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INSTITUTE OF DIPLOMACY AND INTERNATIONAL STUDIES

ENVIRONMENTAL DIPLOMACY AND CONFLICT RESOLUTION: A CASE STUDY OF MAU FOREST

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DECLARATION

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

Signature………………………….   Date………………………

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

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DEDICATION

I dedicate this project to my family members namely husband Esau Oginga Omollo and children Trevor, Tyrone and Tahnia.. God bless you all abundantly.

ABSTRACT

Management of environmental issues have been gaining international attention and the conflicts that are arising from the scarce natural resources cannot be solved without the call for cooperation from both local and international stakeholders. The resultant pressures to the environment emanating from human activities on natural resources have had the potential for serious conflict. Due to the possible conflict in the sharing of the natural resources, there has been need to employ environmental diplomacy in resolving these conflicts. Consequently, the research objective was to establish the role of environmental diplomacy and conflict resolution in the Mau forest. Specifically, this research used content analysis and survey methods. The content analysis focused on environmental diplomacy mechanism in the Mau forest. The analysis was limited specifically to the application of environmental diplomacy issues on the Mau forest region. The issues examined include environmental awareness and environmental diplomacy at the Mau. Evidence from the analysis of the study suggests that the interviewees decry the environmental degradation that has occurred in the forest and a number of international and sub-regional organizations are involved in the conservation and rehabilitation planning of the area. Further, evidence presented herein indicates that there is need for a permanent demarcation of the legal boundaries and assessment of critical water areas and title deeds issued. In addition, it was found that there is need to establish community forest association as one form of environmental diplomacy. Generally, environmental diplomacy was found to be a more effective tool of conservation the Mau forest. Thus the study recommends an integrated approach to both conflict resolution and dispute settlement mechanism in order to promote peace, coexistence and participation of all the parties involved. There is need therefore for a review of the existing conflict resolution mechanism so that it becomes an all inclusive process and enhance the principle of public participation in natural resources management.

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LIST OF ABBREVIATIONS

ADR   -   Alternative Dispute Resolution

CBD   -   Convention on Biological Diversity

CFA   -   Community Forest Association

CITES   -   Convention of International Trade and Endangered Species

IDIS   -   Institute of Diplomacy and International Studies

IGAD   -   Intergovernmental Authority Development

INCED   -   United Nations Conference on Environment and Development

KFS   -   Kenya Forest Service

MFC   -   Mau Forest Complex

MFCA   -   Mau Forest Complex Authority

NBI   -   The Nile Basin Initiative

REDD   -   Reduced Emissions associated with Deforestation and Degradation

TF-MFC   -   Task Force for the Mau Forest Complex

UN   -   United Nations Organization

UNCCD   -   United Nations Convention to Combat Desertification

UNEP   -   United Nations Environmental Program

WSSD   -   World Summit on Sustainable Development

WTO   -   World Trade Organization

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CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Background of the study

The environment includes the ecosystem which is made up of plants, animals, living organisms and the population – the population in this study can be referred to as the indigenous people – a term which is not widely accepted by all states. It is also referred to as the 'marginalized people'. In this context, the population is the 'forest dependent people' of the Mau Forest Complex. The environment also includes the ozone layer which is able to sustain life. With the advent of industrialization, environmental conflicts emerged. This happened in the late 1960s as a result of political and social differences. The resulting effect was global environmental degradation thus leading to deterioration of the quality of life and scarcity of resources for improved livelihood of mankind.

Environmental issues have had increasing international attention which are highly questionable and they cannot be solved without the call for cooperation in order to address global environmental security. There have been various bilateral, regional and global agreements carried out by states and international institutions. Such agreements include the Kyoto Protocol which gives an approach to international politics of climate change, United Nations Framework Convention on Biological Diversity (CBD), African Convention on the Conservation of Nature and Natural Resources – just to name a few. The need for these agreements has been necessitated by the changing needs in the world where within a relatively few years, major environmental issues have emerged of which unilateral national action has proved ineffective and consequently national governments, in cognizance of their common interests in these issues,

have developed cooperative arrangements to cope with them. Therefore, with the growing pressure of human activities on natural resources and the environment, the potential for serious conflict may increase[1].

In many of these international negotiations are serious exercises in the allocation and distribution of valued goods. Consequently, the principal question that will need to be addressed and solved is how to divide up the goods so that each party believes that it has been dealt with justly and fairly when all the parties are equal or, if they are not, in accordance with their stature or power standing. However, such distributive negotiations can easily break down leading to conflict between the surrounding community and the authorities or between states[2].

Diplomacy is the relations between states and between states and other actors and is apprehensive about peace within conflicts and violence. This was reflected in conventions such as the Vienna Convention and all United Nations Conventions that talk about representation of States. Diplomacy also deals with mechanisms of the formulation of foreign policy which determine the context of state diplomacy. Diplomacy encompasses a wide array of tools for international conflict prevention and management, such as negotiation, mediation, facilitation, conciliation, pre-negotiation, good offices, and cooperative ventures. Broadly, international diplomacy may be defined as the use of peaceful means to prevent, settle, or resolve conflicts[3].

Environmental diplomacy became a concept at the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro. Also known as the Earth Summit,

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[1] Caidweil L. K. International Response and Conflict to Environmental Issues, *Journal of Cooperation* Vol.35, no. 3, (1998) pp 23-25

[2] Morgan, T. Clifton, & Sally Campbell. ''Domestic Structure, Decisional Constraint and War: So Why Kant Democracies Fight?'' *Journal of Conflict Resolution* 35(2): (2009), pp 187–211.

[3] George, A. The role of force in diplomacy: A continuing dilemma for U.S. foreign policy. In C.A. Crocker, F.O. Hampson, & P. Aall (Eds.), *Managing global chaos: Sources of and responses to international conflict* (pp. 209-222). Washington, DC: U.S. Institute of Peace Press.

this conference had the largest gathering of delegates the world had ever had and represented multilateral diplomacy in its widest definition. Nearly 180 nations participated, 118 at head-of-state level. The United Nations (UN) and other intergovernmental organizations attended in addition.[4] The Earth Summit started as a preventive measure and in this process came up with two forms of activities – the re-active where there is an issue where two or more nations come together to solve an environmental problem and the pro-active form where nations create a relationship based on the exchange of environmental ideas and culture for the betterment of the environment.

Environmental diplomacy affects all territories. It can arise either in response to environmental degradation or conflict over scarce natural resources. Environmental diplomacy can be applied at the local level, the national level and the regional level where cooperation over natural resources can be brokered between divided groups. In the last quarter of the twentieth century, international political processes have, apparently, become increasingly concerned with a wide range of environmental problems. A common argument can now be heard from the politicians' offices as well as from within the walls of academe and even corporate boardrooms: the previously unchallenged notion of state sovereignty has given way to new and better forms of international cooperation in the face of environmental problems. Few, if any, of the exponents of this view would argue that the management of this acknowledged interdependence has been straightforward, but hope is continually held out that increased awareness of the fragility of the natural environment has necessitated greater effort on collective measures to halt destructive practices and conflicts.

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[4] Wathern, P. (2013). *Environmental impact assessment: theory and practice*. Routledge.

The international political arena would debate about the relationship between the terms "environment" and "conflict" in the sharing of water resources. It has long been recognized that issues to do with the environment normally stir up wars and civil conflicts. Within states, water scarcity can assume an increasingly contentious and violent role when, for example, water-dependent sectors such as irrigated agriculture can no longer sustain farming livelihoods, leading to destabilizing migration flows. However, it has been noted that in many regions of the world; conflict prevention, conflict resolution, and post-conflict reconstruction mechanisms has ignored water as one of the main courses of the conflict and there is need to rethink this position (e.g., Southern and East Africa, including the Great Lakes region; the Middle East; and Central, Southeast, and South Asia)[5].

Indeed, aggressively pursuing a water peacemaking strategy can provide dividends beyond water for stakeholders. History is replete with examples of how water has been able to build trust and serve as an avenue for dialogue when parties are stalemated on other issues. Further, trans boundary water institutions have proven resilient, even as conflict is waged over other issues by the parties to the conflict (e.g., the "Picnic Table Talks" between Jordan and Israel, Mekong Committee, and Indus River Commission). This strategy can also establish habits of cooperation among states, some with little experience, such as the states in the Kura-Araks basin in the Caucasus, or the Central Asian states of the former Soviet Union[6]. This shows that there is a direct correlation between environmental scarcity and outbreak of violent confrontation as well as being a mediating factor. This position is in line with the green war theory as advanced

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[5] Alexander, C., Geofrey.C.D & Aaron. T.W Water, Conflict, and Cooperation Office of Conflict Management and Mitigation in the Bureau for Democracy, Conflict, and Humanitarian Assistance of the United States Agency for International Development (USAID); 2001

[6] Kramer, Annika. (2004). *Water and conflict* (Policy briefing for USAID). Berlin, Bogor, Washington, D.C.: Adelphi Research, Center for International Forestry Research, and Woodrow Wilson International Center for Scholars.

by Thomas Homer-Dixon which posits that severe environmental scarcity forces groups to focus on narrow survival strategies, which reduces the interaction of the civil society with the state. As a result, the society segments into groups and each group turn inward to focus on its own concerns[7]

In Kenya, groups around the Mau forest with strong collective identifies that can coherently can coherently challenge state authority or political leadership and take advantage of collective action against political leadership, for example, withdrawing their political support. During various evictions that took place in the Mau forest, the resultant movement of the settlers has produced tensions between local and incoming communities, especially when it increases pressure on already scarce resources. This position rhymes with other findings in Africa that resultant poverty due to livelihood loss has been identified as a common denominator of the causes of conflict in most of the civil wars that emerged in Africa[8].

There have been forums initiated to rehabilitate the Mau forest complex such as the Mau Task Force whose aim is to rehabilitate forest degraded areas in the Mau. This is done through partnerships with stakeholders, including government bodies, non-governmental organizations and development partners. Indeed, in recognition of the societal expectations for protected areas (PAs) and their roles in biodiversity conservation, the same interdependent roles have been codified through the Convention on Biological Diversity, which calls for its 193 member states

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[7] Chazan Naomi (1994), Engaging the State, Engaging the State: Association Life in Sub-Sahara Africa', in Joe Migdal & Vivien Shue, eds State Power and Social Forces. Cambridge University Press
[8] United Nations. (2003, September 12). *Interim report of the Secretary-General on the prevention of armed conflict* (Report of the Secretary-General on the work of the Organization, A/58/365–S/2003/888). New York: United Nations.

to establish comprehensive systems of representative and effectively managed PAs by 2010 (terrestrial) or 2012 (marine)[9].

Despite the fact that environmental treaties continue being signed, the global environment is progressively worsening. Scientists have warned that we are in the midst of a period of mass extinction of species, fisheries are depleted worldwide, and water shortages loom on every continent[10]. Resources such as soil, water and air continue to be depleted. There is massive destruction of the ecosystem while most wildlife faces extinction. One of the fundamental functions of a state is to secure habitual conditions and it is a surprise that the environment has continued to be degraded with the government participation of complacence. To achieve this objective, a range of provisions including great number of conditions generally described as 'ecological' or 'environmental' requirements are needed. When natural habitats are destroyed or natural resources are depleted, the environment is degraded. The question therefore arises - Is there a way of reconciling the slow pace of implementation of products from international diplomacy with the earnest growth of global ecological decline? This needs competing with the unique characteristics of environmental diplomacy and adapting measures, attitude changes and strategies that will ensure speedy implementation of agreed products of environmental diplomacy.

There are formal and informal kinds of environmental diplomacy. This study will focus on formal environmental diplomacy and environmental treaties and conventions in trying to link

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[9] Convention on Biological Diversity, *Decision adopted by the conference of the parties to the convention on biological diversity at its seventh meeting [Decision VII/28] Kuala Lampur, Malaysia, 9–20 and 27 February, 2004*. Secretariat to the Convention on Biological Diversity, Montreal, Canada
[10] Environmental Diplomacy conference report, 1998

environmental diplomacy to conflict resolution through the resolving of environmental degradation in the Mau Forest Complex.

1.2 Statement of the Problem

The Mau Forest Complex, which is one of the five water towers in the Kenya, has forest dependent populations who have either settled legally or illegally. The Kipsigis community, who claim to be legal occupants of the forest have opposed eviction from the forest claiming they are being harassed because of their political inclinations and this has created increased tension between them and the Maasai community who have equally refused to be compromised claiming that the water-catchment area was owned by authorities in the Government – who are the same people opposed to eviction. There are times when both the Kipsigis and Maasai have had violent confrontation due to differences over equitable sharing of the resources in the Mau forest. This position is in conformity with the finding of Susskind & Cruikshank finding (1997) who found that uncontrolled influx of people and the resultant degradation of resources often result in social segmentation as subgroups within the community withdraw into themselves (e.g. tribal groupings) to protect their own interests. Further, as the resources get depleted, tribal leaders often try to maintain power by pointing on resources in the neighboring regions and mobilizing their communities to seize them and this form of mobilization is likely to result to the heightened tension and violence[11].

In such a circumstance, where there has been conflict between different communities and state actors participation in the environmental degradation of the Mau ecosystem, it is imperative

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[11] L. E. Susskind and J. Cruikshank (1997), Breaking the Impasse: Consensual Approaches to Resolving Public Disputes (New York: Basic Books).

that different approach be employed to realize the desired need of protecting environment in Mau. Official diplomats, that have up to date been employed, are constrained in their exploration of peaceful options[12]. Consequently, other forms of diplomacy such as the non-public need to be considered and might be useful or even necessary complement. It involves efforts such as citizen dialogues, scientific exchanges, and conflict resolution efforts by churches, non-governmental organizations, or business people. In addition, non-public diplomacy has helped set the stage for official negotiations and for official back-channel[13]. Consequently, this study will seek to establish the role of environmental diplomacy in conflict resolution in Mau forest escarpment.

