....km.

What is the current population of your area of jurisdiction?

What was the population of your area of jurisdiction in

a) 1963...........

b) 1980...........

What are the main causes of conflicts in your area?

....
....
....

What is the average land size ownership in your area?............................

What is the average large-scale land ownership?..................................

What is the smallest land size ownership in the area?...........................

What is the current approximate population of your area?............................

What was the reason for Governments settling people in the 2001 forest excision
area?..

....
....
....

From Which District(s) did the new settlers originate............................

....

In your opinion was the land distribution equitable amongst all Kenyans

....
....

Is there a section of the community that feels left out in land allocation?

If Yes, which category or who are they?..

Are you aware of the Forest Act 2005 as concerns management of forest resources in your area

a) Yes

b) No

Are you aware of any other natural resource laws governing land management?

a) Yes

 b) No

If yes, Which one(s)?...

....
....

Are they being implemented soundly or not?..

....
....

Are they adequate or not..
....
....

If not what are your suggestions on required changes or improvement?...
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THE MANAGEMENT OF NATURAL RESOURCE BASED CONFLICTS IN AFRICA: 1963 TO 2010.

A CASE STUDY OF THE MAU FOREST COMPLEX IN KENYA

QUESTIONNAIRE FORMAT(IGOs/NGOs)

Dear respondent

This is to kindly take a few minutes to reflect and answer the following question. Note that the information given shall exclusively be used for the sake of a Masters thesis being undertaken by the undersigned at University in Nairobi.

Thank you for your cooperation.

AL Lemarkoko.

Background Information

Date ....District............................Division............................

Location.....................Sub location.....................Village............................

Name of respondent...

Name of organization...

Area of focuss (eg Agriculture, Human rights etc)...
....

Is the Government doing enough to manage the forest resources?

a) Yes.

b) No.

What is your organization's linkage in management of natural resources in this area...

....
....

Are land and forest resource distribution in Mau forest area equitable?........

Are there categories of beneficiaries that are more favoured than others?................

....
....

If yes, state two examples of favoured entities in the forest and two in the land resources allocation/distribution..

....
....
....

Are the current Government Land policies support equity?......................................

....

Are you aware of any natural resource laws governing land and forest management? Which one(s)?..

....
....
....
....
....

Are they being implemented soundly or not?...

....
....

Are they adequate or not? (Explain)...

....
....
....
....

If not what are your suggestions on required changes or improvement?....

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