

**UNIVERSITY OF NAIROBI
INSTITUTE OF DIPLOMACY AND INTERNATIONAL STUDIES**

**CROSS BORDER NATURAL RESOURCE MANAGEMENT AND SUSTAINABLE
PEACE IN EASTERN AFRICA REGION: A CASE STUDY OF KENYA**

**OMBARA ISAAC
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DECLARATION

This PhD thesis is my original work and has not been presented to any other university for academic award.



Signed:

Date: 04 – 11 – 2021

Ombara Isaac
(Candidate)

This PhD thesis has been submitted for examination with our approval as the University of Nairobi Supervisors:



Signed:

Date: 04 – 11 – 2021

Prof. Maria Nzomo EBS, MBS
(First Supervisor)



Signed:

Date: 04 – 11 – 2021

Dr. Patrick Maluki
(Second Supervisor)

DEDICATION

This work is dedicated to my beloved wife and son: Juliet Susan ‘Sue Dan’ Okeyo and David Collins Siwa Jnr., my parents Michael Ombara Ajuoga and Mama Rosa Muyoti Ombara, my siblings and the entire Oketch Majimba’s family for the unconditional love, outstanding support and sheer encouragement.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACTED	Agency for Technical Cooperation and Development
ADF	African Development Fund
AfDB	African Development Bank
AMCEN	African Ministerial Conference on the Environment
APSA	African Peace and Security Architecture
ASALs	Arid and Semi-Arid Lands
ASEAN	Association of Southeast Asian Nations
AU	African Union
BBC	British Broadcasting Corporation
CBNRM	Community-Based Natural Resource Management
CDF	Constituency Development Fund
CEWRN	Conflict Early Warning and Response Mechanism
CIA	Central Intelligence Agency
COMESA	Common Market for Eastern and Southern Africa
DANIDA	Danish International Development Agency
DKK	Danish Krone
DRC	Democratic Republic of Congo
EA	Eastern Africa
EAC	East African Community
ESARPO	Eastern Southern African Regional Programme
ECHO	European Commission Humanitarian Aid and Civil Protection
ELMS	Environment and Land Management Sector
EMCA	Environmental Management and Coordination Act
ERS	Economic Recovery Strategy
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GEF	Global Environment Facility
GERD	Grand Ethiopian Renaissance Dam
G.o.K	Government of Kenya
GTZ	German Technical Cooperation Agency

HDI	Human Development Index
IBA	Important Bird Area
IBM	International Business Machines
ICJ	International Court of Justice
ICPAC	IGAD Climate Prediction and Applications Centre
ICRAF	International Centre for Research in Agroforestry
IDDRSI	IGAD Drought Disaster Resilience and Sustainability Initiative
IELRC	International Environmental Law Research Centre
IGAD	Intergovernmental Authority on Development
IGADD	Intergovernmental Authority on Drought and Development
IGPC	International Gorilla Conservation Programme
ILEG	Institute of Law and Environmental Governance
ILM	Integrated Landscape Management
ILRI	International Livestock Research Institute
INRM	Integrated Natural Resource Management
IRBM	Integrated River Basin Management
IRIN	Integrated Regional Information Networks
IWRM	Integrated Water Resources Management
JWC	Joint Water Committee
KenGen	Kenya Electricity Generating Company
KES	Kenya shillings
LAPSSET	Lamu Port-South Sudan-Ethiopia Transport Corridor
LBDA	The Lake Basin Development Authority
LDCs	Least Developed Countries
LVBC	Lake Victoria Basin Commission
LVEMP	Lake Victoria Environmental Management Programme
MDGs	Millennium Development Goals
MENR	Ministry of Environment and Natural Resources
MEWNR	Ministry of Environment, Water and Natural Resources
NACOSTI	National Commission for Science, Technology and Innovation
NBI	Nile Basin Initiative

NEC	National Environment Council
NELSAP	Nile Equatorial Lakes Subsidiary Action Programme
NEMA	National Environment Management Authority
NEPAD	New Partnership for Africa's Development
NGOs	Nongovernmental Organizations
NRFC	Nile River Cooperative Framework
NRM	Natural Resources Management
NRMP	Natural Resource Management Programme
OSIENALA	Friends of Lake Victoria
PPP	Public Private Partnerships
PRB	Population Reference Bureau
SADC	Southern Africa Development Community
SANA	Sustainable Aid in Africa International
SDGs	Sustainable Development Goals
SLM	Sustainable Land Management
SPSS	Statistical Package for the Social Sciences
UK	United Kingdom
UN	United Nations
US	United States
USIP	United States Institute of Peace
UNCED	United Nations Conference for the Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USDA-FAS	United States Department of Agriculture-Foreign Agricultural Services.
WAC	World Agroforestry Centre
WCMC	World Conservation Monitoring Centre
WRI	World Resources Institute
WTO	World Trade Organization
WWF	World Wildlife Foundation

DEFINITION OF KEY TERMS

These are terms regularly applied during the researcher's study and are also reflected in the study topic. They align the researcher to the study and they are defined as follows;

Cross border implies occurring across a border between two countries.¹ A border being a definitive marker that clearly defines each state's sovereignty parameters. This study focused on the management or rather running of natural resources that transcend national boundaries.

Cross border natural resource management is the looking after natural resources that transcend national boundaries. The attention is centered on ways in which the management impacts on the kind of life being led by present through to future generations.² It involves a series of coordinated interventions and engagements to sustain and enhance benefits derived from these resources. This study is about the long-term implication of the management actions; which is the projected sustainable peace and subsequent development in eastern Africa.

Development is the act or process of growing, progressing or developing.³ In this study, development in the eastern Africa region will be the culmination and ultimate end up on attainment of an enabling environment through lasting peace as a result of effective cross border ecosystem resource administration.

Environment is an aggregate of surrounding things, surroundings or immediate conditions which basically define the setting of operation for an individual, animal or plant life.⁴ In this study, the environment provides an abode for the implied natural resources.

Impact is a marked effect or influence.⁵ This study explores how cross border natural resource management will influence sustainable peace in eastern Africa region.

Natural resources are material things or substances that occur within the environment and which may well be used to generate social and economic benefits.⁶ They are considered useful and valuable to man in their natural state, depending on their demand and quantity. In this study they

¹Oxford Dictionaries, *Cross-border*, language matters, (UK, Oxford University Press, 2014), <http://www.oxforddictionaries.com/definition/english/cross-border>, accessed on 20 March 2014.

²Land Learn NSW, *What is 'natural resource management?'* <http://www.landlearnsw.org.au/production-chains/nrm>, accessed on 5 April 2014.

³Collins English Dictionary, *Development*, (Glasgow, Harper Collins Publisher, 2000).

⁴Collins English Dictionary, *Environment*, Complete & Unabridged 10th ed., (Glasgow, Harper Collins Publishers, 2009), <http://dictionary.reference.com/browse/environment>, accessed on 10 February 2014.

⁵Oxford Dictionaries, *Impact*, language matters, (UK, Oxford University Press, 2015), <http://www.oxforddictionaries.com/definition/english/impact>, accessed on 13 February 2015.

⁶Oxford Dictionaries, *Natural resources*, Language matters, (UK, Oxford University Press, 2014), <http://www.oxforddictionaries.com/definition/english/natural-resources>, accessed on 21 March 2014.

are the material source of wealth that is the object of management towards sustainable peace in the eastern Africa region.

Region is a broad geographic area distinguished by similar features. It is also a specified area or territory of interest or activity⁷ and in this study the territory of focus is eastern Africa region, the setting for the examination of the key factor of the activity namely sustainable peace.

Sustainable peace is long term deterrence of outbreak, escalation, persistence and recurrence of conflict; supporting of warring groups to end hostilities and embrace reconciliation; remedying of root causes of conflict and in turn moving towards stabilization, recovery, rebuilding and development for all.⁸ The study envisages eastern Africa as being able to maintain lasting tranquility partly as a result of effective cross border natural resource management.

⁷Merriam Webster Dictionary online, *Region*, (2014), <http://www.merriam-webster.com/netdict.htm>, accessed on 2 April 2014.

⁸Rosenthal, G, *Reflections on the Meaning of 'Sustainable Peace,' Findings to the Advisory Group of Experts on the 2015 Review of the United Nations Peacebuilding Architecture*, (Presented to the Presidents of the UN General Assembly and UN Security Council, June 2015, New York; US).

ABSTRACT

Africa is well gifted with plenty of natural resources but still remains the world's poorest inhabited area that usually relies on foreign relief in augmenting support for its insecure populations. The dire underdevelopment situation in Africa is influenced by many factors among them population growth with growing dependency and pressure on the continent's resources, frequent resource related conflicts and escalated crisis of governance evidenced by generally weak processes and institutions. The resources are indispensable and their management should focus on the kind of life best desired for populations now and tomorrow. Countries sharing resources do not necessarily have to be neighbors as international boundaries cut across ecosystems with serious management implications. Border conflicts more often bear a natural resource dimension characterized by competition over the ever-dwindling resource base. Due to persistent conflicts coupled with insufficient targeted research, this study tests hypotheses linking cross border natural resource management arrangements and sustainable peace. The study examines whether cross border natural resource management would impact sustainable peace in eastern Africa region, with focus on Kenya. In doing so, the study examines the role of cross border natural resource management in fostering sustainable peace, evaluates current state and existing frameworks for resource management towards sustainable peace, assesses role and responsibilities of actors in resource management in support of sustainable peace and finally; analyzes impact of cross border natural resource management on sustainable peace in eastern Africa region. Study findings consolidate valid knowledge towards the realization of durable peace through sustainable exploitation and management of shared resources between Kenya and its neighbours. The generated knowledge aims at averting conflict resulting from increased resource demands, degradation, scarcities, structural inequalities and subsequent competition. Ensuing overall peace provides an enabling environment for unlocking more opportunities and synergies towards greater eastern Africa regional development. The study uses the resource scarcity perspective also known as the neo-Malthusian view with other related bases to link philosophical foundations to review and empirical data in explaining the phenomenon being studied and thereby completing and validating the investigations. The study builds on earlier relevant studies and other works and further provides information that is specific to Kenya and the region's needs. The study adopts a descriptive approach as data is mainly obtained through key informant interviews and questionnaires. A sample population of 385 individuals drawn from stipulated categories of the target population is engaged and collected data analyzed through quantitative and qualitative approaches in describing attributes of the variables under investigation. The findings of the study show weak compliance and enforcement of regulations, dissimilar management practices across borders, weak political and technical institutional linkages, inadequate financing of programmes, over-dependency on natural resources and non-holistic approaches as the main factors to blame for the diminishing resource base amid population growth, resource competition and conflicts. The findings also show that well managed resources will guarantee support for subsistence and economic wellness and further help avert competition and disagreements. Thus, the study postulates that it is essential to ensure balance between environmental conservation and the insatiable need for survival and economic progress in order to guarantee posterity and a peaceful eastern Africa region. Future studies should exhaustively explore other initiatives other than cross border resource management, with the potential to collectively spur sustainable peace and development within the region.

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CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Introduction

The chapter offers an introduction providing essential information underlying the study. It lays ground for subsequent analysis of issues surrounding the research problem.

1.1.1 Background to the Study

Kenya is well endowed with plenty of natural resources with the economy depending heavily on them to sustain livelihoods and national income. Kenya's ecosystems and natural resource base comprise of land, aquatic, forests, wildlife and biodiversity which are mainly transboundary in nature.⁹ Cross border water resources include the Lake Victoria basin resources shared with Tanzania, Uganda, Rwanda and Burundi. Kenya, Tanzania together with Uganda share it in 6%, 49% and 45% proportions respectively.¹⁰ Other aquatic resources include Lake Turkana basin on Kenya-Ethiopia border that covers 209, 157 km²,¹¹ Mara River and Lakes Natron and Jipe basins shared between Kenya and Tanzania, Juba-Shebelle basin on Kenya-Ethiopia-Somalia border, the Nile and Indian Ocean coastline together with its marine resources.

Shared wildlife, biodiversity and protected area ecosystems include the Maasai Mara Game Reserve situated within Kenya and which is a continuation of Serengeti National Park located within Tanzania. This transboundary ecosystem is the setting of the great wildebeest migration and a 'natural wonder of the world' where an estimated 11.5 million ungulates migrate from the Serengeti across the Mara River to the Maasai Mara, in a constant clockwise fashion in search of food and water supplies, covering about 1,800 miles (2,897 km).¹² Others include Sebei Controlled Hunting Area (Uganda) and Mt Elgon National Park (Kenya), the transboundary Mt. Kilimanjaro ecosystem and also Mkomazi Game Reserve (Tanzania) which is a continuation of Tsavo West National Park (Kenya). The country has 348 protected areas covering an estimated 75, 237.9 km² which is 12.7 % of Kenya's total area.¹³ There are also cross border dry lands in the

⁹Kenya; Atlas of Our Changing Environment, *Chapter 3: Transboundary Issues*, (2011), http://na.unep.net/atlas/datas/sites/default/files/unepsiouxfalls/atlasbook_1135/Kenya_Screen_Chapter3.pdf, accessed on 9 October 2014.

¹⁰Osumo, W. M., "Effects of Water Hyacinth on Water Quality of Winam Gulf, Lake Victoria," (Reykjavik, The United Nations University, 2001).

¹¹WRI, "Watersheds of the World: Lake Turkana Watershed and EarthTrends," (Washington D.C., World Resources Institute, 2002).

¹²National Geographic Wild Channel, *Ultimate Animal Countdown*, Wildlife-Swarms, 27 April 2014, 2000hrs.

¹³UNEP/WCMC, *World Database on Protected Areas*, (2007), <http://www.unep-wcmc.org/wdpa/index.htm>, accessed on 11 October 2014.

northern frontier areas of the country with pastoralists moving around as a survival strategy in these harsh terrains. To the South of the country lies Kajiado - Moduli dry lands shared between Kenya and Tanzania.

The country's huge potential held in natural resource reserves and the aspired economic growth and development is however threatened as the resources have progressively been stressed due to population pressure, degradation of ecosystem, resource depletion mainly occasioned by associated unsustainable use and poor management.¹⁴ Resultant resource scarcity, competition for residual resources, the transboundary nature of these resources and the resources being accessible from all sides of the frontier pose an increasing source of potential and actual conflicts as different actors strive to access, control, use and share utility from these declining resources. The situation exacerbates tensions, inequalities and poverty levels which compromise livelihoods leading to probable or actual unrest, a condition in agreement with the principles of the resource scarcity theory. Although Kenya's economy boasts of being the largest in East and Central Africa with approximated Gross Domestic Product (GDP) rounded off at US \$ 44.10 billion,¹⁵ the country remains a poor developing nation whose Human Development Index (HDI) stood at 0.519 in 2012,¹⁶ among the lowest globally and over 35% of Kenyans live in absolute poverty.

The Government of Kenya however recognizes that environmental governance is directly connected to peace and economic growth and has since made tremendous progress in development of related policy, legislative and institutional frameworks for resource management. The government has also signed and implemented sub-regional, regional and international agreements on environmental preservation and administration of natural resources. The progressive Constitution of Kenya, 2010 works together with the long-drawn-out development blue-print Vision 2030 which covers strategies on environment that encompass preservation of natural resources, climate change adaptation and environmental planning and governance, among other initiatives. The country created National Environment Management Authority (NEMA); a state corporation responsible for ensuring relevant policy on environmental management in Kenya. The agency was formed in 2002 under the Environmental Management and Coordination Act (EMCA)

¹⁴Ministry of Foreign Affairs of Denmark/DANIDA, *Natural resources management*, <http://kenya.um.dk/en/danida-en/nrm/>, accessed on 9 October 2014.

¹⁵World Bank data, (2013), <http://data.worldbank.org/country/kenya>, accessed 17 March 2014.

¹⁶Masha, J., 'Kenya fares badly in human development,' *Standard Digital News-Study*, (Kenya), 13 June 2013. http://www.standardmedia.co.ke/?articleID=2000085846&story_title=study-kenya-fares-badly-in-human-development, accessed on 14 April 2014.

No. 8 of 1999 to coordinate various environmental management activities and make an inventory on natural resources within the country with special focus on their utilization and conservation, among other functions. NEMA engages with local, national and international partners leveraging, aligning and developing synergies for mutual utility.¹⁷

Therefore, this study examines cross border natural resource management in order to ascertain its contribution to the attainment of sustainable peace within eastern Africa region, with particular focus on Kenya. Knowledge consolidated out of this study should support the realization of sustainable peace by facilitating clear and concise articulation of related resource management gaps and priorities, review of challenges, development of pragmatic solutions and seizing of available opportunities for sustainable peace within the resource management frameworks. The study findings and recommendations should inform attainment of sustainable peace as a pre-condition for regional progression through effective planning and targeted efficient management of natural resources. This study is grounded on past relevant studies and other works and goes beyond by providing stipulated policy makers and implementers, environmentalists, resource users, financiers and scholars with revised information that is specific to Kenya and the region's needs. The study explores the efficacy of ecosystem resource management as an avenue for attaining sustainable peace. The study also proves under what circumstances cross border natural resource management could offer grounds for sustainable peace and further suggests how efficiency in resource management could be enhanced towards greater lasting peace and progression.

1.2 Statement of the Research Problem

Sustainable peace has been elusive in Africa in the sense that most African countries only enjoy negative peace and are deprived of basic life support values. Of all regions of the world, the African continent has had the highest share of conflicts in recent years¹⁸ and more often, resource struggle underlies these unrests which carry heavy socio-economic and human costs and remain a principal source of underdevelopment and rampant poverty. This contrasts with abundance of cross border natural resources possessed by most African countries which if well managed can change lives of African people. Conflicts in the region are partly due to adjoining states holding varied

¹⁷Ministry of Environment, Water and Natural Resources, (2013), <http://www.environment.go.ke/?cat=28>, accessed on 8 October 2014

¹⁸Wallenstein, P. and M. Sollenberg, 'The end of international war? Armed conflict, 1989-95,' *Journal of Peace Research*, 33, (1996) pp. 353-70.

interests over control and exploitation of shared yet diminishing resources as is the case with the contentious Nile waters and resources.

There is urgency for realizing sustainable peace through better and tenable resource management perspectives,¹⁹ however past studies on attainment of sustainable peace through management of natural resources that transcend national boundaries in Africa were often alienated into regional research with generalized findings used to deliver blanket overview without being aligned to the specific needs on the ground. Specifically, sustainable peace in eastern Africa as a consequence resulting from cross border natural resource management has also not been exhaustively analyzed.²⁰ There has been persistent conflicts amid insufficient targeted research by universities and allied bodies to generate valid information to multilaterally offer solutions to the perennial problem and support the attainment of sustainable peace. There is need for appropriate information to mitigate related policy gaps and inform targeted interventions on continued degradation of resources, non-sustainable livelihoods, economic stagnation and recurrence of resource-induced conflicts among groups. Thus, this study examines whether cross border natural resource management would influence the realization of sustainable peace in eastern Africa with focus on Kenya.

1.2.1 Research Questions

- a. What is the role of cross border natural resource management in fostering sustainable peace in eastern Africa?
- b. What is the current state and existing frameworks for cross border natural resource management towards sustainable peace in eastern Africa region?
- c. What are the role and responsibilities of varied actors in cross border natural resource management in support of sustainable peace in eastern Africa?
- d. Will cross border natural resource management impact on sustainable peace within the eastern Africa region?

1.3 General Objective of the Study

This study critically examines the impact of cross border natural resource management on sustainable peace within eastern Africa region, with the focal point being Kenya.

¹⁹Jong, W. and K. Evans, 'Natural Resource Governance in Border Regions: From National Backwaters to Transnational Territories and Global Commons,' *Journal of US-China Public Administration*, Vol. 8, No. 8, (2011) pp. 925-936.

²⁰Van der Linde, H. *et al.*, *Beyond Boundaries: Transboundary Natural Resource Management in Sub-Saharan Africa*, (Washington D.C., Biodiversity Support Program, 2001).

1.4 Specific Objectives of the Study

- a. To examine the role of cross border natural resource management in fostering sustainable peace in eastern Africa.
- b. To evaluate the current state and existing frameworks for cross border natural resource management towards sustainable peace in eastern Africa region.
- c. To assess the role and responsibilities of different actors in cross border natural resource management in support of sustainable peace in eastern Africa.
- d. To critically analyze whether cross border natural resource management will impact on sustainable peace in the eastern Africa region.

1.5 Literature Review

As is academic standard, relevant literature and theory on subject of study are reviewed. Literature review intends to identify what had been done and the gaps that existed in the area of study, and subsequently strives to fill them. Whereas extensive literature review is carried out in the successive chapters as well, this particular section addresses the theoretical and empirical literature by offering critical assessment of relevant works on the study area. Empirical literature review focuses mainly on cross border natural resource management and sustainable peace which are explored under three broad categories namely; global perspectives, analysis of related situations in Africa and relevant scenarios in Kenya, tied to the specific study objectives.

1.5.1 Theoretical literature

The study examines the resource scarcity perspective also known as the neo-Malthusian view which links natural resource scarcity to attendant conflict in order to place related arguments within a theoretical context.

1.5.1.1 Resource scarcity perspective

According to Homer-Dixon and Blitt in *Ecoviolence: Links among environment, population and security*, resource scarcity is considered to be a creation of three distinct but interacting elements specifically; population growth, resource degradation alongside resource distribution among communities, which constitute the key elements of the neo-Malthusian view. Homer-Dixon goes ahead to christen these categories as demand-induced, supply-instigated and finally; structural scarcity in that order,²¹ as he further maintains that these are sources of scarcities

²¹Homer-Dixon, T.F. and J. Blitt, (eds.), *Ecoviolence: Links Among Environment, Population and Security*, (Lanham; MD, Rowman and Littlefield, 1998).

which may put forth varied impacts on different contexts as they regularly interact. The distributional feature cuts across all the prominent structures of the resource scarcity notion as postulated by the key proponents of the neo-Malthusian view, among them Thomas Homer-Dixon, Colin Kahl and Günther Baechler.

According to Homer-Dixon in *Environment, scarcity and violence*, world human population was predicted to surpass eight billion come 2025 and that as the global economy rapidly grows, this will further accelerate the ever-rising demands for natural resources. As a result, the world is bound to experience increasing scarcities relating to essential renewable resources that comprise of fresh water sources, forests and cropland, among others. Homer-Dixon holds that these environmental scarcities would bear intense social impacts, especially on poor and developing countries, and that the situation may contribute to insurgences, unrest and ethnic clashes, among other modes of civic violence;²² an argument in line with the neo-Malthusian view. However, Homer-Dixon is cautious to quickly point out that the repercussions of environmental scarcity are not direct and that they manifested together with other fringe elements namely; social, economic and political stresses.

Percival and Homer-Dixon in *Environmental scarcity and violent conflict: The case of South Africa* also concur that the causal connection of environmental scarcities to the outset of violent conflict remains complex since scarcities occur within political, ecological and socio-economic contexts and that there is the interplay between these scarcities and the contextual elements to contribute to violence.²³ Homer-Dixon further recognizes that human ingenuity could minimize the possibility of conflict especially, within countries that enjoy capable states, an educated populace and functional efficient markets. Nonetheless, he asserts that the violent effects emanating from resource scarcities should not be downplayed considering that an estimated half of the globe's human population directly relies up on renewable resources at the local level for their survival. Homer-Dixon confirms that in the times that lay ahead, the ever-increasing scarcities will indeed affect billions of people across the globe with unparalleled severity and also at an unmatched scale and pace.

Homer-Dixon in *Environment, scarcity and violence* maintains that there are two types of factor interactions which are mainly common and explains firstly that resource capture exists in a

²²Homer-Dixon, T.F., *Environment, Scarcity and Violence*, (Princeton; NJ and Oxford, Princeton University Press, 1999).

²³Percival, V., & T. Homer-Dixon, 'Environmental Scarcity and Violent Conflict: The Case of South Africa,' *Journal of Peace Research*, 35, 3, (1998) pp. 279-298, <https://doi.org/10.1177/0022343398035003002>.

scenario where increase in population and resource degradation offers inducements for influential entities to acquire control or authority over scarce resources at the detriment and cost of poor, vulnerable, disenfranchised, minority and weaker groups. The second interaction is ecological marginalization which describes a situation where population growth coupled with great land inequality instigates the movement of people into more sensitive or fragile ecological areas.²⁴ Whereas many states across the globe are capable of adapting to the variations in the environment, unfortunately certain states especially, the poor developing ones often characterized by institutional weakness have higher chance of being susceptible to violence relating to environment. Although population and environmental pressures are considered not to be likely causes of full-fledged international wars, indeed resource scarcity may bear the likelihood to exacerbate social segmentation. Baechler in *Violence through environmental discrimination* affirms that such elements may encourage violent low-intensity disputes at local or rather community level.²⁵

According to Kahl in *States, scarcity and civil Strife in the developing world*, existing literature on environmental security concurs with the argument on impact of resource scarcity being often altered or reshaped by political and socio-economic arrangements and that resource scarcities and conflict situations have been theoretically understated.²⁶ Kahl in a bid to correct the problem recognizes two other distinct causal paths to internal violent conflict from resource scarcity, away from environment and population namely; failure by state and exploitation by state hypotheses. These hypotheses are originated by the notion that population and environmental pressure or resource scarcity could possibly exert immense strain on state institutions and the wider society. When the elements of increase in population, resource degradation with the unbalanced resource distribution act together, they result in reduced access to natural resources which include land resources that in turn lead to migration with the possibility of inter-ethnic conflicts over resources in confluence areas, an observation in line with neo-Malthusian view and just like Homer-Dixon, Kahl notes that it also strains the state's role and ability to provide for its citizenry. This scenario may further lead into absolute deprivation of means to survival as well as relative deprivation of the masses' perceived entitlement which might culminate into grievances among groups. As the weakened state is considered an intermediary factor linking resource scarcity to

²⁴Homer-Dixon, T.F., *Environment, Scarcity and Violence*, (Princeton; NJ and Oxford, Princeton University Press, 1999).

²⁵Baechler, G., *Violence Through Environmental Discrimination*, (Dordrecht, Kluwer, 1999).

²⁶Kahl, C. H., *States, Scarcity, and Civil Strife in the Developing World*, (Princeton, NJ and Oxford, Princeton University Press, 2006).

conflict, conversely, state exploitation hypothesis proposes the opportunity for weakened states to mobilize ethnic groups to violence so as to seize scarce resources in a bid to reinforce own support area and divert attention from state failure to meet its obligations.

Homer-Dixon in *Environmental scarcities and violent conflict: Evidence from cases* further maintains that variability in climate may result in livelihood change due to occasioned renewable resource scarcities and which sequentially usher in disputes among various groups.²⁷ In affirmation, Renner in *Fighting for survival: Environmental decline, social conflict and the new age of insecurity*, among other scholars consider climate change together with stratospheric ozone depletion as being a manifestation of the globalization of environmental change and that globalization was rather a conflict-prone process.²⁸ Nonetheless, Pettit in *Republicanism: A theory of freedom and government* together with other researchers do not support the idea that climate change can drive conflict except in cases where rapidly deteriorating renewable resources cut across long standing tensions, weak governance structures and frail institutions.²⁹ Mismanagement and militarization of situations aggravates conflicts yet strong social institutions may help avert disputes and even facilitate their resolution in a non-violent way.

In conclusion, Homer-Dixon in *Environmental scarcities and violent conflict: Evidence from cases* fronts the 'green war' or 'environmental scarcity' hypothesis which postulates that environmental degradation can escalate poverty and insecurity attributes and thereby contributing to the possibility of conflict. He notes that rapid population growth will occasion rise in demand for natural resources, which in turn causes shortage in renewable resources namely; arable land, biodiversity, fresh water and forests, among other resources and that these environmental scarcities coupled with unequal distribution of resources were likely to carry severe social effects which could be a source of various kinds of conflicts particularly, within poor and developing countries. Homer-Dixon founded this hypothesis based on studies conducted on the increase in population within sub-Saharan Africa, water shortages in China and land distribution issues in Mexico.³⁰

²⁷Homer-Dixon, T.F., 'Environmental Scarcities and Violent Conflict: Evidence from Cases,' *International Security*, Vol. 19, No. 1, (1994) pp. 5-40, doi: 10.2307/2539147.

²⁸Renner, M., *Fighting for Survival: Environmental Decline, Social Conflict, and the New Age of Insecurity*, Worldwatch Environmental Alert Series, (New York, W.W. Norton & Co., 1996).

²⁹Pettit, P. *Republicanism: a theory of freedom and government*, (Oxford; New York, Clarendon Press; Oxford University Press, 1997).

³⁰Homer-Dixon, T.F., 'Environmental Scarcities and Violent Conflict: Evidence from Cases,' *International Security*, Vol. 19, No. 1, (1994).

1.5.1.2 Critique to the resource scarcity perspective

Main criticism to the perspective is presented by three traditions namely; institutionalism, political ecology and neoclassical economy.

1.5.1.2.1 Neoclassical economists or cornucopians

The resource optimists as they are referred to are opposed on three fronts to the notion that resource scarcities has the potential to cause armed conflict and further postulate that such literature is misleading. Firstly, Lomborg in *The skeptical environmentalist: Measuring the real state of the world* affirms that the situation is indeed manageable on the global arena through resource substitutes, technological innovation and markets which offer adaptation remedies to local scarcity and thus most renewable resources are not scarce.³¹ Additionally, Lutz *et al.* in *The end of world population growth in the 21st century: New challenges for human capital formation and sustainable development* claim that the world population growth would end within the next 60 to 70 years considering that there is reduced fertility in response to lower mortality rates.³²

Secondly, Simon in *Lebensraum: Paradoxically, population growth may eventually end wars* maintain that stress from rising population and increase in resource scarcities might just stand out as a blessing in form of a tool for development since the elements provide inducements for devising scarcity mitigation mechanisms through technological innovation and resource substitution.³³ Therefore, high population pressure will ultimately result in reduced resource dependence and in turn lessen problems related to resource scarcity. Boserup and Schultz in *Economic and demographic relationships in development* instead blame the historical low population pressure witnessed across the Sub-Saharan region as being partly the reason for the continent's low agricultural success and attendant underdevelopment.³⁴

Thirdly, the resource optimists hold indeed that it was abundance of resources which was a source of conflict and not scarcity. Their assertion advances two grounds namely; the honey-pot assumption which maintains that ease of access to valuable resources which take account of tropical timber could inspire insurgents to seize resources as means to riches or even bankrolling

³¹Lomborg, B., *The Skeptical Environmentalist: Measuring the Real State of the World*, (Cambridge, Cambridge University Press, 2001).

³²Lutz, W. *et al.*, (eds.), *The End of World Population Growth in the 21st Century: New Challenges for Human Capital Formation and Sustainable Development*, (London and Sterling; VA, Earthscan, 2004).

³³Simon, J.L., 'Lebensraum: Paradoxically, Population Growth May Eventually End Wars,' *Journal of Conflict Resolution* 33, 1, (1989) pp. 164-180.

³⁴Boserup, E. and T. P. Schultz, (eds.), *Economic and Demographic Relationships in Development*, (Baltimore; MD, Johns Hopkins University Press, 1990).

conflict. The other base is supported by Collier in *The bottom billion: Why the poorest countries are failing and what can be done about it* and argues that resource abundance may indirectly erode or weaken state institutions since resource rents might just result in the ‘Dutch disease’ through overcrowding of other forms of economic production, then in turn precipitating into economic stagnation, corruption and eventual denial of structural reforms and democratization.³⁵

Although there exists much empirical research supporting the association of the abundance of resources to conflict, perspectives of scarcity and abundance are often fronted as competing hypotheses but they are not theoretically exclusive. Renner in *Fighting for survival: Environmental decline, social conflict and the new age of insecurity* argues that the hypotheses may occasionally complement one another since resource harvesting can result in degradation of renewable resources.³⁶ The argument held that renewable natural resources were not scarce on the global platform and that demographic adaptation, markets and technological development offered remedies that may vanquish scarcities at the community or local level is not totally overruled by researchers linked to resource scarcity perspective.

Actually, Homer-Dixon in *Environment, scarcity and violence* recognizes that his ‘technical and social ingenuity’ carried potential to assist societies overcome resource scarcities.³⁷ Nonetheless, Kahl in *States, scarcity and civil strife in the developing world* observes that in a number of developing nations, government structures, markets, infrastructure, property rights and human capital were not perfect, lacking totally or even distorted to the extent which they further complicate resource problems³⁸ increasing the ‘ingenuity gap.’ Therefore, resource scarcity is a more probable source of conflict in scenarios where adaptation mechanisms are mostly weak and may especially concern regions within countries which lack or have minimal state presence or penetration. Likewise, the argument raised by Boserup and Simon might largely address different temporal effects and does not necessarily oppose the resource scarcity perspective. Long-term consequences of stress from rising population could definitely be larger coping ability and peace, though renewable resource scarcities that Boserup and Simon hold for being the effect occasioned by increase in population, could be considered in the short run as being a source of conflict.

³⁵Collier, P., *The Bottom Billion: Why the Poorest Countries are Failing and What Can Be Done About It*, (UK, Oxford University Press, 2007).

³⁶Renner, M., *Fighting for Survival: Environmental Decline, Social Conflict, and the New Age of Insecurity*, 2nd ed., Worldwatch Environmental Alert Series, (New York, W.W. Norton & Co., 1996).

³⁷Homer-Dixon, T.F., *Environment, Scarcity and Violence*, (Princeton; NJ and Oxford, Princeton University Press, 1999) pp. 108.

³⁸Kahl, C. H., *States, Scarcity, and Civil Strife in the Developing World*, (Princeton, NJ and Oxford, Princeton University Press, 2006) pp. 17.

1.5.1.2.2 Political ecology tradition

The political ecology which emanates from the Marxian political economy envisages distribution of resources as the main factor connecting environment to conflict. The tradition holds that scarcity is largely a produce of wealth and power frameworks at local and global levels and therefore, tones down the notion on ‘natural’ sources of scarcity listed by the resource scarcity perspective such as population growth and degradation. According to Peluso and Watts in *Violent environments*, the tradition offers instruments for reflecting on struggles and conflicts engendered by various arrangements for accessing and controlling resources. Political ecologists affirm the likelihood for occurrence of local instances of ‘scarcity’ in areas where there is local abundance and that the resource scarcity perspective often ignored most central sources of resource degradation such as logging and dam construction, among other industrial activities.³⁹

Political ecologists imply those fronting resource scarcity perspective as unfairly localizing and apportioning blame to the poor for being the source of scarcity and violence. Hartmann in *Will the circle be unbroken? A critique of the project on environment, population, and security* censures Homer-Dixon for not recognizing the vital role played by political and economic elements in building frameworks for exploitation. Hartmann asserts that Homer-Dixon is mainly focused on internal stresses which result in outward pressures as the outside is hardly realized to be pressing in. While making comments over the violence and scarcity incident within the Ogoniland region of Nigeria, Hartmann questions why Homer-Dixon is primarily focused on violence caused by the natives resistance and fails to pay attention to the violence by the state and corporate enforcers which is supposedly much bigger. Hartmann further asserts that the consumers of extracted produce are missing in the picture such as the users of paper in developing countries which heavily contribute to the ongoing deforestation.⁴⁰

Although Homer-Dixon’s case studies primarily focus on violent feedbacks at that local level, resource distribution and peripheral aspects are indeed incorporated in the analysis. Howard and Homer-Dixon in *The case of Chiapas, Mexico* note that the neo-liberal economic reform and expansion of the ranching sector immensely contribute to the analysis of the 1994 Chiapas conflict between subsistence farmers and indigenous people.⁴¹ Kelly and Homer-Dixon in *The case of*

³⁹Peluso, N. L. and M. Watts, (eds.), *Violent Environments*, (Ithaca; NY, Cornell University Press, 2001) pp. 25-26.

⁴⁰Hartmann, B., *Will the Circle be Unbroken? A Critique of the Project on Environment, Population, and Security*, Chapter 2 in N. L. Peluso and M. Watts, (eds.), *Violent Environments*, (Ithaca; NY, Cornell University Press, 2001) pp. 39-62.

⁴¹Howard, P. and T. F. Homer-Dixon, *The Case of Chiapas, Mexico*, Chapter 2 in T.F. Homer-Dixon and J. Blitt, (eds., *Ecoviolence: Links Among Environment, Population, and Security*, (Lanham; MD, Rowman and Littlefield, 1998) pp. 19-65.

Gaza observe that the Israeli occupation is indeed perceived as a crucial inceptor of water scarcity and economic stagnation within the Gaza occupied territory.⁴² Resource distribution is central to Homer-Dixon's cases and that is why his works are criticized by Gleditsch and Urdal in *Ecoviolence? Links between population growth, environmental scarcity and violent conflict* in Thomas Homer-Dixon's work for diluting the resource scarcity notion.⁴³ In both the Chiapas and Gaza cases, the main issue seems to revolve around distribution of renewable resources and not the unavailability of resources per se although, resource degradation together with population growth could exacerbate the situation; the plain truth often ignored by political ecologists.

1.5.1.2.3 Institutional tradition

Institutionalist Wolf in *Managing water conflict and cooperation* argues that resource scarcity has greater chance to result in cooperation on management of resources more than leading to conflict. Since resource disputes hardly reward and armed conflicts are overly costly, competition surrounding access and control of resources could offer grounds for neighbors to negotiate institutional structures for sharing resource. Resource management collaboration could also offer opportunity for cooperating on other fronts that are non-resource related due to the building of trust and institutional capital development. Cooperating on resource management could happen under situations characterized by violent conflicts as is the case of agreements on sharing water witnessed among Israelis and Palestinians. In addition, cooperation could happen in a cyclic manner where it only happens mainly during times of scarcity. Focus has mainly been on water agreements with as much as two times as many engagements on cooperation as compared to conflictual ones between 1945-99,⁴⁴ although, the concept of 'environmental peacemaking' has been expanded to comprise initiatives on the setting up of 'peace parks'⁴⁵ which have since been supported locally within the cyclical patterns of cooperation and conflict linked to rainfall.

1.5.2 Empirical literature

Previous studies have posted mixed results or evidence linking resource scarcity to conflict. The initial major research in this area of study were by Hauge and Ellingsen in *Beyond*

⁴²Kelly, K. and T.F. Homer-Dixon, The Case of Gaza, Chapter 3 in T.F. Homer-Dixon and J. Blitt, (eds.), *Ecoviolence: Links Among Environment, Population, and Security*, (Lanham, MD, Rowman and Littlefield, 1998) pp. 67-107.

⁴³Gleditsch, N.P. and H. Urdal, 'Ecoviolence? Links Between Population Growth, Environmental Scarcity and Violent Conflict in Thomas Homer-Dixon's Work,' *Journal of International Affairs*, 56, 1, (2002) pp. 283-302.

⁴⁴Wolf, A.T. *et al*, *Managing Water Conflict and Cooperation*, in M. Renner *et al.*, (eds.), *State of the World 2005: Redefining Global Security*, (New York and London, W.W. Norton & Co., 2005) pp. 80-95.

⁴⁵Conca, K. *et al.*, *Building Peace Through Environmental Cooperation*, Chapter 8 in *State of the World 2005: Redefining Global Security*, (New York and London, W.W. Norton & Co., 2005) pp. 144-157.

*environmental scarcity: Causal pathways to conflict*⁴⁶ and Esty *et al.* in *State Failure Task Force report: Phase II findings*⁴⁷ which registered slightly varied results. Whereas Esty *et al.* established that freshwater supply, deforestation and soil degradation had no influence on state failure risk, on the contrary Hauge and Ellingsen reported that these elements worked together with high population density to absolutely impact conflict although, the degree of their effects remained subordinate to existing economic and political elements. In retrospect, Theisen in *Other pathways to conflict? Environmental scarcities and domestic conflict* was however not able to replicate their findings using the same dataset but on using his own data he established very minimum evidence to back resource scarcity perspective.⁴⁸ While assessing land scarcity, De Soysa in *Paradise is a bazaar? Greed, creed and governance in civil war* indeed ascertained population density to have considerable impact on local armed conflict.⁴⁹

Therefore, against this backdrop and in the spirit of the continuing related scholarly debate, this study offers a critical examination of the interplay between population growth, degradation and scarcity of resources together with their distribution on one hand and attendant conflict on the other hand in line with the tenets of the resource scarcity perspective, and even goes beyond by exploring grounds for mitigating these factors towards the attainment of durable peace within the study context. The examination is narrowed to cross border resource management and sustainable peace within eastern Africa region with focus on Kenya although, the review features global perspectives and analysis of related cases in Africa as a basis and build up to enrich relevant scenarios in Kenya tied overall to the study objectives.

1.5.2.1 Role of cross border natural resource management in fostering sustainable peace

Jong and Evans in the *Journal of natural resource governance in border regions* note that natural resource management in border regions is largely determined by the attributes of the resource, stakeholders and their diverse interests and prevailing management determining frameworks.⁵⁰ Venema and Bunning in their review on *Assessment of transboundary issues in*

⁴⁶Hauge, W. and T. Ellingsen, 'Beyond Environmental Scarcity: Causal Pathways to Conflict,' *Journal of Peace Research*, 35, 3, (1998) pp. 299-317.

⁴⁷Esty, D.C.*et al.*, *State Failure Task Force Report: Phase II Findings*, McLean; VA, Science Applications International for State Failure Task Force, 1998.

⁴⁸Theisen, O. M., *Other Pathways to Conflict? Environmental Scarcities and Domestic Conflict*, (Paper presented at the 47th Annual Convention of the International Studies Association, 22-25 March 2006, San Diego: CA).

⁴⁹De Soysa, I., 'Paradise Is a Bazaar? Greed, Creed, and Governance in Civil War, 1989-99,' *Journal of Peace Research*, 39, 4, (2002) pp. 395-416.

⁵⁰Jong, W. and K. Evans, 'Natural Resource Governance in Border Regions: From National Backwaters to Transnational Territories and Global Commons,' *Journal of US-China Public Administration*, Vol. 8, No. 8, (Rosemead: CA, David Publishing, 2011) pp. 925-936, ISSN 1548-659.

relation to sustainable land management in Sub-Saharan Africa⁵¹ add that competition in control and utilization of resources remains steadily on the rise with resource related conflicts as the direct consequences of pressures from economic forces and population growth, increased mobility and diverse interests among different groups; an observation in concurrence with the neo-Malthusian view. Roberts *et al.* in their paper *The role of transboundary natural resources management in peace building across international borders*⁵² also confirm that the possibility of resource-induced competition and violence remains high in shared resources with less or poor coordination of activities and cooperation between governments.

Globally, Jong in Territorialization, regionalism and natural resource management in the Peruvian Amazon notes that Peru and Ecuador demonstrate consequences of ignoring borderland views and lack of an inclusive framework of engagement on management of resources.⁵³ This lack of inclusivity mirrors a key attribute of the neo-Malthusian argument on inequitable access to essential resources as being a contributor to attendant conflict in resource areas. Peru and Ecuador had contested the precise location of their common border since the beginning of the 19th century when the two countries were established after Spanish rule. Decisions that went against or ignored native sentiments often characterized much of the countries' borderland policies.

The Chicago Tribune News notes that in 1998 the president of Peru Alberto Fujimori signed an agreement⁵⁴ with his counterpart from Ecuador aimed at resolving the persistent border dispute that had led to past violent conflicts, including the 1995 Alto Cenepa war fought over control of several outposts along Cenepa River headwaters and also the 78-kilometer Tiwinza strip claimed by both countries. The peace agreement entailed giving out concessions for nature conservation, a situation perceived by some in the northern forest borderlands of Iquitos in Peru as gross national sell-out by their government to Ecuador and environmentalists. The developments set off violent protests leading to deaths and considerable damage of property among the inhabitants.⁵⁵

⁵¹Venema, J., and S. Bunning, FAO, *Assessment of transboundary issues in relation to sustainable land management in Sub-Saharan Africa. A review*, Project Development Facility for TerrAfrica and the associated Strategic Investment Program (SIP) for Sustainable Land Management in Sub-Saharan Africa, Activity 1-3, (2006).

⁵²Roberts A.M., *The role of Transboundary Natural Resources Management in Peace Building across international borders*, <http://www.cbd.int/doc/pa/tools/The%20Role%20of%20Transboundary%20Natural%20Resource%20Management%20In%20Peace%20Building%20Acr.pdf>, accessed on 11 May 2014.

⁵³Jong, W., Territorialization, regionalism and natural resource management in the Peruvian Amazon, in W. Jong, D. Snelder, and N. Ishikawa (eds.), *Transborder Governance of Forests Rivers and Sea*, (London, Earthscan, 2010) pp. 67-82.

⁵⁴Goering, L., 'Peru, Ecuador Reach Deal On Border Dispute,' *Chicago Tribune News*, (Ecuador), 24 October 1998.

⁵⁵De Jong, W. *et al.*(eds.), *Transborder governance of Forests, Rivers and Seas*, 1st ed., (UK, Routledge, 2010),

However, the definitive peace agreement ‘The Brasilia Presidential Act’⁵⁶ facilitated the conclusive determination of this long-standing border dispute pitting the two neighbors and ushered in an era of sustainable peace in the area. The United States Institute of Peace in study guide on peace and conflict⁵⁷ notes that following the protracted disputes in shared border mountain ranges that encompass the Cordillera Del Condor for almost two centuries, the two countries diplomatically signed a peace treaty establishing a common boundary and also endorsed an idea to designate some parts of the disputed region as peace parks. Through collaboration as a means of cooperation biosphere reserves and ecological preservation parks have been embraced as innovative solutions to territory-based and cross border natural resource conflicts in a region that contains dense forests with exceptionally rich biodiversity that include varied endemic species due to its remoteness, particularly on the Peruvian side.

From the regional perspective, Bernauer in *Managing international rivers* observes that transboundary river systems have been subject of international management approaches for many years as countries become more sensitive of upstream influences on water quality and quantity patterns.⁵⁸ Gleick in a rejoinder in *Question of equity at the heart of water conflict management*⁵⁹ recognizes the significance of international water agreements occasioned by the growing possibility of water-induced conflict as a result of degradation and scarcity which remains a continual threat to the being of sustainable peace in line with the principles of the resource scarcity perspective.