1.3 Objectives of the research

The objective of this research was anchored towards establishing the role of environmental diplomacy in conflict resolution in the Mau escarpment. The other objectives of this study are;

   i.   To evaluate the existing environmental degradation and conflicts in the Mau escarpment,

  ii.   To establish the extent of Kenya's involvement in international environmental diplomacy in resolving environmental degradation and conflicts at the Mau escarpment,

 iii.   To establish the role of environmental diplomacy in resolving environmental conflicts in the Mau escarpment.

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[12] Saunders, H.H. Pre-negotiation and circum-negotiation: Arenas of the peace process. In C.A. Crocker, F.O. Hampson, & P. Aall (Eds.), *Managing global chaos* (2006) pp. 419 - 432. Washington, DC: U.S. Institute of Peace.
[13] Makovsky, D. (1996). *Making peace with the PLO*. Boulder,CO: Westview.

1.4 Literature Review

The Project on Environment, Population and Security (Homer-Dixon 1999), suggests that environmental scarcity is rarely the sole and direct cause of violent conflict (except in the case of shared river waters where dams or other water-related projects have been known to cause major relocations of people that yield violent conflicts and turmoil). On the basis of a number of detailed case studies, these researchers conclude that critical environmental problems influence conflict indirectly through secondary political-social-economic effects. For example, threats to security may be triggered by environmental scarcities, which, in turn, lead to economic decline, decreased agricultural production or population migration, which, in turn, generates civil strife, insurgencies, and state collapse. They further point that the triggering environmental elements and the subsequent effects are often trans-boundary problems, dealing with shared water, land or atmosphere, and cross-border migration of population groups.

From the above study by Homer-Dixon (1999), it means that the perception of relative scarcity of a natural resource is not enough to cause a conflict, but there need to be sufficient mobilization around a shared identity, such as religion, class or ethnicity, in the face of a rigid political structure, then violent conflict related to resource scarcity among groups within a state may emerge (Homer-Dixon and Blitt 1998). This point is in line with the situation on the Mau where certain community leaders mobilized their constituents to oppose relocation from the forest and be resettled in an alternative land. The politicians have been known to take advantage of such a situation to depict their communities has being harassed and there is need for them to resist such moves. In case the leadership makes good the threat to move them out of the forest, cases of violence is witnessed. A causal link between renewable resource scarcity and conflict may not be unidirectional. Instead, there may be feedback systems, such as negative impacts of

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conflict on the environment or cycles of recurring conflict fluctuating with renewable resource cycles (Maxwell and Reuveny 2000).

In other studies that link natural resources and conflict, they do focus less on resource scarcity or environmental degradation and more on the geography of resources as a contributing factor to conflict. Klare (2001) suggests that distribution patterns of resources (e.g. oilfields, gems, timber) shape or determine how resource-related conflict emerges. For example, a point source resource such as mined diamonds may be more easily controlled by rebel groups whereas a diffuse resource, such as timber or even agricultural land, requires securing control over a large area. Specific resource characteristics have also been linked to particular types of conflict and combatants (LeBillon 2001). In analyzing civil wars between 1960 and 1992, Collier and Hoeffler (1998) suggests that states with a high level of natural resources, as measured by the share of primary exports in gross domestic product, have a reduced risk of civil war most likely because governments of resource-rich countries are better able to finance their self-defence. Yet the control of natural resources by rebel groups, such as diamonds in African countries or drugs in Latin American states, has been shown to provide financing for rebel groups seeking to capture or secede from the state (Collier and Hoeffler 2001)

Kumssa (2009) observed that human conflict and human security in the North Rift and North Eastern Kenya was a continuous challenge the inhabitants of the region. The research project that was undertaken by the United Nations (UN) looks at the causes and effects of conflicts in both arid and semi-arid lands in Northern Kenya. It addresses human security concerns arising from conflict, displacement, migration and poverty. Kumssa used field interviews to study four problem areas: cattle rustling, proliferation of small arms, and competition over scarce resources and conflict between refugees and local communities. His

research finding among others indicate that in the process of seeking access to water and green pastures; nomads cross and re-cross international boundaries in the North Eastern Kenya and North Rift which results to conflicts over pasture and water. There is competition in resources which has had heavy consequences for the economic security of families and internally displaced persons. The North Eastern Kenya and North Rift regions are among the most underdeveloped areas and it can be attributed to higher level of human insecurity prevalent in the area. More than three quarters of the population live below poverty level in these regions and the research sought to understand causes of conflict and ways to build capacity of a vulnerable population to gain freedom from fear and freedom from want.

Hornsby (2010) investigated the World Tourism Organization's (WTO) effectiveness in resolving transatlantic trade environmental conflict. He postulated that the major challenges experienced in transatlantic trade relationship is being able to control risk areas such as the environment yet keeping trade flows stable. He used SPS approach committee for resolving trade conflict over risk-based regulations. His findings indicate the need for American and European Union policy makers to utilize SPS Committee mechanisms to resolve differences over environmental regulations at the SPS Committee. He recommended the above to be followed which would lead to trade conflict resolutions over risk-based issues in the SPS context will be strengthened.

A number of points of agreement among the many studies that have been conducted thereafter for example it has been found that the depletion and degradation of renewable resources, population growth, and the unequal distribution of land and income are sources of domestic armed conflict. However, a recently completed cross-sectional statistical study (Hauge and Ellingsen 2008) concludes that while environmental degradation and land degradation are

likely to throw countries into civil turmoil (primarily small conflicts), economic and political indicators are far more important as predictors of domestic armed conflict.

According to Lietzmann and Vest (2009), a number of contextual factors serve as sensitive filters that moderate the impact of environmental changes and its role in fanning conflict. They identified such factors as perceptions of threat, economic vulnerability and resource dependency, institutional, socio-economic and technological capacity, cultural and ethno-political factors, violence potential and internal security structures, political stability, public participation, international interaction, and existing mechanisms for conflict resolution. While emphasizing the critical explanatory nature of situational factors, the Lietzmann and Vest study also acknowledges that it is often difficult to distinguish the role played by any one situational indicator because many interact with each other. Thus, it is difficult, except through statistical analysis, to isolate the moderating effects of particular factors.

Depending on how a government manages its resource wealth, rapid expansion of resource sectors toward export can result in a wider income gap, rural decline, centralization of control and unchecked corruption (Auty and Mikesell 2001). They point out that resource abundant states may be afflicted with a 'resource curse' which slows their economic growth and stifles the emergence of competitive export industries (Sachs and Warner 2001). Oil-rich, economically developing 'petro-states' have been of particular interest to perspectives that understand resource abundance to be a liability. Resources such as oil, timber, minerals, gems, drugs and other 'cash crops' may contribute to these processes by enabling governments to 'waste' resources in exchange for a source of ready, unaccountable income (Ascher 2000). Oil is a unique resource in that it is increasingly associated with global power politics and often serves to maintain dictatorships and degrade the environment (Bacher 2000).

1.5 Justification of the study

Despite the various treaties, conferences, enormous time, financial and human resources that have been spent on environmental education, environmental awareness and advocacy campaigns; the participation by the United Nations Environmental Program (UNEP) in environmental conflicts and degradation is still high. In a country guided by realist convictions on the part of nation-states; the role of diplomacy in the international environmental agenda in Kenya will be revisited and critically evaluated. The study will shed light on the need to stimulate international cooperation in order to generate international agreement on complex trans boundary environmental problems. This study will be an input in a bid to safeguarding the environmental underpinnings of broad-based economic growth, protecting the integrity of critical ecosystems and ameliorating and preventing environmental threats to public health. This study will recommend appropriate environmental diplomatic strategies in resolving environmental conflicts. It will underscore the importance of sustainable environment management geared towards minimizing environmental degradation.

1.6 Theoretical Framework

This study will be based on the environmental scarcity theory. The basis of this theory is the existence of a relationship between environmental scarcity and outbreaks of violent confrontation in a community. It points out that in any particular context, there are key factors that include the quantity and vulnerability of environmental resources, the balance of the political power, the nature of the state, patterns of social interaction and the structure of economic relations among social groups that can be identified to cause violence. Any of these factors or combinations of them will affect how resources will be used up, the social changes as a result of

environmental scarcities, the management of the grievances arising from these scarcities, and how the grievances will lead to violence.

According to this theory, there are three types of environmental scarcities that may affect a community namely; the supply induced scarcity that is caused by the degradation and depletion of environmental resource, such as the reduction in the water levels in the rivers originating from the Mau forest; demand – induced scarcity results from the populations growth within a region or increased consumption of per capita resource, for example demand of timber from the forest and finally structural scarcity arising from unequal social distribution of resources that concentrates it in the hands of relatively few people while the remaining population suffers from shortages. This point is in line with experiences in the Mau forest where the Mau forests complex is immensely important, as it serves as a catchment for rivers west of the Great Rift Valley. These rivers in turn feed major lakes in the region, including Lake Nakuru and the trans-boundary lakes of Lake Victoria in the Nile River Basin, Lake Turkana in Kenya and Ethiopia, and Lake Natron in Tanzania and Kenya. In addition close to 25% of the Mau forest has been converted to either settlements or farmlands[14] . In addition, some of the settlers in Mau had sold off some of their land in the neighboring districts such as Bomet and Narok County to settle in what is considered a more fertile land in the forest. Not only had this group of people suffer from imbalanced distribution of the quantity of land, but also often had received marginally productive land. Because of these particular vulnerabilities of the Mau eco-system, the structural scarcity interacted with the supply induced scarcities to create a source of potential violence.

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[14] Fredrick Owino, chairman (2009), "Report of the Prime Minister's Task Force on the Conservation of the Mau Forests Complex." Republic of Kenya.

According to Homer-Dixon (1991), scarcity of resources has several social effects such as reduced agricultural output, movement from regions that witness environmental scarcity and weakened institutions. For these social effects to be a source of conflict or heightened grievance, people should perceive a reduction in their level of living standard compared with other people or desires set and further, they should see their grievance not being addressed[15]. Deforestation is one form of the supply-induced environmental scarcity since it destabilizes soils and changes local hydro-logical cycles due to the disruption of the key of the eco-system links. For the settlers of the Mau, fuel wood remains the most accessible and inexpensive energy source. Indeed according to Isaac Kalua, the Green Africa CEO, 68% of the Kenyans depend on wood fuel for cooking and heating. Estimates by the Kenya government place that the annual wood fuel usage in Kenya is approximately 14.5 Million metric tonnes[16]. This volume is attributed to the perception that wood for fuel is free, and the collection costs are seen in terms of women or children time which in most cases is undervalued. In addition, Peden (2003) note that coupled with frequent fires, high opportunity cost of land, the long time periods of tree growth and the use of both arable and uncultivated land for grazing all discourage tree planting.

The scarcity and degradation of water resource is yet another result of deforestation. The water used by the settlers in the forests tend to have the highest concentration of suspended solids and the highest level of faecal bacteria contamination[17]. The wider health of this society will be at risk because of the increased risk of epidemics such as cholera, dysentery, parasitic infection and typhoid. In addition, the recent influx of settlers in the Mau forest coupled with

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[15] Gurr, Tedd (1993), *Minorities at Risk, a Global view of ethnopolitical conflicts*, Washington DC, Institute of Peace

[16] Kenya National Bureau of Statistics (2012). Kenya Integrated Household Budget Survey 2005/06 (Revised Edition). Ministry of Planning and National Development. The Regal Press Kenya Ltd. Nairobi, Kenya

[17] Simpsom, D (2003), *Rotating the Cube: Environmental strategies of 2000s*. Dalbridge: Indicator Press

structural inequalities that deny them some of the common and basic services such electricity, refuse collection, and adequate sewerage system results in environmental degradation. Trees are cut down for fuel, grass are used for feeding livestock and thatching which depletes the soil of its humus content. These processes increase soil erosion, which high during intense rainstorms witnessed in the Mau forest area.

1.7 Hypothesis

i. There is existing environmental degradation and conflicts in the Mau escarpment.

ii. Kenya is involved in international environmental diplomacy in resolving environmental degradation and conflicts at the Mau escarpment,

iii. Environmental diplomacy plays a significant role in resolving environmental conflicts in the Mau escarpment.

1.8 Research Methodology

This section presents and justify the research design and methodology. It describes the research design, research site, the target population, sampling procedures, research instruments, data collection procedures and analyses. This study uses case study as its research design.

1.8.1 Research Design

Case studies are normally associated with qualitative studies and are conducted within a specific time frame. For this particular case study, information was gathered both from the field

and secondary sources by questionnaire and interview. Yin[18]defines a case study as an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between the phenomenon and context are not clearly defined. Further, he asserts that a case study allows an investigation to retain the holistic and meaningful characteristics of real-life events such as individual life cycles, organizational and managerial processes, neighborhood change, international relations and the maturation of industries. Therefore, a case study is most suited where the contextual conditions under study are critical and the researcher has no control over the unfolding of events. There are three types of case studies[19]and these are: Intrinsic, instrumental and collective. The case study for this research was Mau forest. Case studies have been subject to criticism on the grounds of non-representativeness and lack of statistical generalisability. The data collected from case studies has been seen to be open to different interpretations and potential 'research bias[20]. One man, Pettigrew[21] however still believes that case studies are useful in developing and refining generalisable concepts and multiple case studies can lead to generalizations in terms of propositions. to different interpretations and potential 'research bias[22]. One man, Pettigrew[23] however still believes that case studies are useful in developing and refining generalisable concepts and multiple case studies can lead to generalizations in terms of propositions.

[18] Yin R, K, Case study research designs: Designs and Methods, (Sage Publications: New York, 1994).

[19] ibid

[20] Conford, T, & Smithson, S, Project research in information systems: A student's guide, (Palgrave Macmillan Limited: New York, 1996).

[21] Utley, R, Theory and research for academic nurse educators: Application to practice, (Jones & Bartlett publishers: Sudbury, 2010).

[22] Conford, T, & Smithson, S, Project research in information systems: A student's guide, (Palgrave Macmillan Limited: New York, 1996).

[23] Utley, R, Theory and research for academic nurse educators: Application to practice, (Jones & Bartlett publishers: Sudbury, 2010).

1.8.2 Data Sources

Data collection was done through both secondary and primary sources. Primary data was obtained from the Mau forest Council. Secondary data was basically from books and periodicals.

1.8.3 Data collection and analysis

The main data collection technique for this study was personal interviews and questionnaires. The questionnaires were based on the research's objectives. It is these objectives that the data was analysed from.

1.9 Scope and Limitation of the Study

This research focused on the settlers in the Mau forest as well as opinion leaders in the site area. The study sought to establish the role of environmental diplomacy as a conflict resolution tool in the Mau forest area in Kenya. As such, the findings will not apply necessarily to other water towers in Kenya or any other country. The research covered a period of 6 months effective May, 2015. The Mau Forest Complex is the largest closed-canopy montane ecosystem in Eastern Africa. It encompasses seven forest blocks within the Mau Narok, Maasai Mau, Eastern Mau, Western Mau, Southern Mau, South West Mau and Transmara regions. The area is thus the largest water tower in the region, being the main catchment area for 12 rivers draining into Lake Baringo, Lake Nakuru, Lake Turkana, Lake Natron and the Trans-boundary Lake Victoria.

CHAPTER TWO

ENVIRONMENTAL DEGRADATION AND CONFLICTS

Natural resource management is in many ways a form of conflict management. Traditions, customs, rules, laws and policies dealing with issues of access to, and use and management of, natural resources all aim to bring order and predictability to situations where competition and conflicting interests – even in the smallest communities – are present. Such institutions and practices can be termed "proactive" responses seeking to manage the potential for tension and conflict[24].

Although resource management and conflict management are closely linked, only recently have policy-makers, state resource managers, practitioners, academics and others attempted to address the connection. Natural resource conflict management and resolution is a priority area of the Forestry Policy and Institutions Branch (FONP) of the Food and Agriculture Organization of the United Nations (FAO)[25].

Until fairly recently mankind acted as if he could go on forever exploiting the ecosystems and natural resources such as soil, water, forests and grasslands on the Earth's surface and extracting minerals and fossil fuels from underground. But, in the last few decades, it has become increasingly evident that the global ecosystem has the capacity to sustain only a limited

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[24] International Union for Conservation of Nature (IUCN), Conserving Africa's natural heritage, the planning and management of protected areas in the afrotropical realm, proceedings of the 17th meeting of IUCN commission on National parks and Protected areas, 1981.
[25] Ibid, IUCN.

level of utilization. Biological systems cannot go on replenishing resources if they are overused or misused. At a critical point, increasing pressure destabilizes their natural balance[26].

2.1 Environmental conflict and scarcity

A conflict can be classified as an environmental conflict if it is a result of environmental scarcity of a resource which disturbs ecosystem's equilibrium. For instance, conflicts over agricultural land can only be viewed as environmental conflict only when the land is the reason for struggle maybe due to soil erosion, climate change, over use, ownership wrangles among others. As such, we can draw that the main cause of environmental conflict is environmental scarcity of renewable resources. Such a scarcity can be caused by environmental change, population growth and unequal distribution of resources[27].

Environmental change is as a result of human induced decline in the quantity or quality of a renewable resource. Population growth on the other hand reduces the amount of the same resources to be distributed over a bigger number. Unequal distribution means the concentration of resource in the hands of a few people. The above is what Homer Dixon refers to as the drivers of scarcity: Demand-induced scarcity which is caused by population growth, supply-induced scarcity caused by degradation of resources and structural scarcity which arises from unequal distribution of resources[28].

Presently, it has been found that environmental effects do not directly lead to conflicts. Instead, environmental effects give way to social effects which lead to conflict. There are four

[26] Soule, M, E, Viable Population for Conservation, (Cambridge University Press: New York), 1990.
[52] [27] Homer- Dixon, T, On the threshold: Environmental change as causes of acute conflict, International security, 16, 2, 1991, pp5-40.
[28] Ibid, Homer-Dixon.

major social effects caused by environmental degradation. These are general economic decline, decrease in agricultural production, population displacements and disruption of institutions' functions and social relations. These social effects can either singly or in combination produce or exacerbate conflict between groups. Conflict becomes quite a reality if grievances are articulated by groups organized around clear social cleavages such as ethnicity or religion. When different ethnic and cultural groups are propelled together under circumstances of deprivation and stress, it is expected there be inter-group hostilities where each group will emphasize on its identity while attacking or discriminating against 'outsiders'[29].

The three sources of environmental scarcity referred to Dixon as the drivers of scarcity often interact and according to Dixon[30], two patterns of interactions are especially exhibited: 'resource capture' and 'ecological marginalization.' He defines resource capture as a situation where a fall in the quality and quantity of renewable resources in addition to population growth encourage powerful individuals or groups to shift resource distribution in their favour. Such a move produces dire environmental scarcity for poorer and weaker groups whose claims to resources are hindered by the powerful groups. Due to this unequal distribution of resources and population increase, migration might result to regions that are ecologically fragile like steep upland slopes, protected areas, areas at risk of desertification among others. The growth in population in such areas with the population being less informed on resource protection and sustainability, often causes severe environmental damage and unsustainable lifestyles. This process is what is referred to as ecological marginalization.

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[29] Poku, N, & David, G, T (eds), Redefining Security: Population Movements and National Security, (Westport: Praeger, 1998), pp245.

[30] Homer- Dixon, Thomas & Jessica, B, (eds), Ecoviolence: Links among Environment, Population and Security, (Lanham MD: Rowman & Littlefield, 1998) pp238.

The above author asserts that water shortage on the occupied West Bank of the Jordan River is an example of how population growth and excessive resource consumption can promote resource capture. Israel's water consumption exceeds it annual supply of renewable fresh water. This deficit is met by over pumping of the aquifers resulting to reduced water tables in parts of West Bank. Two of the main aquifers that supply Israel's water are beneath the West Bank that drains into Israel. The said aquifers are in the occupied territory.

As such, to protect the water supply, the Israeli government strictly limits water use by Jewish settlers and Arabs on the West Bank. However, in reality, there is a big difference between these groups on how they access water. Settlers consume four times more than what Arab settlers consume. Arabs are restricted to the number of wells they can drill, the amount of water they can pump and the times at which they can draw irrigation water.

Since 1967, they have not been permitted to drill new wells for farming purposes although the settlers have had more than thirty wells drilled for them by the Israel water company[31]. The Israeli water policies reduced farming land where settlers agricultural land has been confiscated have been concluded to have links with the recent unrest in the occupied territories as well as other political, economic and ideological factors have contributed to the conflict in the West Bank and in Gaza[32].

Ecological marginalization can be explained by looking at the conflict in the Philippines. The country has unequal access to rich agricultural lowlands which when combined with increased population growth estimated at 2.5 to 3.0 percent per annum has led to migration to the

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[31] Ibid, Homer-Dixon
[32] ibid

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degraded upland areas. These lands have experienced soil erosion and deforestation which have contributed to hard economic times hence spurring insurgency and rebellion[33].

2.2 Resource Depletion and Degradation

Degradation and depletion of agricultural land, forests, water and fish will be a major contributor to social turmoil in the near future than will climate change or ozone depletion. Analysts and policy makers in developed world major their focus on climate change and ozone depletion. The 1994 Rwanda conflict later categorized as a genocide can be viewed as a conflict caused by environmental and demographic factors which produced social stress that in turn resulted in armed conflict. Rwanda as a state relies heavily on agriculture hence it is vulnerable to environmental degradation and population growth. Environmental degradation and high population contributed to migration, reduced agricultural productivity and the weakening of the legitimacy of then president Habyarimana. The interaction of all these factors played a huge role in sparking off the conflict[34].

An example of violent conflict that can be linked with resource depletion and degradation is the case of 'soccer war' between Honduras and Sa lvador. The later had urgent need for land that led to many clashes along the border. In the 1960's, over two-thirds of Salvador's population did not own any land due to monopoly by a few families. Honduras on the other hand was less populated with more land and it became the destination of Salvador's emigrants. Around the same time, Honduran peasants demanded agricultural reform and land redistribution. When their

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[33] Shaukat, Hassan, Environmental Issues and Security in South Asia, Adelphi Paper, No 262, (London: IISS, Autumn, 1991), pp42-43.

[34] Homer-Dixon, T, Environmental security and violent conflict: Evidence form cases, international security, 19, Vol 1, (1994), pp5-40.

demands did not come into fruition, the other alternative the natives had was to get back their land from more than 300, 000 Salvadorian immigrants. As deportation scenario loomed and became real, the Salvador government panicked about the return of such large numbers of landless and restless peasants. In response to the Honduras government of the threat to expel Salvadorian migrants, the government of Salvador responded by invading Honduran territory resulting to what has come to known as the Soccer war[35] in 1969. This can be summed up to have been contributed by heightened tensions caused by growing demand of cropland. Land became scarce hence the war was not an ethnic one but one based on the need to survive.

Another violent conflict that can be linked toenvironmental scarcity is the conflict in Chiapas, a Mexican state[36]. Environmental scarcity did not cause the conflict directly, however it interacted with other factors. They cemented those other factors. Population growth and unequal distribution of resources and influx of migrants caused an increased demand for cropland. The increased population caused demand-induced scarcity. Structural scarcity also played a role in fueling this conflict. The unequal distribution of resources affected the less powerful in the society. This was caused by manipulation of the property rights by wealthy elite of agricultural producers. Generally, the Chiapas conflict was caused by rising grievances among peasants caused largely by worsening environmental scarcity and poverty and inequality of land distribution. These environmental factors were in combination with other factors like weakening of the Mexican state by rapid economic liberalization and resurgent of the Mayan identity.

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[35] Durham, W, Scarcity and Survival: The ecological origins of conflict between El Salvador and Honduras, (The University of Michigan, Ann Arbor, 1977).

[36] Howard, P & Homer-Dixon, T, Environmental Scarcity and violent conflict: The case of Chiapas, Mexico, (American Association for the advancement of Science and university of Toronto, Washington, 1994) .

2.3 Environmental changes and land cover degradation

Environmental changes arise from the fact that most natural and artificial earth surface features are in a state of flux. The rate of these changes is quite often not uniformly distributed, but depends rather on the interactions of the biophysical and human components[37]. The need for resource sustainability through proper management has today prompted timely and accurate monitoring of environmental changes to understand their relationships and interactions within a given ecosystem. However, monitoring environmental changes requires a deep understanding of the relevant environmental attributes over time and space to avoid simplistic representations.

Common examples of environmental changes largely witnessed today in the developing countries include changes in forest characteristics due to human induced deforestation processes, ecological changes due to the need for agricultural expansion and land use/land cover changes due to factors related to human influences from increased population[38]. In the last couple of years, significant attention has been given to land use and land cover changes, since they form a major component of global changes with greater impact than that of climate change[39] . Such changes in land cover can be generally differentiated into land cover modification and land cover conversion. Land cover modification generally refers to the full substitution of one cover type by another, as is the case with urbanization[40].

[37] Coppin P., Jonckheere, I., Nackaerts, K., & Muys, B. (2004). Digital change detection methods in ecosystem monitoring: a review. International Journal of Remote Sensing, 25, 1565-1596.
[38] Pellikka, P., Clark, B., Hurskainen, P., Keskinen, A., Lanne, M., Masalin, K., NymanGhezelbash P. & Sirviö, T. (2004). Land Use change monitoring applying Geographic Information Systems in the Taita Hills, SE-Kenya. In: Proceeding of the 5th African Association of Remote Sensing of Environment Conference, Nairobi, Kenya.
[39] Foody, G. M. (2001). Monitoring the magnitude of land cover change on the southern limits of the Sahara. Photogrammetric Engineering and Remote Sensing, 67(7), 841-847.
http://www.isric.org/isric/webdocs.Docs/ISRIC_Report_2004_01.pdf.
[40] Olang L.O., Kundu P. M, Bauer T. & Fürst, J. (2011). Analysis of spatio-temporal land cover change for hydrological impact analysis within the Nyando River basin of Kenya. Environmental Monitoring and Assessment (Springer), 179, 389–401, doi::10.1007/s10661-010-1743-6.

In a majority of developing countries, land cover conversion which refers to gradual changes affecting the nature of the land cover but not their overall classifications are common. Such conversions may arise from the natural resilience of an ecosystem due to climatic variability and/or from complex land cover changes due to direct or indirect anthropogenic factors. Specifically in the MFC, both land cover modifications and conversions are predominant, and are largely attributed to the increasing human population pressure demanding more land for settlement, pasture and agriculture[41]. This is further aggravated by the dire need for economic sustenance from the within vicinity natural resources without taking into account proper land use management practices.

Forest degradation through charcoal burning followed by conversion of the deforested areas into subsistence agriculture is widespread in the headwaters catchments. In addition to this are the uncontrolled cattle grazing, slash and burn farming methods in the midland areas. With continued diminishing economic alternatives for the rural population, more farms are being put under small scale subsistence agriculture to provide a means of a living for the riparian communities living in the forest complex[42].