The former UN Secretary-General Ban Ki-Moon at a meeting in Switzerland in 2008 under the theme ‘The rising risk of wars over fresh water, as populations increase and the world gets drier’ noted that;

“...as the global economy grows, so will its thirst...many more conflicts lie over the horizon.”⁶⁰

Gleick concurs with the views of UN Secretary-General and observes that individual states based on sovereign rights over their territorial resources can employ water to advance political and socio-

⁵⁶Deligiannis, T., Woodrow Wilson International Centre for Scholars, *High Altitude Turbulence: Challenges to the Cordillera Del Cóndor of Peru*, (Washington D.C., Environmental Change and Security Program, 2010).

⁵⁷United States Institute of Peace, Natural Resources, Conflict, and Conflict Resolution, *A Study Guide Series on Peace and Conflict For Independent Learners and Classroom Instructors*, (Washington D.C., USIP, 2007).

⁵⁸Bernauer, T., *Managing international rivers*, In R. Y. Oran (ed.), *Global Governance Drawing Insights from the Environmental Experience*, (Cambridge; USA, MIT Press, 1997) pp. 155-196.

⁵⁹Gleick, P., The Second World Water Forum, “Question of Equity at the Heart of Water Conflict Management,” *Water and Conflict Prevention*, (The Hague, Netherlands, 2001).

⁶⁰The Economist, ‘Rivers and conflict, Streams of blood, or streams of peace, Talk of thirsty armies marching to battle is surely overdone, but violence and drought can easily go together,’ *The Economist*, (Nairobi), 1 May 2008).

economic goals and therefore there is highest possibility for conflict to arise when the most-vulnerable downstream nation is militarily endowed and far much stronger as compared to the weaker water-controlling upstream one, and deems its interests as being threatened which is the situation inside the Nile resources debacle.

According to Nunzio in his article *Conflict on the Nile: The future of transboundary water disputes over the world's longest river*,⁶¹ River Nile presently stands as the longest river on earth which stretches 6,650 km and brings together eleven riparian states which are Kenya, South Sudan, Rwanda, Ethiopia, Burundi, Uganda, Tanzania, Egypt, DRC, Eritrea and Sudan. Nunzio observes that more than 200 million persons within the Nile basin directly depend on the river to derive various utilities that include food and water and that the river's influence over the politics of North Africa remains immense over the years that it threatens to ignite interstate conflict, since the river holds as the sole definite source of renewable water within these arid area. The factors of population growth pressure, degradation of the Nile waters and resources together with the ensuing competition for a scarce resource offers ripe grounds for conflict in the region if unattended to conclusively; an observation in concurrence with the tenets of the resource scarcity perspective. The figure below shows the countries sharing the Nile basin.

⁶¹Nunzio, J., Future Directions International, *Conflict on the Nile: The future of transboundary water disputes over the world's longest river*, (Dalkeith: Australia, Future Directions International Pty Ltd, 2013).



Figure 1.1: The Nile basin

Source: WWF Report, *World's top 10 rivers at risk* (2007).

Egyptian and Sudanese domination on the Nile over the years guided by colonial agreements has served to exacerbate regional tension, notes Mekonnen in the Defects and effects of past treaties and agreements on the Nile River waters: Whose faults were they?⁶² The 1929 Nile Water Agreement together with the Agreement for the Full Utilization of the Nile of 1959 accorded Sudan and Egypt extensive rights to exploit the river. This situation has been complicated by population growth which has increased demands on the Nile waters and resources due to growth in agriculture and industry in a region already facing fresh water scarcity; an argument in concurrence with the neo-Malthusian view. Upstream states have since overruled the colonial treaties for being unfair and some even demand for compensation from Egypt for the utility derived from the river over the years, adds Science in Africa Magazine.⁶³

Brabeck-Letmathe in Conflict over water in cross border river basin: The need for peaceful cooperation⁶⁴ argues that Egypt's deteriorating fiscal position leaves it with no option other than

⁶²Mekonnen, K., *The Defects and Effects of Past Treaties and Agreements on the Nile River Waters: Whose Faults Were they?* <http://www.ethiopians.com/abay/engin.html>, accessed on 18 May 2014.

⁶³Science in Africa Magazine, 'The Nile: water conflicts,' *IRIN*, (Entebbe), May 2003, <http://www.scienceinafrica.com/old/index.php?q=2003/may/nile.htm>, accessed on 12 December 2014.

⁶⁴Brabeck-Letmathe, P., Nestle, *Conflict over water in cross border river basin-the need for peaceful cooperation*, (2013), <http://www.water-challenge.com/post/2013/08/22/Conflict-over-water-in-cross-border-river-basins-the-need-for-peaceful-cooperation.aspx>, accessed on 30 April 2014.

getting involved cooperatively with other Nile states to prevent any serious water shortage later. Nunzio notes that in 1988 Egypt's long-serving Foreign Affairs Minister Boutros Boutros-Ghali projected that the Nile will certainly ignite Egypt's next war.⁶⁵ Brabeck-Letmathe affirms that Egypt has since threatened war over Ethiopia's Fincha Dam, Tanzania's 170 km Lake Victoria water pipeline to Kahama in Shinyanga and more recently in 2011, Ethiopia's Grand Renaissance Dam project (GERD) that drew significant censure, mainly as a result of Egypt's unfriendly reaction to its building. The Financial Times in 'Water: Battle of the Nile' reported that Egyptian politicians had alluded to the option of bombing the dam or arming Ethiopian rebels or guerrillas to force government authority in Addis out of the project.⁶⁶ The Guardian in 'Ethiopia forces Ogaden exodus' adds that Egypt has in the past armed Somali separatist rebels ever since Somali invaded Ethiopia during the Ogaden war which was fought in the late 1970s.⁶⁷

Nonetheless, Nunzio notes that the Entebbe Agreement under the Nile River Co-operative Framework (NRCF) launched in 1997 partially restructured allocations and authority over the river resources off the discontented Egyptians and Sudanese as upstream riparian nations acquired more shares of the resources. According to the Nile Basin Initiative (NBI) secretariat, the regional initiative launched in 1999 is an inter-governmental partnership converging ten participating nations and partners on management of Nile resources towards fair allocation.⁶⁸ The envisaged effective sustainable management of the Nile's water and resources by NBI is geared towards addressing runaway issues of degradation, scarcity, competition and ongoing conflicts; an observation in line with the resource scarcity perspective. NBI members include DRC, Egypt, South Sudan, Rwanda, Sudan, Kenya, Burundi, Ethiopia, Uganda and Tanzania. Eritrea which is the eleventh state is listed to participate as a riparian observer.

The Initiative offers a one-stop comprehensive regional platform for various actors to participate through dialogue, information sharing and shared planning and administration over the Nile resources. The regional enterprise strives to develop the Lake Victoria basin through sustainable, equitable and cooperative manner that ensures wholesome security, sustainable peace and development. The Initiative further purposes at ensuring effective management of its water

⁶⁵Nunzio, J., Future Directions International, *Conflict on the Nile: The future of transboundary water disputes over the world's longest river*, (Dalkeith: Australia, Future Directions International Pty Ltd, 2013).

⁶⁶Manson, K. and B. Daragahi, 'Water: Battle of the Nile' Ethiopia \$4.8b plan to dam Africa's longest river has infuriated states downstream,' *Financial Times Analysis*, 19 June 2013.

⁶⁷Brittain, V, 'Ethiopia forces Ogaden exodus,' *The Guardian News; The Guardian Archive*, (Mogadishu), 20 May 2010.

⁶⁸Nile Basin Initiative, (Entebbe: Uganda, Nile Sec., 2014), <http://nilebasin.org/>, accessed on 20 May 2014.

and further make certain the optimal utilization of related resources with mutual benefits to the concerned states. Foulds in *The Nile Basin Initiative: Challenges to implementation*⁶⁹ however acknowledges the existence of implementation challenges though maintains optimism that the Initiative functions as a comprehensive programme which bears international significance amid state and regional tensions that remain overly of great concern within the international community realm.

Locally, Walker in *An under-reported war over water* states that the Omo River supplies an estimated 90% of Lake Turkana waters located on the Kenya-Ethiopia border. Growing population pressure, less rainfall and rising temperatures have led to the lake to retreat into Kenya and in order to survive in this harsh terrain, Ethiopian tribes are following the reservoir in its recession southwards. He observes that because of the interplay between the factors of population growth, resource degradation and scarcity due to adverse climatic conditions coupled with competition for survival surrounding diminishing resources, resultant inter-tribal conflicts are on the rise; an observation in tandem with the principles of the neo-Malthusian argument. Sequences of retaliatory attacks mainly between Kenya's Turkana and Ethiopian Daasanach (Merille), Nyangatom and Mursi, among other tribes have perpetuated destruction and loss of life and property. Although the ongoing cross border fighting has been localized, it exerts immense pressure on these neighbouring countries to urgently address the strife between nomadic groups who are ever competing over shrinking resources in the area namely; water, land, fish and pastures.⁷⁰

According to The Sojourner Project, Ethiopia intended to construct a massive dam on Omo River; the Gilgel Gibe III so as to support large scale irrigation farming and also provide hydropower electricity to Ethiopia, Sudan, Egypt, Kenya, Uganda, Djibouti and Yemen. The Omo being the principal supplier to Lake Turkana and border communities' water amid rising temperatures and rapid desertification, the dam will hold water with adverse effects on the volume of downstream water resources. This stands as a probable threat to livelihoods and root of more conflicts as governments and international agencies seek final resolution to this seemingly

⁶⁹Foulds, K.E., *The Nile Basin Initiative: Challenges to Implementation*, *Managing Shared Waters: Lessons Learned II*, (The Paper was presented at the Managing Shared Waters Conference, 23-28 June 2002, Hamilton: Ontario-Canada), <http://nilebasin.com/documents/kim1.htm>, accessed on 12 May 2014.

⁷⁰Walker, D., 'An Under-Reported War Over Water,' *Photo District News Features*, 26 January 2011, <http://www.pdnonline.com/features/An-Under-Reported-Wa-1447.shtml>, accessed on 14 April 2014.

solution-less conflict.⁷¹ Nonetheless, initiatives such as Peace III which is a regional conflict transformation project supported by USAID encourages the realization of sustainable peace in the border area through building of capacity and strengthening of cross border conflict response and management frameworks at the community, regional and national levels.

1.5.2.2 Current state and existing frameworks for cross border natural resource management towards sustainable peace

Roberts *et al.* envisage the importance of strengthening institutional capacities and frameworks in states which endure higher risk of environmentally-induced conflicts partly as a result of aggravated environmental degradation, resource scarcity and competition for survival in concurrence with the resource scarcity perspective. Roberts *et al.* maintain that transboundary natural resource management together with biodiversity conservation can be effective where shared cross-border threats are tackled and vanquished jointly within a comprehensive framework as mutual benefits that include sustainable peace are gained collaboratively across borders. They further argue that this provides for increased efficiency in the monitoring and managing of resources through reduced or avoiding efforts duplication, enhancing economic opportunities and creating economies of scale. In a rejoinder, Van der Linde *et al.* in *Beyond boundaries: Transboundary natural resource management in Sub-Saharan Africa* hold that synergism is essential for the success of joint ventures since the whole must be greater than the summation of the parts as joint management will require additional investments of money, time and commitment, and therefore in some instances countries are better off individually managing their resources independently.⁷²

On the global platform, Gleick in *Water and conflict*⁷³ observe that the Jordan River disputes in the Middle East region show case how conflicts revolving around scarce environmental resources can escalate leading to a full-blown huge conflict involving several countries fueled by degree of scarcity, needs of several nations in sharing the resource and the economic and military might of the state controlling the resource in line with the arguments of the neo-Malthusian view. United States Institute of Peace in a study guide on peace and conflict⁷⁴ notes that the Jordan River

⁷¹The Sojourner Project, In the Face of a Receding Lake, *Water Conflict at the Ethiopia-Kenya Border*, (2012), <https://thesojournerproject.wordpress.com/category/globalization/africa/ethiopia/>, accessed on 17 May 2014.

⁷²Van der Linde, H., *et al.*, *Beyond Boundaries: Transboundary Natural Resource Management in Sub-Saharan Africa*-with contributions from Anada Tiéga and Thomas Price, (Washington D.C., Biodiversity Support Program, 2001).

⁷³Gleick H. P., 'Water and conflict,' *International Security*, Vol. 18, No 1, summer, (1993) pp.79-112.

⁷⁴United States Institute of Peace, *Natural Resources, Conflict, and Conflict Resolution, A Study Guide Series on Peace and Conflict For Independent Learners and Classroom Instructors*, (Washington D.C., USIP, 2007).

basin is a strategic international waterway which transcends four states namely; Jordan, Israel, Syria and Lebanon. The watercourse also straddles two occupied territories which are the Gaza strip and West Bank areas. The river together with its tributaries provide a crucial source of water for the populations in this extremely dry Middle East region and the struggle for fresh water holds as the nexus between environmental issues and geopolitical disputes in the region.

Animosity between Israel on one side of the divide and its adjoining neighbors on the other side heightened in the 1950s through to the 1960s following disputes over the waters of the river with sporadic hostility leading to armed clashes. In 1965 and 1966 Israeli assaulted Syrian construction sites when the latter attempted to deviate the flow of the Banyas River; a key tributary feeding the Jordan River notes Salmi in *Water, the red line*.⁷⁵ The BBC observes that these disputes were the pretext for the infamous 1967 Arab-Israel war⁷⁶ and have aided in subsequent military conflicts within the region. Cooley in *The war over water*⁷⁷ observes that during the war Israel captured the Banyas headwaters site, the Golan Heights and also gained control over West-Bank, northern bank of Yarmouk River as well as the Jordan River and holds onto them as a strategic source of water to date.

The study guide holds that a comprehensive and cooperative framework with a proactive approach to management of this contested water resources could support efforts towards an amicable, peaceful and sustainable determination of the many conflicts faced in the region. Nonetheless, over the past century negotiations for a comprehensive water agreement have been impeded by ideological, historical, religious, cultural and geo-political differences of the region. The Oslo Accords⁷⁸ which came to be known as the Middle East peace process in 1993 opened over seven years of negotiations that led to several discussions between Israel and Palestine including the Taba Talks in 2001. Israelis and Palestinians established Joint Water Committee (JWC) to assent to new and intended sewerage and water initiatives within West Bank area. While the Committee had equal representation from the Palestinian Authority and Israel and its decisions made by consensus, it lacked a mechanism to settle disputes whenever consensus failed.

⁷⁵Salmi, R.H., 'Water, the red line: The interdependence of Palestinian and Israeli water resources,' *Studies in Conflict and Terrorism*, Vol. 20, Issue 1, (1997) pp. 15, 51p.

⁷⁶BBC News, 1967: *Six-Day War*, (2009), http://news.bbc.co.uk/2/shared/spl/hi/middle_east/03/v3_israel_palestinians/maps/html/six_day_war.stm, accessed on 29 April 2014.

⁷⁷Cooley K. J., 'The war over water,' *Foreign Policy*, No 54, spring, (1984) pp.3-26.

⁷⁸Oslo Accords, (2008), http://www.knesset.gov.il/lexicon/eng/oslo_eng.htm, accessed on 11 February 2014.

Due to weak and non-inclusive resource management framework, Israel has continuously vetoed requests by Palestinians to gain additional access to the aquifers or drill new wells. Israel maintains firm control of nearly every source of water within the West Bank; a major cause of their protracted conflict. According to Hazell in *Managing droughts in the low-rainfall areas of the Middle East and North Africa*, water shortage in this harsh area is not only intensified by the meteorological factor of low rainfall but also by its geographic nature of few major rivers and the demographic aspect of a vastly expanding population that pressures the environment.⁷⁹ These factors combine together with frail management frameworks characterized by inequitable access to and competition for scarce resources to ignite conflicts in concurrence with the neo-Malthusian view. Abu-Taleb in *Environmental management in Jordan: Problems and recommendations* too affirms that the Zarqa River flowing entirely within Jordan is greatly polluted by human activity prohibiting access and use of its water.⁸⁰

From a continental perspective, Alao in *An overview of the key issues, actors, patterns, trends and regional dimensions to natural resources and conflict in Africa* notes that in recent years, perhaps no issue had engaged the attentiveness on Africa more than the many conflicts surrounding the control, ownership and administration of natural resources.⁸¹ Rocha in *United Nations report laments that in spite of its endowment with quite a number of the world's generally desired natural resources, the continent has failed to convert its riches and huge economic potential into tangible gains as regards sustainable peace, human security and development.*⁸² Abundance of these resources is instead seen as a 'curse' or rather a 'peace liability' that fuels violence surrounding access and control of resource wealth, adds Open Society Justice Initiative in *Legal remedies for the resource curse.*⁸³

⁷⁹Hazell, P. *et al.*, 'Managing droughts in the low-rainfall areas of the Middle East and North Africa,' *EPTD Discussion Paper* No. 78, (2001), <http://www.ifpri.org/sites/default/files/publications/eptdp78.pdf>, accessed on 2 December 2014

⁸⁰Abu-Taleb, F. M., 'Environmental management in Jordan: Problems and recommendations,' *Environmental Conservation*, Vol. 21, spring, (1994) pp. 35-40.

⁸¹Alao, A., United Nations Expert Group Conference Report, *Natural Resources and Conflict in Africa: Transforming a Peace Liability into a Peace Asset*, (United Nations Expert Group Conference, 17-19 June 2006, Cairo: Egypt).

⁸²Dos Santos Rocha, J., UN Expert Group Conference, *Session Five: Roles and Responsibilities of African Regional and Sub-regional Organizations and Civil Society Perspectives*, (UN Expert Group Conference, 17-19 June 2006, Cairo: Egypt).

⁸³Open Society Justice Initiative, *Legal Remedies for the Resource Curse: A digest of experience in using law to combat natural resource corruption, Annex V-Harnessing the continent's natural resources for peace and development: Civil Society Perspective-Introduction*, (New York, Open Society Institute, 2005).

Venema and Bunning in *Assessment of transboundary issues in relation to sustainable land management in sub-Saharan Africa*⁸⁴ state that cross border natural resource themes in Africa include management of shared water resources, cross-border land use and pastoralism, wildlife, biodiversity and other related habitat management. They also observe that several transboundary ecosystems on the continent need particular attention within robust frameworks of management. The ecosystems include environmental hotspots of universal importance especially those with high endemic diversity or even endangered kinds of animals and plants. Natural resource management areas of special environmental and socio-economic worth at all levels also require consideration. The ten major rivers and lake basins in Africa are transboundary and therefore require protection of their catchments and also enlist better management approaches.

Ashton in *Avoiding conflicts over Africa's water resources* affirms that most water resources on the continent are transboundary in nature as sixty three river basins which traverse borders represent 85% of freshwater resources.⁸⁵ According to Falkenmark in *The massive water scarcity now threatening Africa: Why isn't it being addressed?*, it is predicted that half of African states will be in water crisis by 2025.⁸⁶ In addition, sharing of the resource will be crucial in inter-state relations amid population growth and recurring drought coupled with extreme shortage of food in many parts of the continent in line with the neo-Malthusian argument. The Economist in *Rivers and conflict: Streams of blood or streams of peace*⁸⁷ notices the remarkable progress made in regard to lasting water agreements on the continent's big river systems like waters running down from Lesotho plateaus.

The article argues that Africa's largest rivers such as Limpopo, Congo and Zambezi pass through remote and extremely wet locations and therefore the main challenge does not lie in how to apportion their waters but rather in accessing and utilizing the waters at all. The article further observes that the Niger had been shrinking over the years; an imminent recipe for scarcity, deprivation, competition and conflict among its users, an argument in line with the resource scarcity theory. However, in 2008 an agreed 20-year framework plan of management was endorsed by 9 leaders in West Africa to save the river by desiltation and reforestation. The Economist also

⁸⁴Venema, J., and S. Bunning, FAO, *Assessment of transboundary issues in relation to sustainable land management in Sub-Saharan Africa, A review*, Project Development Facility for TerrAfrica and the associated Strategic Investment Program (SIP) for Sustainable Land Management in Sub-Saharan Africa, Activity 1-3, (2006).

⁸⁵Ashton, J.P., 'Avoiding Conflicts over Africa's Water Resources,' *AMBIO*, Vol. 31, No. 3, (2002) pp 236-242.

⁸⁶Falkenmark, M., 'The Massive Water Scarcity now Threatening Africa: Why isn't it Being Addressed?' *In Ambio*, Vol. 18, No. 2, (1989) pp. 112-118.

⁸⁷Print Edition, 'Rivers and conflict, Streams of blood, or streams of peace,' *The Economist*, (Nairobi), 1 May 2008.

notes that through Uganda, Rwanda, Eritrea, Egypt, Ethiopia together with Sudan, the Nile basin is home to several of Africa's most renowned militaristic nations although there is unanimity on the need to develop a framework for enhancing efficiency in irrigation, the river's key contentious draw. Once the framework is in place, it will ensure sustainable, equitable and cooperative use of the resources of the Nile and thus help mitigate scarcity, ensure fairness and subsequently nurture sustainable peace in the region.

Granit in *The collective action dilemma in managing transboundary freshwaters*⁸⁸ maintains that transboundary water resources are regional public goods and common-pool resources that need a strong framework and stimulus for integration and cooperation on interests among riparian states. Reuters in Uganda says pollution of Lake Victoria worsening⁸⁹ however, asserts that the failure of management frameworks on Lake Victoria which has become muddier and gravely polluted promises ill for the White Nile. Reuters adds that continued suspicion between African and Arab groups may spark-off strained memoirs of perceived injustice by colonial treaties signed between Britain and Egypt that allowed the latter a huge portion of Nile waters. According to IRIN Africa in *Ten years of talks and still no resolution to Nile controversy*,⁹⁰ upstream countries maintain that those imperial bargains on the Nile were unfair as they left them unfairly out and should therefore be reviewed to ensure reasonable frameworks for resource management are in place.

On the local scene, Alao in his paper *Natural resources and conflict in Africa: Transforming a peace liability into a peace asset* notes that land is so far the natural resource of utmost importance in Africa and often regarded as a natural resource usually held in trust on behalf of other generations to come.⁹¹ The paper also sees land as an abode for most other natural resources including solid minerals and oil that have strong linkage with conflict in Africa as they have generated much interest and attention due to the environmental consequences of their exploitation, the high degree of profitability, the international nature of their politics and the part they play within the political and socio-economic realm of countries endowed with their deposits.

⁸⁸Granit, J., *The Collective Action Dilemma in Managing Transboundary Freshwaters: An Analysis of an Outcome-Driven Framework*, Dissertations from the Department of Physical Geography and Quaternary Geology, Stockholm University, 2012.

⁸⁹Biryabarema, E., 'Uganda says pollution of Lake Victoria worsening,' *Reuters-US Edition*, (Kampala), 22 March 2010.

⁹⁰IRIN, 'Analysis: Ten years of talks - and still no resolution to Nile controversy,' *IRIN Africa*, (Entebbe), 19 May 2010.

⁹¹Alao, A., United Nations Expert Group Conference Report, *Natural Resources and Conflict in Africa: Transforming a Peace Liability into a Peace Asset*, (United Nations Expert Group Conference, 17-19 June 2006, Cairo: Egypt) pp. 13.

Hardin in ‘The tragedy of the commons’ states that land and natural resource administration mainly rely on relevant systems and institutions which lay down the rules of engagement and in the absence of these institutions land bizarrely becomes free-for-all and the most likely consequence is the infamous ‘tragedy of the commons.’⁹² Similarly, Pavanello and Levine in Rules of the range: Natural resources management in Kenya-Ethiopia border areas observe that the intricacies of harmonizing incompatible land tenure systems and for which the populations hold conflicting levels of recognition, still stands as a major challenge for many African countries.⁹³ Most conflicts on the continent relating to land issues can authoritatively be blamed on the inability of several African states to establish a legal regime specifically focusing on land use and management and one that is also good enough for the populations.

In Kenya, the National Land Commission mainly draws its mandate from National Land Policy, 2009; applicable provisions of the Constitution of Kenya, 2010; the National Land Commission Act, 2012; Land Registration Act, 2012; Land Act, 2012 and the National Land Use Policy of 2018 to manage land usage and administration of related resources. The Land Commission also recommends to the national government a national land policy and further advocates for traditional dispute resolution mechanisms as it strives to avert environmental degradation and mitigate ramifications of climate change;⁹⁴ factors which are aligned to the tenets of the neo-Malthusian argument.

According to the Institute of Law and Environmental Governance (ILEG), past policies and laws in Kenya have neither managed to address the longstanding land issue nor developed befitting rules for regulating matters surrounding access, ownership and exploitation of land together with other related resources. This occasioned conflicts and unsustainable exploitation and administration of land and other associated resources with escalated poverty, inequity⁹⁵ and even conflicts. ILEG’s programme on land together with other natural resources facilitates development of laws and policies promoting sustainable and equitable exploitation and administration of land and other associated resources at national, regional and international levels. This initiative strives to ensure facilitative framework for prudent management of resources in order to minimize

⁹²Hardin, G., ‘The Tragedy of the Commons,’ *Science-New Series*, Vol. 162, No. 3859, (1968) pp. 1243-1248.

⁹³Pavanello, S. and Levine, S., Rules of the range, Natural resources Management in Kenya-Ethiopia border areas, *Humanitarian Policy Group (HPG) Working Paper*, (2011) pp. 2.

⁹⁴National Land Commission, (2014), <http://www.nlc.or.ke/>, accessed on 11 October 2014.

⁹⁵Institute of Law and Environmental Governance, *Land and Natural Resources*, (2014), 4

resource degradation, scarcity, competition and related conflicts, and instead promote the attainment of sustainable peace and societal progression.

1.5.2.3 Role and responsibilities of different actors in cross border natural resource management in support of sustainable peace

Governments have progressively engaged nongovernmental organizations and local communities, among other actors in the co-management of cross border natural resources through collaborative governance. Multiple stakeholder engagement in resource management has been encouraged to ensure concerted effort in sustainable management of resources towards minimizing conflicts emanating from environmental degradation, resource scarcity and competition for survival;⁹⁶ factors which resonate with the tenets of the neo-Malthusian argument. However, the multilevel governance approach and multiple actors often hold varied claims, harbor mistrust and competing interests in resource management which may contribute to the escalation of conflicts and thus the need for accommodative systems of coordination.

From a global perspective, the challenges relating to prevention, management and resolution of conflicts emanating from natural resources may as well shape the global agenda on peace and security within the 21st century. Trends witnessed globally that include population changes, rising unsustainable demands on resources, environmental degradation, inequitable access to resources and climate change may lead to attendant competition and conflicts in line with the tenets of the neo-Malthusian view. Climate change being a threat multiplier together with persistent poverty and weak frameworks for resource management indeed exacerbate the possibility of conflicts. To tackle these risks and challenges, the United Nations and the European Union formed a partnership in 2008 to enhance capacities of the UN system, the EU and national actors for better management of natural resources alongside land, towards prevention of conflict and peace building.⁹⁷

The UN Interagency Framework Team for Preventive Action manages the partnership which has developed related practical guidance notes, on-line interactive modules together with training material, and also created capacity inventory of related capacities available within the UN system for sustainable and consensual management of natural resources and land. These modules

⁹⁶Ngaruiya, G.W and J. Scheffran, 'Actors and networks in resource conflict resolution under climate change in rural Kenya,' *Earth Syst. Dynam.*, 7, (2016) pp. 441–452.

⁹⁷The EU-UN Partnership on Land, *Natural Resources and Conflict Prevention*, (2020), <https://www.un.org/en/land-natural-resources-conflict/>, accessed on 24 October 2020.

are mainly meant for partners within states, government institutions, the UN system, EU and civil society with the aim of increasing knowledge and skills on natural resources and conflict prevention⁹⁸ in order to nurture sustainable peace within communities.

Considering that the UN's responsibility is to ensure conflict is averted and peace is maintained through preventative and remedial means, the partnership facilitates reconciling of interests among groups through participation of all actors and systematic dialogue on natural resource management. The partnership also improves capacities for benefit-sharing, conflict resolution, equitable access to natural resources and greater local development, among others in order to prevent community tensions and escalated violent conflicts surrounding natural resources. In doing so, the partnership purposes effective resource management as a contributor to the realization of sustainable peace among communities.⁹⁹

In Africa, women in conflict settings which involve natural resources often showcase their key role in conflict resolution and peacebuilding processes. Armed conflict has persisted in Sudan for nearly 50 years and even with the Republic of South Sudan's creation in 2011 as part of the long road to lasting peace, several critical issues still stand unresolved. Many decades of violent conflicts which were succeeded by episodes of delicate peace have since dislodged traditional mechanisms for resolving conflicts and therefore many localized conflicts remain unresolved. In the South Kordofan region which is located along Sudan's southern border with South Sudan, tensions associated with water access and pasture grounds remain high as growth of mechanized farming exacerbates the grievances even more.¹⁰⁰

The region is beleaguered with prevalent poverty, historical tensions within pastoral corridors and low literacy rates. In addition, more challenges are emerging with continued degradation of natural resources, recurrent droughts due to variable rainfall, soaring competition around scarce resources together with weak governance systems which have contributed to the increasingly strained relations among groups.¹⁰¹ This observation is in line with the principles of the resource scarcity perspective. In order to address rise in tensions, a partnership between SOS

⁹⁸UNEP, *Toolkit and Guidance for Preventing and Managing Land and Natural Resources Conflicts, Renewable resources and conflict*, (Nairobi, UNEP, 2012).

⁹⁹Townsend, R., *Resolving Disputes over Natural Resources in Disputed Areas*, Issue Brief for the GA First Committee-DISEC, (Norfolk, ODUMUNC, 2015).

¹⁰⁰Saeed, A., 'Study to Assess Factors Contributing to Conflict among Pastoralists, Agro-pastoralists and Sedentary Farmers,' *Nomadic People*, 13 (1), (2009) pp. 173-176.

¹⁰¹SOS Sahel International UK, *Engaging Youth and Women in Natural Resource Management and Conflict Reduction Process*. Internal Report, Kadugli, South Kordofan, (UK, SOS Sahel International, 2009).

Sahel international and the local civil society executed a programme on reduction of resource-induced conflict in the area. The programme engaged women and youth in processes on management of resources and resolution of conflicts. Pastoralist systems within this area heavily lean on seasonal transhumance which require high level of cooperation among groups to succeed. Unfortunately, the institutional arrangements that previously supported cooperation were weakened after erosion of traditional elders' authority in management of land resources and conflicts. Lack of an institutional framework that is coherent has further jeopardized sense of identity, livelihoods and security as transformed migration patterns together with bigger livestock densities cause tensions among marginalized groups often leading to conflicts.

Weak traditional governance structures nonetheless offer opportunities for systematic engagement of youth and women in more inclusive decision-making processes which promote equitable access to natural resources. Women pastoralists are recognized for being influential in conflict management, yet they remain overly left out in traditional decision-making processes. Thus, SOS Sahel sort support from traditional elders to involve the youth and women through meetings and trainings on equitable natural resource management, conflict reduction and peacebuilding. These women became advocates and facilitated community dialogues on alternative avenues for conflict resolution.¹⁰² This community approach facilitated by women volunteers is a true testament that indeed well thought out arrangements on natural resource management can contribute to the attainment of sustainable peace.

Locally, Mangano *et al.* in Good practice principles and lessons learnt from cross border programming in the dry lands of the Horn of Africa note that dealing with drought management issues within the Horn of Africa's dry areas which include Kenya remains vital since the major source of livelihood which is pastoralism spans national borders often cutting across landscapes, ethnic groups, cultural ties, shared ecosystems and watersheds.¹⁰³ They maintain that mobility is a crucial survival and drought coping strategy for pastoralist communities and is essential for sustainable environmental and economic development. These under-served, remote and often insecure areas have however witnessed the reluctance by governments to promote traditional cross

¹⁰²UNEP et al., *Women and Natural Resources Unlocking the Peacebuilding Potential*, (Nairobi, UNEP, 2013).

¹⁰³Mangano *et al.*, ACTED; *Good practice principles and lessons learnt from cross-border programming in the dry lands of the Horn of Africa*, (Nairobi, European Commission Humanitarian Aid and Civil Protection Department-ECHO & Disaster Risk Reduction, 2013), <http://www.disasterriskreduction.net/east-central-africa/reglap>, accessed on 21 April 2014.

border movement based on locally tenable resource management frameworks on the pretext of capping smuggling and other security concerns.

Mwaura in Kenya and Uganda pastoral conflict case study affirms that indeed pastoralist livelihood systems heavily rely on group movement to ensure access to water and grazing grounds, a cycle which traditionally happened devoid of the regard for political boundaries. He notes that low intensity conflicts have been reported on the Kenya-Uganda common border with pastoralist economy eroding as trends transform to private land and resource tenure coupled with constraints on mobility and grazing rights. This has heightened competition over dwindling resources like land, water and pasture within the hostile arid and semi-arid (ASAL) area; an observation in line with the tenets of the neo-Malthusian view. Recurrent conflicts have since been intensified by growing population pressures, mistrust among actors, infrastructure development ventures, climatic shocks and protracted economic and social marginalization by successive governments.¹⁰⁴

Traditional institutions at the grassroots level that include the council of elders stand as a key source of indigenous and civic knowledge which promote respect for customs and local values¹⁰⁵ on equitable and resilience communities, diversified and sustained livelihoods, cooperation, dispute resolution and eventual peaceful coexistence. In order to achieve effective natural resource management towards sustainable peace so as to benefit present and future generation, it is therefore crucial to recognize indigenous frameworks and ensure stakeholder collaboration mechanisms on resource and conflict management with the aim of harmonizing government and community efforts towards optimized results. It is important to advocate for meaningful participation of the community in conservation, sustainable peace and development endeavors including their involvement in decision making processes, since this is bound to improve quality of related policy within community-based resource management arrangement.

Mangano *et al.* in their brief confirm that at community level reciprocal resource agreements have been witnessed following years of livelihood-based engagement between the Pian community of Uganda and the Pokot of Kenya.¹⁰⁶ Resource sharing dialogue initiated in 2011 saw

¹⁰⁴Mwaura, C., 'Kenya and Uganda Pastoral Conflict Case Study,' *Occasional Paper in Human Development Report*, (Nairobi, UNDP: Human Development Report Office, 2005),

http://hdr.undp.org/en/reports/global/hdr2005/papers/HDR2005_Mwaura_Ciru_20.pdf, accessed on 1 October 2014.

¹⁰⁵Odhiambo, M., 'The Asal Policy of Kenya: Releasing the Full Potential of Arid and Semi-arid Lands – An Analytical Review,' *Nomadic Peoples*, 17, 1, (2013) pp. 158-165. DOI:103167/np.2013.170110.

¹⁰⁶Mangano *et al.*, ACTED; *Good practice principles and lessons learnt from cross-border programming in the dry lands of the Horn of Africa*, (Nairobi, European Commission Humanitarian Aid and Civil Protection Department-ECHO & Disaster Risk Reduction, 2013), <http://www.disasterriskreduction.net/east-central-africa/reglap>, accessed on 21 April 2014.

inter-community learning visits to debunk misconceptions and enhance trust between these groups. After meetings to identify shared resources, interests and concerns, the rival communities have agreed to share previously unsecure and unused yet valuable grazing grounds between them. Elders from the communities in 2012 signed accord on apportioning a number of strategic grazing areas, notes Disaster risk reduction in the drylands of the Horn of Africa.¹⁰⁷ Following the agreement, communities have re-settled in more secure fertile farming land and have increased their trade linkages, food production and income. Nonetheless, these conservation and peaceful coexistence coordination mechanisms should be sustainable so as to safeguard gains so far made in the area.

1.5.2.4 Impact of cross border natural resource management on sustainable peace

Border regions are often remotely tucked away and constitute special conditions for natural resources and ecosystem management. States are becoming increasingly concerned about sovereignty, territorial integrity and security as border area economies integrate across borders arousing varied interests and immense loyalties.

On the global front, The PRIO Network in Maritime conflict in Asia describes South China Sea as a maritime area characterized by multinational disputes over territorial delimitation with overlapping claims between states to the Spratly islands area and associated maritime banks, reefs and cays.¹⁰⁸ Several disputes exist in the sea involving different collection of nations such as Singapore, Malaysia, Taiwan, China, Vietnam, Brunei, Japan and Philippines. Interests at stake include acquiring fishing areas, strategic control of crucial shipping channels and also potential exploitation of suspected petroleum reserves that include crude oil and natural gas. Glaser in the Council on foreign relations notes that the risk of real conflict at sea was even bigger since China has embarked on an extensive modernization programme for its maritime paramilitary proficiency and related naval capabilities to absolutely impose sovereignty and jurisdiction claims on the sea together with its resources by force if necessary.¹⁰⁹

¹⁰⁷Disaster Risk Reduction in the Drylands of the Horn of Africa, ed. 4, *Innovations in policy and practice from the ECHO DRRAP partners and beyond*, (Nairobi, Georgebensons Ltd, 2013), http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/REGLAP%20Journal%204_FINAL.pdf, accessed on 13 April 2014.

¹⁰⁸PRIO Network, *Maritime Conflict in Asia*, (2011), <http://www.prio.no/Maritime-Conflict-in-Asia/>, accessed on 18 January 2015.

¹⁰⁹Glaser, B.S., Council on Foreign Relations, 'Armed Clash in the South China Sea,' *Contingency Planning Memorandum*, No. 14, <http://www.cfr.org/world/armed-clash-south-china-sea/p27883>, accessed on 20 April 2014.

FAO Corporate document repository confirms that the sea contains many biological sub systems and a diversity of habitats that include mangrove vegetation, seagrass beds, coral reefs together with soft-bottom communities.¹¹⁰ The Association of Southeast Asian Nations (ASEAN) notes that in 1998 the sea contributed 14%, 35% and 30% of the globe's marine fish production, mangrove forests and coral reefs respectively.¹¹¹ The South China Sea fishing zone ranks fourth in total annual marine production among the world's nineteen fishing zones, adds the PRIO Network.¹¹² However, the region faces over-fishing owing to increased demand as fish stocks, coral reefs and the entire marine ecosystems are strained partly due to the disputes over maritime delimitation and sovereignty that make it difficult to adequately address environmental concerns. The situation is further complicated by pressure of population growth, competition amid varied military strength with possibility of attendant conflict in line with the tenets of the neo-Malthusian view.

China is undertaking a multi-billion-dollar project to reclaim and build islands on submerged reefs in the sea hundreds of miles away from its coast for military and strategic reasons. Development of a runway on the islands to enforce its claim on the sea and bar international community from entering the waters is a recipe for trouble.¹¹³ Recognizing the economic, ecological and social importance of coastal and marine resources, ASEAN leaders resolved to encourage preservation and sustainable management of related ecosystems contained in their commitment via ASEAN Socio-Cultural Community Blueprint 2009-2015 which offered guidelines on coastal and marine ecosystems for ASEAN Working Group. The looming environmental and security risk also presents an opportunity for developing a holistic regional cooperative framework towards sustainable peace and development in the region.

On the regional arena, Van der Linde *et al.* in *Beyond boundaries: Transboundary natural resource management in Sub-Saharan Africa*¹¹⁴ note that endangered mountain gorillas reside within Virunga massif; the afro-montane forests spanning Uganda, Rwanda alongside Democratic Republic of Congo (DRC). Where borders of these states converge lies the Virunga massif which

¹¹⁰FAO Corporate Document Repository, *Status and potential of fisheries and aquaculture in Asia and the Pacific*, (Bangkok, FAO, 2010), <http://www.fao.org/docrep/013/i1924e/i1924e00.pdf>, accessed on 11 January 2015.

¹¹¹ASEAN Cooperation on Environment, *Marine resources*, (2013), <http://environment.asean.org/46-2/>, accessed on 24 January 2015.

¹¹²PRIO Network, *Maritime Conflict in Asia*, (2011), <http://www.prio.no/Maritime-Conflict-in-Asia/>, accessed on 18 January 2015.

¹¹³Wingfield-Hayes, R., 'Why China warned US to stay away,' *BBC News Magazine*, (Tokyo), 24 June 2015.

¹¹⁴Van der Linde, H. *et al.*, *Beyond Boundaries: Transboundary Natural Resource Management in Sub-Saharan Africa*, with contributions from Anada Tiéga and Thomas Price, (Washington D.C, Grammarians Inc.: Biodiversity Support Program, 2001).

holds four contiguous national parks namely Volcanoes National Park located within Rwanda, Virunga National Park in DRC and finally, Mgahinga Gorilla and Bwindi Impenetrable National Parks in Uganda. However, high population density precipitating into human encroachment, civil unrest, deforestation, poaching and development endanger forest habitats. Van De Giessen in A report on environmental security in the Virunga-Bwindi region observes that threats come across borders with the large-scale movement of refugees in the area having harmful consequences for natural resources and biodiversity.¹¹⁵ The latest threat to the habitat is the planned exploration for oil by French company Total in parts of Virunga National Park and the transboundary Lake Edward. The government of Uganda has consented to the initiative whereas the locals in DRC are opposed to it citing possible environmental degradation, resource scarcity and threatened livelihoods among fisher folks together with attendant health hazards. These problems if not contained timely have the possibility of causing conflicts as communities jostle for diminished residual resources in line with the resource scarcity perspective.

Van der Linde *et al.* confirm that the International Gorilla Conservation Program (IGCP) and other stakeholders have been working in the area since 1991 facilitating international cooperation as well as brokering political agreements which ensure tangible and viable commitments in transboundary management of resources and identifying opportunities towards socio-economic development. The program focuses on recognition and institutionalization of non-conflictual strategic management approaches with formal mechanisms and agreements at political level. Although the program operates nationally, it maintains a transboundary perspective that ensures sustained cooperation between protected area authorities. The trust and understanding built over time during the process is among the key crucial seed to nurture as the base for realizing sustainable peace in the war-torn region.

Locally, the World Wildlife Fund (WWF) observes that the Mara River catchment is a vital part of the Maasai Mara-Serengeti ecosystem which is home to varied plant species, breeding site for birds and kinds of fishes at the confluence, genetic pool for biodiversity and an enhancement to microclimate within the area. The international river traverses Tanzania and Kenya as an estimated 65 percent of it runs within Kenya and 35 percent in Tanzania.¹¹⁶ The Mara also

¹¹⁵Van de Giessen, E., Institute for Environmental Security, Peace Park amid Violence? *A report on environmental security in the Virunga-Bwindi region*, (The Hague: Netherlands, IES, July 2005).
http://www.envirosecurity.org/espa/PDF/IES_ESA_CS_Africa_Supplement.pdf, accessed on 17 March 2014.

¹¹⁶WWF, "Transboundary Water in the Mara River Basin," *Where We Work*. (Gland: Switzerland, World Wildlife Fund, 2006),
http://www.panda.org/about_wwf/where_we_work/africa/index.cfm?uProjectID=9F078, accessed on 13 October 2014.

constitutes the expansive Lake Victoria basin as it originates from the Mau escarpment forest before flowing through expansive agricultural farms, the Mara-Serengeti ecosystem and finally enters Lake Victoria, the coveted origin of the Nile. This conservation Fund however notes that despite contributing an estimated 5% of the total lake's tributary inflow, its natural resource base has gravely deteriorated over time as a result of unsustainable use occasioned by human pressures on the river and its catchment amid weak frameworks of resource management. The situation which threatens livelihoods and survival of many communities may exacerbate scarcity and competition with possibility of related conflicts in line with the tenets of the neo-Malthusian view.

Reduced forest cover in highlands and upper catchment area due to encroachment and increased human settlement within the Mau forest of Kenya and declining water quantity and quality due to irrigation and run off from large-scale farms, among other untenable practices are part of identified anthropogenic interference on the river and its ecosystem. Being home to over one million people with an ever-expanding population, the Nile Basin Initiative notes that Mara River basin further experiences severe environmental degradation amid water resources management woes due to poor frameworks of administration. The problems include water shortage, widespread soil erosion, diminished soil fertility, reduced water infiltration capacity, water pollution and increased sedimentation occasioned by extensive mining and industrial actions within the area, among other strains.¹¹⁷ If unattended to promptly, these problems may cause acute resource scarcity, competition for survival and conflicts among groups in line with the resource scarcity perspective.

Nonetheless, according to the World Wildlife Fund, collaborative management efforts and frameworks by various entities on Mara River basin and surrounding resources have been initiated to ensure remedial synergies, key among them being Nile Equatorial Lakes Subsidiary Action Programme, Mara River Transboundary Water Users Forum, Nile Basin Initiative together with the Fund itself. The Fund adds that EAC together with Lake Victoria Basin Commission are also actively engaged in conservation efforts on the river and the wider Mau forest ecosystem. In addition, Environmental Flows of Mara River together with the Mara River Basin Biodiversity Action Plan have since been endorsed as the guiding principles on water allocation and

¹¹⁷WREM International, Mara River Basin, *Nile Basin Initiative: Nile Equatorial Lake Subsidiary Action Program, 2007-2008*, <http://www.wremintl.com/index.php/Recent-Projects/mara-river-basin>, accessed on 12 May 2015.

biodiversity within the basin.¹¹⁸ All these initiatives will go a long way in ensuring acceptable resource management threshold with benefits for all actors and subsequently contribute to sustainable peace and progression for the region.

Identified gaps in literature

The review of related literature on study subject reveals lack of adequate, comprehensive, cooperative and compatible cross border natural resource management frameworks with major gaps existing in the understanding and management of disparate trends and processes within the environment. There is less meaningful stakeholder participation characterized by inequitable resource access which is aggravated by policies that ignore the rights of locals to own or administer the resources. Lack of integrated and properly coordinated approaches to resource management is also evident as indigenous resource management frameworks are not formally recognized by states and are at times blamed for degradation and depletion. There is little goodwill and commitment among resource actors amid competing and varied interests which impede effective management of transboundary resources.

Some of the ecosystems are strained due to sovereignty and delimitation issues which hamper proper and timely tackling of environmental issues amid weak political and technical institutional linkages. The inability by responsible agencies to develop and effectively implement appropriate policy initiatives and pragmatic interventions remains a challenge as the situation is worsened by a myriad of factors among them poverty, poor planning of development, inadequate enforcement of related legislation, moribund colonial agreements, climate variability and general failure to acknowledge the significance attached on natural resources in the society. The study findings will help consolidate knowledge aimed at filling the gaps identified during the review. Sustainable peace should then be realized due to better and tenable approaches applied in the sound management of scarce and declining resources devoid of acrimony.