2.4 Protected Areas and Conflict

Protected areas, as a mode of conserving biodiversity are central to global conservation strategies. However, their overriding ecological goals do not make them socially and politically benign. They are a representation of different things to different peoples. For conservationists,

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[41] Karanja, A., China, S. S. & Kundu, P. M.(1986). The influence of land use on the Njoro River Catchment between 1975 and 1985. In: Soil and Water Conservation in Kenya - University of Nairobi, Nairobi, Kenya.

[42] Jensen, J. R., 2005. Introductory Digital Image Processing: A Remote Sensing Perspective (3rd edition). Prentice Hall series in geographic information science. Upper Saddle River, NJ, USA.

they are an effective measure of protecting biodiversity; for private tourism companies, a basis for eco-tourism development; for pharmaceutical companies, a source of genetic information for drug development; for oil and mining companies, an unexplored supply of revenue; for the military, a refuge and strategic target during times of violent conflict; and for surrounding local communities, PAs can signify restricted access to livelihood resources, forced relocation, or opportunities for income generation through tourism revenues[43].

The existence of many different political understandings of the role of PAs is a reflection of broader social, cultural and economic forces at work. When these forces include social inequality, poverty, contested resource rights, corruption, ethnic tensions, and colonial legacies, as they do in many developing countries, mechanisms of resource control and power (which is what PAs are) can become politicized and lead to resistance and conflict. In this particular case, it is the relationship of the social, cultural and economic forces and environmental scarcity; how they interact with the protected areas to lead to conflict that's of our main concern.

The relationship between PAs and open conflict is multifaceted. Protected areas can be catalysts of a conflict when set up in economically disadvantaged regions, where surrounding communities are heavily dependent on natural resources for their livelihoods and survival. Again, PA policies can translate into restricted access to these livelihood resources. Where a huge population is accessing a limited resource, it leads to its depletion creating environmental scarcity which as seen above in combination with other factors to escalate into environmental conflict. Forced relocation from traditional lands can undermine economic security and cultural identities.

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[43] Austin & Bruch, Peace Parks and Conflict Resolution, Saleem Hassan Ali (ed) (Massachusetts Institute of Technology Press: Cambridge, Massachusetts, USA, 2007).

Even where provisions are made to allow for limited local resource access or to financially compensate communities, crop damage from wild animals, unequal distribution of benefits, conflicting resource rights regimes (statutory versus customary) and exclusionary and/or non-transparent decision-making processes can continue to fuel tensions. Where PAs bring up memories of elite control and colonial power dynamics, protected areas can symbolize legacies of imperial domination. The perceived imposition of unjust policies may mobilize group identities and become a rallying point for resisting authority, leading to instability and conflict[44].

From another angle, protected areas can play a strategic role in sustaining an ongoing military conflict. The geographic position of the PAs make them valuable in that the remote and relatively inaccessibility of some of PAs can make the ideal refuge for military groups. The high concentration of bioderversity- game meat provide bush meat for armies. Guerrilla groups in Colombia, Sierra Leone, Burundi, India and Nepal, for example, have established bases in protected areas, with destructive impacts on PA infrastructure, management operations and personnel. Because of their strategic value, protected areas can become targets in military operations. Some groups may deliberately contaminate water supplies and defoliate or burn forests in order to deprive opposing forces of shelter and resources. In 1991 the Rwandan army cut 50 – 100 meter swaths of bamboo forest that link the Virunga volcanoes in order to minimize the risk of rebel ambushes[45].

Besides providing physical support to military groups, resources in protected areas offer finance to military operations. Wildlife, timber and non renewable resources like oil and

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[44] Wilshusen, Peter, R., Steven, R, Brechin, C, L, Fortwangler & Patrick, C, W, Reinventing a Square Critique of a Resurgent 'Protection Paradigm' in International Biodiversity Conservation' Society and Natural Resources, 15, 1 (2002) p24.

[45] Grosse, S, The roots of conflicted state failure in Rwanda: The political exacerbation of social cleavages in a situation of growing resource scarcity, (Department of Population Planning and International Health: University of Michigan, 1994).

minerals can be used sold to pay troops and purchase weapons. For instance, the Angolan rebel group UNITA (National Union for the Total Independence of Angola) reportedly financed their military campaign by the sale of ivory, oil, diamonds and teak[46]. Charles Taylor's coup in Liberia was necessitated by the sale of timber while elsewhere in Mozambique, elephant poaching and ivory trade financed the civil war there[47].

Protected areas are field for fresh conflict in post conflict setting or society. In a post conflict society where there have been demographic changes and there are issues of refugees or internally displaced persons, they can be resettled in PAs. In some cases where there is no other land available to resettle them, governments encourage such moves like the Rwandan government after the genocide, it opened parts of the Akagera National park to displaced persons while other refugees crossed over into Democratic Republic of Congo and settled in and around Virunga National Park[48]. The dire need for basic needs like land and shelter that brings in people into PAs have the potential for fueling further tensions and conflict. In situations where there are host communities who are also dealing with environmental scarcity have now to content with competition for the already unsustainable resources, tensions can rise or reignite. It becomes serious when the newcomers are from another ethnic identity or a previously opposing ethnic group.

Protected areas are linked to the conflict through their interaction with the complex social and political forces that traditionally fuel tension. The impacts of PAs on local livelihoods, resource rights, distribution of wealth, established management and power structures, and group

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[46] Austin and Bruch, Peace Parks and Conflict Resolution, Saleem Hassan Ali (ed) (Massachusetts Institute of Technology Press: Cambridge, Massachusetts, USA, 2007).
[47] ibid
[48] Elbers, Chris, J.O Lanjouw & Peter Lanjouw , Micro-Level Estimation of Poverty and Inequality, Econometrica, 71, 1, (2003), p355-360.

identity can create grievances that, when left unaddressed, can escalate into more open forms of conflict. The more strategic and passive role of PAs in supporting militarization, warfare and post-conflict reconstruction, on the other hand, is often the result of geography, resource abundance and a breakdown in governance and authority. Protected area (mis)management can therefore be both a contributor to and a symptom of local/regional conflict dynamics.

2.5 Mau Forest conservation strategies

More recently, the Mau Forest Complex has received considerable attention from local and international organizations due to its ecological significance, which is posing a threat to the whole region. In Kenya, most forest areas are now under the management of the Kenya Forest Service (KFS), which has made substantial steps towards addressing the degradation and deforestation threat to all the major water towers. Among the steps is the new forest policy and law, which were promulgated in 2005. The new law lays emphasis on a participative approach to management of forest resources by all stake holders including local communities and the private sector. A further step is the creation of the Task Force for the Mau Forest Complex (TF-MFC) under the office of the Prime Minister of Kenya, with the mandate to recommend strategies for restoring the forest complex in line with Vision 2030. A very important and urgent scheme is the reforestation and restoration through tree planting. Such activities are organized by the concerned governmental chief officers, in collaboration with environmental non-governmental organizations and international organizations.

A number of international and sub-regional organizations are involved in the conservation and rehabilitation planning. The major international programme is under the UNEP/DEWA, which is also involved in the assessment of the threats to critical montane forests

in East Africa including Mt. Kenya, Aberdare range and Mt. Kilimanjaro. Other organizations which have shown interest, directly or indirectly, include the Africa Convention for the Conservation of Nature and Natural Resources (2003), East Africa Community Treaty (1999), Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention, 1971), Convention on Biological Diversity (1992), International Tropical Timber Agreement (1983, revised 1994) United Nations Forum on Forests, Intergovernmental Authority on Development (IGAD), Johannesburg Plan of Implementation of the World Summit on Sustainable Development (WSSD), Lake Victoria Protocol (2003), Protocol for Environment and Natural Resources, The United Nations Framework Convention on Climate Change (1992), the World Heritage Convention (1972), the United Nations Convention to Combat Desertification (UNCCD) (1994); the Convention on International Trade in Endangered Species (CITES, 1973), The United Nations Convention to Combat Desertification (UNCCD) (1994), The Nile Basin Initiative (NBI) amongst others. So far under the TF-MFC mandated with co-coordinating the rehabilitation planning of the Mau ecosystem, a number of strategic options have been proposed and realized, in part. The major key interventions were categorized into three phases. Phase 1 involves short term options achievable within the first three years. Phases 2 and 3 involve medium and long term interventions aimed at consolidating the management efforts for sustainability reasons. Among the key interventions, the first and second phases include:

2.5.1 Development of effective institutional framework and strategic Management Plan

Under this framework, a Mau Forests Complex Authority (MFCA) was to be established to coordinate and oversee the management of the complex. The authority was to be guided by board of directors comprising representatives of the main stakeholders, including the economic

sectors directly dependent on the goods and services of the Mau Forests Complex such as water, energy, tourism and wildlife, agriculture and forestry. Ecological requirements, in conformity with the needs of existing strategic plans, including for Vision 2030 were to be integrated in the development plan. The current status of the Mau ecosystem, including the existing data status for management purposes were to be considered in achieving this. Additionally is the need for assessment studies on the critical catchment areas and biodiversity hotspots, which require immediate and appropriate conservation strategies[49].

2.5.2 Boundary surveys, issuance of title deeds and monitoring and enforcement

This was to involve the demarcation of the legal boundaries and assessment of the critical water catchment areas, assessment of vegetation cover status and biological diversity hotspots in the MFC. Furthermore was the need for routine monitoring to prevent new encroachment, charcoal burning and tree felling that could further attenuate degradation process. Demarcation and fencing of hydrological and biological hotspots or where significant human-wildlife conflicts could occur was hence imperative in this context[50].

2.5.3 Relocation, resettlement and livelihood support and development

This activity involved the relocation of all people living in the demarcated protected forests. In the event of resettlement thus, the government was to provide alternative land and funds for the development of the new lands, and livelihoods, while taking into consideration

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[49] Krajewski, W. F. & Smith, J. A. (2002). Radar hydrology: rainfall estimation. Advances in Water Resources, 25(8), 1387-1394.
[50] Liu, D., Mausel, P. Brondizio, E. & Moran, E. (2004). Change detection techniques. International Journal of Remote Sensing, 25, 2365-2401.

vulnerability of the people within the locations. Immediate livelihood support including water, food, shelter and energy were hence required for the families relocated from the complex to lessen the resentment felt by those aggrieved by their relocation[51].

2.5.4 Public awareness and community sensitization

The activity was mainly to address the needs of the local communities living around the forest. The restoration process was to be done in consultation with local communities, who were to benefit both through directly employment opportunities and/or indirectly through ecosystem services including water provision through a restored ecosystem. Sustainable livelihood options in the forest, with particular emphasis on employment opportunities and natural resource based income generating activities were to be explored. This was to include, but not limited to, raising most of the required seedlings for rehabilitation, with the balance being produced through institutional nurseries through technical support by private and international organizations[52].

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[51] Mutua B. M. & Klik, A. (2007). Predicting daily streamflow in ungauged rural catchments: the case of Masinga catchment, Kenya. Hydrological Sciences, 52(2), 292-304.

[52] Owido, S. F. O, Chemelil, C. M., Nyawade, F. O. & Obadha, W. O. (2003). Effects of Induced Soil compaction on Bean (Phaseolus Vagaries) Seedling Emergence from a Haplic phaeozen soil. Agricultura Tropica. ET subtropica, 36, 65-69.

CHAPTER THREE

NATURAL RESOURCES AND CONFLICT MANAGEMENT

3.1 Natural resource conflict Management

Disputes and conflicts, if not well addressed or resolved early, dispute between two individuals at times degenerate to pose a threat to national security, peace and stability, which are the basic parameters to measure the development of a nation. Indeed, it has been observed that environmental conflicts have emerged as key issues challenging local, regional, national and global security.20As already noted conflicts and disputes are inevitable in the use, access and management of natural resources due to the differing needs and values of various persons and/or groups of persons in society in the wake of dwindling resources. The extraction of natural resources has in some instances triggered or fuelled violent conflict in some of the East African regions such as Kenya. In fact, inter-country disputes may also arise with regard to shared natural resources in terms of who has access and control over the transboundary natural resources, for instance, the Migingo Island dispute between Kenya and Uganda. The conflicts, if unaddressed, can spiral into violence, cause environmental degradation, disrupt development projects and undermine livelihoods.[53] Conflict, and more so the resource-based one, has caused tremendous harm to civilians in Kenya particularly women and children and increased the numbers of internally displaced persons in the country.[54] In areas where the conflicts prevail,

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[53] Mohamud Adan and Ruto Pkalya, Elizabeth Muli (ed.) (2006) . 'Conflict Management in Kenya Towards Policy and Strategy Formulation', Practical Action, Available at http://practicalaction.org/region_east_africa_publications Accessed on 15th August, 2013

[54] Emmett P. Fiske, 2001. 'Reconceptualising Environmental Conflict Resolution: The Developmental Facilitation Approach',. Available at file://A:\Reconceptualisingenvironmentalconflictresolution.htm

development programmes have been interrupted. Deterioration in the quality of life and the weakening of political and economic institutions are also likely outcomes.[55]

As already pointed out, some of these conflicts can become very complex and polarizing in some cases. For instance, there have been complaints from some communities regarding the land issue as well as mineral resources, especially in the current era of devolved governments with communities wishing to get an equitable share of the resources found in their counties. It has been persuasively argued that in environmental conflicts where there is high level emotional intensity, several of the early casualties in verbal and non-verbal skirmishes are tolerance and communication with people stopping to listen to those espousing contrary views and begin associating exclusively with like-minded supporters.[56] Such emotions thus need to be managed effectively to avert full blown conflicts. People cannot meaningfully benefit from the exploitation of the natural resources in an atmosphere of unmanaged conflicts.

3.2 Biodiversity Conservation and Conflict

Biological diversity refers to the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems.[57] East Africa is well endowed with rich biological diversity ranging from wildlife to

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[55]Gleick, P.H., (1993). ' Water and Conflict: Fresh Water Resources and International Security', International Security, Vol. 18, No. 1 pp. 79-112, Available at http://www.jstor.org/stable/2539033 Accessed on 11th November, 2013

[56] Population Action International, 'Why Population Matters to Water Resources', available at http://populationaction.org/wp-content/uploads/2012/04/PAI-1293-WATER-4PG.pdf [Accessed on 28/08/2014].

[57] Kalande, W., 2008, 'Kenyan Land Disputes in the Context of Social Conflict Theories', FIG Commission 7 Annual Meeting and Open Symposium on Environment and Land Administration 'Big Works for Defence of The Territory' Verona-ITALY 11-15.

rich forests, which play very important roles in the lives and economies of the people.[58] One of the most important biodiversity elements in the region is the forests due to the central role they play in the lives of the communities, especially the indigenous people of East Africa. Indeed, most of the conflicts involving biodiversity and communities rotate around forests and their resources.

It has been argued, for instance, that forest protection through avoided deforestation may have either positive or negative social impacts with possible conflicts between the protection of forested ecosystems and ancillary negative effects, restrictions on the activities of local populations, reduced income, and/or reduced products from these forests.[59] Poor management of forest resources and the absence of an established set of equitable sharing principles among contending parties lead to shifts in resource access and control. Resulting tensions and grievances can lead to armed conflict and even war. Many governments have contributed to conflict by nationalizing their forests, so that traditional forest inhabitants have been disenfranchised while national governments sell trees to concessionaires to earn foreign exchange.[60] A good example in Kenya is the recent Mau Forest evictions in Rift Valley that generated major political and social impacts in the country.[61] Another example is the Endorois case, which involved violations resulting from the displacement of the Endorois people, an indigenous community, from their ancestral lands without adequate compensation from the

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[58] Somerville, K.., 2012, 'Kenya: land and communal clashes increase as country gears up for elections', Posted on September 20, by African Arguments Editor.

[59] Heinrich Boll Stiftung, 'Roadmap to prosperity through sustainable Natural resources management in the East and Horn of Africa', Essay of the East and Horn of African Delegates, available at https://www.boell.de/sites/default/files/assets/boell.de/images/download_de/EHOA_HBS_Delegates_essay_fin al_1.pdf [Accessed on 27/08/2014].

[60] USAID, 'Minerals & Conflict: A Toolkit For Programming',

[61] The 10 Biggest Oil And Gas Discoveries Of 2013, Available at http://www.forbes.com/sites/christopherhelman/2014/01/08/the-10-biggest-oil-and-gasdiscoveries-of-2013/

Government. The African Commission on Human and People's Rights (ACHPR) ruled that the government of Kenya was in violation of the rights to freedom of religion, property, health, culture, and natural resources under the African Charter on Human and Peoples' Rights. The court further recommended restitution of Endorois ancestral land, recognition of the rights of ownership to the Endorois as well as compensation for the loss suffered.

Compensation schemes as provided have failed in achieving the desired results and this has been attributed to several factors. It has been argued that this is due to inter alia: the continuing dominance of conservation goals over the livelihood needs of local people; and an emphasis on reducing the dependency of local people on resources of conservation value, rather than increasing their stake in sustainable resource management. [62]Indeed, as at 2011 the Government was yet to comply with the ACHPR Ruling.[63]

The Convention on Biological Diversity (CBD) [64]is an international legally-binding treaty with three main goals: conservation of biodiversity; sustainable use of biodiversity; and the fair and equitable sharing of the benefits arising from the use of genetic resources.[65] Its main objective is to encourage actions which will lead to a sustainable future. 46The Convention provides for examination, based on studies to be carried out, the issue of liability and redress,

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[62]Daily Nation, Saturday, July 21, 2012, 'Sh8.5 bn coal mining project in danger', available at http://www.nation.co.ke/News/Sh8+5+bn+coal+mining+project+in+danger/-/1056/1460462/-/10rhk4iz/-/index.html [Accessed on 29/08/2014].

[63] Roland Dannreuther, 'China and global oil: vulnerability and opportunity', available at http://www.chathamhouse.org/sites/files/chathamhouse/public/International%20Affairs/2011/87_6dannreuther. pdf [Accessed on 27/08/2014]

[64] Petroleum (Exploration) Act, Cap 308, Laws of Kenya

[65] United Nations, Charter of the United Nations, 24 October 1945, 1 UNTS XVI, Available at: http://www.refworld.org/docid/3ae6b3930.html. accessed on 16 August 2013

including restoration and compensation, for damage to biological diversity, except where such liability is a purely internal matter.[66]

Article 27 thereof deals with settlement of disputes and provides that in the event of a dispute between Contracting Parties concerning the interpretation or application of this Convention, the parties concerned are to seek solution by negotiation, or mediation by a third party. The Act however contemplates submission of the dispute to the International Court of Justice, or conciliation. The Convention has been criticised on the grounds that while there is an international dispute resolution mechanism contemplated under Articl27, there is no explicit enforcement mechanism or cause of action under the Convention against a government which destroys its own (domestic) biodiversity.[67] It is therefore arguably fairly effective at the international level in state to state disputes but cannot be effective tool for use by local citizens for lobbying their own governments to protect community biodiversity.

3.3 Approaches to Management of Natural Resource-Based conflicts

It has been noted elsewhere in this paper that the approach adopted in the management of any conflict or dispute largely depends on the nature of the conflict. The approaches are either formal or informal in nature. There are basically two main approaches to natural resources conflict management which are formal and informal mechanisms. Formal approaches include the judicial approaches while informal mechanisms include the non-judicial forms of conflict

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[66] Patricia Kameri Mbote et al., 2011. Justice Sector and the Rule of Law, Discussion Paper, A review by AfriMAP and the Open Society Initiative for Eastern Africa, , Available at
http://www.opensocietyfoundations.org/sites/default/files/kenya-justice-law-discussion-2011 Accessed on 27th April, 2013
[67] Nancy A. Welsh, 2011. 'Perceptions of Fairness in Negotiation', Marquette Law Review, Vol. 87, pp. 753-767, at p. 753

management such as negotiation, conciliation, mediation and diplomatic initiatives and the traditional justice systems, which are either coercive or non-coercive respectively.

At the international level, Article 33 of the Charter of the United Nations outlines the conflict management mechanisms to include negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resorting to regional agencies or arrangements, or other peaceful means of people's own choice.[68] (Emphasis ours) The national legal systems are usually grounded on Constitutions, legislation or policy statements which may include judicial and regulatory frameworks. This approach majorly uses the adjudication and arbitration processes to settle arising conflicts. The use of alternative mechanisms of conflict management as an approach to conflict management aims to incorporate community members and all the involved parties in finding a lasting solution as well as empowering them to handle any future conflicts through community peace building. To some, this approach is seen as an alternative to the formal judicial systems and hence the name alternative. The other approach under informal mechanisms is the use of customary systems which relies on the traditional belief systems and/or values of the particular community where the conflict arises. This approach incorporates mediation and negotiation to resolve conflicts in an attempt to find a lasting solution to the disputes and conflicts.

3.3.1 Need for management

The need to achieve sustainable development calls for sustainable management of natural resources in the East Africa region through engaging all the relevant stakeholders. It has been

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[68] Ray, B., (2009). 'Extending The Shadow Of The Law: Using Hybrid Mechanisms To Develop Constitutional Norms In Socioeconomic Rights Cases' Utah Law Review, [NO. 3] pp. 802-803]

persuasively argued that in environmental conflicts where there is high level emotional intensity, several of the early casualties in verbal and non-verbal skirmishes are tolerance and communication with people stopping to listen to those espousing contrary views and begin associating exclusively with like-minded supporters.[69] Such emotions thus need to be managed effectively to avert full blown conflicts. People cannot meaningfully benefit from the exploitation of the natural resources in an atmosphere of unmanaged conflicts. It is imperative to look at each of the approaches with an aim to identify their efficacy in managing natural resource conflicts and disputes.

3.3.2 Judicial mechanisms

With the objective of settling disputes in a more justifiable manner, national governments and the constitutions of most nations establish institutions; judiciary organs of the government. It is the natural mandate of courts of law to entertain disputes. Litigation has however been criticized in many forums as one that does not guarantee fair administration of justice due to a number of factors. Courts in Kenya and even elsewhere in the world have encountered a number of problems related to access to justice. These include high court fees, geographical location, complexity of rules and procedure and the use of legalese.[70]

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[69] Shokouh HosseinAbadi, (2011). The role of dispute resolution mechanisms in redressing power imbalances - a comparison between negotiation, litigation and arbitration, p. 3, Effectius Newsletter, Issue 13, Effectius: Effective Justice Solutions, Available at
http://effectius.com/yahoo_site_admin/assets/docs/Effectius_Theroleofdisputeresolutionmechanisms [Accessed on 8th March, 2014]
[70] UNCITRAL Model Law on International Commercial Conciliation with Guide to Enactment and Use 2002 (United Nations 2002). Available at
http://www.uncitral.org/uncitral/en/uncitral_texts/arbitration/2002Model_conciliation.html [Accessed on 08th March, 2014]

The court's role is also 'dependent on the limitations of civil procedure, and on the litigious courses taken by the parties themselves'. Conflict management through litigation can take years before the parties can get justice in their matters due to the formality and resource limitations placed on the legal system by competing fiscal constraints and public demands for justice. Litigation may be very slow and too expensive and it may at times lose the practical credibility necessary in the environmental matters. Litigation is not a process of solving problems; it is a process of winning arguments.[71]

Litigation should however not be entirely condemned as it comes in handy for instance where an expeditious remedy in the form of an injunction is necessary. Criminal justice may also be achieved through litigation especially where the cases involved are very serious, for instance loss of lives due to natural resource based conflicts. Litigation is associated with the following advantages: the process is open, transparent and public; it is based on the strict, uniform compliance with the law of the land; determination is final and binding (subject possibly to appeal to a higher court). 69 However, there are also many shortcomings associated with litigation as already highlighted, so that it should not be the only means of access to justice.

Courts in the East African countries have successfully handled environmental matters.70 Courts thus play an important and indispensable role in achieving sustainable development which means conflicts must be dealt with effectively. This includes the right to clean and healthy environment as envisaged under Article 43 thereof. The Kenyan Environment and Land Court is also empowered to hear and determine applications for redress of a denial, violation or infringement of, or threat to, rights or fundamental freedom relating to a clean and healthy

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[71] Mediation-Arbitration (Med-Arb), Available at http://www.constructiondisputes-cdrs.com/about%20MEDIATION-ARBITRATION.htm [Accessed on 08th March, 2014]

environment under Articles 42, 69 and 70 of the Constitution. Where applicable, the Court is empowered to adopt and implement, on its own motion, with the agreement of or at the request of the parties, any other appropriate means of alternative dispute resolution including conciliation, mediation and traditional dispute resolution mechanisms in accordance with Article 159(2) (c) of the Constitution. Indeed, where alternative dispute resolution mechanism is a condition precedent to any proceedings before the Court, the Court must stay proceedings until such condition is fulfilled.[72]

The cases of Waweru v Republic (2007)[73]and Friends of Lake Turkana Trust v Attorney General & 2 others [2014] eKLR [73]demonstrate instances where the courts have taken the active role of promoting environmental protection and averting potential natural resource based conflicts.[74]

3.3.3 ADR and informal methods

(a) Alternative Dispute Resolution Mechanisms Approach

Alternative Dispute Resolution (ADR) mechanisms is a phrase used to refer to all those decision-making processes other than litigation including but not limited to negotiation, enquiry, mediation, conciliation, expert determination and arbitration. ADR mechanisms are used in management of a wide range of natural resource based conflicts and disputes. However, the choice of mechanism to be used depends on whether it is a conflict or a dispute that is to be managed. However, it noteworthy that these techniques are not essentially mutually exclusive in

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[72] Kenneth Cloke, 2005. "The Culture of Mediation: Settlement vs. Resolution", The Conflict Resolution Information Source, Version IV, December 2005, Available at http://www.beyondintractability.org/bi-essay/culture-ofmediation Accessed on 26th April, 2013.
[73] United States Environmental Protection Agency, 'Environmental Agency', available at http://www.epa.gov/environmentaljustice/ [Accessed on 06/09/2014]
[74] The Constitution of Uganda, Uganda Printing and Publishing corporation, 22 September 1995, UGA-010

any particular conflict, but can be used successively or in a modified combination with other adjudicative methods for managing disputes. [75]

Conflicts are issues about values which are non-negotiable. They are needs and values that are shared by the parties, which values and needs are inherent in all human beings. The conflicts arise due to disagreement over distribution of resources that are perceived to be fundamental to the survival of each of the parties. The choice of conflict management must therefore be informed by the desire to address the underlying psychological issues. Resolution mechanisms as against settlement mechanisms are the best placed to manage conflicts since they aim at satisfying the needs of each party through mutual construction of legitimate relationship. Conflict resolution mechanisms are interactive and participatory giving the parties a chance to come up with mutually satisfying outcomes. The best placed mechanisms to achieve this are negotiation, mediation in the political process and problem solving facilitation.