1.6 Justification of the Study

In Gigiri area of Nairobi, Kenya hosts United Nations Environment Programme (UNEP) headquarters placing it an edge over the entire globe on matters relating to environment as the designated world environment capital. This study which focuses on Kenya can thus be justified on a number of grounds other than the philosophical justification instigated through assumptions and

¹¹⁸WWF Global, *Managing the Mara River in Kenya and Tanzania*, (2014), http://wwf.panda.org/who_we_are/wwf_offices/tanzania/?uProjectID=9F0749, accessed on 3 December 2014.

realities surrounding key study variables. The realities that include sustainable peace being elusive in the region and resource struggle often underlying related conflicts in turn inform reflexes in the formulation of study questions and befitting research methodology, with the study further considering major research philosophies that encompass pragmatism, critical realism, positivism and interpretivism.

1.6.1 Academic Justification

Though there exists literature on management of transboundary ecosystems within eastern Africa, much of the analysis is not exhaustive and often offers blanket overview of the region without necessarily focusing on realization of peace within states. Therefore, this study generates targeted and additional valid knowledge to bridge gap in knowledge and understanding on the vital connection between cross border resource administration and sustainable peace in eastern Africa. The study immensely contributes to overall development of resource management and peace theory and further offers researchers a basis for future studies in the continuing quest towards effective management of the world's diminishing resource base and attainment of peace.

1.6.2 Policy Justification

The knowledge generated by the study will inform and strengthen related policy towards evidence-based planning and programming by both government agencies and auxiliary partners. It will also ensure enhanced systems for purposeful management of cross border natural resources and further bolster efforts towards efficient management of ecosystem resources in general. This will in turn help mitigate the existing problems of scarcity and competition surrounding resource access, use, sharing and control towards the attainment of sustainable peace. The study findings and pragmatic recommendations will specifically enlighten resource actors on Kenya's natural resource management needs and priorities to subsequently guide the magnitude and kind of support necessary for effective and sustainable administration of resources that the country shares with its neighbours in order to realize durable regional peace.

In general, the knowledge generated provides relevant solutions, important reference and insight for peace and resource management to policy makers and implementers, donors, scholars and the general public. With robust academic and policy foundation, Kenya will be able to demonstrate its immense potential and influence not only as a front runner in the effective management of resources for realization of tangible peace, but also as a formidable actor worth emulation throughout the region and even the world over.

1.7 Theoretical Framework

Theory provides a bigger picture for better mastery and understanding of the subject under study. This study seeks theoretical support from resource scarcity theory also known as the neo-Malthusian view in analyzing cross border natural resource management issues relative to attainment of sustainable peace in eastern Africa for a more productive and progressive region.

1.7.1 The Resource Scarcity Theory

The resource scarcity theory states that poor nations or countries shall be unable to overcome subsistence levels of each one of their people unless they instigate a system of checks relative to the populations.¹¹⁹ Subsequently, neo-Malthusianism expresses concern that overpopulation might heighten overconsumption evidenced through degradation of environment or even natural resource depletion to levels that are unsustainable with the possibility of a number of crises that include ecological collapse, poverty and misery. The theory is named after English cleric, economist and demographer Thomas Robert Malthus renowned for his pessimistic predictions on the future of humanity. Malthus authored *An Essay on the Principle of Population*¹²⁰ and originated the perception of economics as “the dismal science.” Malthus is recognized in history of science utterly for his influence on biologist Charles Darwin whom he inspired to originate the concept of ‘evolution of species’ which was largely founded on the notion of struggle for survival amid scarce resources as originally conceived by Malthus. His life revolved around political economy and social conditions and he is arguably to date the most misunderstood as well as misreported economist ever.¹²¹

Today, overpopulation, pestilence, famine and war continue to wreck the third world yet these events constitute a gloomy justification of the Malthusian doctrine.¹²² Even among developed nations, a neo-Malthusian relationship is upheld on the connection between the state of environment and rise in population due to misuse of scarce diminishing resources while the problem is severe among poor countries which largely rely on renewable ecosystem resources for subsistence. Resource scarcity theory focuses on disproportionate link between rapid population increase and accompanying human activities which bear potentially destructive influence on

¹¹⁹Mellos, K., *Neo-Malthusian Theory*, In *Perspectives on Ecology*, (London, Palgrave, 1988) pp. 15-42.

¹²⁰Malthus, T. R., *An Essay on the Principle of Population*, in *The Works of Thomas Robert Malthus*, E.A. Wrigley and D. Souden (eds.), 6th ed., Vol. 2 and 3, (London, William Pickering, 1986).

¹²¹The Concise Encyclopedia of Economics, *Thomas Robert Malthus, (1766-1834)*, (2015), <http://www.econlib.org/library/Enc/bios/Malthus.html>, accessed 17 March 2014.

¹²²Dhamee, Y., *The Victorian Web, Thomas Robert Malthus*, (1995), <http://www.victorianweb.org/economics/malthus.htm>, accessed on 10 April 2014.

environment with attendant scarcity due to inability of environment to offer the requisite supplies for survival. The theory thus befits this study in a world fast running out of vital renewable resources due to induced crisis of degradation and depletion with increased likelihood of competition and conflict surrounding the diminishing resources and thus urgent need to act speedily on mitigation to prevent an ultimate environmental and human apocalypse.

Neo-Malthusians hold to the principle that there is an affirmative connection between population increase and environmental change and thus rapid population growth, unequal access to resource, resource depletion and environmental degradation all combine to worsen poverty and income inequalities mostly in least developed nations across the globe. These deprivations easily transform into grievances escalating dangers of rebellion and attendant conflict as people fight for survival.¹²³ Natural resources often contribute to economic growth but contrarily some endowed countries are typified by low growth rates, wide spread poverty, bad governance, high inequality coupled with the increased risk of conflict as access to resources stands considered as the most notable security risk of this century.¹²⁴

Resource scarcity perspective also argues that population trends and exploitation of resources shall in due course lead to depletion and decay of human civilization and thus the need to change human attitude towards the earth by adopting sustainable values. The view maintains that human consumption and abuse of resources has future consequences since the earth has restricted or rather limited capacity to serve human needs and resources are no infinite.¹²⁵ Neo-Malthusians further maintain that natural resources are completely limited commonly referred to as earth's carrying capacity and emphasize that overpopulation is not described in terms of population density but rather as the number of individuals within a particular area relative to available resources as well as environment's capacity to support human activities.

Key proponents of the resource scarcity perspective include Canadian political scientist Thomas Homer-Dixon who coordinated a study for three years on environmental change and severe conflict and developed models that show link between renewable resources scarcity and conflict. His findings noted that natural resource depletion and degradation will greatly contribute to social turmoil in years to come more than will ozone depletion and climate change. Homer-

¹²³Kahl, C.H., *States, Scarcity and Civil Strife in the Developing World*, (Princeton: NJ, Princeton University Press, 2006).

¹²⁴Mildner, S.A. *et al.*, 'Scarcity and Abundance Revisited: A Literature Review on Natural Resources and Conflict,' *International Journal of Conflict and violence*, Vol. 5, 1, (2011) pp. 155 - 172.

¹²⁵Neo-Malthusians or Cornucopians? <http://www.uvm.edu/rsenr/nr2/downloads/ds4example3.pdf>, accessed on 11 April 2014.

Dixon explains how population increase and economic outputs growth will sharply increase scarcities of renewable resources.¹²⁶ He lists three sources of renewable resource scarcity as being supply-induced scarcity owing to degradation and depletion of ecosystems and resources respectively, demand-induced scarcity resulting from the increase in the resources' per capita consumption which is equivalent to growth in population, and structural scarcity owing to unfair distribution of resources and their benefits.¹²⁷ Homer-Dixon argues that in land and other ecosystem resource use systems, ensuing competition over access, control and usage provide a platform for conflict as was the case of Rwanda where land scarcity was a crucial feature in the ecological variable during the 1993-4 civil war.¹²⁸

Researchers including Bäechler, Böge, and Klötzli,¹²⁹ and Urdal¹³⁰ like Homer-Dixon¹³¹ illustrate the affirmative connection between resource scarcity and attendant conflict. These researchers advise that by depriving individuals their source of livelihood leaves them no option other than fighting for survival. They believe that population increase lessens the availability of ecosystem resources as populations increase faster than supplies which in turn prompts competition and conflicts on means of existence. Homer-Dixon¹³² notes that resource scarcity could initiate migration leading to ethnic conflict and rivalry within host areas. He maintains that scarcity many a time occasions economic deprivation and consequential conflict particularly whenever institutions demonstrate inefficiency as evidenced in developing nations which suffer greatly due to scarcity together with related conflicts since they hold ill equipped frameworks to alleviate challenges and grievances therein.

Neo-Malthusians continue to emphasize a future of doom and Paul Ehrlich in his work *The Population Bomb* predicts how population increase would over time result in overconsumption, scarcity of resources and famine with apocalyptic consequences for humanity.¹³³ In a rejoinder,

¹²⁶Homer-Dixon, T., Thresholds of turmoil: environmental scarcities and violent conflict, *Contested Grounds: Security and Conflict in the New Environmental Politics*, D.H. Deudney and R.A. Mathew (eds.), (Albany, State University of New York Press, 1999) pp. 61.

¹²⁷Homer-Dixon, T. and Blitt, J., *Ecoviolence: Links Among Environment, Population and Security*, (Lanham, Rowman and Littlefield, 1998) pp. 6.

¹²⁸Bigagaza, J. et al., 'Land Scarcity, Distribution and Conflict in Rwanda,' J. Lind and K. Sturman (eds.), *Scarcity and surfeit: The Ecology of Africa's conflicts*, (Pretoria, Institute of Security Studies, 2002) pp. 51.

¹²⁹Bäechler, G. et al., *KriegsursacheUmweltzerstörung*, (Zurich, Rüegger, 1996).

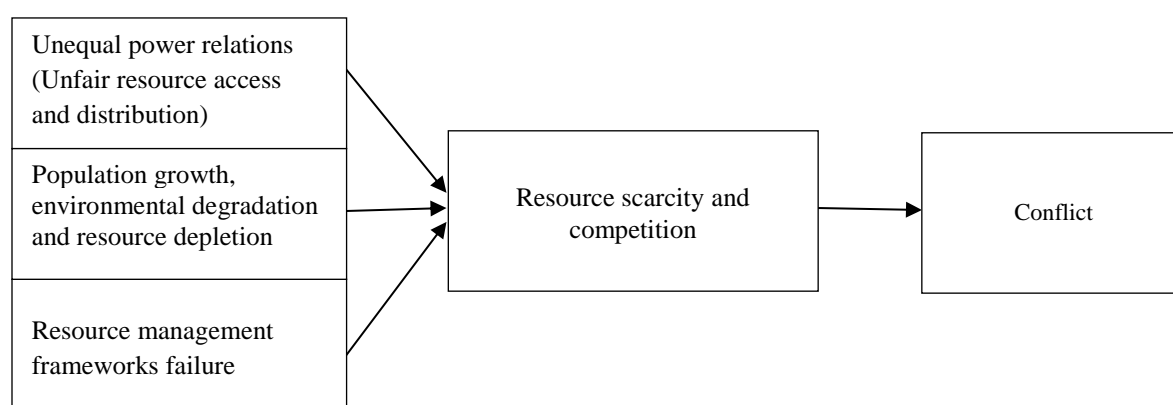
¹³⁰Urdal, H., 'Population, Resources, and Political Violence,' *Journal of Conflict Resolution*, 52, 4, (2008) pp. 590-617.

¹³¹Homer-Dixon, T., 'Environmental Scarcities and Violent Conflict: Evidence from Cases,' *International Security*, 19, 1, (1994) pp.5-40.

¹³²Homer-Dixon, T., *Environment, Scarcity, and Violence*, (Princeton, Princeton University Press, 1999).

¹³³Sabin, P., *The Bet, Paul Ehrlich, Julian Simon, and Our Gamble over Earth's Future*, (London; UK, Yale University Press, 2013), <http://www.goodreads.com/book/show/17572998-the-bet>, accessed on 17 May 2014.

Furedi, argues in support of the ‘limited Resource Perspective’ which considers environment as being a limited resource whereas people are regarded as a constant threat to the wellbeing of biodiversity and attainment of ecological balance.¹³⁴ Population growth and associated human activity are seen as having a negative and potentially destructive impact on environment which cannot sustain attendant huge numbers and therefore population increase will eventually lead to ecological degeneration.¹³⁵ The figure below illustrates the relationship between unequal power relations, population growth, environmental degradation and failure by resource management frameworks and how their interaction leads to scarcity, competition and eventual conflict.



(Factors inducing scarcity)

Figure 1.2: Analytical model/illustration on how resource management can cause conflict

Source: Author (2021).

Hence, well administered cross border natural resources can lead to the attainment of sustainable peace. This observation could be realized by initiating necessary reforms within the resource management realm, improvement of social and cultural practices, ensuring proactive security and dispute resolution mechanisms are in place and by embracing participatory approaches to environmental protection and management by both governments and communities. Once these inputs are operationalized, they will culminate into equitable and resilient communities, diversified and sustained livelihoods, cooperation and trust building among groups, shared gains and interdependency and finally; socio-economic progression. On the long-term horizon, the impact of the interplay between these output processes shall be a secured future in a

¹³⁴Furedi, F., *Population and Development: A Critical Introduction*, (NY, St. Martin’s Press, 1997).

¹³⁵Harrison, P., *The Third Revolution: Population, Environment and a Sustainable World*, (London; UK, Penguin Books Ltd., 1993).

peaceful environment. The figure below illustrates how efficient management of cross border natural resources could lead to the realization of sustainable peace.

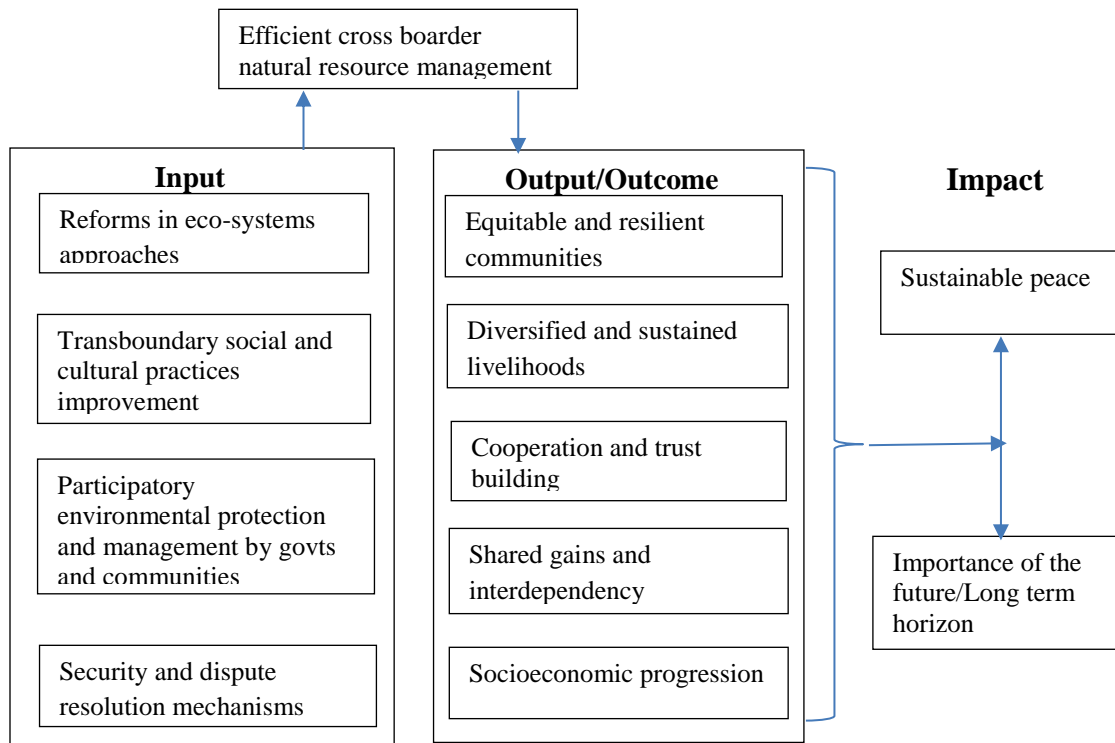


Figure 1.3: Illustration on how efficient management of cross border natural resources can lead to sustainable peace

Source: Author (2021).

Therefore, this study employs principles of the resource scarcity perspective in examining cross border resource management and sustainable peace within eastern Africa region with focus on the Kenyan context. By interrogating the relationship between the two concepts with support of the theory, the study generates valid information to multilaterally mitigate related policy gaps and inform evidence-based and targeted interventions on continued degradation of resources, non-sustainable livelihoods, non-resilient and inequitable communities, economic stagnation and recurrence of resource-induced conflicts among communities. Hence, the resultant efficiency in running of cross border resources is expected to culminate into socio-economic progression and sustainable peace within the region.

1.8. Research Hypotheses

This study tests the following hypotheses:

- a. Existing frameworks for cross border natural resource management are adequate for sustainable peace in eastern Africa region.
- b. Current state of cross border natural resource management is sufficient for sustainable peace in eastern Africa region.
- c. Role and responsibilities of different actors in cross border natural resource management are dispensable towards sustainable peace in eastern Africa.
- d. Cross border natural resource management will not impact on sustainable peace in eastern Africa.

1.9. Methodology of the Study

The design and methodology of this research are guided by standard approaches' goals and principles and described in terms of the target population, sampling approach, administration of research tools, data collection procedures and description of data analysis techniques. The design adopts a descriptive approach in a natural setup in examining the variables being investigated namely; cross border resource management and sustainable peace to define and describe their characteristics and relationships. Data triangulation is conducted to enhance validity and reliability of study results through primary data obtained from the field using face-to-face and electronic interviews and also self-administered questionnaires, as secondary data is obtained by way of review of relevant available literature on past studies, policies, journals, articles, books and other like documents on the area of study.

Methods triangulation is also used in the study through mixed method approaches and triangulation of findings from varied data collection techniques with the results from varied methods and techniques augmenting, enhancing and clarifying one another towards more insight. Qualitative and quantitative data is obtained from interview transcripts and questionnaires so as to effectively meet the objectives of the study, answer study questions and test the hypotheses. The study further uses theory triangulation since the multiple study hypotheses offer different perspectives on issues or concerns under investigation.

1.9.1 Target Population

The study focuses on the entire group of individuals with common observable characteristics and in this case, they are actors engaged in ecosystem resource management in Kenya. The actors are drawn from government policy makers and implementers; nongovernmental organizations; communities living with, controlling or using the resources; associate development

partners and scholars. Although the group is not homogenous, the study strives to generalize its results on the group.

1.9.2 Sampling

A sampling frame of 826 individuals was developed from lists sourced through relevant human resource departments, divisions or equivalent units in the categories of the target population. Population N being very large, unknown and unmanageable, the required sample size n was determined by the researcher based on an appropriate formula; see determination of sample size below. Simple random sampling method which gives all individuals equal chance for selection to participate in the study was then used to identify 385 eligible individuals from the sample frame; a figure arrived at by use of the applicable formulae for unknown population. The sample size is seen to be manageable and sufficient for the study as the identified individuals are drawn from various managerial levels including decision making and opinion leadership which encompass each of the target population categories. The identified individuals were then engaged through self-administered questionnaires.

Twenty-five interviewees were targeted for engagement upon identification via purposive sampling technique and also by snowball approach through referrals based on their relevant expertise, competencies and influence in the area of study. The interviews were aimed at providing additional information from identified key informants to strengthen the already gathered data through literature review and questionnaires. The respondents unevenly representing categories of the target population were engaged aptly and the information obtained explored for relevance to the study. Out of 385 individuals selected for engagement through questionnaires, 302 actually participated in the study while 83 either declined or did not fill and return the questionnaires as expected. However, the failure to engage the 83 individuals selected to participate in the study did not have any major effect on the representativeness of the data gathered and validity of the study findings and conclusions, considering that they were spread across all categories of the target population.

1.9.2.1 Determination of Sample Size

Sample size was exclusively determined through the equation (Cochran's formulae) adopted from Introductory Statistics by Wonnacott and Wonnacott;¹³⁶

¹³⁶Wonnacott, T.H. and R.J. Wonnacott, *Introductory Statistics*, 5th (ed.), (New York, John Wiley & Sons, 1990).

$$n = \frac{Z^2 P(1 - P)}{\phi^2}$$

Where;

N = population is too large and unknown (thus degree of freedom is unknown)

n = required sample size

Z = confidence level at 95% that corresponds to critical standard value of 1.96

p = estimated proportion of an attribute for a conservative sample size estimate or population standard deviation σ at 0.5

ϕ = margin of error as measure of precision at 5% with standard value of 0.05

Calculation:-

$$n = ((1.96)^2 \times .5(.5))/(.05)^2$$

$$(3.8416 \times .25)/.0025$$

$$.9604/.0025$$

$$384.16$$

385 respondents were needed for the study.

1.9.2.2 Sample size and distribution of respondents in categories of the target population

From the findings of analysis on collected field data, the distribution of the sample in categories of the target population is as follows; 19.5% of individuals are drawn from government agencies, 18.2% are from nongovernmental entities, 26% are from communities living with the resources, 18.2% are drawn from development partners and finally; 18.2% are scholars. Based on the findings, majority of respondents who took part in the study at 30.5% are from the communities living with the resources. This is partly attributed to the communities being the immediate custodians, users and influencers of resource exploitation and management in their respective localities. This notion is supported by The Ramsar Convention on Wetlands which advocates for ‘people-centred’ approaches through active participation and ownership by communities at the grassroots level and affirms that communities are indeed the custodians and owners of resources and thus it is upon them to protect and use them prudently.¹³⁷

¹³⁷Maloya, H., *Community-Based Natural Resources Management - the case of Lake Chilwa Wetlands, Malawi*, (Malawi, Ramsar Convention on Wetlands/COP13, 2001), <https://www.ramsar.org/news/community-based-natural-resources-management-the-case-of-lake-chilwa-wetland-malawi>, accessed on 25 September 2018.

The other categories of the target population display a near even representation of the respondents as follows; nongovernmental entities are at 19.9%, scholars at 17.2%, development partners at 16.9% and governmental agencies at 15.6% of the total respondents. The distribution of respondents is essential as it ensures inclusivity and meaningful participation of key natural resource management actors in this study. The table below presents summary on the distribution of the study sample and respondents in target population categories.

Table 1.1: Sample size and distribution of respondents in categories of the target population

Category of actors	Sample population	Actual number of respondents	Percentage distribution of the sample (%)
Government agencies	75	47	19.48
Nongovernmental entities	70	60	18.18
Communities living with resources	100	92	25.97
Development partners	70	51	18.18
Scholars	70	52	18.18
Total	385	302	100

Source: Author (2021).

1.9.3 Data Collection Procedures and Instruments

The study utilizes primary alongside secondary data gathered through self-administered questionnaires, interviews and by analysis of relevant literature.

Self-administered questionnaires

Primary data was collected through self-administered questionnaires designed with open and closed ended questions for respondents to express own opinion and for obtaining guided responses respectively. The questionnaire contained 50 questions with sections mainly aligned to study objectives namely; General information, Personal particulars, General knowledge, The role cross border natural resource management plays in fostering sustainable peace and Current state and frameworks for cross border resource management towards sustainable peace. Other sections were Role and responsibilities of various actors in cross border resource management in support of sustainable peace and Impact of cross border natural resource management on sustainable peace in eastern Africa region. The questionnaires were administered by a team of 5 research assistants who were thoroughly trained on the questionnaire items and methodological features of the study supported by the principal researcher. The questionnaire developed by the researcher was pre-

tested on 8 selected members of the target population in their natural setup prior to the start of data collection exercise so as to identify and consequently remedy weaknesses and flaws in the tool and ensure reliability.

Interview question guide

An interview schedule with 24 open-ended questions was also developed to facilitate further collection of primary data for analysis and flexibility on the area of study. The schedule with relevant themes tied to the objectives of the study was used in order to instigate appropriate discussions on the topic of study. The researcher guided the discussions towards the envisaged research deliverables. In order to establish the validity of research instruments namely; self-administered questionnaire and interview guide, the researcher sought opinion from academic experts especially, supervisors and lecturers so as to facilitate necessary revision and modification of the tools accordingly. Secondary data was collected mainly through extensive analysis of relevant literature with inferences drawn from books, journals, reports, academic papers and other important writings, through library research and internet searches to enrich the findings of the study.

1.9.4 Data Processing and Analysis

Upon collection of primary data, the researcher reviews the questionnaires and the notes taken during interviews for completeness and comprehensibility of information. The researcher then summarizes, cleans and codes the data which is mainly qualitative by use of Microsoft Excel spreadsheet. The tabulated data is then transferred and analyzed as quantitative values through IBM Statistical Package for the Social Sciences (SPSS) Statistics Version 20; a computerized database with data handling and statistical analysis capability to generate descriptive statistics and ensure quality control. The data is then presented through SPSS Statistics and Microsoft Excel generated frequency tables, graphs and charts and the analysis done through percentages, frequency distribution, proportions and range. The relationships between variables are drawn through SPSS's cross tabulation, Spearman's correlation coefficient (r_s) and Chi-square (χ^2) analysis and also advanced through correlations undertaken through STATA's Structural Equation Modelling (SEM) by way of path coefficients which are basically linear regression weights used in observing the likely causal link between the variables.

Qualitative data initially captured in form of narratives is partly organized in thematic categories using NVivo software for content management, then coded and keyed in as quantitative

values. Qualitative data which was collected and retained in narrative form is used to explain quantitative values and augment content analysis based on themes tied to the objectives of study. The primary data findings are fused with the literature reviewed in respective chapters of the study. Qualitative and quantitative data analysis consolidates emerging issues with support of relevant theory and imperative information obtained on the topic of study in order to relate the variables and enrich research findings. Overall, triangulation of study data, methods and hypotheses is undertaken with subsequent descriptive analysis and interpretation towards logical inferences.

1.9.5 Ethical Considerations and Research Authorization

The study was conducted with an ethical approach where rights to self-determination, confidentiality, anonymity and informed consent are observed. The prospective respondents had to assent prior to participating voluntarily in the study up on assimilation of essential information about the study. The research strived to ensure safety of those involved in the study and also maintained ethics on academic writing and publishing. Clearance for the study was sought prior to its commencement by obtaining a research permit and authorization letter issued by National Commission for Science, Technology and Innovation (NACOSTI).

1.10 Scope and Limitations of the Study

The research addresses the topic ‘Cross border natural resource management and sustainable peace in eastern Africa region: A case study of Kenya.’ This study is limited to examining cross border natural resource management as grounds for achieving sustainable peace in eastern Africa, and it draws comparison across borders. Considering the subject and nature of this research, the study targeted parts of the country with transboundary resources and was conducted between October 2016 and April 2018; the chronology of the process is detailed in the study progress reports. The study thus targeted primary data collection from 385 individuals drawn from categories of the target population through questionnaires and 25 others by means of interviews in the mainly frontier regions of Kenya namely; Rift Valley, Coast, Western, Nyanza and Nairobi. The targeting was premised on the ability to obtain representative views on the subject of study as well as an empirical basis for answering the specific study questions and testing the hypotheses.

Since the study did not receive any external funding or financial support and fully relied on the researcher’s own funds, one of the main challenges was financial constraint which made it difficult to reach some of the key informants through interviews as earlier planned. Nonetheless,

the scholarly and expert views and insights of key persons were sufficiently supplemented through their writings and like interactions. Inadequate time, ecosystem vastness, lack of cooperation by a section of the target population, inaccessibility of some of the study locations and insecurity constraints in the remote borderland areas were also quite evident as the study could not reach the target population in entirety. However, the researcher uses a sample affirmed to be representative of the target study population to establish a generalized perspective on the variables under investigation.

The researcher applied for research authorization and permit from NACOSTI which was granted for the period between July 2016 and July 2017 to conduct research in all counties in Kenya. However, the period stipulated by NACOSTI was not enough for the data collection exercise considering the unprecedented delays and complexities occasioned mainly by the political campaigns and the prolonged 2017 general elections mood witnessed in Kenya at the time. The researcher applied for the extension of the permit for one (1) more year which was granted to facilitate completion of data collection.

1.11 Assumptions of the Study

- a. Cross border natural resource management plays a role in fostering sustainable peace in eastern Africa region.
- b. Current state and frameworks for cross border natural resource management were not sufficient towards sustainable peace in eastern Africa.
- c. Role and responsibilities of different actors in cross border natural resource management were indispensable in support of sustainable peace in eastern Africa region.
- d. Cross border natural resource management will impact on sustainable peace in eastern Africa.

1.12 Organization of the Study

The study is organized in seven chapters mainly tied to the study objectives and the findings analyzed and presented in alignment to the defined research questions as follows;

1.12.1 Chapter One: Introduction to the Study

Chapter one is divided into three segments namely; background and statement of the study problem, literature review with an entrenched theoretical framework and the research methodology. The chapter presents basic information underlying the study by providing the background and statement of research problem. It also provides the study objectives and reviewed literature relating to the study in three tiers of global, regional and local contexts aligned to the

specific study objectives with an entrenched theoretical framework explaining the use of the resource scarcity theory. The chapter further outlines the research questions, hypotheses, study assumptions, scope and limitations and significance of study. In addition, the chapter highlights the study methodology by describing the procedure and instruments used for data collection, presentation and analysis.

1.12.2 Chapter Two: Cross Border Natural Resource Management and Sustainable Peace in Eastern Africa: An overview

Chapter two discusses the concepts of cross border natural resource management and sustainable peace by providing an overview of the link between the two concepts. In doing so, the chapter offers the conceptual, normative, theoretical and empirical analysis of these concepts while bringing out the interplay between cross border natural resource management processes, the attendant resource-related conflicts and the quest for the attainment and sustaining of durable peace within communities.

1.12.3 Chapter Three: Current State and Frameworks for Cross Border Natural Resource Management towards Sustainable Peace in Eastern Africa Region

Chapter three in its first section evaluates cross border natural resource management frameworks within the country with in-depth analysis of the rationale for cross border resource management and the concepts of territorialization, de-territorialization and re-territorialization. The section also looks into community, county and national frameworks for resource management and Kenya's implementation of related international agreements. The section further summarizes the achievements and best practices identified in cross border resource management within the country towards durable peace. The second section of the chapter examines the state of cross border natural resource management in Kenya. This section begins by explaining the association between resource management, peace and conflict. The section then highlights natural resources of international importance and also outlines the challenges experienced in administering cross border natural resources. In addition, the section looks at the milestones in management of these shared resources in Kenya. The chapter brings out the deteriorating state of cross border natural resources amid attendant scarcity, competition for residual resources and related conflicts.

1.12.4 Chapter Four: Role and Responsibilities of Actors in Cross border Natural Resource Management in Support of Sustainable Peace in Eastern Africa Region

Chapter four assesses role and responsibilities of diverse actors in cross border resource administration in Kenya at community, national, regional or continental and global levels. In doing so, the chapter examines the role of communities, county and national governments' engagement within resource management domain. The chapter also delves into the role of sub-regional, regional and global institutions and further interrogates local gender roles in cross border natural resource management within the country.

1.12.5 Chapter Five: Cross Border Natural Resource Management and Sustainable Peace in Eastern Africa Region

Chapter five critically analyzes whether cross border natural resource management would impact sustainable peace within eastern Africa region. The chapter starts by presenting the backdrop of cross border natural resource management and sustainable peace within the region. It then discusses coping with scarcity and competition surrounding cross border natural resources towards peaceful coexistence. The chapter also examines the necessary reforms in resource management to help realize sustainable peace and development. Finally, the chapter highlights the integrated and holistic natural resource management paradigm and further wraps up the study by summarizing the analysis of the relationships between key variables.

1.12.6 Chapter Six: Presentation of Data Findings and Analysis

Chapter six provides the study results which are presented through key research findings. Various techniques are used during data analysis guided by the study objectives.

1.12.7 Chapter Seven: Summary, Conclusion and Recommendations

Chapter seven carries a summary of study findings and discussions arising from the analysis and also covers conclusion and recommendations. The chapter further explores prospects for further study. The chapter links new and key emerging issues to study objectives and further highlights lessons learnt moving forward.

1.13 Conclusion

Chapter one presents basic information on the study that includes background of study, study objectives, hypotheses, assumptions, statement of the research problem, study questions together with justification of the study. The chapter also reviews relevant literature together with an entrenched theoretical framework and further provides the overall research methodology. These various components lay foundation for subsequent analysis of issues and discussions relating to the research problem. The next chapter provides an overview of the relationship between key variables in the study problem namely; cross border resource management and sustainable peace.

CHAPTER TWO

CROSS BORDER NATURAL RESOURCE MANAGEMENT AND SUSTAINABLE PEACE IN EASTERN AFRICA: AN OVERVIEW

2.0 Introduction

This chapter looks at cross border natural resource management and sustainable peace by offering an overview of the connection between the two concepts. In doing so, the chapter offers the

conceptual, normative, theoretical and empirical analysis centred on these concepts while bringing out the interplay between cross border natural resource management processes, the attendant resource-related conflicts and the quest for the attainment and sustaining of peace among affected groups.

2.1 Cross border natural resource management and sustainable peace: Conceptual analysis

2.1.1 The ‘Green war’ hypothesis

The ‘green war’ or ‘environmental scarcity’ premise postulated by Thomas Homer-Dixon refers to the degradation of the environment as being a basis for impoverishment and origin of conflict among societies,^{138,139} since the ever-increasing population pressure and the dropping productivity levels within the agricultural sector might just result in land disputes. Similarly, the rising scarcity in water resources may possibly lead to conflict¹⁴⁰ and the green war hypothesis challenges the notion which postulates that people merely fight in order to have control over available environmental resources.^{141,142} Environmental poverty was a probable key influence in the conflict witnessed in Rwanda in the 1990s as 80% of the poorest countries globally are facing or have in the recent past suffered from major violent conflicts. Conflicts within the world’s impoverished and developing nations occasion hefty socio-economic costs together with heavy human burdens, and have remained as a principal source of the extreme underdevelopment and poverty witnessed.

During the 1990s, Thomas Homer-Dixon together with colleagues from University of Toronto conducted studies on the link between environmental strain and violent conflict. In two of his journal articles he identified fundamental mechanisms under which natural resource scarcities hinging on cropland productivity and fresh water resources could influence rebellion, ethnic clashes, terrorism or even genocide within poor nations.^{143,144,145} Similarly, shared natural

¹³⁸Homer-Dixon, T., ‘Environmental scarcities and violent conflict: evidence from cases,’ *International Security*, 19, 1 (1994) pp. 5-40.

¹³⁹Kaplan, R., ‘The coming anarchy: How scarcity, crime, overpopulation and disease are threatening the social fabric of our planet,’ *Atlantic Monthly*, Vol. 273, No. 2, (1994) pp. 44-74.

¹⁴⁰Swain A., Water scarcity as a source of crises, in E.W. Nafziger, F. Stewart and R. Vayrynen, (eds.), *War, hunger and displacement: The origin of humanitarian emergencies*, (Oxford, Oxford University Press, 2000) pp. 179-205.

¹⁴¹Collier, P. and A. Hoeffler, *Greed and grievance in civil war*, (Washington DC, World Bank, 2000) p. 42.

¹⁴²Fairhead, J., The conflict over natural and environmental resource, in E.W. Nafziger, F. Stewart and R. Vayrynen, (eds.), *War, hunger and displacement: The origin of humanitarian emergencies*, (Oxford, Oxford University Press, 2000) pp. 147-178.

¹⁴³Homer-Dixon, T., ‘Environmental Scarcities and Violent Conflict: Evidence from Cases,’ *International Security*, Vol. 19, No. 1, (1994) pp. 5-40.

¹⁴⁴Homer-Dixon, T., ‘On the Threshold: Environmental Changes as Causes of Acute Conflict,’ *International Security*, Vol. 16, No.2, (1994) pp. 76-116.

¹⁴⁵Kennedy, Bingham, *Environmental Security: PRB Talks with Homer-Dixon, T.*, Population Reference Bureau, Washington, DC, January 2001.

resources which transcend national boundaries within the eastern Africa region and more so some resources that Kenya shares with its neighbours have been under intense pressure due to the upsurge in population, insatiable demands and uses, poor management and climate variability. The interaction of these factors has in turn occasioned resource degradation and scarcity, competition among groups for residual resources amid threatened livelihoods, with the looming likelihood or even recorded incidents of ongoing conflicts surrounding access and control of this essential resources.

2.1.2 Concept of cross border natural resource management

A border in this study refers to the delimitation of a political territory which exists between independent nations.¹⁴⁶ It then follows that a cross border resource is a resource whose occurrence and jurisdiction is under two or more geographical regimes. Natural resource management is a process which involves a combination of plans which are geared towards sustaining key resources beyond the present day use into the future. The process considers how best the resources can be utilized while ensuring that their productivity is sustained and that their connection to the larger environment is protected. Resources chiefly defined as being vulnerable to exploitation comprise of ecosystem resources namely; fresh water sources, arable land, forests and wildlife, among others.¹⁴⁷ Therefore, cross border natural resource management is the managing and maintenance of the environmental quality of natural systems whose occurrence and jurisdiction are under two or more geographical regimes for present and future generations.

Malthusian arguments postulate that population growth together with high demands on resources per capita also known as the demand-induced scarcity result in deteriorated quality of environment referred to as supply-induced scarcity. The situation in turn exacerbates scarcity of resources and breeds increased competition over resources, and when the process combines with resource access and control inequalities also known as structural scarcity, the whole scenario culminates into increased likelihood for violence.¹⁴⁸ The scarce availability of renewable resources places stress on the society making it less stable and more prone to conflict,¹⁴⁹ Homer-Dixon holds that the chance of conflict happening increases with decreased agricultural

¹⁴⁶Guo, R., *Cross-Border Resource Management: Theory and Practice*, Volume 10 of Developments in Environmental Science, (UK, Elsevier, 2005).

¹⁴⁷Chiras, D. D., *Natural Resource Conservation: Management for a Sustainable Future*, (New York, Prentice-Hall, 2004).

¹⁴⁸Gleditsch, N. P., *Conflicts over Shared Rivers: Resource Wars or Fuzzy Boundaries?* (Paper presented at the 45th Annual Convention of the International Studies Association, 17-20 March 2004, Montreal; Quebec) pp. 253.

¹⁴⁹Critchley, W. H. and T. Terriff, *Environment and Security*, in S.R. Godson and T. Greenwood (eds.), (1993) pp. 312-348.

productivity, diminishing economic capability and involuntary population displacement, amid disruption of social relations and legitimate institutions.¹⁵⁰ Internal demands on scarce and diminishing resources push states to expand outwards and thus increases the likelihood of conflicts through hostile lateral pressure. Resource scarcity increases prospects for conflict to occur across borders as poor regions often create situations which are highly competitive amid absent or weak institutions for managing both the resources and resultant conflicts.¹⁵¹ Lack of alternative sources for livelihood support increases dependency on scarce resources from all frontiers and the control over the resources by a dominant party may just reduce the amount of resources available for the other parties. During the 1967 Six-Day War, Jordan lost significant access to the Jordan River waters as Israel increased its water usage by 33 percent, and this has partly formed the basis of their protracted regional conflict.¹⁵²

Livelihoods of most individuals in Africa largely depend on the exploitation or rather consumption of natural resources together with other environment assets, and as a result efficient management of these resources remains essential in the attainment of long-term sustainable peace and development for the continent. Nonetheless, the resources are under increasing pressure exerted by rapid human population growth, poverty and underdevelopment occasioned by inequitable distribution of the resources and the macroeconomic variations relating to globalization. African states continue to grapple with the management of the resources within their jurisdiction as many have since developed policy and legal frameworks to guide the management. However, many ecosystem resources on the continent straddle international borders and thus it is not possible to manage them at state level alone. The transboundary nature of these resources is manifested through major rivers constituting borders between countries and valuable wildlife reserves sprawling beyond national boundaries with their populations migrating across borders. Hence, resource use and management in one country definitely impacted on communities in other state (s) sharing the resource and in the wake of the aggravated depletion of resources and attendant scarcities, there is great potential for resource-induced conflict due to competition over resource access and control amid threatened livelihoods.

¹⁵⁰Homer-Dixon, T. F., *Environment, Scarcity and Violence*, (Princeton; N.J, Princeton University Press, 1999).

¹⁵¹Hensel, P. R. *et al.*, *Conflict Management of Riparian Disputes: A Regional Comparison of Dispute Resolution*, (Paper presented at the 2004 International Studies Association Meeting, 2004, Montreal; Quebec).

¹⁵²Grunfeld, L., *Jordan River Dispute*, ICE Case Studies, No. 6, (1997).

<http://www.american.edu/projects/mandala/TED/ice/JORDAN.HTM>, accessed on 20 January 2019.

Africa's Great Lakes region that encompass Uganda, Tanzania, Rwanda, Burundi, Kenya and DRC has rapidly overtaken other regions in the continent including the volatile Horn of Africa and also Southern Africa as the continent's highly violence prone region. In recent years, the region has witnessed political strife, violent conflicts and displacement of populations resulting in dire humanitarian situations. Findings from related research reveal scarce natural resources as the contributors and structural causes of high-intensity violent conflicts and also the underlying factor in the characteristic political struggles over the control of the state.¹⁵³ Since natural resources hardly respect national borders, cross border natural resource management may be among Africa's greatest infrastructure challenges with the continent boasting of 63 transboundary river basins and thereby water has proven to be among the most problematic natural resources which enlist regional cooperation in their administration.¹⁵⁴

To avert the imminent resource conflict and instead ensure peace and security for their populations, affected states need to collaborate in the management of shared resources by setting up regional frameworks for managing transboundary resources and conclusively addressing related border dispute issues. Indeed, the administration of transboundary natural resources should be founded on collaboration around conservation of the environment, resolution of resource disputes and the overall resource sharing principles.¹⁵⁵ Biodiversity remains a vital provider of ecosystem services and consequently supports livelihoods and thus, its loss has become an increasing global problem which bears severe ecological and social impacts. In retrospect, conservation of ecosystems has gained significance both nationally and internationally, as efforts and interests towards exploitation of shared natural resources often lead to essential dependencies, mutual cooperation and inter-dependencies amongst geographical systems since there are usually considerable benefits to be realized therein. The situation is nonetheless complicated by the protracted instability in the various regions of the African continent which has led to involuntary migrations across national borders. Displaced populations pose both human and environment insecurity as the process escalates environmental degradation and at times even spurs conflicts within host communities.

¹⁵³Stalley, P., 'Environmental Scarcity and International Conflict,' *Conflict Management and Peace Science*, 20, 1, (2003) pp. 33-58.

¹⁵⁴Waddilove, H., *Cross-Border Resource Management: How Do the Nile Countries Fare?* (2012), <https://www.internationalrivers.org/resources/cross-border-resource-management-how-do-the-nile-countries-fare-7736>, accessed on 19 January 2019.

¹⁵⁵Savenije H. H. G., and P. van der Zaag, 'Conceptual Framework for the Management of Shared River Basins with Special Reference to the SADC and EU,' *Water Policy*, Vol. 2, Is. 1-2, (2000) pp. 9-45.

Cross border natural and environmental resource management among nations which differ in political, economic and cultural systems presents a challenge in the developing and transitioning of nations to implement sustainable development strategies.¹⁵⁶ Similarly, conflicts may be occasioned by differing national interests as nations develop divergent and non-compatible policies.¹⁵⁷ The 2009 impasse pitting Kenya against Uganda over the ownership and exploitation of Migingo Island and its surrounding waters in Lake Victoria and the border skirmishes pitting DRC and Uganda in Lake Albert area are clear pointers that border resource disputes were increasing in the region. Concerned states need to strengthen their overall governance structures with their respective leadership urged, encouraged and held to account on the wise use of state resources towards communal utility by their masses and mitigation of inequalities. States and regional bodies which include the EAC, the Inter-governmental Authority on Development (IGAD) as well as the African Union (AU) should strengthen their capacities to administer shared resources effectively and also handle related transboundary disputes through the adoption of proactive measures to prevent conflict and promote durable peace.¹⁵⁸ To achieve effective cross border natural resource management, it is important to ensure joint efforts by concerned governments on a platform founded on compromise, mutual trust and cooperation.

2.1.3 Concept of sustainable peace in the natural resource management context

UN General Assembly together with UN Security Council while finalizing the UN Peacebuilding Architecture 2015 review, introduced the concept of ‘sustainable peace’ and adopted fundamentally two identical resolutions on 27 April 2016 which focused on peacebuilding. Resolutions A/RES/70/262 and S/RES/2282 of 2016 remain the most extensive ever on peace matters and provide a firm foundation for the new ambitious agenda on peacebuilding. Through these resolutions, member states confirmed their unwavering commitment to well equip and strengthen the UN’s capability to prevent the start of conflicts, their intensification, protraction and even repetition of violence. The resolutions also tackle the root causes of conflict and assist involved or affected parties to end aggressions so as to ensure a future devoid of conflict.

¹⁵⁶Guo, R. and K. Yang ‘Political Economy of Transnational Water Pollution: What Do the LMB Data (1985-2000) Say?’ *Environmental Management*, Vol. 33, 4, (2003) pp. 333-44.

¹⁵⁷Savenije H. H. G., and P. van der Zaag, ‘Conceptual Framework for the Management of Shared River Basins with Special Reference to the SADC and EU,’ *Water Policy*, Vol. 2, Is. 1-2, (2000) pp. 9-45.

¹⁵⁸Wafula, O., ‘Resources and border disputes in Eastern Africa,’ *Journal of Eastern African Studies*, 4, 2, (2010) pp. 279-297, Doi: 10.1080/17531055.2010.487338.

The approach emphasizes reconciliation, reconstruction and development and that sustainable peace was a shared responsibility between all stakeholders.¹⁵⁹

The Advisory Group of Experts in its assessment on peacebuilding architecture describes sustainable peace as a deliberate and explicit policy objective to be achieved by all states irrespective of whether they are affected by conflict or not, and that it is an ongoing process anchored on existing capabilities for peace. The group further considers sustaining peace to be a meta-policy and a necessarily endogenous exercise which enlists strong and inclusive approach in leadership, national ownership, multi-sectoral and high-level government support. This approach invites a complete overhaul and a paradigm shift in the understanding of peace with proactive measures and interventions that widen the overall peace agenda.¹⁶⁰

The United Nations Sustainable Development Goal sixteen (16) provides possible sweeping solutions to allay global fears and insecurities through the articulation of a people-centered agenda for sustainable peace. In order to actualize this agenda, it enlists political leadership from communities and governments and also invites tremendous change in related approaches, mind-set and in both local and global action. The attainment of sustainable peace can never be left to technical development programs, but rather through institutional reforms, robust stakeholder cooperation and inclusive partnerships to fill in the vital gaps and mitigate the downside of globalization. Investments are required on conflict prevention through assured resilience of communities as the international community strives to keep commitments made to the conflict affected, poor and developing countries.¹⁶¹

However, despite the tremendous progress that has so far been made by various entities in their attempt to conceptualize sustainable peace, some scholars argue that there still lacks a clear working definition of the concept. In fact, those who hold this contrary view insist that very little is known about what sustainable peace is and what it is not, what drives people to seek for it, what conditions encourage it, how conditions and structures to sustain it are built and finally; how it is measured.¹⁶² This situation is blamed on related studies being focused more on violence and

¹⁵⁹United Nations, *The Challenge of Sustaining Peace: Report of the Advisory Group of Experts on the Review of the Peacebuilding Architecture*, UN Doc, A/69/968-S/2015/490, 30 June 2015.

¹⁶⁰Rosenthal, G, *Reflections on the Meaning of 'Sustainable Peace,' Findings to the Advisory Group of Experts on the 2015 Review of the United Nations Peacebuilding Architecture*, (Presented to the Presidents of the UN General Assembly and UN Security Council, June 2015, New York; US).

¹⁶¹Hearn, S., *How to Achieve Sustainable Peace, The Radical Potential of Implementing UN Sustainable Development Goal 16*, (New York, Friedrich-Ebert-Stiftung, 2016).

¹⁶²Coleman, P., 'The Missing Piece in Sustainable Peace,' Earth Institute, 6 November 2012, <http://blogs.ei.columbia.edu/2012/11/06/the-missing-piece-in-sustainable-peace/>, accessed 17 January 2019.

conflict and very few research being directed directly on peace and that the drivers for conflict and those for peace are being treated as opposites yet they are not, they uphold that in fact these drivers are fundamentally different. They affirm that the approach adopted in past peace research mainly addressed prevention of problems linked to violence and conflict and not solutions linked to peace and hence, propose that for peace to be understood comprehensively, it is important to support development of basic theory as well as targeted research on the concept so as to ensure empirically sound models to effectively foster utmost peace.¹⁶³ Nonetheless, these related UN resolutions adequately support policy decisions for concrete action and that it remains an ongoing debate to refine the meaning of sustainable peace.

Natural resources often offer multiple opportunities for both conflict and peace since, renewable resources commonly provide livelihood support for communities in poor and developing nations and the eastern Africa region and Kenya are no exceptions. Inequities arising from the administration of these scarce and diminishing resources can easily result in conflict especially, when resource management structures are weak amid the transboundary nature of some of those resources which places them under the jurisdiction of more than one country. Similarly, a framework of cooperation and fairness around shared natural resources can be used as tool for building trust and confidence among divided groups. There is shared concern for sustainable management of natural resources including those resources that transcend national boundaries through the implementation of corresponding measures such as environmental cooperation among others, to foster lasting peace and stability. By reinforcing the understanding of environmental peacebuilding, a platform will be created for mitigating resource-induced instability,¹⁶⁴ through the promotion of inclusive, equitable and accountable societies towards ultimate sustainable peace and development.

2.2 Cross border natural resource management and sustainable peace: Normative analysis

The resource scarcity perspective remains important when considering opportunities for realizing sustainable peace through timely intervention on cases of environmental scarcity and mismanagement leading to violence. Although every case is different, it is essential and of best interest to ensure early intervention within a framework of strong security and dispute resolution mechanisms on resource management situations before the onset of conflict and even prior to the

¹⁶³Coleman, P. T. and M. Deutsch, (eds.), *Psychology's Contributions to Sustainable Peace*, (New York, Springer Books, 2012).

¹⁶⁴Krampe, F., 'Toward Sustainable Peace: A New Research Agenda for Post-Conflict Natural Resource Management,' *Global Environmental Politics*, Vol. 17, No. 4, (2017) pp. 1-8.

problem being too entrenched to be easily resolved. Conflicts which emanate from environmental scarcity have a tendency of being chronic and diffuse, and thus present major challenges in managing them and further stifle the quest towards achieving tangible peace. Protracted resource conflicts can weaken or even erode the capability of governments to effectively manage societies which in turn worsens the situation. There lacks one ‘magic bullet’ to fix the problems since sources of these conflicts are complex and comprise of rapid population growth, social inequality, unsustainable resource use practices and the transboundary nature of some of the resources, among many others. In the strive towards achieving durable peace, it is important for governments and policymakers to adopt and respond to the challenges in effective environmental protection and management on a broad, integrated and participatory platform at each given level from the international relations perspective through to the community level.¹⁶⁵

Stewart argues that impoverishment together with social, economic and political disparities among various communities contribute to the being of conflict and as part of the action expected to be taken to alleviate the situation, he suggests that appropriate policy agenda should be put in place to multilaterally tackle these imbalances and definitely reduce the risk of violence.¹⁶⁶ In order to contribute to the realization of sustainable peace, there is need for far-reaching reforms on transboundary ecosystems management approaches to ensure equitable and resilient communities, diversified and sustained livelihoods and also consider improvement of related socio-cultural practices.

In the prevailing context of inadequate financial resources, concerned governments should not necessarily instigate capital-intensive programs in order to address these problems, instead support to grassroots networks such as the civil society can be increased in a bid to diversify livelihoods and rehabilitate environmental resources, which will in turn contribute to the attainment of sustainable peace at the community level. Human capital development is also crucial as it would relieve environmental scarcity through promotion of socio-economic progression within the impoverished communities. Since environmental scarcity interacts with contextual factors to cause violence, policymakers should introduce measures that promote innovation in resource use to help relief resource scarcity and further reduce overconsumption of the resources. For meaningful peace to be realized within communities, governments should curtail dominant

¹⁶⁵Kennedy, Bingham, Environmental Security: PRB Talks with Homer-Dixon, T., Population Reference Bureau, Washington, DC, January 2001.

¹⁶⁶Stewart, F, ‘Root causes of violent conflict in developing countries,’ *BMJ*, 324, 7333, (2002) pp. 342-345.

powerful elites that control natural resources and occasion social inequalities so as to allow for equality and appropriate planning and coping with environmental scarcity.¹⁶⁷

Considering ‘climate refugees’ as being a cause of conflict remains among the most crucial contentious subjects in the resource scarcity-conflict nexus. With the rising temperatures, erratic rainfall patterns, increased risks of flooding and droughts coupled with fast spreading desertification; climate change is expected to further contribute to ethnic migration into areas with residual resources such as riverine locations.¹⁶⁸ These severe climatic conditions together with overall degradation of resources would add to the ‘environmental refugees’ and may result in remarkable and serious, though generally temporal dislocation of groups which may in turn act as a setback to the upholding of peace in the affected areas. This observation is aligned to the tenets of the neo-Malthusian argument. In order to realize sustainable peace in these locations, it calls for improved forecasting approaches and skills by concerned agencies in order to ensure timely and appropriate response, easier adaptation and reduced problem of population displacements.¹⁶⁹ In some scenarios, the governments’ willingness and capability is vital as it may significantly minimize large-scale migration of groups or even prevent it altogether, and further facilitate conditions for resettlement of groups displaced temporarily. Communities do respond in different ways to these variations within the environment and thus coping and survival measures should encompass cooperation and trust building towards shared gains, interdependency and peaceful coexistence in the long run.

2.3 Cross border natural resource management and sustainable peace: Theoretical analysis

Ehrlich in *The population bomb* notes that the assertion of the link between increase in population, degradation of resources and their scarcity together with attendant conflict arose with the advent of increased environmental awareness in the late 1960s.¹⁷⁰ In the period that followed after the collapse of the Kremlin and the marking of the momentous fall of the virtual ‘iron curtain,’ increase in population and scarcity of resources were not only the ‘new security issues,’ but also became the focus of popular accounts of violence and grounds for large academic research programs. Global attention has been turned on devising better ways for effective management of

¹⁶⁷Kennedy, Bingham, *Environmental Security: PRB Talks with Homer-Dixon, T.*, Population Reference Bureau, Washington, DC, January 2001.

¹⁶⁸IPCC, *Climate Change 2001: Impacts, Adaptation, and vulnerability*, in J.J. McCarthy, O.F. Canziani, N.A. Leary, D.J. Dokken and K.S. White, (eds.), (UK, Cambridge University Press, 2001) pp. 36.

¹⁶⁹Chimeli, A.B. *et al.*, ‘Climate Fluctuations, Demography and Development -Regional Case Studies,’ *Journal of International Affairs*, 56, 1, (2002) pp. 213-234.

¹⁷⁰Ehrlich, P.R., *The Population Bomb*. (New York, Ballantine Books, 1968).

scarce resources amid ever growing populations so as to contain conflicts and contribute to the realization of tangible peace. Homer-Dixon in *Environment, scarcity, and violence* affirms that resource scarcity occasioned by population pressures has mainly been claimed to present the threat of insecurity within poor nations which are often characterized with low capacity or the total inability to prevent and appropriately adapt to scarcities. High population growth together with density are perceived to be the main sources of renewable resource scarcities touching on fresh water sources, arable land, forests, fisheries, wildlife and biodiversity. Arguably, indeed these resource scarcities may spur violent conflicts over resource access and control,¹⁷¹ an observation in agreement with the resource scarcity perspective. However, prudent management of these diminishing resources may cushion communities from conflicts and instead foster cooperation and peaceful coexistence.

Homer-Dixon in *Environment, scarcity and violence* analyzes a variety of international research works in order to create a comprehensive model on the causes of environmental scarcity. He singled out an array of scenarios across the globe which included population growth in Sub-Saharan Africa, water shortages in China and land distribution issues in Mexico to exemplify that increased demand for renewable resources, deterioration and depletion of resources or even their unfair distribution indeed occasioned scarcities. Homer-Dixon demonstrates that such scarcities can result in extreme poverty, worsened social pitfalls, large-scale human migrations and weakened institutions. He goes ahead to confirm that the ongoing conflicts in many African countries were social effects and consequences of resource scarcity.¹⁷² Hence, the situation may be salvaged by strengthening institutions and frameworks for resource conservation and management within societies to support the attainment of sustainable peace.

Collier and Hoeffler in *Greed and grievance in civil war* affirm that among the most distinctive study findings within conflict literature is that poor countries suffering from institutional weakness which are characterized by low GDP per capita often have very high risk for violent conflicts.¹⁷³ Stern in *The Economics of climate change* asserts that two notable key trends possibly add to the extent of the applicability of population increase pressures and resource scarcity into the future. The first trend postulates that despite the dropping rate in population

¹⁷¹Homer-Dixon, T.F., *Environment, Scarcity, and Violence*. (Princeton; NJ and Oxford, Princeton University Press, 1999).

¹⁷²Homer-Dixon, T.F., *Environment, Scarcity, and Violence*. (Princeton; NJ and Oxford, Princeton University Press, 1999).

¹⁷³Collier, P. and A. Hoeffler, 'Greed and Grievance in Civil War,' *Oxford Economic Papers, New Series*, 56, 4, (2004) pp. 563-595.

growth across the global, low-income nations especially those located within regions of the sub-Saharan Africa as well as Asia will remain with exceptionally high population growth rates in many years to come. The second trend notes that these low-income areas are also projected to witness very extreme climate variation impacts,¹⁷⁴ yet the global climate change phenomenon typically represents resource scarcity perspective since it may compound scarcities and as such a possible source of present and future conflicts, adds Homer-Dixon and Blitt in *Ecoviolence: Links among environment, population and security*.¹⁷⁵

Byers and Dragojlovic in *Darfur: A climate change-induced humanitarian crisis?* observe that rising temperatures, anomalies in precipitation and prevailing extreme weather conditions are projected to exacerbate the state of affairs in various locations which are already witnessing greater population pressure and attendant resource scarcity. Persistent extreme weather patterns together with resource depletion at the local level could instigate the migration of millions of people possibly resulting into even higher pressures on diminishing resources and heightened risks of inter-ethnic tensions within stipulated destination areas. Although some scholars did not consider climate variation to be a likely principal cause of conflict and indeed regarded it as being a possible future threat, it remains indeed a contributing factor to the ever-mounting environmental challenge and clearly evident in recent violent conflicts such as the one witnessed in Darfur.¹⁷⁶ Nonetheless; by applying innovative approaches to resource use and administration, ensuring equitable and resilient communities, supporting diversified livelihoods and encouraging cooperation and trust building in the wake of climate variation and change may go along away in cultivating peace among groups.

In conclusion, Homer-Dixon in *Environmental security: PRB talks with Homer-Dixon* acknowledges that the linkage of environmental issues and occurrence of violent conflict has not been analyzed exhaustively in a theoretical manner and further points out that although social scientists have criticized the resource scarcity perspective, the critics have not provided an alternative model of their own. Homer-Dixon goes ahead to recognize some of the clearest connections which have emerged that linked scarcity and violence and listed more recent examples to attest on how population pressures and scarcity in land resources were the provoking elements

¹⁷⁴Stern *et al.*, *The Economics of Climate Change*, (London, Cambridge University Press, 2007).

¹⁷⁵Homer-Dixon, T.F. and J. Blitt, (eds.), *Ecoviolence: Links Among Environment, Population and Security*, (Lanham; MD, Rowman and Littlefield, 1998).

¹⁷⁶Byers, M. and N. Dragojlovic, 'Darfur: A Climate Change-Induced Humanitarian Crisis?' *Human Security Bulletin*, (Vancouver), October 2004, pp. 2.

responsible for the genocide witnessed in Rwanda in 1993-4. He also talks of the environmental scarcity which had contributed to civil violence in Kenya, El Salvador, Peru, the Philippines and Pakistan, among many other developing countries.¹⁷⁷ Another typical strong connection which linked scarcity and conflict was the border dispute in 2009 pitting Kenya and her immediate neighbour Uganda over control and ownership of Migingo Island and surrounding waters in Lake Victoria, which is a transboundary and key regional resource. However, effective management of scarce resources that allows for meaningful involvement of concerned actors in equitable manner may help minimize upheavals and contribute to the realization of real peace.

2.4 Cross border natural resource management and sustainable peace: Empirical analysis

Various empirical studies on effects of population on conflict have been conducted across the world among them the *Global cross-national effects of population pressure 1950-2000* which applied a standard logistic regression design to interrogate whether countries differ in their respective conflict propensities due to their overall population pressure on renewable resources. The study looked at the interactive relationship between demographic factors at national level which included increase in population and per capita access to probable arable land and commencement of internal armed conflict,¹⁷⁸ an approach in line with the resource scarcity perspective. Whereas certain case studies drawing the connection between environmental elements and political violence focused on local environmental issues and disputes, many others just like this one on cross-national effects focused at national level. The state remains a significant political entity within research on relationship between environment and conflict, since resource scarcity at the local level in any given state could be alleviated through prudent management of resources and managing of human migrations, among other measures to avert conflicts and instead realize durable peace. Thus, local conflict over scarce resources is at times as a result of government failure through its inactions or inabilities, and not scarcity alone per se.

The other study was *A global sub-national study of population and environmental pressures* whose data was developed from geospatial information and the study went below the state level to interrogate whether population together with environmental elements indeed defined

¹⁷⁷Kennedy, Bingham, Environmental Security: PRB Talks with Homer-Dixon, T., Population Reference Bureau, Washington, DC, January 2001.

¹⁷⁸Urdal, H., 'People vs Malthus: Population Pressure, Environmental Degradation and Armed Conflict Revisited,' *Journal of Peace Research*, 42, 4, (2005) pp. 417-434.

the positioning of conflict.¹⁷⁹ The study focused on the concerns of population pressure, water scarcity and land degradation and deviates away from the notion that water scarcity, degradation and high population density ought to strongly be linked to conflict within locations particularly experiencing heightening population strain. A *sub-national study of India* adopts another disaggregated method to investigate if changes in population and elements in the environment were linked to the changes in levels of political violence among 27 states in India in the period 1956-2002. The study design had great advantage with access to necessary data which could be compared over time.

The main conclusion of these three studies indicated that disaggregated cases provided strong backing on the link between the strain population exerted on resources and attendant conflict more than the cross-national one. The findings point to the need for environmental scarcities and attendant conflict linkages to be examined at the localized level and that whereas general population pressures and scarcity of resources did not appear to predispose state to conflict, structural inequalities relating to resources among rural groups and approach in resource management have much to do with the geographical distribution of conflict, an observation in tandem with the resource scarcity perspective. In addition, connection of resource scarcity with attendant conflict could possibly be due to inability and failure by national and regional or even local governance entities to implement processes to ease scarcity or even due to migration or more so from low coping and adaptability by groups. When these challenges are aptly addressed through a robust and comprehensive resource management system, then conflicts may be minimized with attendant tangible peace. Although these studies offered basis for future related studies on population pressure, scarcity and conflict in order to generate more revised information and explain the population-conflict connection, they also provide an opportunity to ascertain whether their results could be replicated in other similar contexts.

The following segment provides the empirical analysis relating to the concepts of cross border resource management and sustainable peace so as to draw the link between cross border resource management endeavors, attendant conflicts and the quest for the attainment of sustainable peace in eastern Africa. The section highlights Africa's natural resource 'curse,' borderland resource issues in sub-Saharan Africa and resource management opportunities and intervention

¹⁷⁹Raleigh, C. and H. Urdal, 'Climate Change, Environmental Degradation and Armed Conflict,' *Political Geography*, 26, 6, (2007) pp. 674-694.

initiatives in Kenya. The chapter further examined other like ventures towards sustainable peace and cooperation within the eastern Africa region.

2.4.1 Africa's distinct natural resource 'curse'

Africa as a continent is the undisputed abode for a variety of the globe's biggest reserves of precious resources yet most of its countries are ranked as some of the most perpetual low-income economies on the globe. The resources have been confirmed to largely contribute to both motivating and fueling instability on the continent. Conflicts have increased and their devastating effects have widened necessitating expanding interest on how to ensure that natural resources endowment stop causing tragedy and pain, and instead become instruments of overall well-being and peaceful coexistence. Most social and economic doings in Africa are based on natural resources yet their depletion beyond their regeneration rate portend a disastrous future for the continent due to the numerous challenges in their management partly occasioned by the transboundary nature of some of the resources, induced scarcity and competition which threatens livelihoods. It is hence important to direct efforts in ensuring that wealth generated from the continent's immense natural resource base is properly administered towards promotion of durable peace and noteworthy progression instead of encourage animosity. Natural resources should be assets for responsible, fair and economically productive principles within the mechanisms of equitable distribution of their wealth to all stakeholders.¹⁸⁰

Africa is seen as a continent fighting itself or even at times as a region at war with no one else but itself as evidenced by many conflicts mainly as a result of the struggle for access and the quest for control over natural resources exploitation. The already dire situation is made worse by population pressure, degradation of environment and decline in resources that occasion scarcity;¹⁸¹ an observation supported by the resource scarcity perspective. Competition over natural resources has magnified the role that the quest for access or even control of environmental resources play in supporting conflict as either the cause or sustainer.¹⁸² The statistics on the devastation caused by conflicts on the African continent are staggering with a whooping over 30 wars having been fought since 1970, a situation which has seriously hampered regional efforts towards peace, prosperity and long-term stability. In reverse cycle, conflicts affect effective management of natural resources

¹⁸⁰UN, United Nations Expert Group Conference Report on Natural Resources and Conflict in Africa, *Transforming a Peace Liability into a Peace Asset*, (United Nations Expert Group Conference, 17-19 June 2006, Cairo: Egypt).

¹⁸¹Adedeji, A., (ed.), *Comprehending and Mastering African Conflicts: The Search for Sustainable Peace and Good Governance*, (London, Zed Books, 1998) pp. xvi

¹⁸²Mwagiru, M *et al.*, *Borders, Frontiers and Conflict in Africa, Working Papers on Conflict management*, No. 3, (2001).

with the ensuing uncertainty leading to indiscriminate utilization of natural resources,¹⁸³ as life supporting and essential resources which are readily available to the communities are diminished amid constrained or loss of access.

There exists strong negative correlation between the occurrence of conflicts and the attainment of human development as most of those nations which rank lowest time and again in human development index are often engrossed in conflicts and are mainly from Africa. Poverty is invariably present in nearly all root causes of conflict often as the cause and the effect, and as such conflict prevention and poverty eradication are strongly linked making it necessary for poverty issues to be tackled comprehensively in overall peace development process based on country specific situations.¹⁸⁴ Since sustainable development could only be possible with the attainment of economic growth, environmental integrity, social justice and stability, it is therefore imperative to mainstream environment in daily decision-making processes so as to facilitate prudent utilization and overall sustainable management of environmental resources.¹⁸⁵ This will assist in transforming Africa's abundant natural resources from being a 'resource curse' into greater opportunities for sustainable peace and progression.

An interview with Ms. Okelo, A. the Programs Manager at Friends of Lake Victoria (OSIENALA) indicates that there is need to scale up training of communities on governance and basic leadership skills so as to be able to influence the mainstreaming of conservation issues into the broad sustainability agenda processes. The training should focus on endeavors such as choosing of leaders who will influence processes and also on how to prioritize community needs and challenges to inform development of relevant proposals and plans on natural resource exploitation and management. The emphasis lay on ensuring that the training captures issues on devolution, climate change, entrepreneurship and continuous programmes' monitoring and evaluation in order to enhance ownership of resource initiatives, which will in turn support communities towards improved health of environment, sustained livelihoods and peaceful coexistence.¹⁸⁶

¹⁸³Huggins, C., *et al.*, UNEP, Africa Environment Outlook 2, *Chapter 12: Environment for peace and regional cooperation*, (Nairobi, UNEP, 2006), <http://www.unep.org/dewa/africa/publications/aeo-2/content/195.htm>, accessed on 12 August 2014.

¹⁸⁴UN, *United Nations Report of the Open-ended Ad Hoc Working Group on the Causes of Conflict and the Promotion of Durable Peace and Sustainable Development in Africa*, General Assembly Official Records, Fifty-sixth Session, Supplement No. 45 (A/56/45), (2001), <http://www.un.org/documents/ga/docs/56/a5645.pdf>, accessed on 9 December 2015.

¹⁸⁵UNEP, Africa environment outlook 2, *Harnessing the opportunities for environment and development*, (Nairobi, UNEP, 2006), <http://www.unep.org/dewa/Africa/publication/AEO-2/content/0.28.html>, accessed on 13 August 2014.

¹⁸⁶Ombara, I., Interview with Ms. Okelo, A., Programs Manager, Friends of Lake Victoria (OSIENALA), Kisumu, May 2018.

2.4.2 Borderland resource conflicts in Sub-Saharan Africa

Sub-Saharan Africa is a collection of 48 countries in Africa that excludes the five countries of North Africa. While the Sub-Saharan region accounts for 18% of the world's area representing 24.3 million kms² and 13.5% of the world's population at 973.4 million, the region's GDP is about 2.2% of the world's total at US\$77.869 billion, of which about one-third is accounted for by South Africa. Sub-Saharan Africa's GDP stood at US\$1.712 billion in 2014 and about 75% of the poorest countries listed from all over the world were located in the region.¹⁸⁷ This region of Africa is a true manifestation of the 'resource curse;' a classic case typified by plentiful natural resources, resource mismanagement and very little economic development as the area continues to lag behind globally. Botswana is the only natural resource-rich country on the continent that has used its natural resources to succeed and become an upper middle-income country.

The region is endowed with huge reserves and unique varieties of natural resources which are much greater than those possessed by other regions of the globe, yet wise use of natural resource wealth as a vital driver for sustainable economic growth which usually should in turn precipitate the alleviation of poverty and attendant sustainable peace and development remains elusive.¹⁸⁸ Natural resources in the region are not managed properly amid fast growing population, unsustainable natural resource use practices and the transboundary nature of some of the resources which further complicates the situation. This has occasioned negative socio-economic impacts that include environmental degradation, resources depletion and unfair distribution of gains obtained from resource exploitation. The end products in this bad scenario are natural resource scarcity and eventual competition and conflicts due to rivalry over natural resource use, control and ownership; an observation affirmed by the resource scarcity perspective. The region should hence learn from countries which have used their natural resource reserves to prosper, although, the lessons should be adapted to the local needs and not copied blindly.¹⁸⁹ There are numerous borderland resource conflicts in Sub-Saharan Africa, some of which are highlighted below.

¹⁸⁷The World Bank Group, World Development Indicators database, *Gross domestic product 2014*, (2015), <http://databank.worldbank.org/data/download/GDP.pdf>, accessed on 9 December 2015.

¹⁸⁸Demissie, M. Z., *The Natural Resource Curse in Sub-Saharan Africa: Transparency and International Initiatives*, PhD Thesis, The University of Southern Mississippi, 2014, Dissertations, Paper 6.

¹⁸⁹Appiah, M. and Zhang T., The Hague Institute for Global Justice, *Escaping the Resource Curse in Sub-Saharan Africa, Policy Brief 4*, (The Hague, Netherlands, 2013)

2.4.2.1 Bakassi Peninsula dispute along Nigeria-Cameroon border in West Africa

The resource-rich Bakassi peninsula on the African Atlantic Gulf of Guinea along the Cameroon-Nigeria common border has been the centre of contention characterized by a long-simmering dispute since 1913. The conflict culminated in hostilities and violent confrontations at the beginning of 1990s prompting Cameroon in 1994 to seek recourse at The Hague's International Court of Justice (ICJ). The bid aimed at reaching an amicable solution through settlement of a border and sovereignty dispute between the two countries on the Bakassi peninsula alongside adjoining Islands within Lake Chad, and further define both terrestrial and maritime border between warring neighbors.¹⁹⁰ The area is currently governed by Cameroon after the sequential transfer of sovereignty as a result of a 2002 judgment by the ICJ;¹⁹¹ a decision the Nigerian Senate rejected and termed as secession of the contested area.

However, the parties established a Joint Border Commission for bilateral resolution of their differences and demarcation in less-contested segments along the common border inside Lake Chad to the north upon consensus; a positive step towards acceptable resource administration and the attainment of sustainable peace in this volatile region. The ICJ ruled in favor of an equidistance determination on Nigeria-Equatorial Guinea-Cameroon maritime border within the disputed Gulf of Guinea, though the implementation of the decision stalled due to the unclearly defined coordinates, the unresolved Bakassi allotment and a sovereignty disagreement between Cameroon and Equatorial Guinea relating to an island at the delta of Ntem River.¹⁹² Lake Chad Commission remains pushing for signatories that include Cameroon, Niger, Nigeria and Chad to ratify delimitation treaty that has been pending over the lake region. The conflict revolves around competition for environmental resources as the area boasts of highly fertile soil and fishing grounds comparable only to the Scandinavia and New Found Land in Europe and North America respectively.¹⁹³

The prospective oil deposits recently discovered within the waters adjoining the disputed peninsula has since exacerbated tensions as land disputes do escalate in the Lake region leading to

¹⁹⁰UN, The Stories, *Bakassi Peninsula: Recourse to the law to prevent conflict*, <http://www.un.org/events/tenstories/06/story.asp?storyID=900>, accessed on 5 September 2014.

¹⁹¹ICJ Reports, Judgment, The Land and Maritime Boundary Between Cameroon and Nigeria, *Cameroon v. Nigeria: Equatorial Guinea intervening*, (2002) pp.303, <http://www.icj-cij.org/docket/files/94/7453.pdf>, accessed on 5 September 2014.

¹⁹²GlobalSecurity.org, Military, *International Disputes, Cameroon*, (2015), <http://www.globalsecurity.org/military/world/war/disputes-c.htm>, accessed on 14 December 2015.

¹⁹³Price, F., The Bakassi Peninsula: The Border Dispute between Nigeria and Cameroon, ICE Case Studies, No. 163, (2005), <http://www1.america.edu/ted/ice/nigeria-cameroon.html>, accessed on 11 August 2014.

displacement of local fisher folk communities. Human actions of fast expanding population, overgrazing and irrigation worsen the situation with persistent droughts, a shrinking lake and the Sahara Desert slowly edging southwards;¹⁹⁴ an observation in line with the principles of the neo-Malthusian argument. Despite transfer of authority over Bakassi to Cameroon, the area continues to witness a series of armed clashes among militias and local populations characterized by hostage taking, pirate attacks and attacks on civilian and security personnel as the security situation remains unstable.¹⁹⁵

2.4.2.2 Biodiversity and human survival on a collision course in the Maloti-Drakensberg mountains of southern Africa

High altitude ecosystem within Maloti-Drakensberg Mountains in southern Africa traverses Kingdom of Lesotho together with 'Mzansi' nation of South Africa. This border region that incorporates the over 300 kms of mountain ranges also includes the uKhahlamba 'the wall of spears' Drakensberg Park within South Africa and Sehlathebe 'the plateau of shields' National Park in Lesotho. The area is recognized among world heritage sites and also globally significant as it holds exceptional biodiversity and cultural resources such as the over 4,000 years old renowned San rock art and numerous paleontology sites.¹⁹⁶ It is also the major watershed and source of most rivers in the sub-region as both countries essentially depend on the mountains for supply of water resources and eventual economic development. The ecosystem comprises of shrub lands, grasslands and wetlands with an estimated 30% plant endemism.

The range of slope, moisture regime and aspect across the watershed produces diversity in habitat elements traversing international boundary.¹⁹⁷ However, the vast area hosts almost two million individuals that rely on the region for ecosystem services as the area also offers complex and intricate amalgamation of transboundary political interests, ecological circumstances, socio-cultural ties, economic dependencies, historical events and an array of traditions. South Africa and Lesotho have different land management strategies and diverse governance systems as they

¹⁹⁴Mayell, H., 'Shrinking African Lake Offers Lessons on Finite Resources,' National Geographic News, (2001), http://news.nationalgeographic.com/news/2001/04/0426_lakechadshrinks.html, accessed on 27 August 2014.

¹⁹⁵Niger-Thomas, A., *Women caught in armed conflict: The Cameroon Vs Nigeria sovereignty dispute over Bakassi Peninsula*, A project submitted to the WARC-WARA Peace Initiative for West Africa for the fulfillment of the December 2011 Scholarship Award.

¹⁹⁶Southern African Development Community, *Maloti Drakensberg Trans-frontier Conservation and Development Area (MDTFCA/MDTP)*, <https://www.giz.de/de/downloads/giz2015-en-tfca-maloti-drakensberg.pdf>, accessed on 15 December 2015.

¹⁹⁷Van der Linde, H. *et al.*, *Beyond Boundaries: Trans-boundary Natural Resource Management in Sub-Saharan Africa*, with contributions from Anada Tiéga and Thomas Price, (Washington D.C., Grammarians Inc.: Biodiversity Support Program, 2001).

embrace state and traditional authorities respectively. Dissimilar land tenure systems and a variety of unsustainable uses result in human-biodiversity challenges such as conflicting land-use priorities, impacts from overgrazing and conflicts arising between modern park resource management strategies and traditional tribal resource management approaches.

Fire and grazing have been major interruption causal elements of ecosystem composition and structure. Pastoralists set fires to improve grazing grounds, but with high winds and the remoteness of this setting, the blazes rapidly spread across mountain ecosystem. Perpetrators of transboundary crimes such as stock theft, smuggling of drugs and trafficking of other contrabands also start fires to distract authorities. In dry winter months fires are capable of destroying grazing resources and pressuring villages and infrastructure in both countries.¹⁹⁸ These disturbances that lead to scarcity, deprivation and conflicts in line with the neo-Malthusian view cannot be controlled unilaterally and therefore the need for a cooperative resource management approach to jointly tackle cross border issues that may encompass the adoption of the Trans-frontier security strategy which is under implementation in the region.

To curb continued environmental degradation in the area, adequate resources should be mobilized for developing livelihood alternatives by upgrading poor infrastructure system and other tourism assets, so as to boost tourism towards realization of development goals through acceptable and beneficial ways for the locals while ensuring cultural and natural resources are secured and sustained. The two governments entered into Memorandum of Understanding in 2001 that led to Maloti-Drakensberg Trans-frontier Conservation and Development Project which aimed at conserving the cultural and biological diversity and also promote peaceful coexistence and economic development of the area through ecotourism.¹⁹⁹

2.4.2.3 Forest, wildlife and biodiversity management in West Africa; The “WAP” Protected Areas Complex.

The Guinea savanna of West Africa hosts the “WAP” Park complex which comprises of three adjacent protected areas traversing Burkina Faso, Benin and Niger, as Niger River marks the eastern border. The area that covers about 5 million hectares is named after the river’s course that makes a large *W* shape and holds exceptional wealth of biodiversity comprising of habitats and

¹⁹⁸Hennop, E., Institute for Security Studies, Guns, goats and ganja; Firearms, drug trafficking and stock theft on the Lesotho border, *Nedbank ISS Crime Index*, Vol. 5, No. 6, (November-December 2001).
<https://www.issafrica.org/pubs/CRIMEINDEX/01VOL5NO6/Guns.html>, accessed on 17 May 2014.

¹⁹⁹Southern African Development Community, *Maloti Drakensberg Trans-frontier Conservation and Development Area (MDTFCA/MDTP)*, <https://www.giz.de/de/downloads/giz2015-en-tfca-maloti-drakensberg.pdf>, accessed on 15 December 2015.

ecosystems with numerous archeological sites, among other formations. Prior, elephants were fairly distributed within this natural habitat shared by these three countries, but due to human pressure impacts on habitat quality within Burkina Faso and Benin, the elephants are more concentrated within the Niger section with implication for habitat management and relative opportunities for tourism in each country.²⁰⁰

Goals for managing elephant population in one state were affected by disparate policies and resource management regimes in other countries. Protected areas within the complex share riverine systems with Burkina Faso recognizing community rights to seasonal fishing whereas Niger does not allow any fishing and thus the inequitable access and constrained distribution of natural resources together with their benefits and thus subsequent conflict at community level among users; an observation in tandem with tenets of the neo-Malthusian view. Poor communities within the complex hold different natural resource management approaches and therefore require guided effective engagement so as to benefit from a mutual management system towards reduced conflicts²⁰¹ and attendant peace. Managers are also at pains to apply contradictory laws that inhibit attempts to regulate use in the shared ecosystem as resources are affected by contrasting policies, strategies and programmes which stifle management of the interlinked system compatibly.

Government services, legislation, infrastructure, local administration and park management vary for each of the adjoining national park and surrounding areas, thus necessitating the harmonization of policies, legislation and management regimes. The “W” National Park in Burkina Faso was established by a government decree in 1954, in 2002 it was pronounced a UNESCO Biosphere Reserve, in 1990 declared a Ramsar site and is also presently listed among the Important Bird Areas (IBA). However, cotton being one of the chief sources of revenue among local communities in Burkina Faso, the cash crop is cultivated adjacent to the park using chemical pollutants that threaten the park and its dependents.

The park also faces challenges of pressure from encroachment, overgrazing and recurrent human-wildlife conflict. Other challenges include the uncontrolled and frequent bush fires, unregulated exploitation of forest resources, hazardous mining projects undertaken in adjacent fields, aquifer degradation and poaching of wildlife. The situation in the area is worsened by high

²⁰⁰Van der Linde, H. *et al.*, *Beyond Boundaries: Trans-boundary Natural Resource Management in Sub-Saharan Africa*, with contributions from Anada Tiéga and Thomas Price, (Washington D.C., Grammarians Inc.: Biodiversity Support Program, 2001).

²⁰¹Magha, M. *et al.*, *Beyond Boundaries: Trans-boundary Natural Resource Management in “W” Park*, in Biodiversity Support Program, *Beyond Boundaries: Trans-boundary Natural Resource Management in West Africa*, (Washington D.C., Biodiversity Support Program, 2001).

population, poverty and inadequate participation on climate variability matters in the park management plans. However, through strong political will by the government and by facilitating sufficient and consistent material, financial and technical assistance, the park's management objectives can be realized in a peaceful environment.²⁰²

2.4.2.4 Semliki River dispute along Uganda-Democratic Republic of Congo border

The border between two eastern African nations namely; DRC and Uganda is being redrawn by the Semliki River which outlines part of their shared frontier as it changes course so much over the last 50 years, relocating about 50 square kms of known Congolese area to Uganda. Semliki River originally thought to be a permanent feature flows from Lake Edward upwards through Semliki National Park within Uganda's territory into Lake Albert in the North with tributaries emerging from northern slopes on the Ruwenzori Mountains. The gradual shift in course has been attributed to glacial melting on the mountains and experts have warned that climate change would occasion increase in fresh conflicts within the region as variable natural features change in character;²⁰³ an argument in line with the neo-Malthusian view.

Related border issues like Migingo island row pitting Uganda against Kenya could become more complex with additional fall of water levels in Lake Victoria which will in turn increase the size of the contested island exposed above water. State of Environment Report in 2008 by Uganda's National Environment Management Authority revealed that the river altered its course in 151 locations with 84 in Uganda and another 66 within the DRC as shown by satellite imagery.²⁰⁴ The boundary confusion rages on as the two countries also continue to dispute in a separate setup over the Rukwanzi Island situated inside Lake Albert and the adjacent zones along the Semliki River course which hold hydrocarbon potential.²⁰⁵ These sovereignty disputes involving natural resources call for a mutual gains approach in their management towards a peaceful settlement and overall stability in the region.

²⁰²International Union for Conservation of Nature, *A Spotlight on Burkina Faso's W National Park, part of the WAP Complex in West Africa*, (2015), https://www.iucn.org/about/work/programmes/gpap_home/?21739/A-Spotlight-on-Burkina-Fasos-W-National-Park-part-of-the-WAP-Complex-in-West-Africa, accessed on 14 December 2015.

²⁰³RNW Media, 'River alters border of Uganda and DRC,' *Radio Netherlands Worldwide Africa*, (Uganda), 9 November 2009, <http://www.rnw.nl/africa/article/river-alters-border-uganda-and-dr-congo>, accessed on 28 July 2014.

²⁰⁴Abdallah, H., 'DR Congo head off dispute as river alters border,' *The East African News*, (Uganda), Monday, 9 November 2009, <http://www.theeastafrican.co.ke/news/-/2558/683118/-/qx4p5gz/-/index.html>, accessed on 20 July 2014.

²⁰⁵Oduntan, G., 'Africa's border disputes are set to rise – but there are ways to stop them,' The Conversation Media Group, (Australia), 14 July 2015, <http://theconversation.com/africas-border-disputes-are-set-to-rise-but-there-are-ways-to-stop-them-44264>, accessed on 14 December 2015.

2.4.3 Cross border natural resource management initiatives in Kenya

Although Kenya is seen as being peaceful compared to her neighbors, the country has witnessed unprecedented wave of internal and trans border conflicts and has also bore the brunt of continued instability in neighboring states, mainly due to struggle for political, economic, environmental and natural resources dominance. Marginalized pastoralist communities within ASALs in northern Kenya and other border areas have been the worst affected as the conflicts have eroded civil administration and disrupted development programmes in the often vast and rugged regions. The situation has been made worse by weak frameworks for intervening in resource scarcity and inter-community conflicts as the implementation of past policies disregarded local knowledge and indigenous systems for managing natural resources.

Understanding how demand, supply and structural forces interact to fuel civil strife in line with the tenets of the resource scarcity theory is critical in formulating relevant policies, strategies and actions to provide for programs and processes that will enhance community well-being, sustainable resource management and economic growth in a peaceful environment.²⁰⁶ There are various interventions by governments at national and county levels, NGOs, development partners and communities, among other actors in tackling specific causes of resource induced conflicts at the community and county level, on a national scale, regionally and at the international level. Nonetheless, the design of the programmes should ensure alignment of priorities to acknowledge the significance of peace and security in the national development agenda. Below are some of the selected cross border natural resource management initiatives undertaken in Kenya.

2.4.3.1 Marsabit County/Kenya-Borana Zone/Ethiopia Integrated Cross-border and Area Based Programme.

Kenya and northern neighbor Ethiopia signed a KES20 billion deal on 7 December 2015 to end recurrent conflicts along the shared border and instead support development within the volatile border region. The 5-year historic agreement dubbed “Marsabit County/Kenya-Borana Zone/Ethiopia Integrated Cross border and Area based programme” and funded by UN agencies exemplifies a commitment to deeper association involving the two nations and their people purposed to realize sustainable peace and socio-economic transformation. The programme aims at

²⁰⁶Adan M. and R. Pkalya, Practical Action, *Conflict Management in Kenya; Towards Policy and Strategy Formulation*, in E. Muli, (ed.), (2014), <http://practicalaction.org/conflict-management-in-kenya>, accessed on 15 December 2015.

building social cohesion and trust between local warring communities, foster cross border cooperation, ensure equal opportunities and rid the area of natural resource induced conflicts.

The initiative also aims at alleviating poverty and developing the densely populated region's unexploited natural resources that include land and water resources, pastoralism and related livestock trade towards improving the economy of the communities living along the border.²⁰⁷ A commemorative plaque signifying the pronouncement of peace by Marsabit County of Kenya and Borana region of Ethiopia was officially unveiled during the programme's inauguration ceremony. The persistent insecurity witnessed in the region has remained a great impediment to the development agenda of the area with the situation being exacerbated by years of marginalization, climate induced shock, scarcity of natural resources and the resultant competition for survival; a notion aligned to the tenets of the resource scarcity perspective.

The programme complements the Lamu Port-South Sudan-Ethiopia Transport (LAPSSET) corridor project that is aimed at opening up the area with Merille-Marsabit-Moyale road which is part of the Pan-African highway from Cape to Cairo set for completion in September 2016. Some of these transboundary conflicts witnessed involving communities on the border occur in unoccupied 'no man's territory' and the signing of the peace pact which was facilitated by the UN agencies together with other development partners, is a clear confirmation that African states can indeed cooperate for the common good of their people. The project is the first phase with the second one envisioned between Kenya and Uganda and the third being a tri-partite venture between Kenya, Ethiopia and Somalia.²⁰⁸

2.4.3.2 Maasai Mara-Serengeti Ecosystem Joint Trans - boundary Ecosystem Protection and Monitoring Plan

Protection of Maasai Mara-Serengeti Ecosystem is at the moment undertaken by Kenya and Tanzania independent of each other, although they both face similar threats as any form of coordination on related transboundary issues is informal. Conservation activities across the border cannot guarantee safety of the ecosystem in entirety thus need for collaboration in order to bolster ecosystem and biodiversity preservation. A joint transboundary plan has been developed as a tool for use by Lake Victoria Basin Commission; which is a specialized structure within EAC charged with the responsibility for coordinating the Lake Victoria Basin sustainable development agenda.

²⁰⁷Jebet, V. and K. Bett, 'Agreement: Historic pact signed in border town of Moyale; Sh20 bn deal to make border safe,' Daily Nation, (Nairobi), Tuesday, 8 December 2015.

²⁰⁸Thiongo, J., 'State launches Sh20bn programme in Marsabit,' The Standard, (Nairobi), Tuesday, 8 December 2015.

The Commission wields the mandate of promoting cooperation on handling of environmental issues and ensuring natural resource development within the lake region.²⁰⁹

The plan requires integration with existing and future initiatives and outlines major intervention areas which should be addressed so as to support ecological integrity in the Mara-Serengeti ecosystem. In the plan, activities are suggested for each of the intervention areas and in order to sustain the initiated interventions, there is need to integrate undertakings of the transboundary action plan in stakeholder planning frameworks such as the management plans for Maasai Mara National Reserve as well as Serengeti National Park and county or district development and annual work plans. The key areas of focus for the plan include harmonizing policy, legal and relevant institutional frameworks; ensuring capacity building; facilitating cross border resource movement; ensuring coordination of protection initiatives and fostering overall habitat integrity on riverine forests, grassland, savanna and migratory routes. The plan also focuses on involvement of community, infrastructure development, the establishment of monitoring and evaluation standards, response to crisis or emergency natural disasters and surveillance on diseases and invasive species.²¹⁰

The ecosystem has in recent times reported decline in riverine forest and some wildlife species due to pressure emanating from human activities with adverse effect on the ecosystem health and integrity, loss of biodiversity and habitat fragmentation.²¹¹ The conditions are exacerbated by ramifications of climate change which in the future intensify poverty, drought and desertification with severe implications on livelihoods and economies. Subsequently, there is probable conflict due to inequalities and competition over diminishing natural resources;²¹² an argument in concurrence with the tenets of the resource scarcity theory. The plan aims at guiding monitoring of interventions and their impact on the overall contribution to the ecosystem integrity. The joint plan comprises of measures to inspire resource users' participation in continuous monitoring of natural resource use and will address issues on protection and sustainable management of biodiversity, socio-economic development, peaceful coexistence and regional

²⁰⁹Lake Victoria Basin Commission, (2014), <http://www.lvbcom.org/>, accessed on 16 September 2014.

²¹⁰Lake Victoria Basin Commission, *Serengeti Maasai Mara Ecosystem Joint Trans-boundary Ecosystem Protection and Monitoring Plan*, (Kisumu, LVBC, 2012).

²¹¹WWF Global, *Massive loss of elephants in the Mara Serengeti ecosystem concerns conservationists*, (2014), <http://wwf.panda.org/?227810/Massive-Loss-of-Elephants-in-the-Mara-Serengeti-Ecosystem-concerns-Conservationists>, accessed on 16 September 2014.