(b) Conflict Management through Negotiation

Negotiation is a process that involves parties meeting to identify and discuss the issues at hand so as to arrive at a mutually acceptable solution without the help of a third party. It is also described as a process involving two or more people of either equal or unequal power meeting to discuss shared and/or opposed interests in relation to a particular area of mutual concern. [76]The parties themselves attempt to settle their differences using a range of techniques from concession and compromise to coercion and confrontation. Negotiation thus allows party autonomy in the

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[75] United Nations Environment Programme, 'Strengthening Capacity for Conflict-Sensitive Natural Resource Management', Toolkit And Guidance For Preventing And Managing Land And Natural Resources Conflict, available at http://postconflict.unep.ch/publications/GN_Capacity_Consultation_ES.pdf [Accessed on 27/08/2014].
[76] Muigua, K., 2011 "Resolving Environmental Conflicts Through Mediation in Kenya" Ph.D. Thesis, , Unpublished, University of Nairobi

process and over the outcome. It is non-coercive thus allowing parties the room to come up with creative solutions. The focus of negotiations is the common interests of the parties rather than their relative power or position. The goal is to avoid the overemphasis of how the dispute arose but to create options that satisfy both the mutual and individual interests. It has been said that negotiators rely upon their perceptions of distributive and procedural fairness in making offers and demands, reacting to the offers and demands of others, and deciding whether to reach an agreement or end negotiations. [77]The argument is that if no relationship exists between negotiators, self-interest will guide their choice of the appropriate allocation principle to use in negotiation. A negotiator who does not expect future interactions with the other person will use whatever principle-need, generosity, equality, or equity-produces the better result for them. Relationships apparently matter in negotiators' definitions of fair outcomes.

It may be argued that negotiation is by far the most efficient conflict management mechanism in terms of management of time, costs and preservation of relationships and has been seen as the preferred route in most disputes.[78] Negotiation can be interest-based, rights-based or power-based and each can result in different outcomes.83However, the most common form of negotiation depends upon successfully taking and the giving up a sequence of positions.

Forest-based negotiation shifts the focus of the discussion from positions to interests, raising a discussion based on a range of possibilities and creative options, for the parties to arrive at an agreement that will satisfy the needs and interests of the parties. This way, both parties do not feel discriminated in their efforts for the realization of the right of access to justice. Parties may generate a number of options before settling on an agreement. However, there exist

[77] ibid
[78] Fetherston, A.B., (2000). "From Conflict Resolution to Transformative Peace building: Reflections from Croatia", Centre for Conflict Resolution-Department of Peace Studies: Working Paper 4 (2000).

obstructions to this: parties may decide to take hard-line positions without the willingness to consider alternatives; parties may be intent on narrowing their options to find the single answer; parties may define the problem in win-lose terms, assuming that the only options are for one side to win and the other to lose; or a party may decide that it is up to the other side to come up with a solution to the problem.[79] The assertion is that by focusing on criteria rather than what the parties are willing or unwilling to do, neither party needs to give in to the other; both can defer to a fair solution.[80]

In conclusion, negotiation can be used in facilitating the effective management of natural resources based conflicts. What needs to be done is ensuring that from the start, parties ought identify their interests and decide on the best way to reach a consensus.[81] The advantages therein defeat the few disadvantages of power imbalance in some approaches to negotiation, as already discussed. However, where parties in a negotiation hit a deadlock in their talks, a third party can be called in to help them continue negotiating. This process now changes to what is called mediation. Mediation has been defined as a continuation of the negotiation process by other means where instead of having a two way negotiation, it now becomes a three way process: the mediator in essence mediating the negotiations between the parties. 89 It is also a mechanism worth exploring as it has been successfully used to achieve the right of access to justice for parties.

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[79] ibid
[80] Mwagiru, M., (2006). Conflict in Africa; Theory, Processes and Institutions of Management, (Centre for Conflict Research, Nairobi)
[81] ibid

(c) Mediation and natural Resource –Based Conflicts

Mediation is defined as the intervention in a standard negotiation or conflict of an acceptable third party who has limited or no authoritative decision-making power but who assists the involved parties in voluntarily reaching a mutually acceptable settlement of issues in dispute. Within this definition, mediators may play a number of different roles, and may enter conflicts at different levels of development or intensity.[82] Mediation can be classified into two forms namely: Mediation in the political process and mediation in the legal process.

(d) (i) Mediation in the political process

Mediation in the political process is informed by resolution as against settlement. It allows parties to have autonomy over the choice of the mediator, the process and the outcome. The process is also associated with voluntariness, cost effectiveness, informality, focus on interests and not rights, creative solutions, personal empowerment, enhanced party control, addressing root causes of the conflict, non-coerciveness and enduring outcomes. With these perceived advantages, the process is more likely to meet each party's expectations as to achievement of justice through a procedurally and substantively fair process of justice.[83]

(ii) Mediation in the legal process

Mediation in the legal process is a process where the conflicting parties come into arrangements which they have been coerced to live or work with while exercising little or no autonomy over the choice of the mediator, the process and the outcome of the process. This makes it more of a

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[82] Emmett P. Fiske, 2001. 'Reconceptualising Environmental Conflict Resolution: The Developmental Facilitation Approach', p. 1. Available at file://A:\Reconceptualisingenvironmentalconflictresolution.htm
[83] ibid

settlement mechanism that is attached to the court as opposed to a resolution process and defeats the advantages that are associated with mediation in the political process. [84]The central quality of mediation is its capacity to reorient the parties towards each other, not by imposing rules on them, but by helping them to achieve a new and shared perception of their relationship.94In conflict resolution processes like mediation, the goal, then, is not to get parties to accept formal rules to govern their relationship, but to help them to free themselves from the encumbrance of rules and to accept a relationship of mutual respect, trust, and understanding that will enable them to meet shared contingencies without the aid of formal prescriptions laid down in advance.[85]

(e) Conflict Management via Conciliation

This process is similar to mediation except for the fact that the third party can propose a solution. Its advantages are similar to those of negotiation. It has all the advantages and disadvantages of negotiation except that the conciliator can propose solutions making parties lose some control over the process. Conciliation works best in trade disputes. Conciliation is recognised by a number of international legal instruments as a means to management of natural resource based conflicts.

Conciliation is different from mediation in that the third party takes a more interventionist role in bringing the two parties together. In the event of the parties are unable to reach a mutually acceptable settlement, the conciliator issues a recommendation which is binding on the parties

[84] Christina Leb (2012) The right to water in a transboundary context: emergence of seminal trends, Water International, 37:6, pp. 640-653, DOI: 10.1080/02508060.2012.710950 [Accessed on 28/08/2014].

[85] Mbote, P.K., and Migai, a., Kenya: Justice Sector and the Rule of Law, A review by AfriMAP and the Open Society Initiative for Eastern Africa, March 2011.Available at http://www.opensocietyfoundations.org/sites/default/files/kenya-justice-law-discussion- 20110315_0.pdf[Accessed on 27/07/2014].

unless it is rejected by one of them. While the conciliator may have an advisory role on the content of the dispute or the outcome of its resolution, it is not a determinative role. A conciliator does not have the power to impose a settlement. This is a reflection of the Model Law on International Commercial Conciliation of the United Nations Commission on International Trade Law.

A conciliator who is more knowledgeable than the parties can help parties achieve their interests by proposing solutions, based on his technical knowledge that the parties may be lacking in. This may actually make the process cheaper by saving the cost of calling any other experts to guide them.

f) Conflict Management through Arbitration

Arbitration is a dispute settlement mechanism. Arbitration arises where a third party neutral (known as an arbitrator) is appointed by the parties or an appointing authority to determine the dispute and give a final and binding award. Arbitration has also been described as a private consensual process where parties in dispute agree to present their grievances to a third party for resolution.[86] Its advantages are that parties can agree on an arbitrator to determine the matter; the arbitrator has expertise in the area of dispute; any person can represent a party in the dispute; flexibility; cost-effective; confidential; speedy and the result is binding. Proceedings in Court are open to the public, whereas proceedings in commercial arbitration are private, accordingly the parties who wish to preserve their commercial secrets may prefer commercial

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[86] Mbote, P.K., and Migai, a., Kenya: Justice Sector and the Rule of Law, A review by AfriMAP and the Open Society Initiative for Eastern Africa, March 2011.Available at http://www.opensocietyfoundations.org/sites/default/files/kenya-justice-law-discussion- 20110315_0.pdf[Accessed on 27/07/2014].

arbitration. In disputes involving parties with equal bargaining power and with the need for faster settlement of disputes, especially business related, arbitration offers the best vehicle among the ADR mechanisms to facilitate access to justice.

3.4 Traditional Justice Systems

It is noteworthy that there is an overlap between the forms of ADR mechanisms and traditional justice systems. The Kenyan communities and Africa in general, have engaged in informal negotiation and mediation since time immemorial in the management of conflicts. Mediation as practised by traditional African communities was informal, flexible, voluntary and expeditious and it aimed at fostering relationships and peaceful coexistence. Inter-tribal conflicts were mediated and negotiated in informal settings, where they were presided over by Council of Elders who acted as 'mediators' or 'arbitrators'.[87] Their inclusion in the Constitution of Kenya 2010 is a restatement of these traditional mechanisms.[88] However, before their application, they need to be checked against the Bill of Rights to ensure that they are used in a way that promotes access to justice rather than defeating the same as this would render them repugnant to justice or morality.[89] Effective application of traditional conflict resolution mechanisms in Kenya can indeed bolster access to justice for all including those communities whose areas of living poses a challenge to accessing courts of law, and whose conflicts may pose challenges to the court in addressing them. The East African region can consider the Kenyan position as the way to go in

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[87] Kalande, W., 2008, 'Kenyan Land Disputes in the Context of Social Conflict Theories', FIG Commission 7 Annual Meeting and Open Symposium on Environment and Land Administration 'Big Works for Defence of The Territory' Verona-ITALY 11-15.

[88] Somerville, K.., 2012, 'Kenya: land and communal clashes increase as country gears up for elections', Posted on September 20, by African Arguments Editor.

[89] Mohamud Adan and Ruto Pkalya, Elizabeth Muli (ed.) (2006) . 'Conflict Management in Kenya Towards Policy and Strategy Formulation', Practical Action, Available at http://practicalaction.org/region_east_africa_publications Accessed on 15th August, 2013

institutionalizing ADR and TDRM especially in the area of natural resource based conflicts management.[90]

Traditional justice systems employ an informal approach to managing natural resource conflicts. It seeks to incorporate mediation and negotiation to resolve conflicts in an attempt to find a lasting solution to the conflicts. This approach has been hailed as participatory as it involves representatives from the affected groups and hence wins the confidence of both sides as one capable of achieving justice for all. This approach involves negotiation and mediation in the political process and these therefore come with all their advantages. This approach is capable of addressing some of the social, political and economic conflicts among the communities, including natural resource conflicts. For instance, the Modagishu Declaration saw communities in Garissa, Mandera and Wajir districts agree to resolve the problems of inter alia banditry, unauthorized grazing.[91]

The concerned parties are sometimes better placed to address the disagreements and should only be empowered to negotiate their conflicts with the government officials only providing the conducive environment for the same. The only limitation to the application of these informal mechanisms is that they must not be used in a way that contravenes the Bill of Rights; or is repugnant to justice and morality or results in outcomes that are repugnant to justice or morality; or is inconsistent with this Constitution or any written law.[92]

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[90] Nancy A. Welsh, 2011. 'Perceptions of Fairness in Negotiation', Marquette Law Review, Vol. 87, pp. 753-767, at p. 753

[91] ibid

[92] Ray, B., (2009). 'Extending The Shadow Of The Law: Using Hybrid Mechanisms To Develop Constitutional Norms In Socioeconomic Rights Cases' Utah Law Review, [NO. 3] pp. 802-803]

CHAPTER FOUR

AN ANALYSIS OF ENVIRONMENTAL DIPLOMACY AND CONFLICT RESOLUTION

4.1 Introduction

This chapter presents data presentation and interpretations of the findings on the environmental diplomacy and conflict resolution at Mau forest. The data has been presented using tables and graphs with interpretation provided. Findings from open-ended questions were also presented in prose.

4.2 Demographic

4.2.1 Duration of living or working in the area

The study sought to establish the duration which the respondents had lived or worked at Mau forest. The findings are shown in figure 4.1 below.

Figure 4.1: Duration of living or working in the area
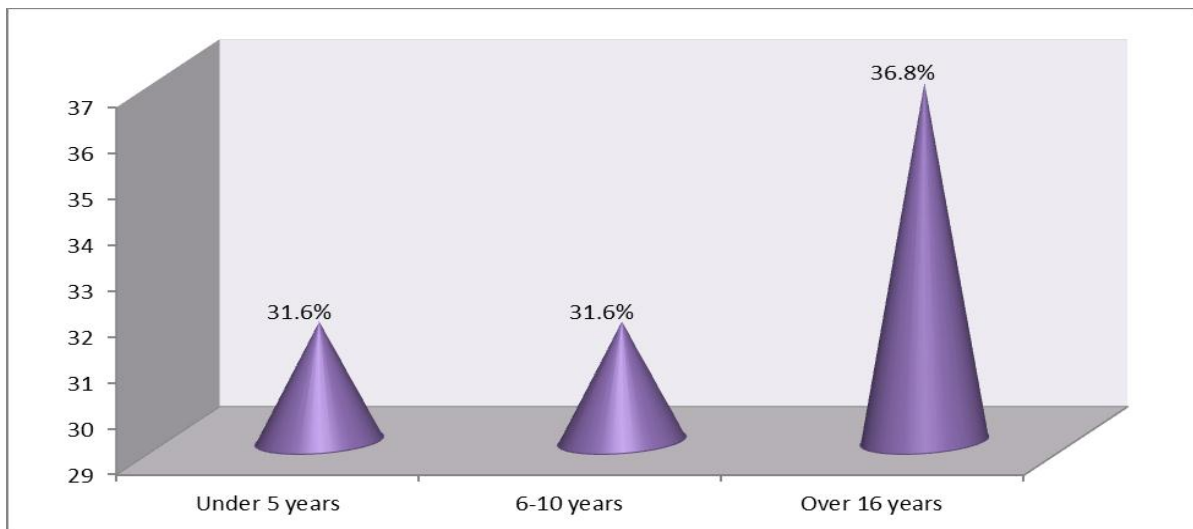
From the findings of the study, most of the respondents (36.8%) had worked or lived at Mau forest for over 16 years while 31.6% of the respondents had worked or lived at Mau forest for duration of less than 5 years and 6-10 years respectively.