²¹²The Macaulay Institute, *Bordering on a water crisis: The Need for Integrated Resource Management in the Mara River Basin, Policy brief*, <http://www.macaulay.ac.uk/INTREPID/PolicyBrief.pdf>, accessed on 14 August 2014.

watershed protection that includes the Mara riverine plant life within Kenya and Tanzania, which is vital for the ecological balance of the ecosystem.²¹³

2.4.3.3 Natural Resource Management Programme (NRMP) 2010-2014

Natural Resource Management Programme (NRMP) was implemented from 2010 to 2014 and the Danish International Development Agency (DANIDA) principally supported it to a tune totaling to DKK 375 million which is approximately KES 5.33 billion. NRMP was based on the lessons from previous sector programmes supported by DANIDA and was executed by Denmark and the Government of Kenya. Denmark remains a key partner to Kenya towards improvement of natural resources management and thus the programme mainly focused on poverty alleviation within the framework of Kenya's Vision 2030 through sustainable resource management by promoting the formation of suitable policy and legal framework, firming up local governance capacities and offering community level technical services. NRMP further contributed to the consolidating of opportunities as a result of wise natural resource use and management while safeguarding livelihoods against climate change, environmental degradation as well as resource depletion in the conflict prone region. This observation is in line with the principles of the neo-Malthusian view as the programme supported the nurturing of peace.

The programme strived to ensure food security and cushion marginalized communities including those in ASALs and remote border areas from persistent droughts and related feuds through capacity building of local community groupings and the civil society together with corresponding private sector entities in supporting and encouraging effective natural resources management.²¹⁴ The programme had direct positive contribution on Kenya's realization of Millennium Development Goals (MDGs), especially MDG 1 focusing on reducing intense levels of poverty and hunger through protection of environment, creation of wealth and thus contributing to peace and economic growth. NRMP had influence on the cross-cutting issues under MDG 3 on promotion of gender parity and generally investing in female members of the populace through targeted interventions and capacity building on civil society advocacy capabilities. It also supported MDG 7 which encourages environmental sustainability through promotion of awareness and suitable environmental and natural resource administration.

²¹³WWF Global, *Managing the Mara River in Kenya and Tanzania*, (2015), http://wwf.panda.org/who_we_are/wwf_offices/tanzania/?uProjectID=9F0749, accessed on 10 July 2014.

²¹⁴Ministry of Foreign Affairs of Denmark/DANIDA, *Natural Resources Management Programme*, <http://kenya.um.dk/en/danida-en/nrm/annual-natural-resource-management-form/>, accessed on 9 December 2015.

To achieve its objectives, the programme had three key components implemented through different government partners that included the Environmental policy management segment which supported strategy, policy and institutional structures used for natural resources management at national level; Arid lands resource management segment that supported improved resource management within ASAL areas of the country with support enlisted from other like development partners and lastly, Civil society cum private sector management component that supported civil society organizations and private sector entities in undertaking sustainable ecological resources management activities and was executed by Community Development Trust Fund together with Agricultural Business Development.²¹⁵

2.4.3.4 East African Community - BirdLife Ecosystem Management Partnership

East African Community and BirdLife International launched a partnership in 2015 to promote through collaboration the protection of environment, conservation of critical transboundary ecosystems that include lakes, forests and wetlands and also ensure sustainable usage of abundant resources within eastern Africa. The partnership entails generation, availing and sharing of relevant information for decision making on resources that require conservation and management. The partnership further involves sharing of guidelines, tools and best practices; exchange of knowledge and skills within the region; ensuring appropriate strategies and capacity building for varied situations towards sustainable management of environments, key ecosystems and resources; especially those which are transboundary.

The partnership also encompasses the implementation and monitoring of specific programmes on degradation of environment, creating an inclusive platform for stakeholder engagement, empowerment of all stakeholders from riparian countries to take part in natural resource administration and creation of tangible, sustainable and equitably shared benefits.²¹⁶ Based on Memorandum of Understanding involving the two organizations, East African Community recognizes the vital role played by the civil society in delivering its broad mandate on the realization of fast, balanced and sustainable regional development which includes conservation of environment for present and future generations. The partnership further offers grounds for balancing local and state interests with regional aspirations towards attaining real sustainable

²¹⁵Government of Kenya/Danish Ministry of Foreign Affairs, Natural Resource Management Programme 2010-2014, *Kenya Programme Document final*, File: 104.Kenya.806-20, (2009).

²¹⁶BirdLife International, *Collaboration to enhance management of transboundary ecosystems*, (2015), <http://www.birdlife.org/africa/news/collaboration-enhance-management-transboundary-ecosystems-launched>, accessed on 10 May 2016.

development in a peaceful environment. BirdLife has in the past led participatory development of top-level strategies for rational biodiversity hotspots and watershed management within the African Great Lakes region.

Ongoing and future programmes by BirdLife and affiliate partners in Kenya, Uganda, Rwanda and Burundi are to be aligned to and reported against the Community's Strategic plan within the partnership framework. In the last seven years, BirdLife and like partners have engaged with governments of Tanzania and Kenya in promoting sustainable development of Lake Natron and its catchment through awareness creation, valuation and cost-benefits analysis that discouraged soda ash mining which is detrimental to the environment in favor of enhanced friendly pastoralism and tourism options. The lake is an important wildlife area which supports large mammals, birds and a thriving Maasai community. The reservoir which is acknowledged for being a wetland of international importance, is also considered as Important Bird Area.²¹⁷ Three quarters of the world's Lesser Flamingos are hatched here and thus about 2.5 million of the pink birds risked losing their breeding grounds due to habitat degradation, loss and associated pollution.

The study results on whether there are cross border natural resource management initiatives respondents are aware of between Kenya and its eastern Africa counterparts are as follows; 42.1% of the total responses note that they are aware of cross border natural resource management initiatives between Kenya and its eastern Africa counterparts whereas 57.9% are not aware. From the findings, it can be concluded that slightly lower than half of respondents at 42.1% are aware of cross border natural resource management initiatives between Kenya and its eastern Africa counterparts. The figure below illustrates whether there are cross border resource administration initiatives respondents are aware of between Kenya and its eastern Africa counterparts.

²¹⁷Fishpool, L. D. C. and M.I. Evans, (ed.), Important Bird Areas in Africa and associated islands: Priority sites for conservation, *BirdLife Conservation Series No. 11*, (Newbury & Cambridge: UK, Pisces Publications & BirdLife International, 2001).

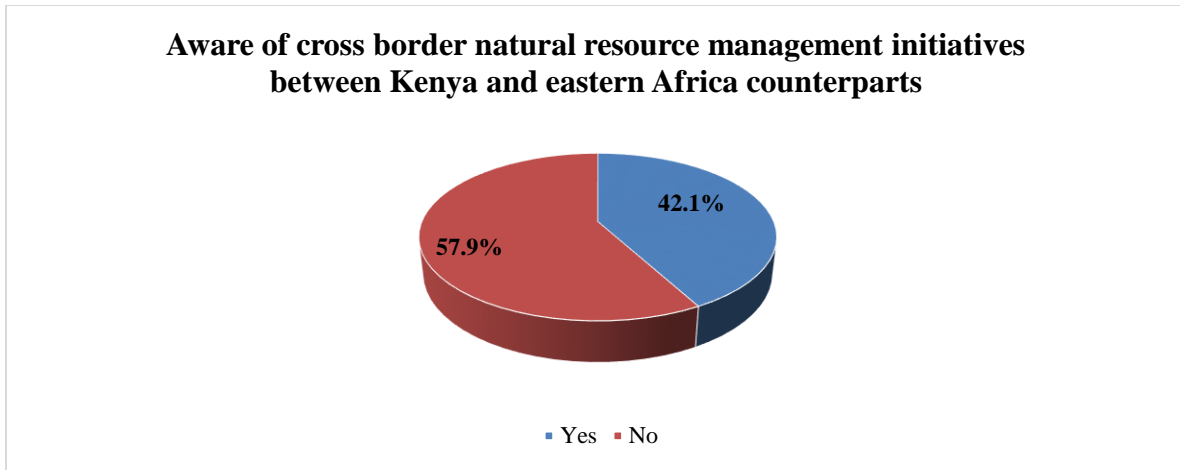


Figure 2.1: Aware of cross border natural resource management initiatives between Kenya and its eastern Africa counterparts

Source: Author (2021).

A substantial portion at 29.9% of minority affirmative responses cite partnerships and cooperation as the initiatives between Kenya and its eastern Africa counterparts. Other results include harmonized and integrated approaches at 8.7%, community initiatives at 25.2%, security and dispute resolution efforts at 18.9% and ‘others’ at 9.5% as being part of the resource management initiatives. The results indicate that respondents have heard or read about the initiatives in the media and other relevant publications with some even stating that they have not only heard and read about them, but also participated in some of the initiatives. The results point out that there are cross border integrated livelihood support projects that support conservation efforts, peaceful coexistence and development of communities. The findings confirm that shared research undertakings, publications and information dissemination mechanisms exist on cross border natural resource management. The results indicate that there are community, national and regional cooperation endeavors and partnerships between actors across national borders although there is minimal harmonization of resource management approaches and regimes. The affirmative responses further include border region joint surveys involving contested resource areas such as Migingo Island and surrounding waters in Lake Victoria. There are also ongoing transboundary dispute resolution mechanisms like the International Court of Justice’s involvement in the

maritime resource dispute on the eastern Africa coastline between Kenya, Somalia and Tanzania.²¹⁸

The affirmative results attest to the fact that there are basin resource management initiatives on Lakes Victoria, Turkana, Natron and Jipe, and likewise integrated river management systems on the Nile, Omo, Mara and Southern Ewaso Ng'iro. The findings confirm existence of cross border forest protection initiatives through joint banning of logging and burning of charcoal as all protected areas including national parks holding wildlife and biodiversity resources also prohibit hunting, poaching and grazing of livestock. From the study, transboundary rangeland areas have communal dryland management projects to support pastoralists herd movement as a survival and coping strategy in the hostile terrain. The respondents observe that cross border mountain regions have surveillance measures in place to curb bush fires during dry seasons in their bid to conserve water catchment areas. The responses indict that trans-frontier security and law enforcement initiatives are loosely in place in usually porous and expansive borderland areas which are often ignored and neglected by individual states amid cattle rustling, illegal trade and smuggling of natural resource products across territories. Tanzanian authorities suspended their top wildlife officials over illegal smuggling of 132 live animals and birds from the nation's game parks. The animals valued at more than \$100,000 were smuggled from an airport near Mount Kilimanjaro aboard a military cargo plane from a Middle East country in November 2010.²¹⁹

The study findings on who bears patronage responsibility over the cross border natural resource management initiatives are as follows; 18.2% of the respondents identify the Government of Kenya, 38.4% identify the Governments of Kenya and its eastern Africa counterparts whereas 10.3% identify public-private partnerships as the bearers of patronage responsibility over the cross border natural resource management initiatives. Furthermore, 12.6% recognize development partners and associate agencies, 16.9% identify communities residing with, controlling or using the resources while 3.6% identify 'others' as the ones bearing patronage responsibility over the initiatives. From the results, a substantial portion of the respondents at 38.4% acknowledge that the Governments of Kenya and its eastern Africa counterparts are the ones to collectively bear main patronage responsibility over the cross border natural resource management initiatives. Indeed, the EAC Secretariat is working to harmonize and improve policy frameworks towards

²¹⁸International Court of Justice, *Maritime Delimitation in the Indian Ocean (Somalia v. Kenya)*, *Press release 2018/12*, (2018), <https://www.icj-cij.org/en/case/161>, accessed on 29 September 2018.

²¹⁹Ng'wanakilala, F., 'Tanzania suspends officials over wildlife smuggling,' *Reuters*, (Nairobi), 19 August 2011 4.46 pm.

prudent management of shared ecosystems and other natural resources in a peaceful environment among partner states.²²⁰ The results under ‘others’ list scholars, civil society, researchers, experts and both internal and external examiners as the ones with the patronage responsibility. They also include individuals, key management players and all actors in natural resource management. The figure below illustrates who bears patronage responsibility over the cross border natural resource management initiatives.

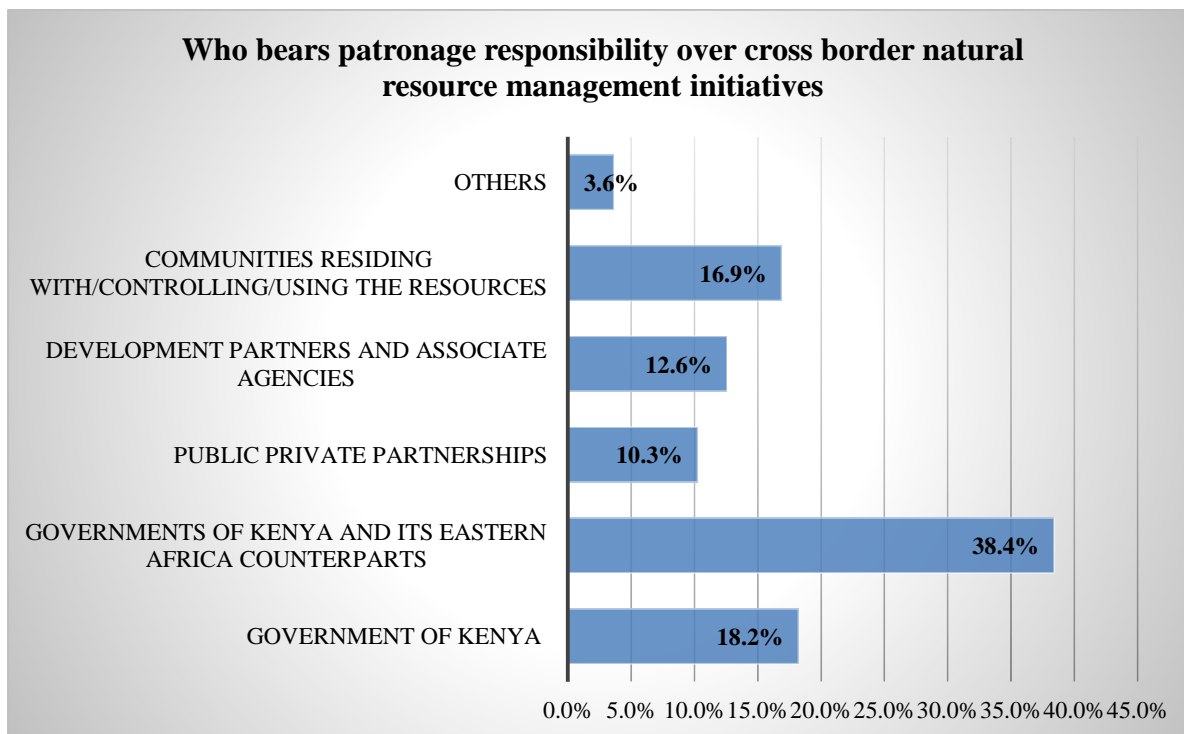


Figure 2.2: Who bears patronage responsibility over cross border natural resource management initiatives

Source: Author (2021).

The results on what would be the constraints on the cross border natural resource management initiatives are as follows; 15.9% of the respondents identify inadequate resources, 32.1% identify competing and varied interests among actors whereas 27.5% identify weak management frameworks and capacities within states as the constraints on cross border natural resource management initiatives. In addition, 21.2% recognize lack of commitment and cooperation by countries involved as an impediment while 3.3% identify ‘others’ as the constraints

²²⁰EAC, *Trans-boundary Ecosystems*, <https://www.eac.int/environment/natural-resources-management/trans-boundary-ecosystems>, (2017), accessed on 29 September 2018.

on the initiatives. The figure below shows what would be the constraints on the cross border resource administration initiatives.

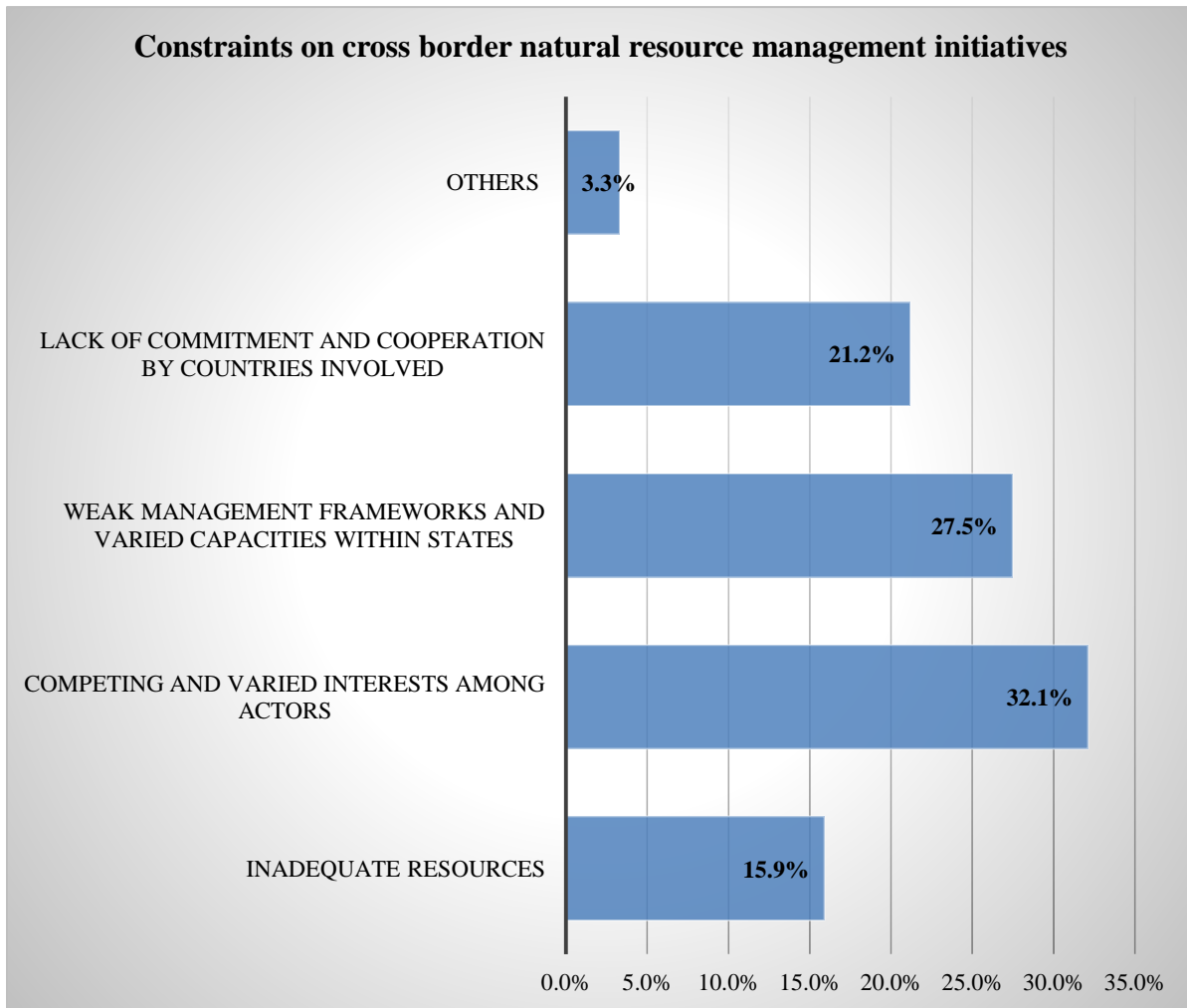


Figure 2.3: Constraints on cross border natural resource management initiatives

Source: Author (2021).

The findings indicate that a substantial segment of the respondents at 32.1% acknowledge competing and varied interests among actors as the constraints on cross border natural resource management initiatives. Similarly, the Kenya-Uganda resources and border dispute over Migingo Island and surrounding water has been recently rekindled due to competition over sovereignty and control of resources such as fish and water amid the environmental scarcity discourse.²²¹ The results under ‘others’ include insecurity and conflict, new and emerging issues, non-domestication

²²¹Okumu, O., ‘Resources and Border Disputes in Eastern Africa,’ *Journal of the Eastern African Studies*, 4 (2), (2010) pp. 279-297.

of borrowed practices, inadequate personnel and finances, non-targeted research and insufficient data to inform programming as being part of the constraints. The findings also list poor implementation and non-coherence between vision and policy, sovereignty and delimitation issues and all constraints listed above as being collectively in play to impede the initiatives.

An interview with Ms. Okelo, A. the Programs Manager at Friends of Lake Victoria (OSIENALA) affirms that communities are the gatekeepers in natural resource management and therefore lack of goodwill and commitment on their part coupled with the failure to lobby for the adoption and integration of initiatives into communities at the onset is often detrimental for their efficacy. The interviewee notes that "...lack of community by-laws and memorandum of understanding on how to operationalize the initiatives, financial constraint amid diminishing donor support for initiatives hampered planned initiatives on resource management." The Programs Manager also observes lack of cohesive and holistic approach to resource management as a situation which is being orchestrated by relevant authorities who are not committed, unwilling to diligently work or lack working relationship with other actors. The interviewee further decries high illiteracy levels in some resource areas which hampers the implementation of programmes since communities are not able to effectively take up their responsibilities and contribute accordingly in their respective roles.²²²

2.4.4 Other ventures to complement cross border natural resources management, sustainable peace and cooperation in eastern Africa

2.4.4.1 Kenya's Vision 2030

It is a long-drawn-out development programme for Kenya launched in 2006 for the period between 2008 and 2030 and aimed at making Kenya more competitive and prosperous in the world with high quality or standard of life for its people.²²³ The adoption of the plan by Kenya followed the Economic Recovery Strategy's (ERS) successful implementation focusing on employment and wealth creation that made sure that Kenya's economy went back on a rapid growth path since 2002, at the time when GDP grew from an alarming low of 0.6% rising steadily to 6.5% in 2006.²²⁴ The Vision's pillars are founded on continuity in governance reforms, pro-poor wealth creation opportunities, enhanced equity and overall macroeconomic stability. The strategy aims at

²²²Ombara, I., Interview with Ms. Okelo, A., Programs Manager, Friends of Lake Victoria (OSIENALA), Kisumu, May 2018.

²²³Government of the Republic of Kenya, Kenya Vision 2030, *The Popular Version 2007*, (Nairobi, G.o.K, 2007), http://www.vision2030.go.ke/cms/vds/Popular_Version.pdf, accessed on 14 November 2013.

²²⁴The World Bank Group, *GDP growth (annual %)*, <http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?page=1>, accessed on 13 January 2016.

facilitating reforms in the 8 identified key sectors which form the basis of society's political and socio-economic growth which include land reforms, drought emergencies termination, conflict resolution, security and peace building, among others.

Under its social pillar which focuses on investing in the citizenry of Kenya, the blue-print through its flagship projects strives towards a just and unified society exemplified by fairness in the distribution of social development and surrounded by an environment that is acceptably clean and safe. The strategy illuminates land use patterns and pastoral zoning, formulation of strategies for migratory routes and wildlife corridors together with the protection and restoration of indigenous forest areas within water towers including the Mau escarpment. The vision intends to help in the actualization of Sustainable Development Goals (SDGs) and further reverse challenges of unsustainable management of natural resources, rapid depletion of ecosystem resource base and attendant degradation of environment by 2030.

The strategy works towards effective policy, institutional and regulatory arrangements for natural resources exploitation and management in Kenya with adaptation measures on impact of climate variability and increasing desertification. The vision will also help the country overcome other environmental challenges that encompass low innovation in the use of resources, inability to adopt new technologies and inadequate capacity to apply relevant and desired environmental research. In order for the country to realize this vision, it is important to implement measures on environmental planning and governance, preservation, waste management and diverse pollutions and further encompass ASAL and disaster zones. The environmental policies and plans embodied within the medium-term largely endeavor to encourage and protect environmental state in favor of economic growth.²²⁵

2.4.4.2 Diplomacy

In order for natural resource management to succeed in border areas, political will and long-term commitment are extremely vital. Good international relation will address sovereignty and security issues that may constrain natural resources management, as collaboration provides for a broader platform to avert or determine cross border natural resource related disputes through finding of common grounds on shared purpose. Good state relations will enhance security with improved governance of natural resources towards greater peace since conflicts more often lead to

²²⁵Owino, O., *et al.*, Chapter 4 (Preliminary draft), *Unlocking the Future Potential for Kenya: The Vision 2030*, <http://www.csae.ox.ac.uk/conferences/2009-edia/papers/509-owino.pdf>, accessed on 16 December 2015.

environmental degradation.²²⁶ Environmental diplomacy involves encouraging and enabling environmental cooperation between antagonistic parties and helps promote peace by preventing conflicts before tensions can escalate, addresses root causes of instability, provide opportunity for dialogue between warring parties and also resolves disputes through peace building and reconciliation.²²⁷

UNEP offers technical expertise to member states for transforming local and trans-boundary conflicts over environment and natural resources into opportunities for cooperation, confidence building and joint benefits. If asked, UNEP acts as a neutral expert, a trusted third party in mediating resource induced conflicts and offers a constructive role to complement the competencies of mediation teams in international mediation processes. The service can be used in exploiting shared or disputed natural resources and also as a platform for confidence building and cooperation between conflicting parties.

UNEP offers environmental diplomacy support which uses the environment as the initial entry point for dialogue between stakeholders in cases of larger resource disputes. The diplomacy support component initiates independent assessment of the parties involved and establishes a roadmap for action that includes provision of a neutral platform for dialogue, supports stakeholder consultation, brokers meetings, catalyzes resources and builds capacity for implementation of action plans and programmes by concerned parties. It also provides comparative examples of solutions through best practices from elsewhere and assists in analyzing scenarios for alternative solutions.²²⁸

2.4.4.3 Regional integration

Considering the importance of regional integration within Kenya's development agenda, the country developed a Regional Integration Strategy and Implementation Plan to oversee coherent and uniform government-wide approach towards undertaking regional integration activities as well as a reaffirmation of Kenya's commitment in enhancing ties with its neighbours within the region and even further with other African states beyond limits of traditional diplomatic cooperation. The strategy is based on principles of securing national interests while taking into

²²⁶Van der Linde, H. *et al.*, *Beyond Boundaries: Trans-boundary Natural Resource Management in Sub-Saharan Africa*, with contributions from Anada Tiéga and Thomas Price, (Washington D.C., Biodiversity Support Program, 2001).

²²⁷International Institute for Sustainable Development, *Environmental Diplomacy and Peacebuilding*, (2013), <https://www.iisd.org/ecp/diplomacy/>, accessed on 16 December 2015.

²²⁸UNEP, Disasters and Conflicts, *Environmental Diplomacy and Mediation Support*, <http://www.unep.org/disastersandconflicts/Introduction/ECP/EnvironmentalDiplomacy/tabid/105991/Default.aspx>, accessed on 16 December 2015

account aspects of solidarity and mutuality, upholding peace and security, conforming to international demands and promoting broad stakeholder engagement. Likewise, Kenya's foreign policy remains firmly grounded upon principles and norms around non-interference in internal matters of other sovereign states, peaceful disputes resolution, non-alignment, good neighbourliness and observance of UN and African Union Charters.

Kenya has in the past 20 years participated actively in implementing programmes fronted by regional groupings that encompass the IGAD, EAC together with the Common Market for Eastern and Southern Africa (COMESA) not as an optional extra but a survival strategy.²²⁹ Kenya has shown solidarity with neighbours by being an active arbiter on peace within the Horn of Africa and as Chair of peace forums under IGAD. However, Kenya has not fully benefited from regional integration due to weak institutional infrastructure joined with inadequate enforcement mechanisms, disjointed national institutional frameworks, insufficient information flow and inadequate technical competencies coupled with poor negotiation capacity. The institutional challenges encompass improper coordination in the implementation of activities by relevant government institutions, lack of proper stakeholder coordination resulting in limited dialogue and non-meaningful involvement, inadequate human capacity together with little involvement by non-state actors.²³⁰

Cross border natural resources require cooperation for their sustainable usage and management through harmonization of policies and strategies and adherence to international conventions as requirements for efficient national-level natural resource management. Being an active participant in regional integration endeavors, Kenya is better positioned to implement relevant regional commitments that include addressing loss of biodiversity, deforestation, impacts of climate variability, water scarcity, environmental degradation and related conflicts; factors which reflect the tenets of the neo-Malthusian argument. Since peace and security stand out as requirements for socio-economic development, the country promotes and maintains conducive atmosphere through regional cooperation.

The cooperation efforts strive to prevent, better manage and resolve shared resource-induced disputes in agreement with the EAC Treaty and the Protocol on Environment and Natural

²²⁹SADC/ELMS, *SADC Policy and Strategy for Environment and Sustainable Development*, (Maseru, SADC-ELMS, 1996).

²³⁰Republic of Kenya, Office of the Prime Minister, *National Regional Integration Strategy and Implementation Plan for Kenya Final Report*, (Nairobi, Charmy Inv. Ltd., 2013).

Resources Management which supplements the treaty and other relevant international agreements.²³¹ The country has made significant contribution in the EAC's achievement as the most advanced regional grouping towards full integration in Africa. Kenya has initiated robust environmental legislative framework which aids in the realization of treaty obligations as per regional integration groupings and the Kyoto Protocol, which basically form the foundation for environment strategies and resource management under the EAC, IGAD on management of fragile ecosystem, COMESA on bio-safety and biotechnology commitments and the Kenyan environment programmes under EMCA, 1999.

Kenya is implementing IGAD's Integrated Climate Prediction and Application Centre together with the Conflict Early Warning and Response Mechanism (CEWRN) which delivers early warning response on pastoral communities' needs in the volatile Horn of Africa area. Through the African Monitoring of Environment for Sustainable Development and International Shared Aquifer Resources Management, CEWRN offers policy alongside scientific network support, land degradation mitigation, integrated aquifers resource management mapping, natural resources conservation as well as environmental severity assessment training within the IGAD sub-region. Water programmes by EAC are linked to the Nile and Lake Victoria water resources, as Kenya remains a leader in implementing major regional programmes by Lake Victoria Basin Commission, Nile Basin Initiative as well as Lake Victoria Fisheries Organization on resources management.

The country is working towards the realization of EAC Lake Victoria Water Release and Abstraction Policy as IGAD together with COMESA have established regional water trust fund to facilitate ground water assessment within Somalia, Djibouti, Ethiopia and Kenya, including a capacity building component as part of implementing the Disaster Risk Management under Regional Food and Risk Management Programme.²³² Major challenges to the opportunities for regional integration on natural resources management however, include scarcity, competition and unsustainable management of shared resources as the situation is exacerbated by the ever rising population in line with the principles of resource scarcity perspective. Therefore, cooperation among eastern Africa states driven by the anticipated mutual utility will not only facilitate easy access, sharing and sustainable usage of natural resources but it will also infuse mergers to create

²³¹EAC, *Protocol on Environment and Natural Resources Management Draft 5*, (Arusha, EAC, 2005).

²³²Republic of Kenya, Office of the Prime Minister, *National Regional Integration Strategy and Implementation Plan for Kenya Final Report*, (Nairobi, Charmy Inv. Ltd., 2013).

synergies for better management and greater productivity in a peaceful environment, and the Lake Victoria basin alongside the Nile basins exemplify how riparian countries have cooperated on the usage of shared or rather common water resources.²³³

2.4.4.4 Sustainable Development Goals (SDGs), 2015-2030

World leaders adopted the sustainable development agenda on 25 September 2015 at the United Nations Sustainable Development Summit. This agenda encompasses 17 SDGs with attention-centred 169 targets and 304 indicators for compliance aimed at ending poverty, tackling injustice and inequality and further addressing climate variation issues come the year 2030. Sustainable Development Goals which are also christened the Global Goals are built upon the prior eight (8) Millennium Development Goals (MDGs) which the world had earlier devoted to realizing come 2015. The Millennium Goals which were adopted back in 2000 purposed for a number of issues which included ensuring environmental sustainability.

Although success was registered with the implementation of the MDGs, the SDGs together with the greater agenda on sustainability go much beyond by tackling root causes of poverty towards universal development for all people. SDGs 13, 14, 15 and 16 focus on the need for urgent action to be undertaken in mitigating adverse impacts of climate change; ensuring protection, conservation and restoration of threatened resources; and also sustainably use global resources and ecosystems in an inclusive and peaceful society for sustainable development.²³⁴ Through the adoption of collaborative partnership, all states and relevant stakeholders are supposed to take bold and transformative measures at once towards implementation of the Global Goals with the intention of changing the world onto a resilient and sustainable path. The SDGs are integrated and indivisible and strive to create a nexus on socio-economic and environmental fronts of sustainable development.²³⁵

The study results on whether there are other ventures to complement cross border natural resource management, sustainable peace and cooperation in eastern Africa region are as follows; 75.2% of the responses affirm that there are other ventures to complement cross border resource

²³³AfDB/ADF, *Eastern Africa Regional Integration Strategy Paper 2011-2015*, (2011),

<http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/East%20Africa%20-%20Rev%20RISP%20.pdf>, accessed on 17 August 2014.

²³⁴UNDP, *Sustainable Development Goals (SDGs)*, (2015), <http://www.undp.org/content/undp/en/home/mdgoverview/post-2015-development-agenda.html>, accessed on 16 December 2015.

²³⁵UN Division for Sustainable Development, UN-DESA, *Transforming our world: the 2030 Agenda for Sustainable Development*, <https://sustainabledevelopment.un.org/post2015/transformingourworld>, accessed on 16 December 2015.

management, sustainable peace and cooperation in the region whereas 11.3% observe that there are no other ventures. The findings further indicate that 13.6% of the responses did not know. From the results, it can be inferred that a resounding majority at 75.2% confirms that there are other ventures to complement cross border natural resource management, sustainable peace and cooperation within eastern Africa region. The figure below shows whether there are other ventures to complement cross border resource administration, sustainable peace and cooperation in eastern Africa region.

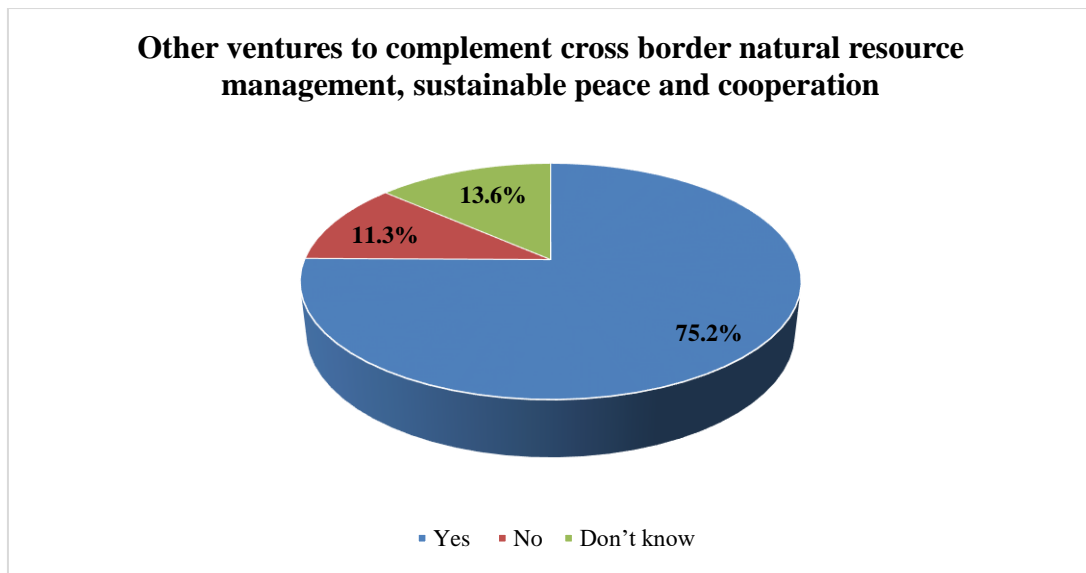


Figure 2.4: Other ventures to complement cross border natural resource management, sustainable peace and development

Source: Author (2021).

A substantial portion at 24.7% of the majority affirmative responses cite regional integration initiatives as the other complementary ventures. Other results include national and global development plans at 16.3%, Public Private Partnerships at 14.5%, diplomacy at 19.4%, environmental and climate change mitigation at 11.5% and ‘others’ at 8.4% as other ventures to complement cross border natural resource management, sustainable peace and cooperation in the region. The findings list the other ventures to include media outreach; applicable provisions within Constitution of Kenya, 2010 as well as the country’s Vision 2030. The list also encompasses East African Community initiatives; efforts by other regional blocks such as COMESA, IGAD and SADC; regional integration enterprises and diplomacy. The study findings further cover regional

border security initiatives, climate change mitigation initiatives and related efforts by researchers and scholars. The acceptance and implementation of Sustainable Development Goals together with holistic initiatives by the UN system and Public Private Partnership initiatives are also listed as being part of the ventures. Since partners in collaboration are not in a ‘zero sum game,’ organizations use partnerships to increase their output levels, and so are the eastern Africa counterparts who have used the strategy to manage their transboundary resources.²³⁶ The assenting findings further identify corporate social responsibility initiatives by players from other sectors but whose activities affected the environment and natural resources in one way or another, environmental and natural resource management programmes supported by investors and civil society activities in other sectors with cross cutting thematic dimensions that touch on environment and natural resource management as being complementary.

2.5 Conclusion

The chapter provides an overview of cross border resource management and sustainable peace, and further draws the link between resource management, attendant conflicts and the process of building peace among affected groups. The study findings reveal that although there are a number of ongoing cross border natural resource management initiatives towards sustainable peace and cooperation within eastern Africa region, these initiatives are belabored by a myriad of constraints. The next chapter evaluates whether the current state and existing frameworks for cross border natural resource management are adequate in upholding sustainable peace within the eastern Africa region.

CHAPTER THREE

CURRENT STATE AND FRAMEWORKS FOR CROSS BORDER NATURAL RESOURCE MANAGEMENT TOWARDS SUSTAINABLE PEACE IN EASTERN AFRICA REGION

3.0 Introduction

The chapter is divided into two main parts focusing on the current state of cross border natural resource management and the existing frameworks for cross border natural resource management towards the realization of durable peace in eastern Africa.

²³⁶McQuaid, R. W., The theory of partnership: why have partnerships? In S. P. Osborne, (ed.), *Public-Private Partnerships: Theory and Practice in International Perspective*, (London, Routledge, 2000) pp. 9-36.

3.1 Cross border natural resource management frameworks towards sustainable peace in eastern Africa region

This part evaluates cross border resource administration frameworks with focus on the rationale for resource management and the concepts of territorialization, de-territorialization and re-territorialization. This part also delves into community, county and national frameworks for cross border natural resource management in Kenya. The section summarizes Kenya's implementation of associated international agreements and further highlights the achievements and best practices in transboundary resource management in the country.

3.1.1 Rationale for cross border natural resource management

Management of ecosystem resources basically entails a series of coordinated interventions to enhance or sustain benefits that are obtained from those resources. It also emphasizes sustainability and is shaped by governance, technology and economic environment as the key determinants for management and use.²³⁷ Cross border natural resource interactions take various forms which range from casual relationships among resource hosts and users such as local trading pacts to international agreements governing natural resource administration programs between states like joint-river basin management.²³⁸ Although international border locations often hold some of the most revered and intact ecosystems across the globe,²³⁹ the borders are political and not ecological boundaries and as a result many crucial ecosystems and components are divided by national borders and subjected to varied exploitation and management practices.

Human practices are sometimes incompatible, damaging to the resources and even cause conflicts and hardship to a section of stakeholders; an argument supported by the resource scarcity theory. In order to guarantee sufficient access to natural resources with assured peace and livelihoods for present and future generations, effective management of resources that transcend national boundaries is essential. Cross border natural resource management on the global front has been dominated by themes relating to shared water resources, biodiversity, wildlife and protected areas, among other ecological reserves. Ever since the 1990s, international conservation agencies have pursued the creation of cross border conservation areas worldwide because they envisage

²³⁷Jong, W. and K. Evans, 'Natural Resource Governance in Border Regions: From National Backwaters to Transnational Territories and Global Commons,' *Journal of US-China Public Administration*, Vol. 8, No. 8, (Rosemead: CA, David Publishing, 2011) pp. 925-936, ISSN 1548-659.

²³⁸Singh, J., Study on the Development of Trans-boundary Natural Resource Management Areas in Southern Africa, *Global Review*, (Washington D.C., Biodiversity Support Program, 1999).

²³⁹Westing, A. H., 'Establishment and management of trans-frontier reserves for conflict and prevention and confidence building,' *Environmental Conservation*, 25, 2, (1980) pp. 91-94.

possible win-win scenarios on nature conservation, conflict resolution and greater sustainable development.²⁴⁰

Natural resources management in border regions is often influenced by bilateral or multilateral agreements as evidenced by the Brundland Commission²⁴¹ and the Advocacy for Sustainable Development which were products of natural resources management taking a more holistic national and global structure. The formulation of international environmental agreements began in the 20th century with accords such as the Migratory Bird Treaty Act, although they were by and large due to post-World War II age, propped within the UN system. After the inaugural United Nations Conference on Environment and Development hosted in 1992 by the city of Rio de Janeiro in Brazil, the world has witnessed the proliferation of associated agreements. Although the international environmental agreements are not established exclusively for resources in border regions, they profoundly influence natural resources in border areas and sometimes even impose cross border natural resource regional management systems.²⁴²

3.1.2 Concepts of Territorialization, De-territorialization and Re-territorialization

An open-access regime allows for environmental degradation and natural resources depletion owing to lack of steadfast rules on access and use, a situation referred to as ‘tragedy of open access.’ Sustainable human engagement with the environment calls for the establishment and enforcement of rules that facilitate resource users and managers to respond supplely to new information and changing systems, while also providing stability of access that enables proper planning.²⁴³ States define spaces and organize natural resources by putting up jurisdictions and administrative rules that however illustrate the political and social fault lines along which additional disputes develop. Territorializations are historical creations of contestation and negotiation surrounding access and control of natural resources among competing groups, classes and interests.

²⁴⁰Ali, S. H. (ed.), *Peace parks: Conservation and conflict resolution*, (Boston, MIT Press, 2007).

²⁴¹Brundtland, G. (ed.), *Our Common Future: The World Commission on Environment and Development*, (UK, Oxford University Press, 1987).

²⁴²Akamine, J., Circumventing the sea cucumber war: Self-regulation of sea cucumber fisheries in Rishiri Island, Japan, in W. de Jong, D. Snelder, and N. Ishikawa (ed.), *Trans-border Governance of Forests Rivers and Seas*, (London, Earthscan, 2010) pp. 99-114.

²⁴³Hardin, G., ‘The Tragedy of the Commons,’ *Science, New Series*, Vol. 162, No. 3859, (1968) pp. 1243-1248.

Conflicts develop as competing interests strive to gain or influence control over related institutions, regulations and policies that govern natural resources²⁴⁴ and thus a common ground should clearly be defined. The rule of law, administration and institutionalism of border areas begins with the national government, which is the original meaning of territorialization.²⁴⁵ Once state presence has been established in resource border regions, the control of the area could be transferred from national government to other local actors or lower tiers of governments. This is known as de-territorialization and re-territorialization,²⁴⁶ which are mainly national level processes that change the landscape of actors who define natural resource management. Increasingly, actors who are largely restricted to border areas do shape cross border natural resource governance in those areas and not necessarily national actors.

De-territorialization and re-territorialization are not only national processes as special ecosystems such as seascapes with their fish stocks and turtle populations and forestlands with their wildlife are often located in border regions. In the last three decades, international actors supported by a steadily growing number of international treaties have strived to protect these special environments and species which are on the verge of extinction.²⁴⁷ As the future of these vulnerable ecosystems becomes increasingly threatened by extra-national incursions, international bodies have initiated practices to lessen national and local control over border regions. These trends are referred to as the re-territorialization process; the reassignment of resource access rights to different interest groups such that different users have access to the same natural resource elements.²⁴⁸

National territory is converted into global commons as control over natural resources is assumed by international actors, international conservationists and international development cooperation agencies, consequently reducing national territorial sovereignty. International NGOs in conservation and allies progressively attempt to influence the conservation agenda through

²⁴⁴Brogden, M.J. and J.B. Greenberg, 'The Fight for the West: A Political Ecology of Land Use Conflicts in Arizona,' *Human Organization*, Vol. 62, No. 3, (2003), http://udallcenter.arizona.edu/publications/sites/default/files/59_en.pdf, accessed on 16 August 2014.

²⁴⁵Vanderveest, P. and N. Peluso, 'Territorialization and state power in Thailand,' *Theory and Society*, 24, (1995) pp. 385-426.

²⁴⁶Visser, L. E. and D. S. Adhuri, Territorialization reexamined: Transponder marine resources exploitation in Southeast Asia and Australia, in W. de Jong, D. Snelder and N. Ishikawa (ed.), *Trans-border Governance of Forests Rivers and Seas*, (London, Earthscan, 2010) pp. 83-98.

²⁴⁷Brogden, M.J. and J.B. Greenberg, 'The Fight for the West: A Political Ecology of Land Use Conflicts in Arizona,' *Human Organization*, Vol. 62, No. 3, (2003), http://udallcenter.arizona.edu/publications/sites/default/files/59_en.pdf, accessed on 16 August 2014.

²⁴⁸Hardin, R. *et al.*, Social, spatial, and sectoral boundaries in trans-boundary conservation of central African Forests, in W. de Jong, D. Snelder, and N. Ishikawa (ed.), *Trans-border Governance of Forests Rivers and Seas*, (London, Earthscan, 2010) pp.15-30.

international treaties and in the process successfully convert national territory into global commons. Nation states lose power to international bodies in treaties that involve cross border conservation areas and thus natural resources management influences the organization of nation states, their sovereignty and territorial integrity.²⁴⁹

3.1.3 Community frameworks for cross border natural resource management

Biodiversity is crucial in offering ecosystem services and extremely important in the sustaining of people's livelihoods, particularly for communities in rural regions who majorly rely on natural resources for subsistence. The immense breakup and destruction of habitats amid climate change conditions however have resulted in extreme loss of biodiversity and thus, protected areas do perform an essential role in conserving the biodiversity.²⁵⁰ Conservative conservation models established protected areas in order to conserve yet they left out local marginalized and poor communities in the natural resources exploitation and management arrangements. Nonetheless, new conservation methods seek a win-win solution which integrates environmental protection, peace and socio-economic development.

The main tenets of the integrated approach include acknowledgement of traditional rights of locals residing within or surrounded by the protected areas, enhance local participation in ecosystem resource usage and administration and sharing of economic benefits resulting from protected areas.²⁵¹ The shared management responsibility of protected areas which encompass co-management or community-based management gives the local communities ownership over natural resources and therefore improving their conservation.²⁵² The integrated conservation model recognizes that ecosystems span international boundaries and that their protection which encompasses biodiversity conservation, can be planned and managed effectively by way of international cooperation which fosters peaceful collaboration between nations and also spurs regional socio-economic development that is sustainable.

²⁴⁹Jong, W. and K. Evans, 'Natural Resource Governance in Border Regions: From National Backwaters to Transnational Territories and Global Commons,' *Journal of US-China Public Administration*, Vol. 8, No. 8, (Rosemead: CA, David Publishing, 2011) 925-936, ISSN 1548-659.

²⁵⁰Secretariat of the Convention on Biological Diversity, *Handbook of the Convention on Biological Diversity Including its Cartagena Protocol on Biosafety (3rd Ed.)*, (Montreal, Canada, 2005), <http://www.cbd.int/doc/handbook/cbd-hb-allen.pdf>, accessed on 8 December 2017.

²⁵¹Wells, M.P. and T.O. 'McShane, Integrating Protected Area Management with Local Needs and Aspirations,' *Ambio*, 33, 8, (2004) pp. 513-519.

²⁵²Borrini-Feyerabend, G. *et al.*, *Indigenous and Local Communities and Protected Areas: Towards Equity and Enhanced Conservation*, (Gland: Switzerland & Cambridge: UK, 2004), http://cmsdata.iucn.org/downloads/pag_011.pdf, accessed on 2 December 2017.

The Wildlife Conservation and Management Act, 2013 offers for the transboundary management of biodiversity with communities allowed to participate in tourism development, fire management, anti-poaching and deforestation campaigns and overall surveillance and reporting. Community-based natural resource management (CBNRM) vary widely with the approach focusing on collective management of natural resources, as the management responsibilities are transferred to the local communities. The approach promotes the protection of biodiversity, sustainable use of resources, generates significant benefits for the communities and thus leads to sustainable livelihoods. For community-based initiatives to be successful, they however require capacity development on identified gaps and the setting up of local institutions and relevant governance structures.²⁵³

Northern Kenya and southern Ethiopia common border are some of the insecure areas due to intra and/or inter community and political inter-play conflicts associated with cross border incursions and utilization of scarce resources; an argument in line with the resource scarcity perspective. The areas are mainly inhabited by nomadic pastoralists in a fragile ecosystem and porous borderland which has been adversely impacted by climate variability and is prone to droughts with threatened pastoralist livelihoods and survival. International Organization for Migration has been supporting pastoralists in the area by promoting peaceful co-existence and migration among communities through protection of communities' resources, building of community resilience, tackling vulnerabilities and promotion of diversification and alternative sustainable livelihoods so as to adapt to climate variability. This is done through community-based approach to natural resource management towards increased productivity as well as change in the utilization of resources.²⁵⁴

3.1.4 County frameworks for cross border natural resource management

When the country passed Constitution of Kenya, 2010, it ushered in a new order by transitioning from a centralized national system of government which was characterized by marginalization, exclusion from development processes, vast inequalities and mismanagement of natural resources. The new devolved system saw some functions and substantial responsibility on the managing of natural resources passed on to the 47 County governments. The decentralization

²⁵³Fabricius, C. and S. Collins, Community-based natural resource management: governing the commons, *Water Policy*, 9, 2, (2007) pp. 83-97.

²⁵⁴IOM, *Mitigating the impact of climate change among pastoralist communities*, (2011),

<https://www.iom.int/jahia/webdav/shared/shared/mainsite/activities/countries/docs/kenya/Mitigating-Resource-Based-Conflict-among-Pastoralist-Host-Communities.pdf>, accessed on 13 December 2017.

intends to offer more democratic and participatory engagement in natural resource governance and is premised on grounds that local authorities and communities are the ones most directly affected by and have the greatest understanding of the resources and therefore, best placed to oversee their use and management within their respective counties.²⁵⁵

Although the new dispensation aspires to allow for communities to be more involved in resource governance, there are numerous challenges to the system considering that there lacks prior understanding of the devolution process and initial experience in running County governments. The County governments have failed to effectively embrace public participation in their planning and policy development processes. In addition, there is low commitment to implement plans, non-effective regulation of laws and lack of civic education to help stakeholders and communities understand their role and responsibilities amid weak institutional capacity which leads to continued resource degradation. The counties are also unable to extend their authority and presence in rural and at times remote border areas to enforce relevant laws and even resolve resource related disputes.²⁵⁶

Another challenge is Constitution of Kenya, 2010 in Article 71 on natural resource management which does not specify how to strike balance and ensure equity between national and local interests as it only emphasizes nationalism. This vagueness is a clear recipe for conflicts pitting the National and some County governments and also among County governments themselves. Weak national legislative framework exacerbates the confusion as the National government affirms dominance by diluting local claims on the governance of natural resources. The Kenya Wildlife Service at one point had petitioned to assume management of Maasai Mara Game Reserve which sits on community land. KWS accused the Narok County administration for lacking the requisite infrastructure and environmental expertise to effectively manage and mitigate the decline in wildlife whose base had dropped by an estimated 70% as the protected area continued to lose territory to community grazing.²⁵⁷ Therefore, there is need to strengthen the County governments' capacity to enable them effectively tackle numerous challenges afflicting them and also fulfil their mandate on sustainable management of the environment and the

²⁵⁵Kimaru, E., *County governments: Key to ensuring sustainable development paths*, (WWF UK, Nairobi, 2015).

²⁵⁶Kuria, D., *From a central to devolved system governing system in Kenya: Which way for natural resources?* (2014), <http://peoplefoodandnature.org/blog/from-a-central-to-devolved-governing-system-in-kenya-which-way-for-natural-resources/>, accessed on 14 October 2018.

²⁵⁷Khamadi, S., *Counties struggle to gain control over local natural resources in Kenya*, (2014), <http://www.shitemi.com/devolution/counties-struggle-to-gain-control-over-local-natural-resources-in-kenya/>, accessed on 14 October 2018.

resources to cater for environmental concerns, uphold social wellbeing, ensure peaceful coexistence and spur economic growth at the local level.

3.1.5 National frameworks for cross border natural resource management in Kenya

After Kenya gained protectorate status, it started implementing policy and legislative provisions under the 1897 inception clause framework on condition that they were not opposed to justice and morality. Upon independence, the country began making its own set of laws which were aimed at repealing or refining colonial legislation as ecosystem resources that included water, forests and wildlife, among other clusters became a preserve of the central government. The centralized systems administered by the central government did not embrace sustainable management approaches and thus undermined traditional natural resources management mechanisms with attendant acrimony. The ad hoc five-year National Development Plans, chiefs' authority announcements and presidential decrees were fairly draconian and maintained relatively 'stable' management systems.²⁵⁸

Up to 1999, the frameworks for governing natural resources in Kenya which covered rules and regulations were spread across various sector-based statutes as institutions authorized to oversee the affairs of the sector experienced overlapping roles with limited competencies. Nonetheless, the country enacted an over-arching legislation, the EMCA No. 8 of 1999 that was operationalized on 14 January 2000, as a framework environmental law to cater for conservation of all resources in the country supported by several other relevant sector-based laws.²⁵⁹ The Act established key environmental institutions among them NEMA, National Environment Council (NEC), National Environment Trust Fund, National Environment Tribunal, National Environment Restoration Fund together with several national statutory and devolved environment committees.

NEMA is the government's main mechanism for executing all environmental policies through encouragement of integration of environmental matters into development blueprints that include policies, projects and programs. The agency's strategic plan has been aligned to the SDGs 11-15 and NEC is liable for policy development, setting national goals, promoting partnerships towards environmental management and shaping environmental policies and priorities.²⁶⁰ The State

²⁵⁸The Republic of Kenya, *The draft National Resources Development and Management Policy*, (Nairobi, Association of Professional Societies in East Africa, 2012).

²⁵⁹Yatich T, *et al.*, World Agroforestry Centre, Policy and institutional context for NRM in Kenya: Challenges and opportunities for land care, *ICRAF Working paper*, No. 43, (2007).

²⁶⁰NEMA, *NEMA mandate*, (2015), http://www.nema.go.ke/index.php?option=com_content&view=article&id=80&Itemid=470, accessed on 23 June 2015.

Department of Environment and Natural Resources focuses on overall coordination, policy formulation, development and counsel on related matters in the Ministry of Environment and Natural Resources (MENR) and supports NEMA in its endeavors. The ministry has the authority to protect and manage Kenya's environment together with its resources for socio-economic development in Kenya.

An interview with Mr. Maurice Otieno Nyunja the Chief Environment Planning Officer and Chair Sustainability Committee at NEMA affirms that NEMA is a regulator and enforcer agency created by EMCA No. 8 Cap. 387 of 1999 and aligned to Constitution of Kenya, 2010. The Officer notes that environment being a human right, Kenyans has a just claim for clean and healthy environment. Therefore, NEMA's core mandate is compliance and enforcement of EMCA and 7 other regulations on; Environmental Impact Assessment at the onset of projects, Environment audits on continuing projects, Water quality, Wetland regulation, Waste regulation where there are regulations on hazardous waste which require prior informed consent to transport, Biodiversity regulation, Ozone regulation and Ambient air quality.²⁶¹

The interview reveals that the assessments by NEMA are supported by other entities and that the assessment indicators are sometimes under other agencies' jurisdiction and thus NEMA has to work with those institutions. The Officer further states that all indicators on ecosystem needs and services in Kenya are monitored by NEMA which prepares State of Environment Reports and National Environment Action Plans. The Chief Officer notes that the agency supports counties in County Environment Action Plans, coordinated mainstreaming of environment sustainability for government agencies on results-oriented performance and that its education department promotes related education and awareness. The interviewee observes that climate change has been streamlined into the agency's plans both at adaptation and mitigation level and that under the Climate Change Act, 2016, NEMA is given the role of controlling, regulating and enforcement on green-house gases and ambient air quality. The Officer affirms that the agency reports on cross border human drivers beyond Kenya's borders on ecosystem integrity understanding supported by Vision 2030 which covers wildlife migratory corridors and EAC Natural Resources Protocol which is a forum for engagement on transboundary resources. The interviewee confirms that

²⁶¹Ombara, I., Interview with Mr. Nyunja, M. O., Chief Environment Planning Officer and Chair Sustainability Committee, NEMA, Nairobi, May 2018.

NEMA participates in international environment diplomacy since the agency attends related conventions and conferences.²⁶²

The promulgation of the Constitution of Kenya which took place on 27 August 2010 entrenches a number of environmental issues with the Fifth Schedule specifying natural resources, land and overall environment as being part of areas which call for the enactment of relevant laws within the stipulated period of time between 1.5 to 5 years counted from the day of the constitution's promulgation. The Constitution offers arrangement for the devolution of specified environmental mandates to be fulfilled by governments at county level across the country so as to allow for Kenyans at grassroots to effectively contribute to conservation of environment and in turn benefit from devolved configurations of governance which are to be developed gradually.

The constitution opens a new paradigm and a fresh impetus for new approach in natural resources management as a good that supports livelihoods and also provides for the benefits acquired to be shared equitably in a peaceful environment. The provisions should therefore be translated into appropriate policy and legislation instruments for subsequent application and implementation.²⁶³ Kenya Vision 2030 purposes to transform Kenya as a reputable, competitive and prosperous state on the globe with higher living standards by 2030. The vision purposes to gradually support the attainment of set goals by instigating successive five-year medium-term continuing plans as prominence is given to environmental management towards environmental integrity, peace and economic progression as non-zero-sum game covered under its social pillar.²⁶⁴ Below are selected frameworks for resource management across the country.

3.1.5.1 Management of frontier drylands of northern Kenya

Over two-thirds of Kenya's area comprise of dryland ecosystems that many Kenyans depend on to support their livelihoods. The Gabra, Boran and Garri communities residing on the Kenya–Ethiopia border have depended on customary mechanism to direct natural resource exploitation on their rangelands across ethnicities, administrative boundaries and international borders. However, planning and decision-making on natural resources management is based on governmental boundaries rather than on ecosystems and there lacks effective approaches for

²⁶²Ombara, I., Interview with Mr. Nyunja, M. O., Chief Environment Planning Officer and Chair Sustainability Committee, NEMA, Nairobi, May 2018.

²⁶³The Republic of Kenya, *The draft National Resources Development and Management Policy*, (Nairobi, Association of Professional Societies in East Africa, 2012).

²⁶⁴National Environment Management Authority, Kenya State of the Environment and Outlook 2010, *Supporting the Delivery of Vision 2030*, (Malta, Progress Press Co. Ltd, 2011).

resources governance specific to drylands. The distinct divisions of authority among various sectors and decision-making levels limit integration of stakeholders with minimal involvement at community level and thus, leave poor and vulnerable pastoralists and agro-pastoralists totally out of the process.

The compromised institutional system is unable to integrate environmental concerns with livelihood and economic needs and engage key stakeholders in long-term planning,²⁶⁵ hence the instability witnessed in the region due to resource scarcity and competition for survival; an observation in concurrence with the views of a neo-Malthusian proponent Thomas Homer Dixon. National and County governments in the spirit of devolution can revise old institutional structures to provide opportunity for improved natural resources management by integrating ecosystem approaches towards better decision-making, management and eventual sustainable peace at the community.

The constitution offers major legal changes on land issues specific to community lands in Article 63 (1) and (3) supported by the National Land Policy, 2009;²⁶⁶ Land Registration Act, 2012; National Land Commission Act, 2012; Land Act, 2012 and National Land Use Policy, 2018. The proposed Community Lands Act will set up a legislative and procedural framework for community acknowledgement; safeguarding and also registering community land rights; thereby investing community land within communities based on culture, ethnicity or homogenous interests; ensure administration of community land through community organs and also County governments holding in trust unregistered community land.

Pastoral cross border mobility is considered in policy, evidenced by the establishment of the National Policy for the Sustainable Development of the Arid and Semi-Arid Lands in 2007, to coordinate actions on resources and related conflict management. The resources governance system in drylands comprise of several governmental, non-governmental, community actors and donors including bilateral, multilateral and United Nations agencies, with both formal and informal linkages. The concerned ministry co-ordinates the overall policy as the National Environment Secretariat is responsible for coordinating all environmental issues within an inter-sectoral framework, policy formulation and monitoring of implementation. Inter-Ministerial Committee on Environment and the provincial administration together with location level Environmental

²⁶⁵Odongo, L.W.R. *et al.*, Framework for natural resource governance in dryland landscapes in Kenya: Making ecosystem-based management a reality, *ILRI Policy Brief 12*, (2014).

²⁶⁶G.o.K, *Kenya National Land Policy*, (Nairobi, Ministry of Lands, 2009).

Management Committees, among others are part of the system²⁶⁷ that strives to achieve prudent resource administration, peaceful coexistence and socio-economic progression.

3.1.5.2 Mara-Serengeti ecosystem; forests, wildlife and biodiversity management

The Mara-Serengeti ecosystem is managed by different institutional arrangements acting independently in each country without a formal collaborative approach. In Kenya, the Kenya Wildlife Service has the responsibility for protecting and managing the country's wildlife and further prohibits consumptive use of related resources. However, Maasai Mara National Reserve resources and the Mara Conservancy are under the Narok County government with wildlife tourism as the main practice in the area. The Kenya Forest Act facilitates forest management agreements through a collaborative and participatory way within the Mau forest as the Kenya Forest Service coordinates Mau Forest Reserve management together with other forest plantations in the country and also allows permitted exploitation of forest resources. County government of Narok coordinates the management of the Mara reserve through various arrangements with adjacent communities as scouts in their conservation activities.

Narok County in conjunction with various stakeholders developed the Maasai Mara National Reserve Management Plan 2009-2019,²⁶⁸ to ensure survival of unique and priceless natural resource heritage and sustainable optimal economic benefits for Kenyans. Regulations in Kenya also allow stakeholders as individuals, non-governmental organizations or private sector to engage in wildlife management through running of conservancies and ranches. The transboundary nature of the ecosystem remains however a key challenge due to lack of substantive mechanism for collaboration and reconciliation of varied interests held amid prevailing inadequate management capacities in human resource competencies, infrastructural development and related management systems proficiency to tackle emerging issues.

With a rapidly growing population, the situation typifies continual environmental degradation, resource depletion and eventual competition and resource induced conflicts,²⁶⁹ an observation in line with the resource scarcity theory. Kenya and Tanzania have plans to jointly manage the Mara river system through a joint team borrowing from Memorandum of

²⁶⁷Ministry of Environment and Natural Resources, *National Action Programme; A framework for combating desertification in Kenya*, In the Context of the United Nations Convention to Combat Desertification, (Nairobi, National Environment Secretariat, 2000).

²⁶⁸Maasai Mara National Reserve, *Maasai Mara National Reserve General Management Plan 2009-2019*, (Narok, Narok and Trans Mara County Councils, 2009).

²⁶⁹Lake Victoria Basin Commission, *Serengeti-Maasai Mara Ecosystem Joint Trans-boundary Ecosystem Protection and Monitoring Plan*, (Kisumu, LVBC, 2012).

Understanding that endeavors to ensure sustainable management of human-wildlife interactions, environmental conservation together with sustainable peace. This initiative is to be undertaken by states and non-state actors on sustainable natural resources management in accordance with the EAC integration agenda. The Kenyan government also plans to end settlement in the Mau forest in a bid to protect the source of Mara River,²⁷⁰ as the World Wildlife Federation and other partners implement the Mara River Basin Management Initiative to steer sector reforms on integrated water resources.²⁷¹ The 10th meeting of the Sectoral Council of Ministers for the Lake Victoria Basin hosted in Kigali, Rwanda in May 2014 adopted the Mara Day to be marked annually with the aim of creating awareness on environmental and social challenges facing the Mara basin and its resources. The fete also aims at encouraging public private partnership in water and biodiversity management within the basin.²⁷²

3.1.5.3 Water resources management; The Lake Victoria basin watershed

Increase in global demand for resources and international focus on sovereign rights, obligations and authority of states have led to the establishment of many formal and complex transboundary natural resource management agreements and arrangements,²⁷³ especially on vital common resources such as water. The arrangements often have underlying conservation function to secure long-term equity and sustainable resource use as they also regulate competitive use and encourage peaceful cooperation among interested parties. The Lake Victoria basin stands as the most noteworthy shared ecosystem in East Africa that wields immense economic potential with Lake Victoria Basin Commission (LVBC) which is domiciled by the EAC and the NBI through the Nile Equatorial Lakes Subsidiary Action Programme (NELSAP), recognize the significance of Integrated River Basin Management (IRBM) initiatives within the lake's catchment area.

These initiatives aim at conservation, equitable sharing, sustainable use, enhanced participation and cooperation, dispute resolution and reduced conflicts on shared freshwater resources. IRBM contributes to implementation of Kenya National Water Policy, Lake Victoria Basin Development Protocol as well as East African Community Treaty, among other

²⁷⁰Nation Correspondent, 'Kenya, Tanzania to manage Mara River Ecosystem,' *Daily Nation*, (Kenya), 16 September 2014.

²⁷¹WWF Mara River Basin Management Initiative, Kenya and Tanzania, *Phase III – final evaluation report*, (Norway, WWF, 2013).

²⁷²Gichana, A., 'Bid to save Mara River Basin ecosystem,' *The Star News*, (Kenya), 26 July 2013.

²⁷³Singh, J., Beyond boundaries: Transboundary Natural Resource Management in Southern Africa, *Global review: Lessons learned*, (Washington D.C., Biodiversity Support Program, 1999).

initiatives.²⁷⁴ Nationally, the Water Resource Management Authority anchored on the Water Act of 2002 is the agency that spearheads water resources management and provides for decentralized and stakeholder involvement through its regional offices based on catchment areas and it is supported by Catchment Area Advisory Committees and water resource user associations.

The Integrated Water Resource Management (IWRM) approach incorporated as a guiding principle under the National Water Policy and adopted internationally, promotes coordinated development and administration of scarce water, land and other resources to optimize the socio-economic welfare in a fair manner that averts conflicts and ensures sustainability of vital ecosystems.²⁷⁵ The Lake Basin Development Authority (LBDA) being a statutory body established in 1979, it purposes to administer the catchment areas belonging to all rivers emptying into the lake. Through decentralized decision-making, provision of incentives and enabling environment, cost-sharing with local communities and participatory approach in line with IWRM, LBDA has ensured reduction in water eutrophication and instead enhances protection and development of traditional water management systems towards conservation of water catchment.²⁷⁶

Other agreements on the lake include the Lake Victoria Environmental Management Project (LVEMP) supported by World Bank together with the Global Environment Facility (GEF) and coordinated by LVBC and the Partnership Agreement on the Promotion of Sustainable Development in Lake Victoria which also receives support from World Bank, East African Development Bank and European partners. There are several other regional and national level partnerships towards sustainable development of Lake Victoria basin that include NGOs such as Friends of Lake Victoria (OSIENALA).²⁷⁷ Despite numerous frameworks of management, the basin still faces inadequate and dissimilar policies, legislations, regulations and institutional arrangements, and overall lack of synergy on management of its natural resources. This situation sets stage for conflicts amid competing interests among states sharing the basin; an argument aligned to the principles of neo-Malthusian view.

²⁷⁴WWF Global, *Managing the Mara River in Kenya and Tanzania*, (2014), http://wwf.panda.org/who_we_are/wwf_offices/tanzania/?uProjectID=9F0749, accessed on 27 May 2016.

²⁷⁵Muigua, K., *Natural Resources and Conflict Management in East Africa*, (Paper Presented at the 1st NCMG East African ADR Summit held at the Windsor Golf Hotel, 25-26 September, 2014, Nairobi: Kenya).

²⁷⁶Global Water Partnership, *Kenya: Community management in Lake Victoria Drainage Basin*, (2012), <http://www.gwp.org/en/ToolBox/CASE-STUDIES/Africa/Kenya-Community-management-in-Lake-Victoria-Drainage-Basin-51/>, accessed on 30 May 2016.

²⁷⁷International Waters Governance, *LVBC and the LVFO*, <http://www.internationalwatersgovernance.com/lake-victoria-basin-commission-and-the-lake-victoria-fisheries-organization.html>, accessed on 1 June 2016.

The study findings illustrate the respondents' awareness of any cross-border resource management levels in Kenya as follows; 41.1% of the results affirm that they are aware of the resource management levels in Kenya whereas 58.9% are not aware of any levels. More than half of the responses at 58.9% are not aware of any cross border natural resource management levels in Kenya. This low level of awareness may be attributed to the general publics' low sense of responsibility and their non-meaningful involvement in environmental issues within the society. Terer *et al.* also confirm that in Kenya, key natural resource management decisions are generally carried out by government agencies and institutions without meaningful local participation.²⁷⁸ The figure below shows the respondents' awareness of any cross border natural resource management levels in Kenya.

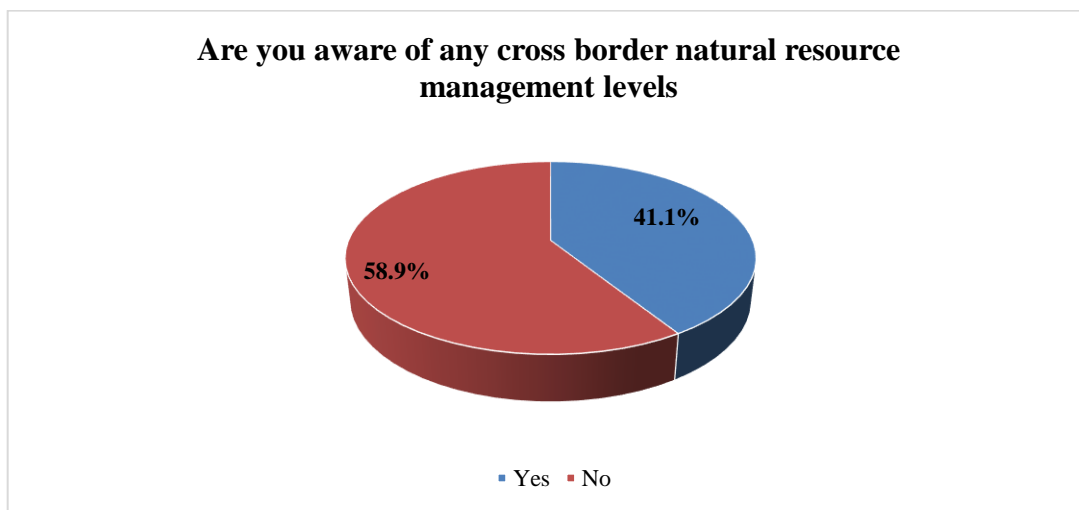


Figure 3.1: Are you aware of any cross border natural resource management levels in Kenya

Source: Author (2021).

From the analysis, the most recognized cross border natural resource management level is the National government resource management agencies at 28.2% of the minority affirmative responses. This could mainly be attributed to the National government's firm hold, dominance and control over natural resources in Kenya which leads to disharmony among actors, a position upheld by Stoll-Kleemann who notes that governments may often not encourage community participation

²⁷⁸Terer, T. *et al.*, 'Socio-economic values and traditional strategies of managing wetland resources in Lower Tana River, Kenya,' *Hydrobiologia*, 527, (2004) pp. 3-15.

or empowerment, whenever they see it as a threat to their authority.²⁷⁹ The other levels include community based natural resource management units at 21%, County level natural resource management structures at 9.7%, regional blocks natural resource management components at 12.9% and international platforms for resource management at 16.1%. The results also list Public Private Partnership engagements, conservation groups and civil society endeavors, development partners initiatives and individual efforts in natural resource management which constitute ‘others’ at 6.5% of the affirmative responses.

3.1.6 Kenya’s implementation of relevant regional and global agreements

Kenya is party to environmental conventions and agreements and has been supportive to their objectives with political goodwill as being partly fundamental to the registered successes that encompass wise resource management, socio-economic wellness and peace. Kenya ratified various conventions that enable it fulfill natural resources management obligations in general, management in border areas and in sites beyond national jurisdiction.²⁸⁰ However, there lacks proper mechanisms for conventions to supplement one another, a scenario that poses a major challenge on efforts by implementing parties. In particular, there are gaps, disconnect, overlaps and loopholes within the implementation framework for the Convention on Biological Diversity together with other related international agreements in Kenya. Lack of proper coordination within the implementation realm of environmental management initiatives, poor preservation of ecosystem diversity and resources, inaccessibility of genetic resources together with unfair sharing of proceed benefits reverses the successes and gains therein and is clearly evidenced in Legal Notice No. 160 of 2006.²⁸¹

3.1.6.1 Sub-regional and regional agreements signed on management of resources

Kenya has signed and ratified several international treaties on environment and therefore legally bound to the international environmental regime. This study highlights some of the agreements that Kenya is a signatory to in support of conservation and sustainable development.

²⁷⁹Stoll-Kleemann, S., ‘The Rationale of Socio-Economic Research for the Successful Protection and Use of Wetlands: The Example of Participatory Management Approaches,’ *Hydrobiologia*, 527, (2004) pp. 15-17. doi:10.1023/b:hydr.0000043313.98247.ef.

²⁸⁰Manek, M, *The Implementation of Biodiversity-Related Conventions: A Kenyan case study report*, (Nairobi, UNEP-BPSP Project/ FIELD, 2001).

²⁸¹National Council for Law Reporting, *Legal Notice No. 160 of 2006*, (Nairobi, Kenya Law, 2014), <http://kenyalaw.org/kl/index.php?id=624>, accessed on 10 September 2014.

3.1.6.1.1 Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi, 1985)

Provisions within this convention cover fragile ecosystems, habitats of endangered species and also provide for broader maintenance of overall level of ecosystems. The convention targets territorial waters, national marine parks and national marine reserves especially, the ones immediately neighboring the coast and positioned near the coral reef. The Convention offers legal framework and directs concerted efforts by party states within the region to bolster their capacity to conserve, manage and develop related environment sustainably, with the aim of stemming further degradation and reversing destruction of critical habitats.²⁸² The Kenyan government intervention has mainly been concentrated on monitoring implementation of related laws, an exercise that is not adequate when there are no standards for environmental impact assessment in regulating probable human development hazards.

The obligations established by the convention are often replicated through obligations created by wider agreements that include Convention on Biological Diversity alongside consequent legislative implementation. In 2009, the Government of Kenya took stock of its coastal and marine resources to inform appropriate decisions in addressing challenges emanating from environmental deterioration, rapidly growing human population, invasion by foreign species, climate change, pollution and over-exploitation. The subsequent status report aimed at more effective management of the resources for common global good²⁸³ and avert possible apocalypse; a view aligned to arguments by Paul Ehrlich, one of the proponents of the resource scarcity perspective. The Convention in its implementation encourages cooperation and integration among party states on effective management of transboundary resources and further outlines negotiation, arbitration and other peaceful means in settlement of related disputes.

3.1.6.1.2 The African Convention on the Conservation of Nature and Natural Resources

The Convention was established under patronage of the Organization of African Union and stands firm as the most comprehensive regional agreement ever in existence to address environmental issues on the continent. Majority of the countries having signed it in 1968, Kenya

²⁸²Council on Foreign Relations, Primary Resources, *Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region*; Nairobi Convention, (1986), <http://www.cfr.org/world/convention-protection-management-development-marine-coastal-environment-eastern-african-region-nairobi-convention/p20590>, accessed on 1 May 2015.

²⁸³Government of Kenya, Towards Integrated Management of Coastal and Marine Resources in Kenya, *State of the Coast Report*, (Nairobi, NEMA, 2009) pp. 88.

ratified it in May 1969 in a move which remains the main reason why states such as Kenya boast of having laws which were largely well-matched to various related conventions before their entry into force.²⁸⁴ Goals of the Convention include enhancing environmental protection, fostering resource preservation and ensuring sustainable utilization of resources. By doing so, the Convention helps in mitigating resource scarcity together with the competition and acrimony that follows; and these are the main standpoints of the neo-Malthusian argument.

The Convention also strives to streamline and coordinate policies to realize ecologically rational, economically suitable and socially satisfactory development and posterity policies and programmes.²⁸⁵ Implementation of this continental Convention in Kenya is absolutely covered in other broader obligations such as the Ramsar Convention; the solitary existing global environmental treaty which covers a particular ecosystem and focuses on wetlands of international importance by providing for their protection and prudent usage through national action and international cooperation towards global harmony and sustainable development.²⁸⁶

3.1.6.2 Selected global agreements on resource management implemented by Kenya

Kenya being party to international legally binding agreements on environment, the country is bound to work together with other party states in handling environmental issues that are international in nature.

3.1.6.2.1 Convention on Biological Diversity

Kenya signed and ratified the Convention on Biological Diversity on 11 June 1992 and 26 July 1994 respectively, which aims at promoting conservation, sustainable exploitation of biodiversity and just sharing of proceeds from use of biological resources,²⁸⁷ as contracting units are expected to implement the convention as per own unique circumstances. The equitable management of resources propagated by the Convention goes a long way in addressing a key tenet of the neo-Malthusian view that contributes to conflicts among groups and thus supports the realization of sustainable peace. Kenya boasts of a long history around collaboration on cross border biodiversity management as has been the case over the Mara-Serengeti migration routes,

²⁸⁴Manek, M, *The Implementation of Biodiversity-Related Conventions: A Kenyan case study report*, (Nairobi, UNEP-BPSP Project/FIELD, 2001).

²⁸⁵African Union, *The African Convention on the Conservation of Nature and Natural Resources*, (1968), <http://faolex.fao.org/docs/pdf/mul45449.pdf>, accessed on 16 August 2015.

²⁸⁶Ramsar, *The Ramsar Convention and its mission*, (Gland: Switzerland, The Ramsar Convention Secretariat, 2014), <http://www.ramsar.org/about/the-ramsar-convention-and-its-mission>, accessed on 19 July 2014.

²⁸⁷United Nations, *Convention on Biological Diversity*, (1992), <https://www.cbd.int/doc/legal/cbd-en.pdf>, accessed on 14 July 2014.

among other ecosystems. However, there are weaknesses in cross border cooperation in the troubled northern frontier drylands of the country due to lack of effective and consistent management strategies.²⁸⁸

Environmental Management and Coordination Act, 1999 institutes environmental planning considerably focusing on biodiversity management with the system principally created and centred on the National Environmental Action Plan. The umbrella agency charged with the responsibility of ironing out inherent difficulties in implementation is NEMA. Nonetheless, there lacks coordination and consistency within the implementation framework on legislations relating to the Convention in the country, which calls for relevant research and subsequent revision of existing institutional and legislation frameworks to develop a national bio-prospecting policy towards achieving vision 2030.²⁸⁹

3.1.6.2.2 Convention on the Protection of World Cultural and Natural Heritage

The main goal of the World Heritage Convention of 1972²⁹⁰ is to protect items of cultural and unmeasured natural heritage which have outstanding value to both present and the future generations. They include monuments and sites that comprise works of man and nature with outstanding ethnological, anthropological, aesthetic or historical standpoints. They also encompass habitats of endangered plant and animal species together with delineated areas of importance in conservation, natural beauty or science. Serengeti National Park was decades ago nominated in 1981 to be a World heritage site with the phenomenal wildebeest migration in the wider Maasai Mara-Serengeti ecosystem declared in 2011 as the '8th Wonder of the World.' Kenya has six sites on the coveted World Heritage List that include the natural ones around Lake Turkana on the Kenya-Ethiopia common border. Mt. Sibiloi National Park together with Central Island National Park which are found along Lake Turkana shores within the expansive northern Kenya region are best known as home to over 350 species of both aquatic and terrestrial life including birds.²⁹¹

The Mount Kenya National Park together with the adjacent Natural Forest site which straddles the equator within the central region of Kenya was in 1997 also acknowledged as being a World Heritage Site. The forest is a source of tributaries which feed the Tana and Ewaso Ng'iro;

²⁸⁸Manek, M. *The Implementation of Biodiversity-Related Conventions: A Kenyan case study report*, (Nairobi, UNEP-BPSP Project/ FIELD, 2001).

²⁸⁹The Institute of Economic Affairs, Trade Notes, *Biodiversity related international initiatives and national policy coherence for development and poverty reduction in Kenya*, Issue 23, (2009).

²⁹⁰UNESCO, *World Heritage Convention*, (2014), <http://whc.unesco.org/en/convention/>, accessed on 15 September 2014.

²⁹¹UNESCO, *Lake Turkana National Parks*, (2014), <http://whc.unesco.org/en/list/801>, accessed on 10 August 2014.

rivers with transboundary dimensions. The national implementing agency on the Convention is Kenya Wildlife Service which directly manages the parks. The main statutory instruments guiding the management include the Wildlife (Conservation and Management-Amendment) Act, 1989, Wildlife (Conservation and Management) Act CAP 376; EMCA, 1999; Water Act, 2002 as well as the Forests Act, 2005 together with associated gazette notices that establish the status forests, among others.²⁹²

However, these cultural and natural heritage sites that are mainly transboundary have continued to face immense pressure as the resource base dwindles due to surrounding communities intruding to wantonly exploit these resources, effects of climate change shocks and weak management frameworks. In the wake of glaring resource scarcity, conflicts among and between groups are a reality since the utilities often derived from these facilities have plummeted amid threatened livelihoods. This observation mirrors the principles of the resource scarcity perspective. There is need to ensure full and proper implementation of the Convention with support of local frameworks towards conservation, sustainable peace and a secured future.

The study findings on whether existing cross border natural resource management frameworks in Kenya were representative of the country's posterity plans show that 26.8% of the results note that existing frameworks are indeed representative of the country's posterity plans whereas 73.2% are of contrary opinion. A resounding majority of the respondents at 73.2% observe that existing cross border natural resource management frameworks in Kenya are not representative of the country's posterity plans. Gardiner also affirms that due to lack of immediate negative effects on the present generation, the environmental problem is dominated by 'intergenerational buck-passing' as our generation postponed addressing the issue of future generations amid institutions and systems that are poorly positioned to mitigate the situation.²⁹³ The figure below illustrates whether existing cross border natural resource management frameworks in Kenya are representative of the country's posterity plans.

²⁹²UNESCO, *Mt. Kenya National Park/Natural Forest*, (2014), <http://whc.unesco.org/en/list/800>, accessed on 10 August 2014.

²⁹³Gardiner, S.M., *The perfect moral storm: The ethical tragedy of climate change*, (Oxford, Oxford University Press, 2011).

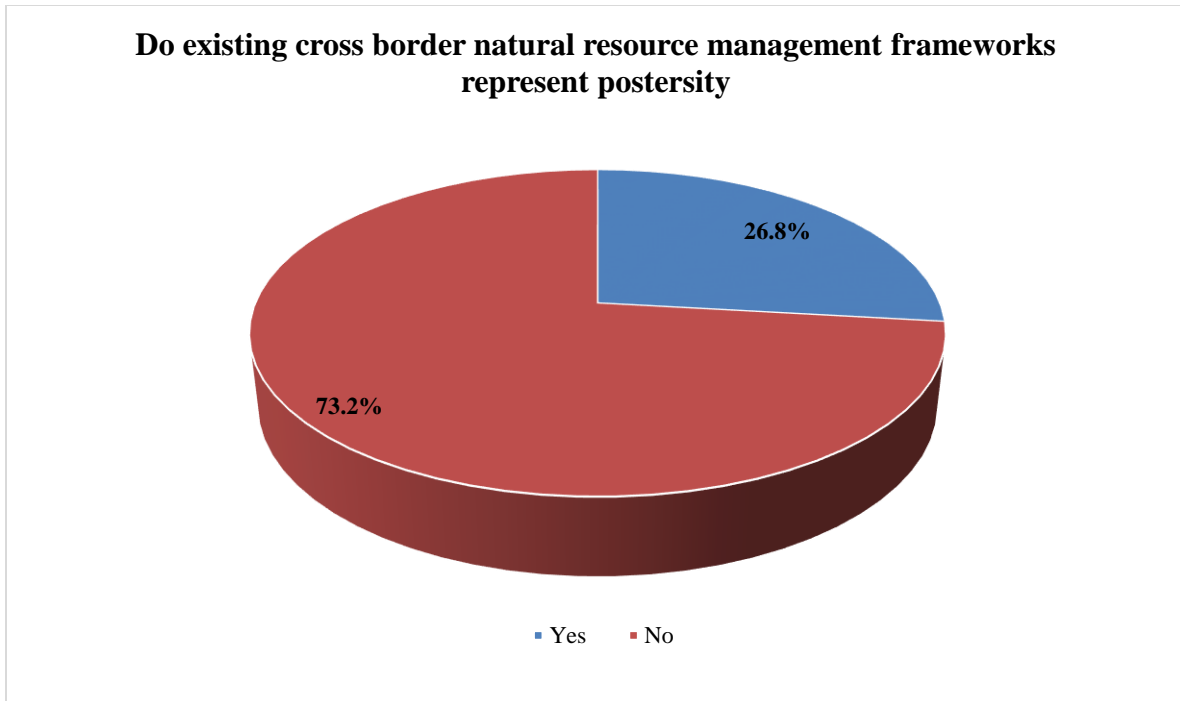


Figure 3.2: Do existing cross border natural resource management frameworks in Kenya represent posterity

Source: Author (2021).

A significant portion at 32.1% of the minority assenting results note that there are robust policies, sectoral laws and thematic institutions as part of the resource management frameworks for posterity. Other results include implementation of strategic plans and other supportive approaches at 25.9%, devolved system of governance for inclusivity at 22.2%, alignment of endeavors to development goals at 12.4% and ‘others’ at 7.4%. The findings observe that relevant policy guidelines, sectoral laws, rules and regulations exist for enforcement and are supported by both Vision 2030 and a robust and progressive constitution to facilitate sustainable administration of respective resources towards sustainable peace and posterity in Kenya. Findings too indicate that there are sector specific strategic implementation frameworks in place to purposefully ensure that the stipulated goals are met through relevant evaluation and amendment processes. The results further show that devolved structures of government provided for prospective exploitation and management of some resources by way of inclusivity and community ownership; an observation further affirmed by IUCN that devolution and CBNRM are linked to inclusive decision-making

and accountability, and that they are widely recognized to support effective and efficient governance of natural resources.²⁹⁴

The findings reveal that relevant thematic institutions have been established with financial support tied to their mandates in order to support programmes in sustainable natural resource use and management. The results maintain that there are frameworks which offer a platform for comprehensive and holistic approach to resource management with the participation of all stakeholders for mutual responsibility and benefits. The findings also note that these frameworks provide for innovative approaches in the preservation of natural resources through initiatives such as community and private conservancies. The results of the study confirm that Kenya in its planning subscribes to the Sustainable Development Goals which recognize resource management as being a key driver for sustainable development and indeed, SDGs 13-17 on environment, natural resource management and sustainable development are mapped with Vision 2030.²⁹⁵

A considerable portion at 25.8% of the majority who disapprove of the resource management frameworks as not being reflective of the country's posterity plans indicate that there are dissimilar rules and inhibitive approaches. Other results post political interference at 14.5%, low integrity and corruption at 20.4%, lack of participation and legitimacy at 15.9%, non-replication of best practices at 9.6% and lack of requisite reforms at 12.7%. The dissenting findings show that there is disharmony and contradiction in some of the provisions in related guidelines, rules and regulations and thus allowing for continued degradation and depletion of resources which in turn may lead to conflict; an argument in concurrence with the neo-Malthusian view. The results indicate that there is negative political influence, low public integrity, prevalence of corruption and the general feeling of discontent due to adverse failure by the frameworks to improve the wellbeing of communities. The findings note that lack of effective stakeholder consultation and participation amid a non-holistic approach to resource management hamper the creation of synergy and would be seamless resource management models. The dissenting respondents observe that there is lack of urgency in reforming the resource management frameworks to address trust issues, legitimacy (acceptability) deficit and actual resource management needs on the ground. The results further show that there is lack of open, democratic and consensual approach to resources

²⁹⁴Bugembe, B.N., *Natural resource governance framework challenges and opportunities in eastern and southern Africa: A Regional Scoping Synthesis of the Critical Natural Resource Governance Issues*, (Nairobi, IUCN, 2016).

²⁹⁵UN, *Sustainable development knowledge platform: Kenya; Voluntary national review 2017*, (2017), <https://sustainabledevelopment.un.org/memberstates/kenya>, accessed on 28 September 2018.

exploitation and management with huge evident gap in replication of best practices. Similarly, among the key capacity building needs within the Mara-Serengeti ecosystem is sensitization of stakeholders on natural resource management best practices.²⁹⁶

The study results on whether the Government of Kenya has done enough in ensuring the desired cross border natural resource management frameworks that serve Kenya's development interest indicate that 37.4% of the responses maintain that the government has done enough in ensuring the desired cross border natural resource management frameworks that serve Kenya's development interest whereas 62.6% hold contrary view. On the basis of the findings, majority of the responses at 62.6% are not of the view that the Government of Kenya has done enough in ensuring the desired resource management frameworks that serve Kenya's development interest. In support of the findings, Coria and Sterner observe that countries rely on exploitation of ecosystem resources to define the living standards of their people, however, there is a challenge in establishing whether resource exploitation happens in a sustainable manner. If the systems for exploitation are not sustainable, then it presents a serious challenge for the future since prosperity will decline.²⁹⁷ Hence, Kenya's huge potential and capability for realizing sustainable peace and economic progression is threatened through weak resource management frameworks amid continued environmental degradation and attendant conflicts in line with the neo-Malthusian view.

A substantial section at 24.8% of the minority affirmative results note that there is a robust constitution accompanied by supportive laws as part of the frameworks that favour development. The results further note synergy with other actors at 23%, domestication of best practices at 12.4%, government patronage and financing at 20.4%, proactive initiatives and reforms at 9.7% and 'others' at 6.2% as being part of the frameworks towards development. The figure below shows whether the Government of Kenya has done enough in ensuring the desired cross border natural resource management frameworks that serve Kenya's development interest.

²⁹⁶LVBC, *Strengthening community based natural resource management in the Maasai Mara-Serengeti ecosystem*, (Kisumu, LVBC, 2011).

²⁹⁷Coria, J. and Sterner, T., *Natural Resource Management: Challenges and Policy Options, Working Papers in Economics No. 480*, (Gothenburg, University of Gothenburg, 2011).

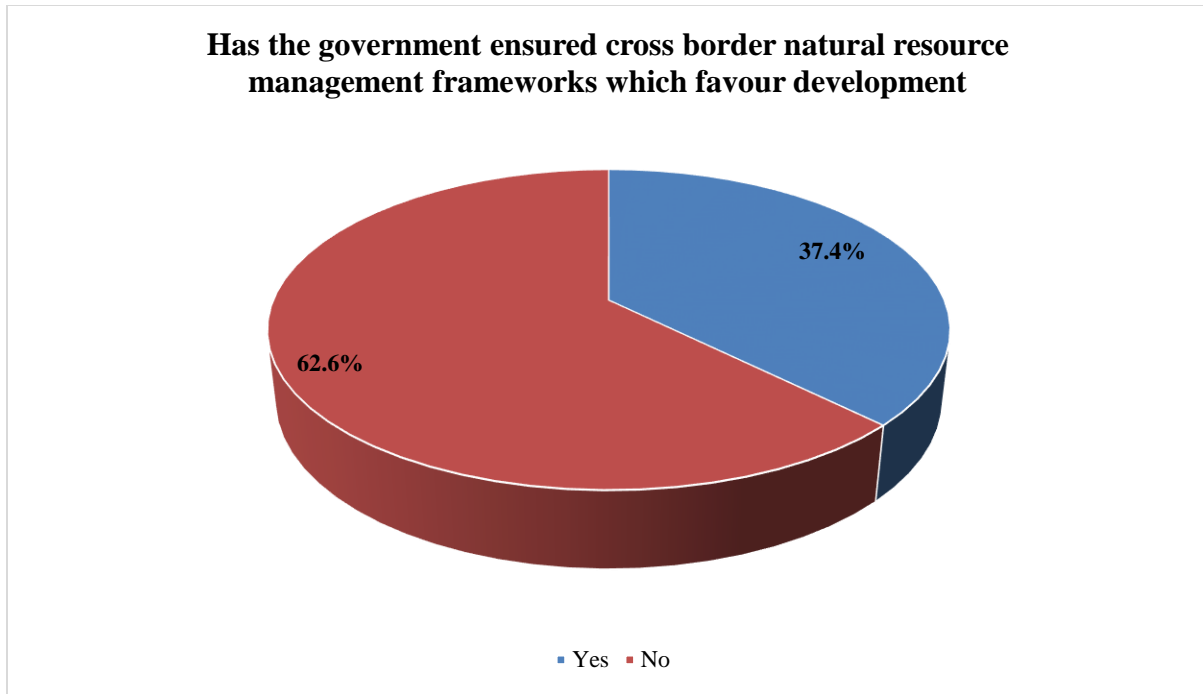


Figure 3.3: Has the government of Kenya ensured cross border natural resource management frameworks which favour development

Source: Author (2021).