4.2.2 Awareness of environmental or resource related problems in the Mau Forest

The study further sought to establish whether the respondents were aware of environmental or resource related problems in the Mau Forest. The findings are presented in the figure below.

Figure 4.2: Awareness of environmental or resource related problems in the Mau Forest
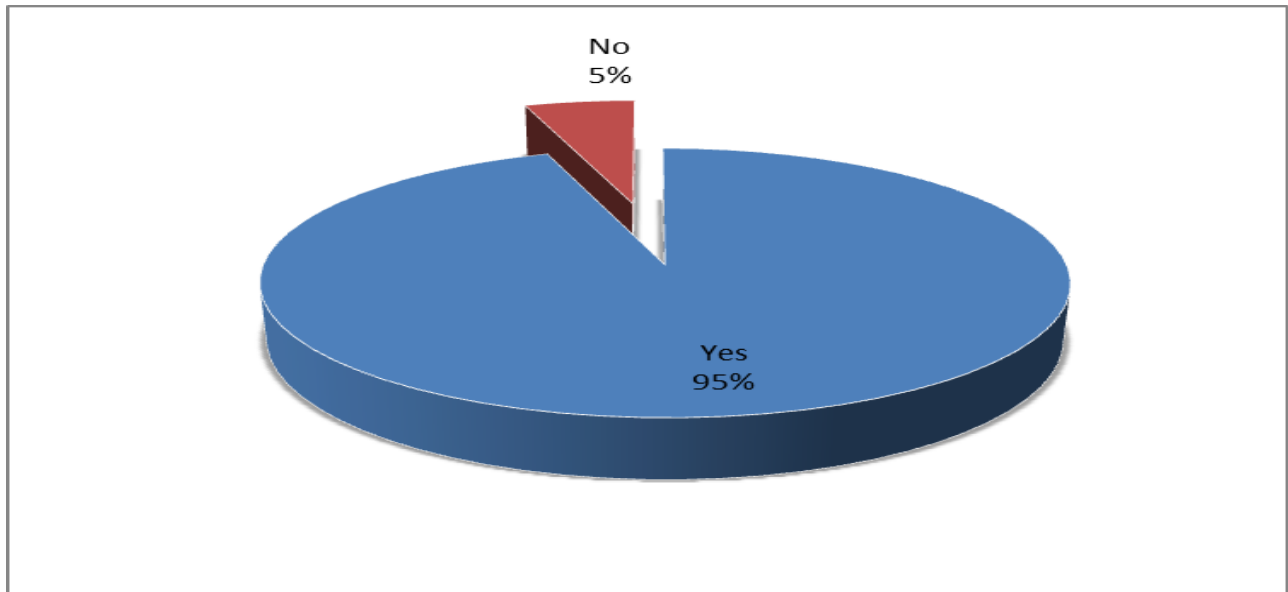
From the findings of the study, majority of the respondents (95%) were aware of environmental or resource related problems in the Mau Forest while 5% were not aware of environmental or resource related problems in the Mau Forest

4.3 Environmental concerns

The study asked the respondents to indicate their level of agreement with the following statements on the concerns that might be a source of conflict at the Mau region. The responses were rated on a five point Likert scale where: 1- Very low extent, 2- Low extent, 3- To a moderate extent, 4- To a great extent and 5-To a very great extent. The mean and standard deviations were generated from SPSS and are as illustrated in table below.

Table 4.1: Environmental concerns

	Mean	Std. Dev.
The overall ecological situation at the Mau has been affected by human activity in the area	4.57	0.507
Increased forest depletion in the region that leads to erratic weather patterns causing floods	3.84	0.834
Rapid increase in human population, reduced farm sizes within the region has negatively affected livelihoods	4.63	1.164
Water pollution has increased lately and this has affected both animal and human wellbeing	3.56	1.014
The level of soil degradation has increased lately to the extent that the crop output has been declining	3.73	0.805
Inadequate health facilities has led to poor health of children and adults	4.36	1.211

From the table above, majority of the respondents strongly agreed that rapid increase in human population, reduced farm sizes within the region has negatively affected livelihoods; the

overall ecological situation at the Mau has been affected by human activity in the area and inadequate health facilities has led to poor health of children and adults as indicated by the mean scores of 4.63, 4.57 and 4.36 respectively.

On the other hand, most of the respondents agreed that increased forest depletion in the region that leads to erratic weather patterns causing floods; the level of soil degradation has increased lately to the extent that the crop output has been declining and water pollution has increased lately and this has affected both animal and human wellbeing as indicated by the mean scores of 3.84, 3.73 and 3.56 respectively.

4.4 Non- Environmental Concerns

The study also asked the respondents to indicate their level of agreement with the following statements on Non- Environmental Concerns at the Mau region. The responses were rated on a five point Likert scale where: 1- Very low extent, 2- Low extent, 3- To a moderate extent, 4- To a great extent and 5-To a very great extent. The mean and standard deviations were generated from SPSS and are as illustrated in table below.

Table 4.2: Non- Environmental Concerns

	Mean	Std. Dev.
The level of unemployment in the Mau region is high compared to other regions and this has led to increased tension among the communities	4.94	1.129
Absence of equity in allocation of resources in the region has been a cause of animosity along tribal lines	3.73	1.240
Access to education is skewed to only certain regions and communities at the Mau	4.84	1.213
Political freedom and representation in the Mau region has not been fair and some communities are favoured	3.36	1.116
Budgetary allocation for infrastructure development is skewed in favour of some localities leading to tension	4.89	1.196

From the table above, majority of the respondents strongly agreed that the level of unemployment in the Mau region is high compared to other regions and this has led to increased tension among the communities; budgetary allocation for infrastructure development is skewed in favour of some localities leading to tension and access to education is skewed to only certain regions and communities at the Mau as indicated by the mean scores of 4.94, 4.89 and 4.84 respectively.

On the other hand, most of the respondents agreed that Absence of equity in allocation of resources in the region has been a cause of animosity along tribal lines and political freedom and representation in the Mau region has not been fair and some communities are favored as indicated by the mean scores of 3.73 and 3.36 respectively.

4.4.1 Other concern affecting people in the Mau Region

The conversion of forest into agriculture and built-up land in the MFC has led to increased impervious and hardened surface areas such as roads, parking lots, sidewalks and rooftops diminishes infiltration based processes and, consequently, recharge to the groundwater systems. These processes not only impair the ability of the system to cleanse runoff and protect wetlands, but also amplify the potential for soil erosion and floods, thereby contributing to the degradation of streams and other water bodies. The replacement of forest and woodland by depletive subsistence agriculture has also caused massive inflow of sediments into the nearby Lakes. The rising nutrient levels from the sediment have affected the growth of blue-green algae (spirulina platensis), which forms the main food for flamingo birds, known to be a major touristic attraction for Lake Nakuru. Apart from reduced revenues associated with ecotourism in the area, the ecological effect of this has been the loss of biodiversity through migration of the birds to other water bodies within the rift valley where complimentary food is available. Conversion from forest to agriculture and grazing land has also disrupted the hydrological cycle of the river drainage basins through increased evaporation and runoff process, especially during rainy seasons.

4.4.2 Environmental diplomacy adopted in the Mau

The study further sought to establish whether the environmental diplomacy been adopted in the Mau as one of the tools for resolving the environmental conflicts has been successful. The findings are presented in the figure below.

Figure 4.3: Environmental diplomacy adopted in the Mau
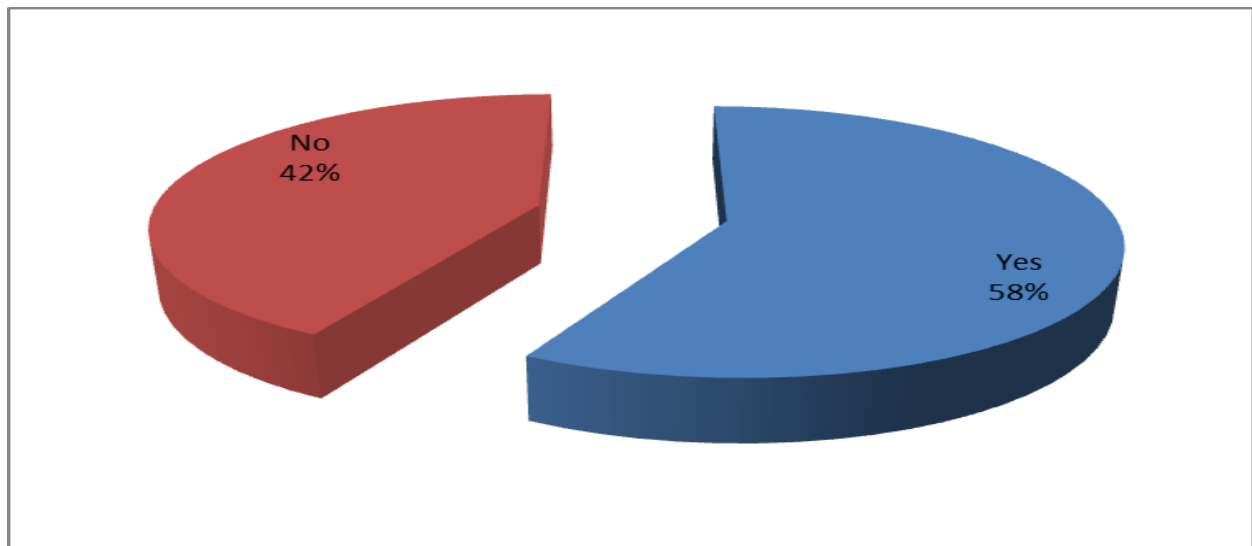
From the findings of the study, majority of the respondents (58%) agreed that the environmental diplomacy been adopted in the Mau as one of the tools for resolving the environmental conflicts has been successful while 42% were of a contrary opinion. The study further found out that the external donors were willing to help in Mau conflict resolution and also the government was playing a diplomatic role against the community.

4.5 Environmental Diplomacy at Mau

The following are some of the diplomacy approaches that can be employed in managing the conflict in the Mau. Please indicate how the following initiatives have helped in reducing the environmental conflict in the Mau.

4.5.1 Establishment of Community Forest Association at the forest station level

From the study findings, majority of the respondents indicated that the establishment of community forest association at the forest station level would help in mitigating the conflict, the committee to be involved in forest management issues and protection. Further, CFAs have helped resolve conflicts in Mau as they consist of local communities who understand the problems in Mau and has given local community access to the forest as well as education and a chance to conserve the forest.

4.5.2 The enhancement of local institutions such as hospitals, schools and administrative units to address the needs of all the inhabitants of the Mau

From the study findings, majority of the respondents indicated that since the enhancement of local institutions such as hospitals, schools and administrative units, basic services were accessible to the local communities, community welfare and education was improved and that the availability of these institutions had encouraged many people to settle in the area further enhancing degradation and pressure on the forest for livelihood generation.

4.5.3 Development of technical administrative and entrepreneurial capacities of rural communities so as to sustainably manage forest resources to prevent related disputes

From the study findings, majority of the respondents indicated that the pilot projects undertaken by KFS positively contributed towards reduction of pressure by providing alternative sources of livelihood, as an alternative source of livelihood through small business hence reduced pressure on the forest resources and giving support to CFAs to establish non-forest projects through capacity building and offering grants to groups to conserve the environment.

4.5.4 Mobilization of resources in financial, entrepreneurial and physical to help in resolving any conflict however small, in order to prevent the explosion of the conflicts in the area.

From the study findings, majority of the respondents indicated that CFAs were supported to establish non-government activities such as tree nursery establishment, management of agricultural projects and farmer's field schedule for increased ford production, several donors had shown interest and willingness to support restoration of ecosystem but the parties in the area are playing restrictive roles.

4.6 To evaluate the existing environmental degradation and conflicts in the Mau Forest

The conversion of forest into agriculture and built-up land in the MFC has led to noteworthy environmental impacts. Generally, increased impervious and hardened surface areas such as roads, parking lots, sidewalks and rooftops diminishes infiltration based processes and, consequently, recharge to the groundwater systems. These processes not only impair the ability of the system to cleanse runoff and protect wetlands, but also amplify the potential for soil erosion and floods, thereby contributing to the degradation of streams and other water bodies. The replacement of forest and woodland by depletive subsistence agriculture has also caused massive inflow of sediments into the nearby Lakes (Ramesh, 1998).

The rising nutrient levels from the sediment have affected the growth of blue-green algae (spirulina platensis), which forms the main food for flamingo birds, known to be a major touristic attraction for Lake Nakuru. Apart from reduced revenues associated with ecotourism in the area, the ecological effect of this has been the loss of biodiversity through migration of the birds to other water bodies within the rift valley where complimentary food is available.

Conversion from forest to agriculture and grazing land has also disrupted the hydrological cycle of the river drainage basins through increased evaporation and runoff process, especially during rainy seasons.

Generally, low-productivity grass types from natural grassland pastures have lesser leaf area and produce a smaller amount of biomass compared to the forested vegetation. With reduced leaf area and biomass consequent of the land degradation, rainfall interception and surface detention capacity are bound to significantly decrease. This reduces the soil moisture retention capacities, further contributing to the decline in the general evapotranspiration rates (ETo) of the area. Changes in land use may also affect the groundwater recharge of a system. This however, depends on the groundwater recharge area, which may be different from the surface water catchments.