The affirmative results indicated that facilitative laws and legislations have been developed and are linked through synergy with Kenya’s overall development agenda such as the Vision 2030. The findings note that together with the Constitution of Kenya, 2010, legal frameworks provide for inclusivity and people’s participation in progressive management of natural resources which in turn offer vital raw material for industrial production in the country. The results further observe that the country is partly borrowing exemplary external expertise and best practices to be domesticated into the local usage and management of ecosystem resources under the spirit of cooperation and integration in order to match emerging issues and the changing needs necessitated by globalization. The affirmative findings also note that the government has invested in related research to generate the right information for relevant planning and programming amid urgent need for balance between economic development and resource sustainability interests towards overall progression. Sustainable development thus includes ecological environment and natural

resources, economy and the society at large. This tri-faceted compound could only be best realized through sustainable utilization of resources in a peaceful and conducive ecological environment.²⁹⁸

The affirmative results also affirm that early warning and mitigation measures have been instigated to tackle impacts of climate change to safeguard the overall gains so far attained in sustainable resource management and development. The findings state that the government is working towards enhancing value addition of resource related products so as to maximize derived benefits and also reduce depletion, ensure conservation and foster resultant peace and economic development. The results also indicate that policy reforms are being undertaken to realign programmes and interventions to conform to present day needs in natural resource conservation, management, peace and economic development. The affirmative responses further confirm that proactive interventions such as arrests of related felons, selective targeted border patrols and resource reclamation efforts have been initiated to curb resource degradation and depletion as well as conflicts which posture the tenets of the neo-Malthusian view, so as to ensure the sector's improved contribution to stability and general development agenda. The positive respondents observe that the government is working with local communities in monitoring and reporting on natural resource use and management towards appropriate mitigation with enhancement in benefits. The responses also state that corporate social responsibility and public private partnership initiatives are being encouraged in environmental and natural resource management towards holistic community development. The results pointed out that training and education campaigns are being carried out in the community on the need to strike equilibrium between conservation and economic development efforts and that environmental issues are being incorporated in the country's education curriculum. The government is in the process of integrating environmental issues such as climate change into school curriculum at both primary and secondary levels.²⁹⁹

A considerable section at 24.3% of the majority dissenting results which disapprove of the management frameworks as not being able to serve Kenya's development interest argue that there is prejudiced government control and lack of community ownership. The other results indicate inadequate financing and infrastructure at 16.9%; ineffective implementation at 20.1%; poor enforcement and insecurity at 14.3%; corruption, impunity and lack of commitment at 18% and

²⁹⁸Leung, H., *Relationship between environmental, social and economic elements of development*, (Hong Kong, Hong Kong Baptist University, 2016).

²⁹⁹Bugembe, B.N., *Natural resource governance framework challenges and opportunities in eastern and southern Africa: A Regional Scoping Synthesis of the Critical Natural Resource Governance Issues*, (Nairobi, IUCN, 2016).

‘others’ at 2.7%. The dissenting respondents maintain that exclusive government control over natural resource management, unfair distribution of proceeds from the resources, marginalization of minority host groups and non-recognition of traditional natural resource management frameworks by the government disenfranchised communities in their quest for ownership, achievement of benefits and progress. The results also observe that there is poor enforcement by relevant agencies, lack of continuous public sensitization and non-reliable feedback mechanisms coupled with low public confidence in government operations. The findings further cite lack of legitimacy (acceptability) of management frameworks and gender inequality and inequity in natural resource management engagements as impediments in effective functioning of the resource management frameworks towards the country’s development. Olima *et al.* indeed confirm in a study that there is gender inequality in environmental resources utilization.³⁰⁰

The dissenting respondents state that there is poor implementation of plans amid inadequate infrastructure, low commitment and inadequate funding from the government to support productive and prudent resource exploitation and management. The respondents also mention porous borders and insecurity as factors that hamper effective exploitation and management of the transboundary resources with attendant incursion by foreigners who exploit resources within Kenya’s borders. They observe that these happen amid state absence or inaction with precipitated arbitrary arrests, intimidation and denial of locals to access resources by foreign authorities in contested border areas. Biased colonial tenets are also evident within the resource management frameworks as government officials and communities are accused of impunity, corruption and perpetration of wanton degradation and depletion of diminishing natural resources with the likelihood of conflicts in alignment with the resource scarcity perspective. The results further point an accusing finger at the government for using excess force and non-democratic approaches in the administration of some of the biological resources. Terer *et al.*, confirm that in Kenya, key decisions in natural resource management are often executed through government agencies with minimal participation of the communities.³⁰¹

³⁰⁰Olima, W.H.A. *et al.*, ‘Towards a gender analysis model for environmental management of ecotourism resources in Kisumu County, Kenya,’ *International Journal of Liberal Arts and Social Science*, Vol. 3, No. 5, (2015) pp. 123-133.

³⁰¹Terer, T. *et al.*, ‘Socio-economic values and traditional strategies of managing wetland resources in Lower Tana River, Kenya,’ *Hydrobiologia*, 527, (2004) pp. 3-15.

3.1.7 Cross border natural resource management achievements and best practices in Kenya

Kenya has indeed made substantive gains in the management of its transboundary natural resources and some of these accepted procedures are worth emulation by neighbours and the global community at large.

3.1.7.1 Pastoralist Development Project in the ASAL borderland regions of northern Kenya

Pastoralist Development Project was a 12-year plan by development partners FARM-Africa and GTZ on livestock husbandry and production with special focus on camels seen to be drought tolerant and environmentally friendly. The project began in 1988 within ASALs of northern Kenya, a region which covers an estimated 80% of land area in the country and with approximately 75% of Kenya's livestock.³⁰² The livestock sector contributes 90% of the overall local employment and also to over 95% of the realized family incomes in the ASALs and therefore development of pastoral economy is vital for poverty reduction and the country's economy. Public development interventions in these areas have been inappropriate or unsustainable owing to inadequate development resources, unsupportive policies and poor institutional governance.

Institutional failure has been attributed to political and social marginalization, economic stagnation, destitution and insecurity due to mainly misunderstanding and regular resource scarcity-induced conflicts in the vast and remote border region;³⁰³ an observation supported by the resource scarcity perspective. The project identified key priorities to support communities improve a particular resource as entry point for addressing a wide-range of development issues. The stipulated project area extending from Moyale to Marsabit and Samburu worked with different ethnic groups including Samburu, Ariaal, Turkana, Gabra, Sakuye, Somali, Rendille and Borana. The pastoral communities have since back in time had indigenous institutions for managing the exploitation of natural resources and resolving disputes across borders such as the 'aba herega' system for controlling water together with the 'aba dheda' regime for managing pasture among Boran-speaking communities in Kenya and Ethiopia, however the traditional mechanisms have since eroded with time due to external influences.

In order to address this problem, the project advocated for a more coordinated approach on interventions built on strong pillars of the indigenous institutions and anchored on the premise that

³⁰²Kenya Ministry of Agriculture and Rural Development, 'Policies and strategies for the delivery of veterinary services in Kenya', *draft paper*, (Nairobi, G.o.K, 2002).

³⁰³Centre for Governance and Development, *Pastoralism Policy legislation and Governance report*, online, <http://www.cgd.or.ke/documents/Pastoralism%20Report.pdf>, accessed on 1 December 2015.

land and associated natural resources were communally owned. This move resulted in the creation of community-based district forums and committees that mobilized and sensitized the communities with the aim of bringing stakeholders together, minimizing duplication of effort, reducing needless use of resources, minimizing competition and conflict of interests, and further pool resources to undertake joint programming. By involving communities in the establishment of community institutions, a safe exit plan for the project was ensured with improved livelihoods and long-term sustainability, as 30% representation of women on the committees increased their involvement in natural resources control and management. Respect for community norms and effective community involvement instilled sense of ownership and unwavering responsibility as the programme adopted a holistic strategy integrating education, health and rangeland management to diversify the economy towards sustainable peace and stable livelihoods.³⁰⁴

3.1.7.2 Lokiriana Peace Accord among Karamojong cluster communities

The Lokiriana Peace Accord is a peace agreement signed on 19 December 1973 between the Turkana of Kenya and the Matheniko of Uganda who are members of the larger Karamoja cluster communities as a commitment to peaceful co-existence. The accord which set precedence for peaceful coexistence within the whole pastoral fraternity in the region is named after Lokiriana, a remote town in Turkana and is marked by a symbolic monument that was built by elders who buried instruments of conflict and other paraphernalia in a pit beneath the monument.³⁰⁵ The historic occurrence has grown into one of the most important peace consolidation events in the region incorporating a series of innovative inter-state commemorations by young reformed warriors, men and women and the construction of a regional peace centre in Lokiriana.

The accord is commemorated in order to strengthen community level peace initiatives by celebrating local success narratives, emulating successful peace building initiatives, learning and replicating the agreement in the entire region. As a means of conflict transformation, the commemorations have been re-designed to promote community development and human security initiatives supported by the devolved government of Turkana County as a key player. The celebrations are aligned to a holistic approach to peace building by cluster member states for sustained development promises, lasting peace and greater benefits in the region. Based on the

³⁰⁴Houten, H., FARM-Africa, *Natural Resource Management best practices from FARM-Africa's Pastoralist Development Project in Kenya*, (Nairobi, Colourprint, 2002), <ftp://ftp.fao.org/docrep/nonfao/lead/x6176e/x6176e00.pdf>, accessed on 27 November 2015.

³⁰⁵International Organization for Migration Kenya, *About Lokiriana Peace Accord*, <http://kenya.iom.int/about-lokiriana-peace-accord>, accessed 28 November 2015.

accord, peace dialogues have been initiated between communities resulting in improved peace, security and trade as the traditional divide has been bridged with ease in movement and interactions realized among cross border ethnic groups. Livestock and other biological resources are shared peacefully,³⁰⁶ as is the case of the Pian of Uganda and Pokot of Kenya following the resource sharing dialogue in 2011.

The Karamojong cluster lies in the fragile and unpredictable ecological zones across Uganda, Kenya, Ethiopia and South Sudan, and comprises of Moroto, Tepeth, Nakapiripirit, Kaabong, Kotido and Pian of Uganda; Toposa of South Sudan; Turkana and Pokot of Kenya and Dasaanach (Merille) and Nyangatom of South West Ethiopia. Colonial and post-colonial administrations have often considered the communities' culture and production system as being chaotic, backward, environmentally destructive and economically unreasonable which occasioned destruction of poly-tribal councils of elders for natural resources and conflict management. As a result, attempts have been made to settle the pastoralists who are nomadic by closing off their rangeland for forest and game reserves, imposing boundaries, restricting access to dry season pasture, forcibly getting rid of their livestock and promoting intensive agriculture.

Insecurity and recurrent conflicts in the region have caused hardship and hindered development with periodic disarmament operations invariably escalating the violence and strengthening the desire for more weapons.³⁰⁷ The region from time immemorial has witnessed intra and inter-community conflicts arising from historical and cultural factors with insecurity, poor infrastructure, resource scarcity, famine, frequent and persistent flooding and droughts remaining as the common challenges over the years; challenges which embody the tenets of the neo-Malthusian view. Recurring livestock epidemics also weaken the communities' efforts to lead normal pastoral life, rendering them poor and vulnerable and as a result they resort to raids for survival.

3.1.7.3 Community and private conservancies for wildlife management

Traditionally, Kenya has won international acclamation as the most famous country in Africa for its wildlife and related tourism, although currently the country faces serious

³⁰⁶Makubuya, R. and F. Akello, UNDP, 'Delivering as One, Hand in hand towards a better future: Cross border peace dialogues promote peace among East African Pastoralist communities,' *United Nations Communications Group Newsletter*, (Uganda), October 2013, http://www.unicnairobi.org/newsletter/UNUgandaNewsletter_October2013.pdf, accessed on 28 November 2015.

³⁰⁷Oxfam, Kotido Pastoral Development Programme (2004-2013), *An overview of Oxfam GB's work in Northeastern Uganda*, http://www1.chr.up.ac.za/chr_old/indigenous/documents/Uganda/Report/OXFAM%20Kotido%20Pastoral%20Development%20Programme.pdf, accessed on 1 December 2015.

conservation and management challenges and has since lost much of its wildlife. Data collected by the government on wildlife populations since the 1970s indicate that most wildlife species declined by an estimated 40% between mid-1970s and mid-1990s. This trend has continued in most areas since the 1990s and at present it is estimated that Kenya has lost about half of its total wildlife over the past three decades.³⁰⁸ There is increasing pressure on the country's wildlife occasioned by the rise in population and resultant human activities that include encroachment and particularly poaching from 2008 which threaten and undermine the country's heritage and well-being environmentally, economically and socially. This state of affair has the potential of causing disputes at the community level as groups jostle for benefits from the residual resources; an observation in line with the neo-Malthusian view.

For a long time, the strategy for conserving wildlife heritage in the country was based on a protected area network yet many species move seasonally to forage and breed on community and private land and thus do not only inhabit the protected areas. Community and private conservancies have come out as vital and best viable options for wildlife management in Kenya and therefore it is important to recognize wildlife as being a legitimate kind of land usage acknowledged by Wildlife Conservation and Management Act and other laws including the Physical Planning Act. The Wildlife Act recognizes the need to incorporate in the strategy facilitation of communities and private owners to protect and manage wildlife for long term viability of wildlife resources.³⁰⁹

Kenya wildlife service should improve its relation with severed community due to past human-wildlife conflict so as to nurture peace and harmony among actors, establish a community extension component and officially recognize community scouts so as to succeed in its security intelligence and operations. Similarly, the concerned ministry should produce guidelines on benefit sharing and incentives as required by the Act under sections 73 and 76 and ensure effective implementation of relevant sections of the Act. Critical provisions relate to setting up of County wildlife conservation and compensation units and having conservancy community rangers vetted and properly trained. Local communities in Kajiado have a series of long-term tourism agreements

³⁰⁸Tanzania Natural Resource Forum, Best practices in wildlife management; learning from the region, *brief 6*, (2008).

³⁰⁹Commission for the Implementation of the Constitution, *Legislation: The Wildlife Conservation and Management Act, 2013*, <http://www.cickenya.org/index.php/legislation/acts/item/364-the-wildlife-conservation-and-management-act-2013#.VloG8dIrI4w>, accessed on 29 November 2015.

that have prompted communities to reserve land for wildlife, which spend most of the time on group ranches outside Amboseli National Park on the Kenya-Tanzania border.³¹⁰

The study findings on whether there are any achievements and best practices in cross border natural resource management in Kenya indicate that a significant segment which constitute nearly half of the results at 47.4% confirm that there are achievements and best practices within cross border natural resource management in Kenya. Slightly more than half of the results at 52.6% indicate that there are no achievements and best practices in cross border natural resource management in Kenya. Overall, slightly below half of the respondents at 47.4% maintain that there are achievements and best practices in cross border resource administration in Kenya. The figure below illustrates whether there are any achievements and best practices in cross border natural resource management in Kenya.

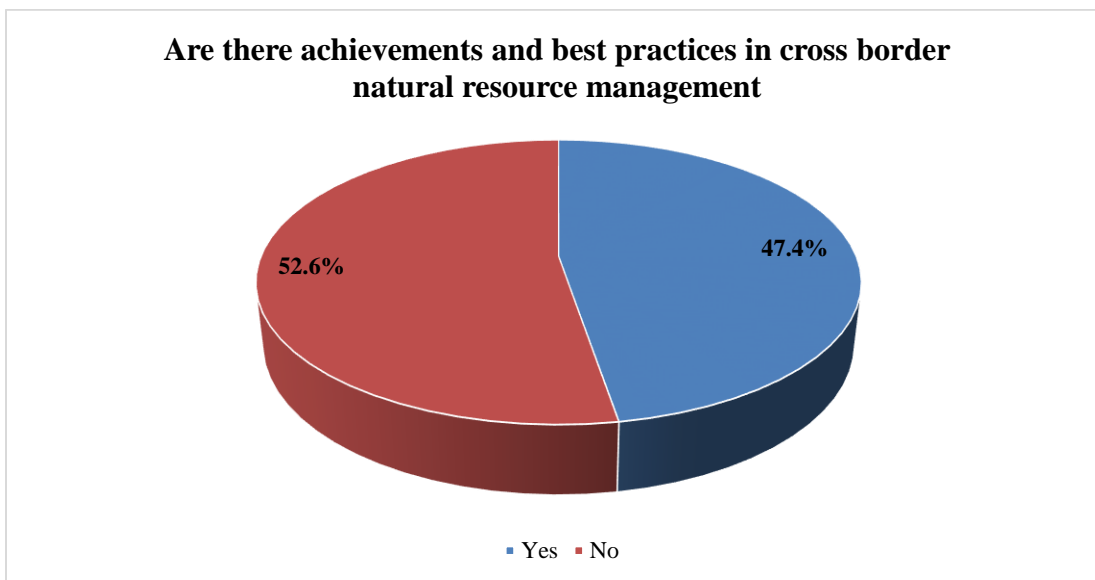


Figure 3.4: Are there achievements and best practices in cross border natural resource management in Kenya

Source: Author (2021).

A noteworthy portion at 21% of the minority assenting results cite negotiations, peaceful coexistence and synergy among actors as achievements and best practices in resource management. Other results include conservation and reclamation efforts at 18.2%; ownership and

³¹⁰Rotich N. *et al.*, Ministry of Environment, Water and Natural resources, Lifting the siege: Securing Kenya's wildlife, *Task force on wildlife security report*, (Nairobi, MEWNR, 2014).

accountability at 12.6%; progressive rules, plans and relevant institutions at 15.4%; sustained funding and research at 9.1%; proactive initiatives and reforms at 10.5% and ‘others’ at 7%. The results note that there are peaceful coexistence efforts amid plans for sustained livelihoods among affected communities and that protection of endemic and endangered species together with the realization of synergy in programmes is also being promoted. The results further indicate that communities are being encouraged to incorporate conservation issues into their community and livelihood endeavors to ensure more robust ownership and accountability in the management of resources. Findings observe that related policy, institutions, laws and rules are partly in place to support the management of resources as related initiatives are being funded. The affirmative responses cite the existence of platforms of engagement by actors in the resource management arena supported by a progressive constitution and national plans such as the Vision 2030 which has components on sustainable natural resource management. The country development plan offers an overall platform for improving environmental planning and management in Kenya.³¹¹

The results further note that the country has ratified international agreements and adopted the Sustainable Development Goals on aspects of sustainable resource management, peace and development. The findings also indicate that there is domestication of some borrowed best practices and that communities have been allowed to participate in natural resource management to some extent. The responses affirm that reforms are being undertaken on the frameworks for management of natural resource in Kenya and that enforcement efforts are also being scaled up with relevant research undertaken on the best approaches to be adopted for management. The results confirm that some communities have agreed to negotiate and reconcile on natural resource use and management with immense benefits being realized. In addition, the findings note that efforts are underway to restore some of the degraded and depleted resources in the country since they stand as the key drivers to scarcity and conflict; an argument that is aligned to the resource scarcity perspective. Although the government has instigated conservation efforts via various frameworks in a bid to restore degraded environments, this move calls for government commitment and sustained effort by all stakeholders in order to realize success and enhance ecological security.³¹²

³¹¹G.o.K., *Kenya Vision 2030, The Popular Version 2007*, (Nairobi, G.o.K., 2007).

³¹²Mboya, S., ‘Kenya can restore its forestry and ecology just like China has,’ *Capital Digital Media*, (Nairobi), 29 March 2014.

3.2 Current state of cross border natural resource management towards sustainable peace in eastern Africa region

This part examines the state of cross border resource management with in-depth scrutiny of transboundary resource management arrangements, related conflicts and peace in the eastern Africa region. The section also examines the state of affair and management on natural resources of international importance and further highlights the challenges and milestones witnessed within the circles of managing transboundary resources.

3.2.1 Cross border natural resource management, conflict and peace in Kenya

The present state of affairs on management of ecosystem resources in Kenya can be traced through pre-colonial, colonial and the now post-colonial experiences in relation to Kenya's political economy summarized by epochs of development evolution. The pre-colonial approach to resource management was founded around communal resource ownership directed through cultural and religious standards with obligatory regulations and sanctions. Lower population density, limited trade, use of simple implements and comparative very large quantities of natural resources made sure that communities satisfied their needs without harming the environment.³¹³ The advent of colonialism adversely revolutionized how native communities related with "their own resources" since this transformation was instigated by alteration of natural resource exploitation and ownership rights.

Restrictive and coercive law enforcement measures amid economic dispossession caused conflicts between the locals and the reigning imperialists, a situation which provided for the requisite momentum towards Kenya's liberation campaign. In the period following independence, the government of Kenya adopted a vertical planning approach that treated locals as passive recipients and not active worthwhile actors in natural resource management. Ecosystem natural resources in Kenya are mainly transboundary and comprise of drylands, forests, aquatic and marine resources, wetlands and other vulnerable habitats and biodiversity. However, these diverse resources are threatened by population pressure, degradation of environment, resource depletion, unsustainable use and poor governance.³¹⁴ Generally, this has led to protracted survival contests

³¹³Yatich T, *et al.*, World Agroforestry Centre Policy and institutional context for NRM in Kenya: Challenges and opportunities for Landcare, *ICRAF Working paper*, No. 43, (2007).

³¹⁴Ministry of Foreign Affairs of Denmark/DANIDA, *Natural Resource Management*, <http://kenya.um.dk/en/danida-en/nrm/>, accessed on 7 April 2015.

over the control of diminishing resources with strained relations between various interest groups; an observation that is in tandem with the resource scarcity perspective.

The study findings on the understanding of the meaning of ‘cross border natural resources,’ show that 72.5% of the total respondents confirm knowing the meaning of ‘cross border natural resources’ whereas the remaining 27.5% state that they did not know the meaning of the concept. The figure below illustrates the respondents’ knowledge on the meaning of ‘cross border natural resources.’

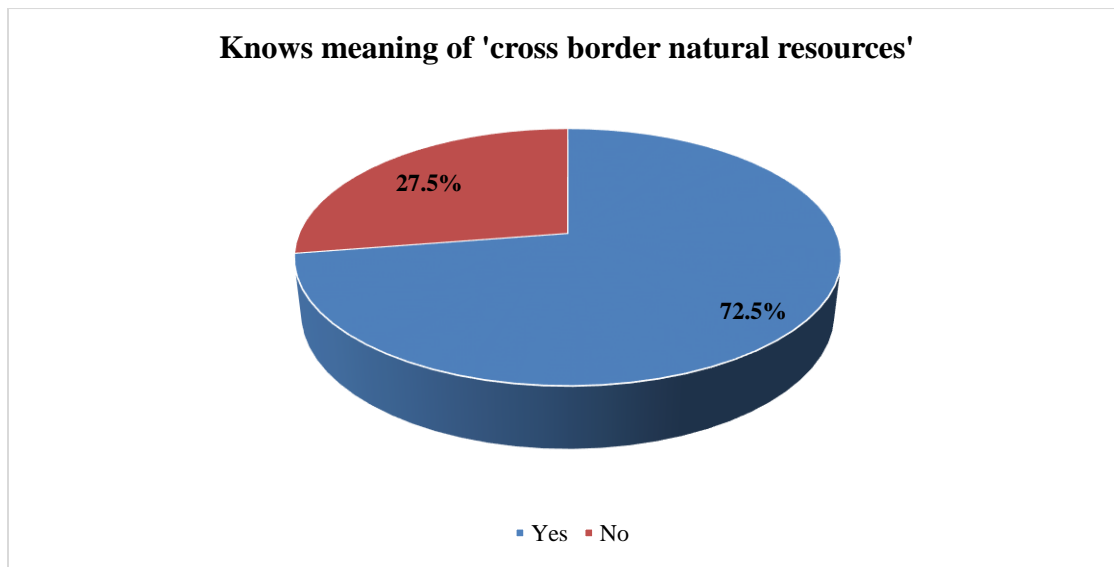


Figure 3.5: Knowing the meaning of 'cross border natural resources'

Source: Author (2021).

A resounding majority of respondents know the meaning of ‘cross border natural resources.’ The study findings indicate that 76.7% of those who know the meaning of ‘cross border natural resources’ describe them as natural resources which transcend national borders, occur or are shared between countries. Similarly, literature reviewed on the study confirms that a transboundary or shared resource is one whose exploitation, ownership or stewardship is shared by two or more countries and that the activities upon the resource in one country can directly affect the availability, quantity or quality of the said resource in another country.³¹⁵ Other affirmative responses indicate that they are resources that attract or integrate states which need not necessarily

³¹⁵Transboundary ecology, *Description and definition of transboundary impacts and resources; Distinguishing between transboundary resources and transboundary impacts*, http://mekong.riverawarenesskit.org/html/1.11.2_description_transboundary.html, accessed on 25 September 2018.

to be neighbours and that their occurrence in one state may often affect ecosystem wellness in other state (s). Of the 27.5% who state that they did not know the meaning of cross border natural resources, majority are men at 16.6% of the total respondents; a situation which may partly be attributed to their lesser interaction with the resources as compared to their female counterparts who are in near constant engagement with the resources as they fend for their families in the remote borderland areas. This observation is supported by The World Wide Fund which reiterates the need to recognize important role women play in management of natural resources given their unique understanding of the resources as a result of their regular interactions with them as they look after their families.³¹⁶

Increase in human population, resultant ecological stress and the constrained access to resources more often lead to competition and acrimonious claims on the scarce and dwindling natural resources. The direct consequences of this contests are tension or even at times violent conflicts as various groups strive to survive or control the resources for their own expediencies; an argument supported by the resource scarcity perspective. The situation is further worsened in scenarios where transboundary resources have weak or lack robust resource exploitation and management frameworks to support cooperation and peaceful engagement, especially when relations are severed as evidenced in the analysis of assorted resource situations in the region.

3.2.1.1 Deteriorating state of Lake Victoria basin resources

Lake Victoria stands as the second largest lake globally and the accredited origin of White Nile where its waters together with surrounding wetlands constitute abode to a variety of biodiversity species and flocks, a number of which are endangered or threatened. The lake is also a major determinant of weather system within the region with its water levels contributing to the regulation of the area's rainfall patterns. Sustainable and fair management of cross border water resources often poses major problems for developing riparian nations. Similarly, Kenya, Uganda and Tanzania are struggling with a myriad of challenges in the lake region which include the ever-increasing environmental pressures due to growing populations, increased pollution, effects of climate variability and over-exploitation of resources which collectively lead to competition and subsequent disputes surrounding the sharing of the diminishing resource base; an observation which concurs with the resource scarcity perspective. Other challenges include invasive and alien

³¹⁶WWF-UK, *Natural resource management and the importance of gender*, (UK, WWF-UK, 2012), https://d2ouvy59p0dg6k.cloudfront.net/downloads/women_conservation_overview_2012.pdf, accessed on 24 September 2018.

species which include the water hyacinth, eutrophication and the decline in lake water levels partly attributed to competing uses in the basin such as the draw by Uganda's Nalubaale and Kiira dams.³¹⁷

An interview with Mr. Alfred Adongo the Team leader of Sustainable Aid in Africa International (SANA) confirms that informal settlements neighboring the lake have expanded amid lack of adequate clean water and necessary facilities for sanitation. This has led to the draining of general waste and raw sewer into the lake which in turn contaminates and pollutes the reservoir among other environmental hazards. The development partner calls for promotion of public education on general hygiene since the lake has been degraded and degenerated over the years with its water no longer safe superficially in terms of physical appearance, colour and even smell. The interviewee further affirms that "...the draw on the lake and subsequent release of water by installations such as Kiira and Nalubaale dams in Jinja, Uganda have led to erratic water levels in the reservoir." The interview notes that through a massive investment in Nyakach area within Kisumu County, Kenya Electricity Generating Company (KenGen) has dammed River Miriu; a feeder into the lake with attendant impact on downstream communities as livelihoods have been adversely disrupted. Such aggravated resource scarcity amid threatened livelihoods is likely to push affected groups into conflict in their quest for survival. The interviewee states that a recent study conducted on the KenGen project in the area reveals that the dam will hold an estimated 30% of the water from the river but with the advent of climate change impacts, volumes of water uptake by the reservoir may rise up to 90%,³¹⁸ thus further depriving communities downstream with the possibility of conflicts as the struggle focuses on the scarce resource in line with the principles of the resource scarcity perspective.

The interview reveals that "...whenever the retained water is released out of the KenGen dam, the torrent causes flooding downstream although, on the 'right side' of the project tunnel, downstream peripheral springs and other ground water bodies have been affected adversely as they have since dried up." Most boreholes which were dug downstream near the project tunnel by the company as part of community social responsibility are also drying up and the community cannot afford the electricity costs incurred in running the surviving boreholes upstream on the 'left side' of the project tunnel, yet water was initially freely available for the community to utilize. The loans

³¹⁷Kiwango, Y.A. and E. Wolanski, 'Papyrus wetlands, nutrients balance, fisheries collapse, food security and Lake Victoria level decline in 2000–2006,' *Wetlands Ecology Management*, 16, (2008) pp. 89-96.

³¹⁸Ombara I., Interview with Mr. Adongo, A., Team Leader, Sustainable Aid in Africa International (SANA), Kisumu, May 2018.

advanced to the community to service the power bills are inhibitive to the community's survival and thus there is need for KenGen to foot the bills. The company should support the installation of solar systems to power the boreholes as an alternative water source to ease pressure and conflicts surrounding the exploitation of the vital natural resource.³¹⁹

Another interview with Mr. Michael Nyaguti the Director of Magnam; an Environmental Community Based Organization further observes that the pollution of the lake waters has created a conducive environment for the water hyacinth to thrive yet the cash meant for both manual and mechanical removal of the weed was corruptly syphoned out as the initiative stalled indefinitely.³²⁰ All these problems and others amid compromised enforcement of related laws threatened the environment and economic growth of the region as consequences of their failed mitigation are bound to worsen with the lake being the key source of subsistence security for the entire basin communities and it also defines regional ecology. If unabated, this substantial ecological degradation will result in reduced economic performance together with decline in welfare and standards or quality of life for affected populations. A confluence of such adverse trends may lead to decline in legitimacy for resource institutions and loss of legitimacy for the riparian governments through increased social tensions, threatened human security and increased possibility of interstate environmentally-induced disputes;³²¹ an argument in line with the tenets of the neo-Malthusian view.

It is therefore important to ensure timely intervention to curb the deteriorating state of the lake through corresponding sweeping reforms on resource management systems and approaches, advocate for the changing of adverse socio-cultural practices that accelerate pollution and ensure a comprehensive and participatory model in the conservation and management of the lake and its resources. It is also essential to ensure timely and fair dispute resolution mechanisms are in place and further strengthen the capacity of affected communities to achieve resilient, diversified and sustained livelihoods amid progressing resource scarcity. Once these measures are properly implemented on a platform of cooperation and trust among actors, then shared gains, interdependency, socio-economic progression, sustainable peace and a secured future will be realized.

³¹⁹Ombara I., Interview with Mr. Adongo, A., Team Leader, Sustainable Aid in Africa International, Kisumu, May 2018.

³²⁰Ombara, I., Interview with Mr. Nyaguti, M. O., Director, Magnam Environmental Network, Kisumu, May 2018.

³²¹Lubovich, K., *Cooperation and Competition: Managing Transboundary Water Resources in the Lake Victoria Region*, *Foundation for Environmental Security and Sustainability Working Paper No. 5*, (2009), http://www.fess-global.org/WorkingPapers/Lake_Victoria_Working_Paper.pdf, accessed on 10 June 2015.

3.2.1.1.1 Migingo Island row

A boundary and resource row ensued in 2008 involving Kenya and Uganda on the disputed possession of Migingo Island and adjacent waters. The tiny island lies along the contested, watery and common boundary between the two neighbours and leaders on both sides have threatened war over its huge stocks of Nile perch. The situation has been exacerbated by erratic water volume in the lake, a growing and demanding population, lack of comprehensive resource management framework and competition over dwindling resource base; an argument that resonates with the neo-Malthusian view. A bilateral border commission³²² has been scrutinizing colonial documents in a bid to establish whether Migingo was in Uganda or Kenya even though the group is plagued with rival patriotic stands and cash woes in its quest. The present boundary is based on a 1926 British Order in Council that overruled the 1914 boundary established by an Anglo-German agreement. The contested island lies along the Kenya-Uganda Lake Victoria boundary segment estimated at 86 miles long.³²³

Uganda asserts that the Island is in its waters and thus it is illegal for Kenyan fishermen to ply their trade in the area with the directive sounding disruptive to the fisherfolks' livelihoods; a claim John Donaldson who is a border disputes researcher with the International boundaries research unit³²⁴ refutes saying that it is close though records from 1926 plainly situate the island several hundred meters within Kenyan territory.³²⁵ Kenyan fishermen feel free to wander into Uganda's waters as they argue that Kenya's swampy lakeshores provide breeding grounds for the fish and thus even if they grew up and caught on Ugandan side, the fish remained Kenyan by birth. A diplomatic row ensued involving Kenya and Uganda in 2009 after Kenyans inhabiting Migingo Island were required to acquire special permits issued by the Ugandan government.³²⁶ A subsequent Ugandan government press release recommended that the conflict should be resolved through a survey based on the boundaries established under the Kenya Colony and Protectorate

³²²Mnjama, N., *Records Management And The Migingo Island Saga*, SCECSAL XXth (Conference Presentation, 4-8 June 2012, Nairobi: Kenya), http://scecsal.viel.co.ke/images/6/63/Records_Management_And_The_Migingo_Island_Saga.pdf, accessed on 14 April 2014.

³²³Matshanda, N., *Migingo Island Dispute May Threaten East African Integration*, (Tshwane: Pretoria, African Security Analysis Programme, 2009), http://www.icpat.org/index.php/documentation-a-articles-mainmenu-97/doc_details/117-migingo-island-dispute-may-threaten-east-african, accessed on 12 July 2014.

³²⁴African Union Commission, *Delimitation and Demarcation of Boundaries in Africa, General Issues and Case Studies*, (Offenbach: Germany, Schultheis Druckerzeugnisse GmbH & Co KG, 2013), <http://www.peaceau.org/uploads/au2013-en-delim-a-demar-of-bound-gen-iss-a-studies-elec2.pdf>, accessed on 5 May 2014.

³²⁵The New York Times, Africa; 'Ripples of Dispute Surround Tiny Island in East Africa,' *Migingo Island Journal*, http://www.nytimes.com/2009/08/17/world/africa/17victoria.html?_r=0, accessed on 12 May 2014

³²⁶Oluoch, N., 'Uganda slaps work visas on Kenyans in Migingo,' *The Standard*, (Kenya), 7 March 2009.

Order in Council of 1926.³²⁷ The two governments have since agreed that fishermen drawn from both sides be allowed to conduct business normally to secure their livelihoods until the boundary is determined by experts as the border dispute that could possibly affect cooperation between neighbours and even destabilize the East African Community remains unresolved.³²⁸

3.2.1.2 Climate change, development and conflict in Lake Turkana basin

Lake Turkana maintains its stature as the largest desert lake on the globe and the area is denoted as the “Cradle of Mankind” since the oldest known hominid remains or rather fossils have been found within this area.³²⁹ The lake which is a closed basin located in Kenya’s northern Rift Valley harsh terrain however lacks specific laws to govern the use of its water and affiliate rivers despite the area facing chronic water shortage. Nonetheless, Kenya’s Water Act of 2002 and subscription to the Ramsar and Desertification Conventions aim at promoting the protection and management of Lake Turkana’s water and other like resources.³³⁰ The Lotagipi swamp to the west of the lake is a flood plain straddling the Kenya-Sudan border and includes riparian areas of Ethiopia and Uganda. The swamp lacks protected status yet it sustains livelihoods by providing dry season pasture and hunting grounds for the local communities.³³¹ This goes a long way in ensuring that competition and disputes arising out of acute scarcity of resources are averted and instead cooperation and peaceful exploitation of the resources are achieved. The swamp is also reported to hold part of the recently discovered massive underground aquifers estimated at 250 billion cubic metres, able to sustain Kenya for an estimated 70 years.

The Omo River being the main inlet into the lake initially had its delta mainly within Ethiopia territory but recently, the delta has undergone change as a result of reduced lake water levels, increased upstream diversion, decreased rainfall, increased evaporation due to high temperature (the reservoir loses more than 10 times its surface water annually than received from rainfall) and soil disturbance from untenable agricultural practices that have accelerated erosion and aggravated sediment inflow into Lake Turkana. The noticeable change in the Omo River delta has occasioned seasonal flooding but of interest is the fact that it now falls in both Kenya and

³²⁷Opolot, F., ‘Misingo Island Press Release,’ *Uganda Media Centre*, (Kampala), 12 March 2009.

³²⁸Otieno, D., ‘Misingo now a different kettle of fish,’ *Daily Nation*, (Kenya), 29 March 2009.

³²⁹Finke, J., *Lake Turkana Mankind’s Origins*, (2001), <http://bluegecko.crosswinds.net/tribes/turkana/prehist.htm>, accessed on 19 September 2014.

³³⁰Global International Waters Assessment/United Nations Environment Programme, East African Rift Valley Lakes, *Regional Assessment 47*, (Kalmar; Sweden, University of Kalmar, 2004).

³³¹Jägerskog, A., UNDP, *Managing Transboundary Waters for Human Development*, (2006), <http://hdr.undp.org/en/reports/global/hdr2006/papers/jagerskog%20anders.pdf>, accessed on 10 October 2014.

Ethiopia unlike before when it was exclusively in Ethiopia, and thus complicating its management. The region has intertwined and complex disputes characterized by interstate, ethnic and livelihood interfaces. Climate change elements have considerably altered the accessibility of ecosystem resources within the region especially, land and water.³³²

The general reduction in resource quality and amount enhances the risk of conflict in the region³³³ as failed mitigation efforts have led to migration with subsequent rise in ethnic tension, resource competition, elaborate socio-economic fault lines, distrust and conflict within host areas; a view upheld by Thomas Homer-Dixon who is a key proponent of the resource scarcity perspective. Although the lake remains the main source of water and livelihood for adjacent communities whose population has steadily risen over the years, environmental factors that include rapid desertification have led to its retreat into Kenya and for the communities to survive; Ethiopian tribes that include Merille, Mursi and Nyangatom, among others have been following the water resulting into increased inter-tribal conflict characterized by a surge of retaliatory deadly violent attacks. The figure below illustrates various ethnic groups residing along the Kenya-Ethiopia border area.

³³²Nordas, R.N. and Gleditsch, N.P., Political Geography, Climate Change and Conflict: The Migration Link, *Coping with Crisis Working Paper Series*, (New York, International Peace Academy, 2007), www.ipacademy.org/our-work/coping-with-crisis/working-papers, accessed on 17 March 2014.

³³³Barnett, J. and W.N. Adger, 'Political Geography, Climate Change,' *Human Security and Violent Conflict*, 26, (2007) pp. 639-55.

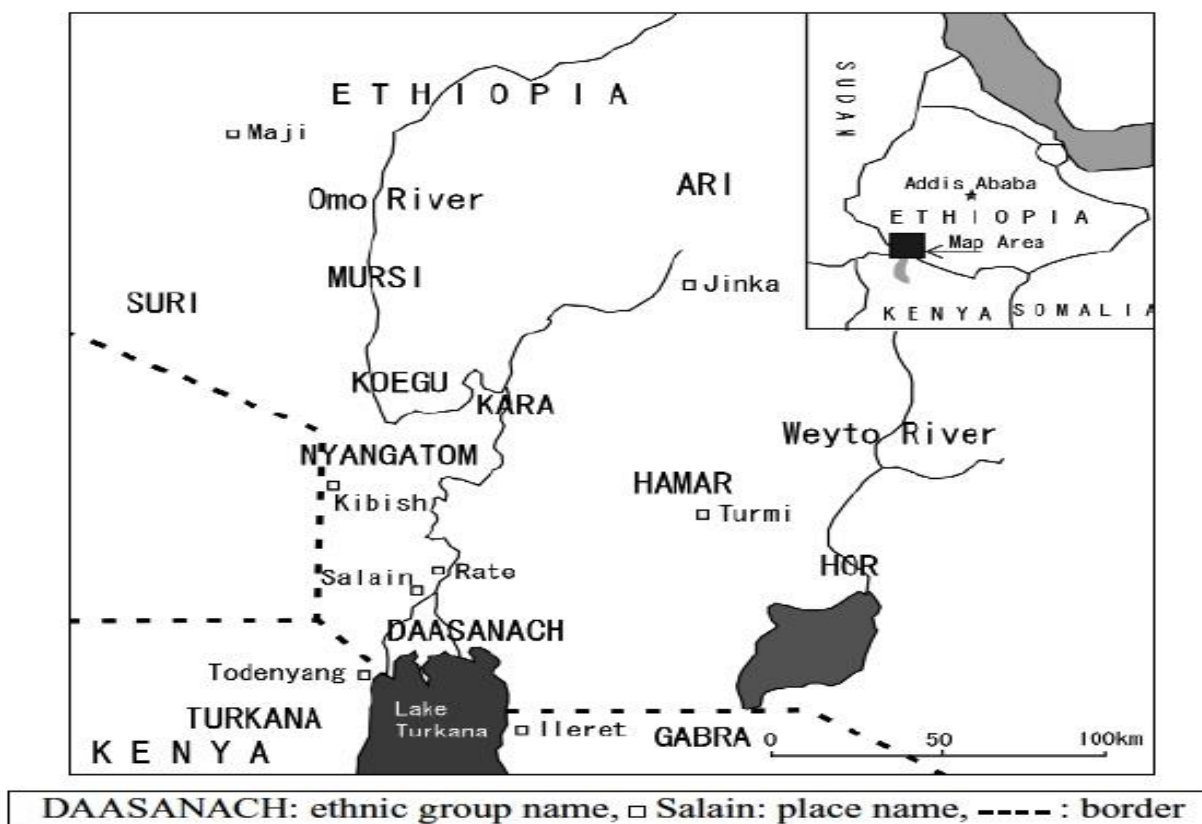


Figure 3.6: Different ethnic groups along the Kenya-Ethiopia border area

Source: ICE Case Studies (2011).

The situation in the basin has been exacerbated over the years by human factors such as high dependency on agriculture, wide availability of guns, overpopulation and constrained mobility of pastoralists by international borders which have heightened tensions.³³⁴ Considering that the conflict centered on water and land resources worsens when the resources are scarce,³³⁵ the association between climate change and variability, resource scarcity, migration, competition and conflicts within the area; factors which are linked to the tenets of the neo-Malthusian view, may be tackled by creating alternative sources of livelihood, establishing or strengthening relevant resource management frameworks and enhancing necessary state capacity to tackle insecurity.³³⁶ The situation in the expansive basin which has a transboundary catchment stretching into Uganda

³³⁴Reuveny, R., 'Political Geography,' *Climate Change-induced Migration and Violent Conflict*, 26, (2007) pp. 656-73, <http://www.csun.edu/~dtf46560/630/Misc/Reuveny-ClimateChangeMigration-2007.pdf>, accessed on 11 May 2014.

³³⁵Powers, J.C., Climate Change and the Turkana and Merille Conflict, *IEC Case Studies Number 238*, (2011), <http://www1.american.edu/iced/turkana-merille.htm>, accessed 12 April 2014.

³³⁶Gleditsch, N., et al., *Climate Change and Conflict: The Migration Link, Working paper*, (New York, International Peace Academy, 2007).

and South Sudan may worsen with the construction of a 1.47 billion Euros Gilgel Gibe III dam on the Omo, 600 kilometres upstream from the lake for hydropower and large scale irrigation development.³³⁷ The damming of the river which supplies 90 percent of the lake's freshwater and accompanying nutrients will dramatically change the natural hydrological cycles by impacting on the lake's biomass volume that include fish production as it will hold an estimated 50 percent of the river's water with permanent drop in the level of the lake's water.

Although an environment and social impact assessment was done by African Development Bank (AfDB) 3 years into the project and after its commenced in 2006, there lacked effective involvement of local communities. Ethiopian authorities still plan to construct Gibe IV and V dams regardless of the effects on the lake inflow natural variability. Reduced water inflow and chemicals from farms will exacerbate the extreme ion levels of the lake further compromising water quality and the very existence of both humans and dependent ecosystems.³³⁸ The Omo flow equals 85 percent of the total renewable surface water in Kenya and thus responsible use of its resources is a regional priority since increased pressure on the local livelihood systems generates new heights of tension and violence which in turn hamper the realization of sustainable peace and development in a conflict prone area and the entire region at large.

An interview with Dr. Kennedy Ondimu the Director of Planning and Research, Ministry of Environment and Natural Resources Headquarters confirms that indeed UNEP with support from AfDB conducted a study on Social and Environmental Impact Assessment over the construction of Gilgel Gibe III Dam by Ethiopians and also on how the project would impact the environment and communities downstream especially in the Lake Turkana basin. The Director states that "...the study looked at the water level satellite imaging and upon doing projections, the findings reveal that the project would not bare negative impact as portrayed and that the threat is in the long term." Nonetheless, he states that "...biodiversity may be affected all together and therefore there is need for targeted study on possible effects of the project." The interviewee observes that the dam could regulate its water volume by capturing and retaining water and floods during heavy rains and releasing water whenever necessary. The government official notes that residents of the basin are mainly pastoralists and thus the demand for water was a bit low as

³³⁷Woodroffe, R. *et al.*, Omo-Gibe River integrated basin development master plan study, *Final report for the Ministry of Water Resources of the Federal Democratic Republic of Ethiopia*, Vol. 15, (Addis, Mascott Ltd, 1996).