However, studies have also shown that logging or conversion of forest to grassland for grazing can result into rising water table as a result of decreased evapotranspiration. In some cases, the water table may fall as a result of decreased soil infiltration from soil compaction and non-conservation farming techniques. If the infiltration capacity is substantially reduced, the long term effect can be severe cases of drought and desertification (Maidment, 1993; Chemelil, 1995). Removal of forest from a catchment can also cause significant hydrologic consequences such as decreased rainfall interception leading to variations in the stream water quality and quantity (Mutua and Klik, 2007; Olang et al., 2011). Research has shown that tree canopies can intercept 10-40% of incoming precipitation depending on the age, location and density of stand, tree species, rainfall intensity and _ evaporation rates. Land degradation due to forest logging, forest fires and wind damage can therefore have major and long lasting effects upon the canopy

characteristics and consequently, overall hydrological response of an area. Clearing of forests can also cause habitat fragmentation, loss of biodiversity and water related pollution problems.

4.7 To establish the extent of Kenya's involvement in international environmental diplomacy in resolving environmental degradation and conflicts at the Mau Forest

More recently, the Mau Forest has received considerable attention from local and international organizations due to its ecological significance, which is posing a threat to the whole region. In Kenya, most forest areas are now under the management of the Kenya Forest Service (KFS), which has made substantial steps towards addressing the degradation and deforestation threat to all the major water towers. Among the steps is the new forest policy and law, which were promulgated in 2005. The new law lays emphasis on a participative approach to management of forest resources by all stake holders including local communities and the private sector. A further step is the creation of the Task Force for the Mau Forest Complex (TF-MFC) under the office of the Prime Minister of Kenya, with the mandate to recommend strategies for restoring the forest complex in line with Vision 2030. A very important and urgent scheme is the reforestation and restoration through tree planting. Such activities are organized by the concerned governmental chief officers, in collaboration with environmental non-governmental organizations and international organizations.

A number of international and sub-regional organizations are involved in the conservation and rehabilitation planning. The major international programme is under the UNEP/DEWA, which is also involved in the assessment of the threats to critical montane forests in East Africa including Mt. Kenya, Aberdare range and Mt. Kilimanjaro. Other organizations which have shown interest, directly or indirectly, include the Africa Convention for the Conservation of

Nature and Natural Resources (2003), East Africa Community Treaty (1999), Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention, 1971), Convention on Biological Diversity (1992), International Tropical Timber Agreement (1983, revised 1994) United Nations Forum on Forests, Intergovernmental Authority on Development (IGAD), Johannesburg Plan of Implementation of the World Summit on Sustainable Development (WSSD), Lake Victoria Protocol (2003), Protocol for Environment and Natural Resources, The United Nations Framework Convention on Climate Change (1992), the World Heritage Convention (1972), the United Nations Convention to Combat Desertification (UNCCD) (1994); the Convention on International Trade in Endangered Species (CITES, 1973), The United Nations Convention to Combat Desertification (UNCCD) (1994), The Nile Basin Initiative (NBI) amongst others. So far under the TF-MFC mandated with co-coordinating the rehabilitation planning of the Mau ecosystem, a number of strategic options have been proposed and realized, in part.

4.8 To establish the role of environmental diplomacy in resolving environmental conflicts in the Mau escarpment.

Development of effective institutional framework and Strategic Management Plan

Under this framework, a Mau Forests Complex Authority (MFCA) was to be established to coordinate and oversee the management of the complex. The authority was to be guided by board of directors comprising representatives of the main stakeholders, including the economic sectors directly dependent on the goods and services of the Mau Forests Complex such as water, energy, tourism and wildlife, agriculture and forestry. Ecological requirements, in conformity with the needs of existing strategic plans, including for Vision 2030 were to be

integrated in the development plan. The current status of the Mau ecosystem, including the existing data status for management purposes were to be considered in achieving this. Additionally is the need for assessment studies on the critical catchment areas and biodiversity hotspots, which require immediate and appropriate conservation strategies.

Boundary surveys, issuance of title deeds and monitoring and enforcement

This was to involve the demarcation of the legal boundaries and assessment of the critical water catchment areas, assessment of vegetation cover status and biological diversity hotspots in the MFC. Furthermore was the need for routine monitoring to prevent new encroachment, charcoal burning and tree felling that could further attenuate degradation process. Demarcation and fencing of hydrological and biological hotspots or where significant human-wildlife conflicts could occur was hence imperative in this context.

Relocation, resettlement and livelihood support and development

This activity involved the relocation of all people living in the demarcated protected forests. In the event of resettlement thus, the government was to provide alternative land and funds for the development of the new lands, and livelihoods, while taking into consideration vulnerability of the people within the locations. Immediate livelihood support including water, food, shelter and energy were hence required for the families relocated from the complex to lessen the resentment felt by those aggrieved by their relocation.

Public awareness and community sensitization

        The activity was mainly to address the needs of the local communities living around the forest. The restoration process was to be done in consultation with local communities, who were to benefit both through directly employment opportunities and/or indirectly through ecosystem services including water provision through a restored ecosystem. Sustainable livelihood options in the forest, with particular emphasis on employment opportunities and natural resource based income generating activities were to be explored. This was to include, but not limited to, raising most of the required seedlings for rehabilitation, with the balance being produced through institutional nurseries through technical support by private and international organizations.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The study found out that majority of the respondents had worked or lived at Mau forest. For over 16 years and therefore they were aware of environmental or resource related problems in the Mau Forest. Further, majority of the respondents strongly agreed that rapid increase in human population, reduced farm sizes within the region has negatively affected livelihoods; the overall ecological situation at the Mau has been affected by human activity in the area and inadequate health facilities has led to poor health of children and adults.

On non- environmental concerns, the study also found out that the level of unemployment in the Mau region is high compared to other regions and this has led to increased tension among the communities; budgetary allocation for infrastructure development is skewed in favour of some localities leading to tension and access to education is skewed to only certain regions and communities at the Mau.

On concern affecting people in the Mau Region,   the study also found out that The conversion of forest into agriculture and built-up land in the MFC has led to increased impervious and hardened surface areas such as roads, parking lots, sidewalks and rooftops diminishes infiltration based processes and, consequently, recharge to the groundwater systems. These processes not only impair the ability of the system to cleanse runoff and protect wetlands, but also amplify the potential for soil erosion and floods, thereby contributing to the degradation of streams and other water bodies. The replacement of forest and woodland by depletive subsistence agriculture has also caused massive inflow of sediments into the nearby Lakes. The

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

Further, the environmental diplomacy been adopted in the Mau as one of the tools for resolving the environmental conflicts has been successful and that the external donors were willing to help in Mau conflict resolution and also the government was playing a diplomatic role against the community. On the other hand, CFAs have helped resolve conflicts in Mau as they consist of local communities who understand the problems in Mau and has given local community access to the forest as well as education and a chance to conserve the forest and that since the enhancement of local institutions such as hospitals, schools and administrative units, basic services were accessible to the local communities, community welfare and education was improved and that the availability of these institutions had encouraged many people to settle in the area further enhancing degradation and pressure on the forest for livelihood generation.

5.2 Conclusion

The ecosystem goods and services in the Mau are threatened more than ever by human activity. Both the Government and more particularly those living within the Mau ecosystem are now paying the price for over 30 years of neglect. Neither the remaining indigenous forests nor the forest plantations can sustain the demand for charcoal and timber. This calls for different approaches, including tremendous increase in tree planting on farms. The negative environmental impacts on the MFC, have reached crisis level. Presently, the riparian communities and the Kenya government through key economic sectors that directly depend on goods and services of the region are paying the price of over three decades of negligence and improper land use management. The ongoing restoration efforts, including educating the general public about the need for sustainable environmental conservation in such areas is highly essential and should be sustained. It is imperative that the restoration and rehabilitation efforts are fortified through integration with potential socio-economic activities that can support the survival of the riparian rural communities. Exploring the role of eco-tourism, in relation to natural forested ecosystem, followed by putting in place appropriate and sustainable management framework are hence important in this respect. In order to further support the rural communities it is crucial to initiate long-term agro-forestry based practices such as production of sustainable wood products, and non-timber products such as medicinal plants and honey for commercialization purposes.

Also, worth mentioning as a fundamental aspect of the conservation would be the unavoidable role of continued research in the region. Further studies that go hand in hand with the restoration and rehabilitation process would be a key support tool that enables necessary and appropriate adjustment as need arises. Evaluating the interactions of the rehabilitated forest ecology in relation with the biological and hydrological systems will be important at every stage.

With the increasing advancement in RS techniques, future research activities aimed at exploring new and innovative methods for environmental monitoring and management are also imperative in this respect. Other studies related to carbon sequestration to defer the effects of global warming through Reduced Emissions associated with Deforestation and Degradation (REDD) are also necessary. Considering that land degradation due to anthropogenic causes still remains a major threat to ecosystems and natural resource sustainability in Kenya, successful rehabilitation of the Mau Forest Complex will offer a good prototype that can be studied and possibly emulated across other regions experiencing similar environmental challenges.

5.3 Recommendations

If environmental justice and democracy are to be achieved, then there is need to adopt an integrated approach to both conflict resolution and dispute settlement mechanisms in order to promote peace, coexistence, justice for all and participation by all the involved parties. Environmental justice entails promotion of equitable treatment of people of all races, incomes and cultures with respect to environmental laws, regulations, policies and decisions. One of the fundamental components of environmental justice is that it seeks to tackle social injustices and environmental problems through an integrated framework of policies. There is need for increased integration of principles of sustainable development into the national legal frameworks of the Mau forest.

Alternative dispute resolution mechanisms such as negotiation, fact finding facilitation and mediation have the potential to enhance environmental justice since they allow parties to enjoy autonomy over the process and outcome; they are expeditious, cost-effective, and flexible and employ non-complex procedures. They greatly enhance the principle of public participation in

natural resources management. They result in mutually satisfying outcomes which essentially resolves the conflict thus achieving lasting peace among the previously conflicting parties. These mechanisms are also useful in achieving environmental democracy in Kenya and Mau forest in particular. There is a need to manage natural resource based conflicts for the sake of peace, prosperity and sustainable development.

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Appendix I: Research Questionnaire

INTRODUCTION

This questionnaire has been designed for the sole purpose of collecting data on the effects of environmental diplomacy in conflict resolution at Mau forest escarpment. The data collected will be treated with a very high degree of confidentiality and it is meant for academic purpose only

Part A: Demographic and Respondent's Profile

1. Name of the Respondent (optional) ……………………………………….………

2. Are you a public servant?

    a) Yes   [   ]   b)   [   ]

3. For how long have you been living or working in this area?

    a) Under 5 years   [   ]   b)   6-10 years   [   ]

    b) c) 11-15 years   [   ]   d)   Over 16 years   [   ]

4. Are you aware of environmental or resource related problems in the Mau Forest?

    a) Yes   [   ]   b)   [   ]

Part B: Environmental Awareness

5. Below are some of the concerns that might be a source of conflict at the Mau region. In a scale of 1 to 5, please indicate the degree to which you consider the concern to be a source of conflict.

Key:

5) Very great extent   4) Great extent   3) Moderate extent

2) Low extent   1) Very low extent

Environmental Concerns	5	4	3	2	1
The overall ecological situation at the Mau has been affected by human activity in the area					
There has been increased forest depletion in the region to the extent that the weather patterns has changed and this is a cause of concern					
The size of the farm that I used to farm and grace my animals has decreased over time and this has affected my livelihood.					
The causes of water pollution has increased lately and this has affected both animal and human wellbeing at the Mau forest					
The level of soil degradation has increased lately to the extent that the crop output has been declining in the Mau					
As a result of the forest cover degradation, there has been an increase in health concerns for both the children and adults					

Non-Environmental Concerns					
The level of unemployment in the Mau region is high compared to other regions and this has led to increased tension among the communities					
Allocation of resources in the region has been a cause of concern since there is no equitable distribution of the same and in most cases, the allocation is done on the basis of favoritism and tribe					
Access to education is skewed to only certain regions and communities at the Mau					
Political freedom and representation in the Mau region has not been fair and some communities are favoured					
There has been a skewed distribution of infrastructure budget allocation at the Mau and this has brought tension in the region					
Access to health care has also not been fairly distributed					
There is a feeling that certain communities monopolize the resources unfairly					

6.) What other concern, not covered above, affects you in the Mau Region (please explain)

…………………………………………………………………………………………………

7) As one of the tools for resolving the environmental conflicts, in your opinion, has the environmental diplomacy been adopted in the Mau successfully?

a) Yes   [   ]   b)   [   ]

Please expound on your answer………………………………………………………….........

…………………………………………………………………………………………………

PART B: Environmental Diplomacy at Mau

8) The following are some of the diplomacy approaches that can be employed in managing the conflict in the Mau. Please indicate how the following initiatives have helped in reducing the environmental conflict in the Mau.

i. The establishment of local community environmental committees coming from all the communities in the region…………………………………………………………………

ii. The enhancement of local institutions such as hospitals, schools and administrative units that will address the needs of all the inhabitants of the Mau

……………………………………………………………………………………………

iii. The need to develop human, technical and administrative capacity to develop sustainable management plans and to implement these plans to enable the local community to fulfill their management tasks and prevent resource-related disputes

....

iv. The need to come up with a fund that will help in resolving any conflict however small in order to prevent the explosion of the conflicts in the region.

……………………………………………………………………………………………

……………………………………………………………………………………………

v. What other suggestion can you give in resolving the environmental conflict in the Mau?

……………………………………………………………………………………………

Thank You for Your Time

Appendix I1: Table for Determining Sample Size from a Given Population

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144 1	300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364

120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size.

S is sample size.