³³⁸Sean, A., *What future for Lake Turkana*, (Oxford, University of Oxford, 2013), <http://www.africanstudies.ox.ac.uk/sites/sias/files/documents/WhatFutureLakeTurkana-%20update.pdf>, accessed on 30 April 2015.

compared to that of communities practicing farming. He further reveals that there are other issues such as ‘*Prosopis Juliflora*’ locally known as ‘Mathenge weed’ which is an invasive alien species whose origin can be traced in South America. The weed has been displacing the already strained grazing grounds in the Lake Turkana basin area.³³⁹

There is need to support indigenous frameworks for resource management in the dry region already grappling with scarcity since this will in turn facilitate sharing of water sources and grazing grounds, resolution of conflicts, dialogue and reconciliation, collaboration and peaceful coexistence. The resource management approaches should incorporate all actors to ensure diversified, resilient and sustainable livelihoods for the affected communities. Once there is cooperation, trust and equitable sharing of the benefits emanating from wise management of the resources, then conservation goals will be met with socio-economic progression and sustainable peace being realized in the long run.

3.2.1.3 Pastoral battles for resources in northern Kenya

Northern Kenya lies within the Horn of Africa territory and is known home to several pastoral groups entangled in violent conflicts mainly due to increase in population, ecological stress, constrained access to resources and the generally dwindling resource-base which has resulted in competition over scarce natural resources. Livelihoods of these pastoral communities are largely dependent on livestock production together with shared communal rangeland influenced by erratic rainfall which bear direct implications for herd movement and the land’s carrying capacity, an argument in line with the tenets of the resource scarcity theory. Conflicts in these remote borderland areas are regarded a usual phenomenon, a notion that negatively affects proper and definitive response to this perennial problem.

Geopolitics is a principal element in the cycle of environmental conflicts and insecurity within the region as the establishment of legally protected areas and state boundaries interfere with pastoral systems founded on flexible property rights regime and flock mobility.³⁴⁰ Reduced herd movement results in rangeland degradation and subsequent livestock deaths which in turn casts doubt on the survival of groups in a region characterized with political instability. The situation is worsened by recurrent severe droughts, weak community mechanisms for resolving conflicts and

³³⁹Ombara, I., Interview with Dr. Ondimu, K., Director, Planning and Research Ministry of Environment and Natural Resources Headquarters, Nairobi, May 2018.

³⁴⁰Wario, R. A. *et al.*, *Scarcity of natural resources and pastoral conflicts in northern Kenya: An inquiry*, (Amsterdam, Amsterdam Institute for Social Science Research, 2009).

inefficient judicial system coupled with poor enforcement measures to ensure rule of law in often far-flung ‘forgotten’ areas. Politicians manipulating ethnicity for electoral gains and the activities of resource-conflict entrepreneurs are among emerging concerns. Although the architecture of the pastoral conflicts is unpredictable making timely responses more difficult, the management of local economies, legal system and the politics over state control of natural resources may just hold as the much need intervening variables in the raging puzzle towards the attainment of conservation, sustainable peace and greater development.

3.2.1.3.1 Adverse and remote Ilemi Triangle

Ilemi Triangle is a disputed area whose borders have changed over the years and is claimed by both Kenya and the Republic of South Sudan. Pastoral tribes within the territory named after a local Anuak tribal chief Ilemi Akwon,³⁴¹ include the Turkana, Didinga, Tirma, Merille, Toposa and Nyangatom who have historically been entangled in perennial conflicts surrounding competition for the dwindling natural resources principally, water and pasture; an observation in line with the principles of the resource scarcity perspective. These factors have exacerbated the already tense relations tied to ancient tribal rivalries and more recently the situation has been complicated further by the discovery of oil which turns the area into a ticking time-bomb that is moving inevitably towards disaster.³⁴² In times of droughts and famine, raids for livestock intensify within this harsh terrain with ensuing deaths, damage to property, displacement of populations and disruption of development programmes.

Sophisticated weaponry supplied by foreign patrons has led to high-tech violence far above the local people's capacity³⁴³ as the area remains among the most volatile locations in Africa with the greatest arms' concentration. The dispute that has spilled into adjoining areas presumably sprang out of unclear wording in a 1914 treaty on the movement of the local nomadic herders who conventionally grazed the land.³⁴⁴ The free grazing area and neutral zone within the triangle was reserved following the Kitgum Conference of Uganda in April 1924, graced by colonial officers representing Kenya, Sudan and Uganda.³⁴⁵ The space was meant to feature as a safety net among

³⁴¹Brownlie, I., Royal Institute of International Affairs, *African Boundaries: A Legal and Diplomatic Encyclopedia*, (London, C. Hurst and Co., 1979) pp. 867-884, 917-921.

³⁴²Haskins, C., *The Ilemi Triangle: A forgotten conflict*, (Nairobi, Shalom Centre for Conflict Resolution and Reconciliation, 2010).

³⁴³Amutabi M.N., ‘Land and Conflict in the Ilemi Triangle of East Africa,’ *Kenya Studies Review*, Vol. 1 No. 2, (2010) pp. 23.

³⁴⁴Collins, R.O., Military Conflicts and Border issues, *The Ilemi Triangle*, (Santa Barbara, University of California: Department of History, 2001), <http://www.sudanstudies.org/panel1.html>, accessed on 15 July 2014.

³⁴⁵Amutabi M.N., ‘Land and Conflict in the Ilemi Triangle of East Africa,’ *Kenya Studies Review*, Vol. 1, No. 2, (2010) pp. 23.

the pastoralist groups within adjacent areas which regularly got involved in violent conflicts because of water and grazing rights during prolonged dry seasons.

The area upon inception was to be supervised by the then British authorities in Kenya, but due to the urge to capture livestock and control access to resources,³⁴⁶ pastoralists still fight in their quest to establish ethnic rights over water and pastureland and further accumulate herds where sharing rights have failed due to scarcity or misunderstanding. The sharing of requisite resources that include water, pasture and livestock has often been negotiated through facilitative traditional systems on utilization, migration routes and conservation. But when dialogue fails amid shrinking resources, desperate struggle for survival is provoked with the very existence of these groups threatened by conflict; an analysis in line with the resource scarcity perspective.

The establishment of wildlife conservation units within pastoralist ranges by various governments such as Omo (Ethiopia), Sibiloi (Kenya) and Kidepo (Uganda) has reduced grazing room and game meat supplements for the groups. Violence has ensued in the past between pastoralists and park rangers, especially when livestock numbers are down during dry seasons.³⁴⁷ The introduction of farming supported by irrigation in these arid lands with the aim of empowering the area on food supply has further deprived pastoralists valuable pasture and permanent water sources diverted into irrigation canals. The Horn of Africa houses the largest remaining collection of traditional livestock producers on the globe³⁴⁸ and the triangle together with its fringe host one of the world's largest pastoralist economies concentration.

In an incredibly rugged terrain, adverse climate with extreme temperatures and remote porous borders, the pastoralists transcend international borders to survive. The apparent economic marginality of the area coupled with decades of instability and conflicts in neighboring countries has hampered efforts to resolve disputes as security of the entire eastern Africa region remains in jeopardy after IGAD failed to avert armed conflict in the area.³⁴⁹ Kenya, Ethiopia and Sudan are blamed by international community for expending ethnic groups to stage small proxy wars to maintain claim on the disputed territory. Kenya has since assumed de facto control of the area that is in urgent need of a lasting solution on natural resource management and overall

³⁴⁶Lamphear, J., The Evolution of Ateker 'New Model' Armies: Jie and Turkana in K. Fukui and J. Markakis (ed.), *Ethnicity and Conflict in the Horn of Africa*, (London, James Currey and Ohio University Press, 1994) pp.63-94.

³⁴⁷Amutabi, M.N., *Cattle Rustling Among Pastoralists in Northern Kenya: The Genesis and the Truth*, (Article presented at the conference on Community Education co-hosted by Action-Aid and Association for World Education, 25-28 August 1999, Isiolo: Kenya).

³⁴⁸Markakis, J., *Resource Conflict in the Horn of Africa*, (London, Sage Publications, 1998).

³⁴⁹Amutabi M.N., 'Land and Conflict in the Ilemi Triangle of East Africa,' *Kenya Studies Review*, Vol. 1 No. 2, (2010) pp. 32.

ownership of the triangle.³⁵⁰ It is important to facilitate continuous action planning towards cultivation of willingness to come together by the sides engaged in disputes so as to settle their differences amicably. This will encourage cooperation on resource exploitation and sustained livelihoods as dialogue and reconciliation will be enhanced with the anticipated end results being the attainment of sustainable peace and development in the area.

3.2.1.4 Kenya-Somalia maritime border dispute

The enormous streaming of foreign investments directed in oil and gas industry is causing apprehension between eastern Africa states which are jostling to control valuable natural resources in the region for economic interests. Kenya is at the centre of a diplomatic rift in relation to a contested area of the Indian Ocean after East African Energy Forum; a lobby group based in Somalia and associated to Transparency International warned the Kenyan government and allied international oil companies over alleged illegal concessions and exploitation of offshore hydrocarbon deposits situated off the contested coast to the South of Somalia.³⁵¹ The Somali group accused Kenya of unacceptable infringement of Somalia's sovereignty, territorial integrity and offshore natural resources, as specified by 1982 UN Common Law of the Sea. Somalia has since filed a case at the International Court of Justice.

The Kenyan government on its part has submitted a Memorandum of Understanding to the UN on the delimitation of its boundaries with Tanzania to be used as precedence reference for the Somalia case. The failure by the two countries to conduct a joint survey to conclusively determine their maritime boundary makes nonsense of any legal claims on the contentious area assumed to hold large untapped reserves with the dispute creating uncertainty over offshore exploration activities. Nonetheless, Kenya and Somalia have a long-standing row on whether their common border should run straight east parallel to constant lines of latitude in accordance with a 2009 Memorandum of Understanding entered into by the two governments but later rejected by the Somalia parliament or run perpendicular to the seashore or coastline.³⁵²

³⁵⁰Kayumba A. A., Academia, *Preventing a potential oil ownership conflict over Ilemi Triangle*, http://www.academia.edu/6710740/Preventing_a_Potential_Oil_Ownership_Conflict_over_Ilemi_Triangle, accessed on 2 September 2014.

³⁵¹Joint report, 'Simmering border disputes in battle to control oil, gas,' *The East African News*, (Nairobi), Saturday, 25 August 2012 at 17:54.

³⁵²Muhumed, M., 'Somalia Cabinet rejects appeal for talks on border dispute with Kenya,' *Standard Digital News*, (Nairobi), 10 June 2013, <http://www.standardmedia.co.ke/print/2000085623/somalia-cabinet-rejects-appeal-for-talks-on-border-dispute-with-kenya>, accessed on 14 August 2014.

The Somalia parliament in theory gave Somalia a large portion of offshore waters presently operated by Kenya,³⁵³ as Kenya opened renegotiations with Somalia over its claim to the huge swathe of the disputed territory believed to be rich with oil and fish. If the claim holds then it will have far reaching implications on Kenya which would be technically landlocked and forced to access the Indian Ocean only with permission from Somalia. The dispute could spur tension and destabilize regional peace as the argument by Somalia would move Pemba Island in Tanzania into Kenyan territory. Any loss of territorial waters could largely compromise Kenya's security and that of the region by restricting the operations of the Kenyan Navy and allies³⁵⁴ and further hamper ongoing marine environment conservation efforts, an observation in line with Furedi's views as a proponent of the resource scarcity perspective who regards individuals as being a threat to biosphere and ecological balance.³⁵⁵ In order to realize meaningful resolution of the maritime dispute between this two neighbours, it is essential to undertake a joint survey to decisively ascertain the common maritime boundary between the countries then complement the results of the survey with negotiations supported by the UN Common Law of the Sea.

The study findings on the current state of cross border resource management in Kenya are as follows; 24.8% rate the status as good whereas 32.8%; 28.1% and 11.9% rate the status as not good, but under control; bad and very bad respectively. The remaining 2.3% of the responses state that they are not sure of the current state of cross border resource management. From the findings, a vast majority of the respondents at 72.8% observe that the current state of resource management is either not good though under control, bad or very bad with only 24.8% recognizing the current state of the management as being good. This results largely resonate with the findings of the literature reviewed on the study which depicts the continued deteriorating state of a number of cross border natural resources resulting in scarcity, competition and attendant conflicts amid inadequate matching interventions; an argument that concurs with the resource scarcity perspective. The UN confirms that the unplanned and unsustainable exploitation and competition over the diminishing resource base continues to exacerbate the state of the environment.³⁵⁶ This observation is further aligned to the tenets of the resource scarcity theory where Harrison who is a

³⁵³Mungai, C., 'Election, maritime dispute hit Kenya oil hopes,' *The East African News*, (Nairobi), Saturday, 18 August 2012 at 17: 41.

³⁵⁴Ongiri, I., 'Alarm as Somalia claims Kenya's territorial waters', *Sunday Nation*, (Nairobi), 14 September 2014.

³⁵⁵Furedi, F., *Population and Development: A Critical Introduction*, (New York, St. Martin's Press, 1997)

³⁵⁶UN, *Status of environment and natural resources statistics in Kenya*,

https://unstats.un.org/unsd/environment/envpdf/UNSD_UNEP_ECA%20Workshop/Kenya.pdf, accessed on 25 September 2018.

proponent maintains that human population and human activity are the key agents to the continued degenerating state of ecosystem natural resources. The figure below shows the current state of cross border resource management in Kenya.

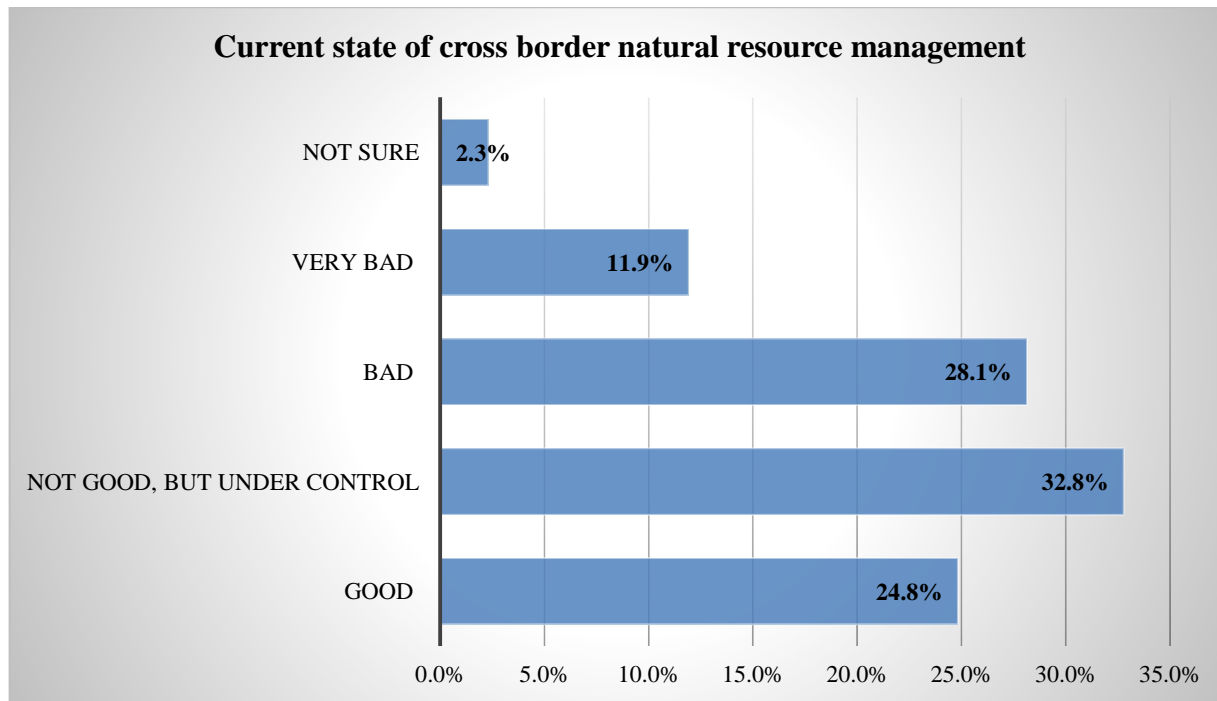


Figure 3.7: Current state of cross border natural resource management in Kenya

Source: Author (2021).

3.2.2 Cross border natural resources of international importance

The resources which are internationally significant in Kenya include wetlands and protected areas according to international regulations. Wetlands of international importance are recognized as being of immense value not only to the states which host them, but to humanity as a whole. For them to be formally recognized, wetlands must conform to the Convention on Wetlands of International Importance (Resolution VIII of The Ramsar Convention of 1971).³⁵⁷ On the other hand, UNESCO strives to preserve the world's natural heritage following its adoption of the Convention on the Protection of the World Cultural and Natural Heritage in 1972. This convention determines the World Heritage List together with the goods measured by the World

³⁵⁷Ramsar, *Wetlands of international importance*, (Switzerland, The Ramsar Convention Secretariat, 2014), <http://www.ramsar.org/about/wetlands-of-international-importance>, accessed on 17 May 2015.

Heritage Committee to have exceptional universal value³⁵⁸ and also outlines the duties and roles of states party in preserving cultural and national heritage. Among cross border natural resources of international importance are;

3.2.2.1 Transboundary wetlands in Kenya

Wetlands cover 2-3% of Kenya's total area and are collectively of significant ecological and socio-economic value. Wetlands are listed among the best productive ecologies considering their qualities and roles as they support livelihoods as bases for farming and fishing; are contributory in water filtration; perform storage and supply roles; retain toxins, sediment and nutrients; control floods and are vital habitats for biodiversity.³⁵⁹ Despite their high productivity, wetlands are however increasingly facing serious degradation threats due to population increase as more humans immigrate into wetlands to reclaim them and perpetrate their large-scale conversion to agricultural land and thus distorting the ecosystem balance.³⁶⁰

Poverty and poor policies also abet over-exploitation of resources, excessive extraction of water and sub-division of the areas around wetlands for greater equity as is the case of Kimana wetlands on the Kenya-Tanzania border. The degradation of transboundary water catchment areas within Kenya that include the Mau Complex, Cherengani hills and Mount Elgon from which many streams and rivers emanate before flowing into major wetlands further aggravates the situation. The destruction of catchment areas leads to siltation and increased suspended solids hence reducing water levels downstream in rivers and lakes which eventually threatens livelihoods due to scarcity, competition and possible conflict; an argument supported by the resource scarcity perspective. Therefore, it is necessary to ensure proper implementation of existing relevant regulations on the protection of wetlands and their surrounding environs so as to restore their value of supporting ecological wellness and stable livelihoods. This will help mitigate scarcity, reduce competition and minimize disputes and instead support sustainable exploitation of the resources in a peaceful environment.

³⁵⁸Institute for nature conservation of Serbia, *Internationally important areas*, http://www.zzps.rs/novo/index.php?jezik=en&strana=zastita_prirode_medjunarodno, accessed on 21 May 2015.

³⁵⁹Republic of Kenya, *National Development Plan*, (Nairobi, Government Printer, 2002-2008).

³⁶⁰Mwakubo, S.M. *et al.*, *Status and challenges of wetlands management towards livelihood improvement: The case of Lake Victoria wetlands*, https://scholar.google.com/scholar?q=Status+and+challenges+of+wetlands+management+towards+livelihood+improvement:+The+case+of+Lake+Victoria+wetlands.&hl=en&as_sdt=0&as_vis=1&oi=scholar&sa=X&ved=0ahUKEWju6dqOtIHKAhVBVRoKHYr0BR0QgQMIGjAA, accessed on 29 December 2015.

3.2.2.1.1 The Kimana wetlands basin

The Kimana wetlands situated in Loitokitok District and bordering Tanzania to the west are part of the larger Amboseli wetland system in the semi-arid area and also part of the wider Kilimanjaro heartland which has exceptional biological and associated values with international recognition of its two protected areas namely; Kilimanjaro National Park which stands as a World Heritage site within Tanzania and Amboseli National Park which is a biosphere reserve within Kenya.³⁶¹ Change in global weather patterns has occasioned serious and persistent droughts in the region with massive exodus of local pastoralist communities as they search for water and pasture at times crossing into Tanzania. The wetlands used as a cushion during dry times have been lost to farming with migration and increase in concentration of livestock population leading to more intensive exploitation of the limited resources amid increased degradation.

Although springs emerge from the Mount Kilimanjaro watershed within the basin, downstream flow has reduced drastically due to extensive water diversion upstream, wetlands conversion, significant wastage evidenced by inefficient management, distribution of water and water contamination through agricultural pesticides.³⁶² Since ecological species in ecosystems are dependent on each other, losing some species has domino effect on others. Therefore, the Kenya Forestry Service has led initiatives to plant indigenous trees around wetlands to protect the remaining portions. However, past conservation efforts on wetlands in Kenya have been cross-sectoral without specific institutions of management.

Government agencies, NGOs and community-based organizations have in their capacities implemented wetlands management, conservation and utilization inconsistently regardless of previous or existing efforts due to evident lack of a coordinated national wetlands policy. In order to reduce threats to the wetlands and surrounding environs, it is imperative to develop a fully integrated policy, institutional and legal framework at National as well as County levels and also build capacity for community institutions to promote sustainable exploitation and administration of wetlands. Kenya Wetlands Forum; a multi-institutional stakeholder consortium for wetlands

³⁶¹Muruthi, P. and K. Frohardt, The African Wildlife Foundation, *Study on the Development of Transboundary Natural Resource Management Areas in Africa: Kilimanjaro Heartland Case Study*, https://www.awf.org/old_files/documents/AWF_BSPKilicasestudy.pdf, accessed on 4 January 2016.

³⁶²Wetlands International, *Degradation of Kenya's wetlands*, (2014), <http://www.wetlands.org/OurWork/Ouractionstobedeleted/Kimanawetlands,Kenya/DegradationofKenya%E2%80%99swetlands/tabid/2257/Default.aspx>, accessed on 17 May 2015.

conservation and wise use in Kenya is bent on ensuring sound legislation and policy for sustainable wetlands management.³⁶³

An interview with Mr. Michael Nyaguti the Director of Magnam; an Environmental Community Based Organization affirmed that Lake Victoria is a resource that requires support from the environment and thus more focus should be on enhancing sensitization on conserving areas surrounding it such as wetlands and other riparian areas since the communities depend on them for their livelihoods and they further serve as breeding grounds for diverse aquatic life. The Director confirms that "...the environment around the lake is being destroyed because of the high demand for beach plots and that population growth should not be an excuse for degradation and depletion of natural resources but instead the blame should be on corruption and impunity perpetrated by the very individuals meant to protect the resources." The interviewee notes that the lake community has since gone to court as an intervention to stop development in riparian areas of the lake.³⁶⁴

The interview reveals that fisheries resources are being depleted at a high rate in the lake and thus there is need for urgent mitigation measures to be instigated since communities that depend on the resources are currently suffering. The Director states that the available little fish stocks are not affordable to most of the individuals and communities are forced into destitution amid human-wildlife conflict as crocodiles target humans because they lack sufficient food in the wetlands. The interviewee accuses NEMA for failing on its mandate amid claims of bribery and undertaking shoddy Environment Impact Assessments. He observes that pollutants continue to be released into water sources such as the case of raw sewer from Kodiaga G.K. prison being discharged into River Saka in Kisumu County, which is a feeder into the lake and the wetlands around it. The Director further observes that "...buildings are collapsing and endangering lives because they are built on wetlands, as insecurity was on the rise due to related resource depletion resulting in threatened livelihoods."³⁶⁵

3.2.2.2 UNESCO recognized and protected sites

UNESCO recognized and protected sites face major threats as a result of poaching, natural disasters, pollution, uncontrolled urbanization and armed conflicts, among others. It is crucial to preserve these intangible sites since they offer wealth of intergenerational knowledge and skills.

³⁶³Kenya Wetlands Forum, (2010), <http://www.kenyawetlandsforum.org/>, accessed on 17 May 2015.

³⁶⁴Ombara, I., Interview with Mr. Nyaguti, M. O., Director, Magnam Environmental Network, Kisumu, May 2018.

³⁶⁵Ombara, I., Interview with Mr. Nyaguti, M. O., Director, Magnam Environmental Network, Kisumu, May 2018.

3.2.2.2.1 The Lake Victoria basin sites

Some sections in the Lake Victoria basin carry international recognition status and enjoy special protection within the United Nations Educational, Scientific and Cultural Organization (UNESCO) umbrella. Lake Victoria basin boasts of rich biodiversity of fish, bird, plant and animal kinds. Sections of the lake basin with delicate ecosystems have since been recognized and gazetted as Ramsar sites. Globally renowned Serengeti National Park within Tanzania and the Maasai Mara Game Reserve within Kenyan territory have been designated as part of the new 'Eight Wonders of the World' and are partly found in the basin. Some sections of the lake basin have also since been classified as Important Bird Area bringing to a total of 70 IBAs in the region. Among the endangered species of birds within the basin are the papyrus gonolek (*Laniarius mufumbiri*) as well as the vulnerable papyrus yellow warbler (*Chrolopetta gracillostris*).³⁶⁶ The basin is also home to the sitatunga; a globally endangered species which belongs to the category of the water antelope.³⁶⁷

Nonetheless, Lake Victoria which stands recognized as being the globe's largest tropical lake was threatened as its water levels had dropped by an estimated six and a half feet due to a myriad of reasons mainly attributed to sporadic rainfall, rising temperatures and hydroelectric dams. Population growth and resultant competition over diminishing resources has increased conflicts between the three countries sharing the reservoir with Ugandan forces arresting, torturing and detaining Kenyan fishermen and only releasing them upon payment of bribes. Despite providing a quarter of the lake's water and breeding grounds for fish, Kenya controls a meager six percent based on colonial division. Uganda's numerous hydroelectric dams add strain and tension to the already grim situation. The dams are attributed to over half of the recent drop in water levels and if unabated, then the lake will be no more in the next 30 years and this will further affect downstream flow of the Nile River,³⁶⁸ escalating the ongoing resource induced conflicts in line with resource scarcity theory.

Governments of the region together with partners and communities should act with speed to strengthen holistic frameworks for management of the lake's resources by mitigating

³⁶⁶EAC/LVBC, *Regional Transboundary Diagnostic Analysis of the Lake Victoria Basin*, (Kisumu, LVBC, 2007), <http://iwlearn.net/iwprojects/2405/reports/regional-transboundary-diagnostic-analysis-of-the-lake-victoria-basin>, accessed on 11 January 2015.

³⁶⁷Kansiime, F. *et al.*, 'Functioning and dynamics of wetland vegetation of Lake Victoria: An overview,' *Wetlands Ecology Management*, 15, (2007) pp. 433-451.

³⁶⁸Smith, R., 'Battle for Resources Grows as Lake Victoria Shrink,' *NPR News*, 29 May 2008, <http://www.npr.org/templates/story/story.php?storyId=90931419>, accessed on 7 May 2015.

degradation and ensuring sustainable exploitation of the resources on a platform of cooperation, goodwill and commitment so as to realize mutual gains. With robust consultations by all actors and enhanced regulation, the management will help nurture a culture of non-violence in the administration of the resources and instead support the achievement of sustainable peace and overall socio-economic progression.

3.2.2.2.2 The Lake Turkana basin; the Cradle of Mankind

Lake Turkana stands as the fourth largest lake in Africa and referred to usually as the 'Jade Sea' following its breathtaking color. The lake features diverse habitats such as aquatic, terrestrial, desert, grasslands and has varied fauna with protected areas of threatened species. These protected zones around the lake provide arena for study of plant and animal communities given the remoteness that has preserved the region as a natural wilderness. Due to its importance in the study of human evolution, Lake Turkana region especially the lower valley of the Omo was recognized and designated in 1980 as UNESCO World Heritage site. The area is the oldest landscape known to be inhabited by man since the oldest known fossils of *Homo sapiens* that date almost 200,000 years ago were discovered in the area in 1968.³⁶⁹

Lake Turkana National parks encompass Sibiloi National Park; an archeological site which also became UNESCO World Heritage site in 1997. Koobi Fora deposits which hold rich molluscan, mammalian and other fossils have contributed most towards comprehension of paleo-environments than any known location on the continent. The three national parks act as a stopover point for migrant waterfowl and further offers the largest breeding ground globally for the epic Nile crocodile, hippopotamus together with several species of venomous snakes. The adjacent Mount Kulal Biosphere Reserve doubles as a wildlife dispersal area and also as an essential watershed for the basin, assuring the protection of the natural processes and making it an important site for avian migration and habitation.³⁷⁰

However, the region faces numerous challenges and potential threats that include rapid population growth, severe droughts, pastoralist encroachment, effects of climate change, poaching, human-wildlife conflict, siltation, receding water level and poor infrastructure. Evident resource scarcity and attendant instability surrounding the management of the resources in the area is a clear manifestation of the tenets of the resource scarcity perspective. Therefore, timely mitigation

³⁶⁹MacDougall, I. *et al.*, Letters to nature, 'Stratigraphic placement and age of modern humans in Kibish, Ethiopia,' *Nature, International weekly journal of science*, 433, (2005) pp. 733-736.

³⁷⁰UNESCO, *Lake Turkana National Parks*, (2015), <http://whc.unesco.org/en/list/801>, accessed on 30 May 2015.

strategies and appropriate measures are required for long-term sustainable management of the region and if possible, development of integrated management plans should be instigated. In 2011, UNESCO World Heritage Committee raised concern over the Omo irrigation and hydropower development in Ethiopia projected to retain an estimated 50% of the Omo River's water with untold consequences on the surrounding ecosystems. Subsequently, the committee recommended that all-important Lake Turkana National parks ought to be considered and itemized on the 'List of World Heritage in Danger.'

3.2.2.2.3 Marine and Coastal area resources: Lamu Old Town Island

Lamu Old Town is a small island situated up Kenya's North coast near Somali border and it remains the oldest and so far the best-preserved Swahili settlement within the whole of East Africa. The island has retained its traditional functions with the socio-cultural integrity and the simple buildings well preserved holding a long history of the development of Swahili building technology founded on lime, coral and mangrove poles.³⁷¹ Having been occupied for an estimated over 700 years, the coastal town of Lamu has in the past hosted major cultural and Muslim religious fetes dating back into the 19th century, thus making it a significant confluence centre for related reference and studying and also for Islamic and Swahili cultural exhibition. Lamu's distinct architecture and town planning holds important economic and cultural history of the region illuminating the gradual growth and collapse of seaports along the East African historic coastline and the interaction between communities of Bantu, Persians, Indians, Arabs and Europeans.

Based on the cultural significance of the island, the Government of Kenya authorized the inaugural conservation study sponsored by UNESCO in 1974 and the Lamu old town was gazetted as a national monument in 1983.³⁷² However, a new Chinese-financed seaport in the ancient island town pledges to import international maritime trade at the detriment of fragile ecology of the UNESCO World Heritage site.³⁷³ Plans to build a multi-purpose transport and communication LAPSET corridor in an area rich with ecological and cultural diversity threatens the richest marine ecology on the Kenyan coastline. Mangrove forests along the shores offer breeding ground for fish and the local communities highly dependent on the wildlife situated close to the proposed construction site for their subsistence. With the anticipated disruption of livelihood means among

³⁷¹African world heritage sites, *Lamu Old Town-Kenya*, (2011),

<http://www.africanworldheritagesites.org/cultural-places/swahili-coast/lamu-old-town.html>, accessed 20 May 2015.

³⁷²UNESCO, *Lamu Old Town*, <http://whc.unesco.org/en/list/1055>, (2015), accessed on 20 May 2015.

³⁷³Seal, M., Departures International, *The Fight over the Serengeti Highway*, (2013), <http://www.departures.com/articles/the-fight-over-the-serengeti-highway>, accessed on 10 July 2014.

local communities as a result of human development that may diminish the volume of resources available for exploitation, conflicts centered around competition and sharing of the residual resources may arise; an argument in line with the neo-Malthusian view.

The coral reefs that are a major tourist attraction are placed in the heart of the Manda Bay site where ships will sail through into the proposed port. A 2010 report by Global Heritage Fund identified Lamu as being "On the Verge" of permanent loss and damage due to insufficient management and development pressure.³⁷⁴ Lamu Port and Metropolis development will lead to massive influx of population which will increase loss of ecological balance of these water catchment area as a result of encroachment in the Shela sand dunes and catchment area; an area of special biodiversity. The World Heritage Centre and the Advisory bodies have since recommended the stopping of the LAPSSET project until a comprehensive Environment Impact Assessment is undertaken.³⁷⁵ In the meantime, relevant agencies and partners should ensure proper implementation of existing regulations to support and enhance conservation efforts on these fragile ecosystems which will in turn guarantee stable livelihoods, economic development and peaceful coexistence among groups in the area.

3.2.2.2.4 Mara-Serengeti ecosystem

The Mara-Serengeti ecosystem is a biosphere reserve which bears international conservation significance status and further boasts of great economic importance with a number of utilities available to the locals in both Kenya and Tanzania.³⁷⁶ The ecosystem is a transboundary resource and protected area that covers 25,000 km² area stretching from the South western of Kenya into northern Tanzania.³⁷⁷ The core areas comprise Maasai Mara Game Reserve situated in the South of Kenya which forms the northern continuation for Serengeti National Park within Tanzania. The ecosystem is categorized by three major habitats namely; Mara River, aquatic riverine forests and grassland savannah. The Mara-Serengeti ecosystem is recognized and categorized as a World Heritage Site by UNESCO for its importance as home to the renowned

³⁷⁴Change.org, *Petition to Suspend Plans for the Proposed Lamu Port*, <https://www.change.org/p/petition-to-suspend-plans-for-the-proposed-lamu-port>, accessed on 19 May 2015.

³⁷⁵UNESCO, *State of Conservation (SOC); Lamu Old Town -Kenya*, (2012), <http://whc.unesco.org/en/soc/241>, accessed on 17 April 2015.

³⁷⁶WREM International, *Mara River Basin, Nile Basin Initiative: Nile Equatorial Lake Subsidiary Action Program, 2007-2008*, <http://www.wremintl.com/index.php/Recent-Projects/mara-river-basin>, accessed on 12 May 2015.

³⁷⁷Thirgood, S., 'Can parks protect migratory ungulates?', The case of the Serengeti wildebeest, *Animal Conservation*, Vol. 7, issue 2, (2004) pp. 113–120.

savannah big cats, an ecotourism centre, the historical cradle of mankind, home to over 500 bird species and a wildebeest migration route.

The migration of the wildebeest between July and October annually has since been classified as ‘the 8th wonder of the world,’³⁷⁸ and apart from the stipulated protected areas; surrounding communal lands too constitute part of the wildlife migratory routes. Nonetheless, human-wildlife conflict is rife as a result of large-scale farming extended into wildlife corridors and partly due to poor coordination of ecosystem resource planning and administration occasioned by absence of inclusive co-operative framework within the ecosystem since each country undertakes the management independently.³⁷⁹ The situation is exacerbated by poor enforcement of laws and regulations and inadequate financial and technical capacity of like institutions to monitor and ensure compliance. Inadequate regional and international cooperation in the coordination of key institutional stakeholders at various levels is also evident.

There is need for international cooperation between Kenya and Tanzania on effective implementation of appropriate measures towards sustainable management of particular aspects of the joint ecosystem such as human-wildlife conflict, climate change, commercial poaching for trophies and fires lit by poachers to distract attention with extensive long-term damage to woody vegetation.³⁸⁰ Also, by either adding Maasai Mara Game Reserve from Kenya and Maswa National Reserve from Tanzania on World Heritage List or even awarding them buffer zone status would safeguard the outstanding universal values of the area.³⁸¹ If these proposals are well implemented, the mitigation measures will go a long way in protecting the ecosystem, ensuring prudent use of resources, support peaceful coexistence and provide mutual economic benefits for all actors. The Mara-Serengeti ecosystem has also faced a threat of numerous development proposals to connect the densely populated parts of Lake Victoria basin and areas West of the Serengeti to the port city of Dar es Salaam together with adjacent areas to the East of the park.

The most recent and highly controversial plan was the proposed development of the Serengeti Highway through northern Serengeti from Musoma to Arusha.³⁸² The Highway is seen

³⁷⁸African Bound Adventures, *8th Wonder of the World-Wildebeest Migration*, (2013),

<http://www.africaboundadventures.com/8th-wonder-world-wildebeest-migration>, accessed on 21 August 2014.

³⁷⁹EAC, *Serengeti-Maasai Mara Ecosystem Transboundary Protection and Monitoring Plan*, (Arusha, EAC, 2012).

³⁸⁰African Natural Heritage, *Serengeti National Park – Tanzania*, (2014), <http://www.africannaturalheritage.org/serengeti-national-park-tanzania/>, accessed on 11 August 11, 2014.

³⁸¹UNESCO, *Serengeti National Park*, (2015), <http://whc.unesco.org/en/list/156>, accessed on 9 June 2015.

³⁸²African Natural Heritage, *Serengeti National Park – Tanzania*, (2014), <http://www.africannaturalheritage.org/serengeti-national-park-tanzania/>, accessed on 11 August 11, 2014.

by politicians as way to prosperity connecting the ports located in eastern Tanzania with the Lake Victoria region and neighboring countries to the west namely; Rwanda, Burundi together with DRC which are rich with minerals. International conservationists and scientists on the other hand signed a petition terming the highway a death blow to the Serengeti and an apocalyptic threat that would forever alter the greatest animal migration on earth.³⁸³ In 2011, the Tanzanian government yielded to pressure and postponed the catastrophic plan. There were earlier plans to build a railway line and also lay fibre-optic cables in the area, but the threats were also momentarily averted. These proposed developments have the potential to interfere with the ecological balance and strain the capacity of the resources to support communities that depend on their benefits for survival. In the wake of this harmful realization, competition and disputes are likely to arise as groups struggle to access, use and benefit from the depleted resources in the area; an observation in line with the principles of the resource scarcity perspective.

3.2.2.2.5 Forest resources on Mt. Elgon

Mt. Elgon which stands as the fourth highest mountain on the continent is bisected by international boundary between Kenya and Uganda and it is girded with widespread indigenous forests alongside softwood plantations with the upper regions containing heaths and moorlands that harbor outstanding biodiversity of immense global importance.³⁸⁴ Mount Elgon forest which is a government forest reserve was gazetted in 1932 and remains an important water catchment area for the whole sub-region. Plenty of rainfall, rich forest resources and fertile volcanic soils have offered a basis for extremely high population density³⁸⁵ leading to forest and wildlife depletion; the major environmental degradation processes on the mountain.

The density of trees on the mountain has diminished due to clearing and encroachment, over-exploitation and fires that have destroyed trees and other valuable vegetative material resulting in overgrowth of non-palatable species. With the ever-growing population, expansion of agricultural production at subsistence level has been attained at the very expense of the integrity of the resource base.³⁸⁶ The livelihoods of the majority of the area's populace are linked to the

³⁸³Serengeti Watch, *World Scientists Petition for Alternate Highway/Warn of Dangers*, (2010), <http://www.savetheserengeti.org/news/highway-news/world-scientists-petition-for-alternate-highwaywarn-of-dangers/>, accessed on 11 August 2014.

³⁸⁴Howard, P., *Nature conservation in Uganda's tropical forest reserves*, (Gland: Switzerland, International Union for Conservation of Nature, 1991).

³⁸⁵Soini, E., International Union for Conservation of Nature, *Past and present land tenure and incentives for land management in the five districts surrounding Mount Elgon*, (Nairobi: Kenya, Mt. Elgon Regional Ecosystem Conservation Programme, 2007).

³⁸⁶Kamugisha, J.R. *et al.*, *Parks and People-Conservation and Livelihoods at the Crossroads*, (Nairobi: Kenya, Regional Soil Conservation Unit, 1997).

forest with the high dependency on the mountain's natural resources being extensive in both countries. The protected areas established with associated governance structures to mitigate the situation have often sparked violent social conflicts at community level in both countries. These conflicts between protected areas and communities basically relate to inequitable access to resources, rights to land, relocation and resettlement,³⁸⁷ an argument in line with the principles of the resource scarcity perspective.

It is important to ensure proper enforcement of rules and regulations on the management of resources and wider ecosystem in the area in order to stop encroachment, logging and poaching, among other vices. Tree planting should be encouraged within communities to increase forest cover and improve the overall resource base with the aim of remedying scarcity and attendant conflicts. Effective management of the transboundary resources in the area will guarantee sustained livelihoods for the locals, support the realization of sustainable peace and resultant economic growth.

An interview with Mr. Michael Nyaguti the Director of Magnam; an Environmental Community Based Organization confirms that the demand for timber and charcoal has led to the destruction of forests on hilltops and highlands which are the main catchment areas in Kenya. The Director reveals that individuals were allocated hills and other highland areas as a big and non-procedural mistake which has led to increased human activity and disturbance to the fragile ecosystems. The interviewee observes that surface water flowing in streams, rivers or even in lakes is murky due to siltation uphill with very little intervention and that the National and County governments should help in remedying the situation by replanting trees in these areas.³⁸⁸

The study results of respondents' perspectives on the most important resources in Kenya are as follows; 27.8% identify water resources as the most important resources, 42.1% pick on land while 7.6% identify wildlife and biodiversity as the most important resources. In addition, 18.2% of the respondents recognize forest resources whereas 4.3% state 'others' as the most important resources in Kenya. From the analysis, 'others' as important resources are listed to include extractives and minerals resources, the atmosphere, rain and solar. The analysis further reveals that a significant portion of the respondents at 42.1% recognize land resources as the most important resources in Kenya. This can be tied to the fact that land issues in Kenya are often

³⁸⁷Médard, C., "Indigenous" land claims in Kenya: A case study of Chebyuk, Mount Elgon District. Pages 19-36 in W. Anseeuw and C. Alden (ed.), *The struggle over land in Africa: conflicts, politics and change*, (South Africa, HSRC Press, 2010).

³⁸⁸Ombara, I., Interview with Mr. Nyaguti, M. O., Director, Magnam Environmental Network, Kisumu, May 2018.

emotive as the resource was the basis for the struggle against colonialism and clamor for independence³⁸⁹ and naturally, the resource is home to other natural resources and thus held in high esteem. The figure below illustrates the most important natural resources in Kenya.

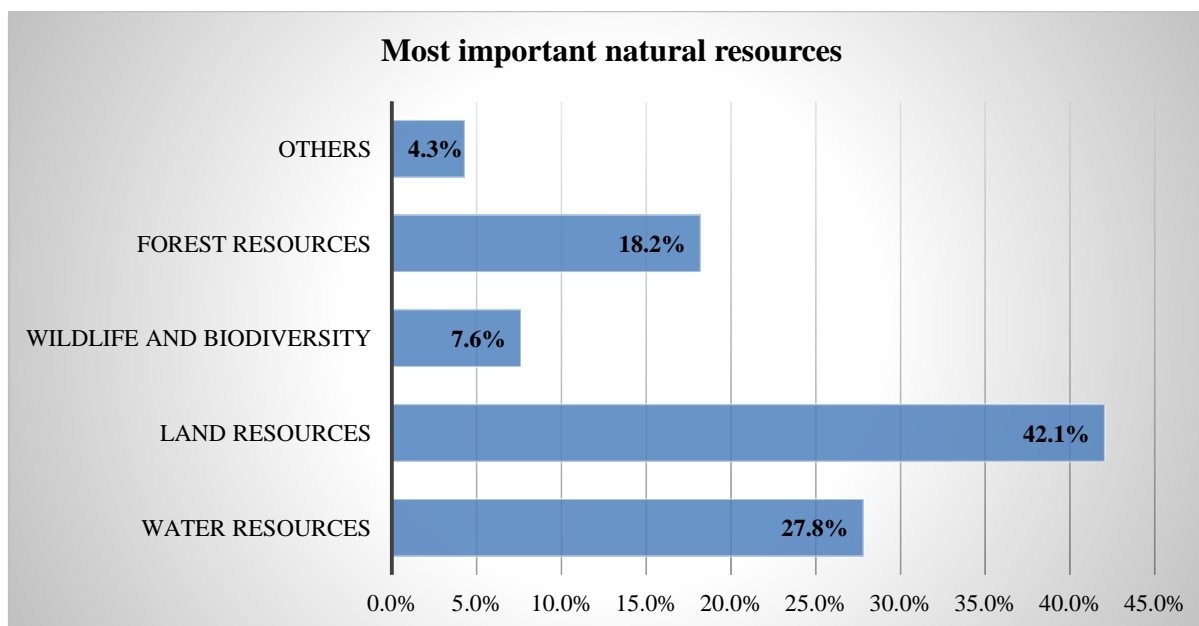


Figure 3.8: Most important natural resources in Kenya

Source: Author (2021).

The study findings on benefits derived from natural resources in Kenya indicate that 40.7% of the respondents identify ‘livelihood support,’ 32.1% note ‘political and economic benefits’ whereas 15.2% pick on ‘socio-cultural esteem’ and ‘heritage’ as the benefits derived from the resources. In addition, 9.3% of the respondents identify ‘abode for other resources’ while 2.6% note as ‘other’ benefits derived from natural resources in Kenya. From the analysis, a significant portion of the results at 40.7% pick on ‘livelihood support’ as the benefits derived from natural resources in Kenya. This finding may be attributed to the high dependency by a significant portion of the populace on natural resources for subsistence as shown by the UN which affirms that the country’s economy depended heavily on its natural resources to contribute to national income and also support people’s livelihoods.³⁹⁰ The study results on the derived benefits listed under ‘other’ include medicinal utility; boundary beacons or markers separating territories; used as housing in

³⁸⁹Odote, C., ‘Kenya needs workable land use policy,’ *Business Daily*, (Nairobi) Sunday, June 24, 2018 22:00.

³⁹⁰UN, *Status of environment and natural resources statistics in Kenya*, https://unstats.un.org/unsd/environment/envpdf/UNSD_UNEP_ECA%20Workshop/Kenya.pdf, accessed on 25 September 2018.

caves and hollow tree trunks; attracting rain, cleaning air and fencing from wind; as vantage point for security purposes; as goods for propagating tangible peace among groups if well managed; for tourism attraction and as collateral in transactional engagements such as credit facility advancement. The figure below shows some of the benefits derived from natural resources in Kenya.

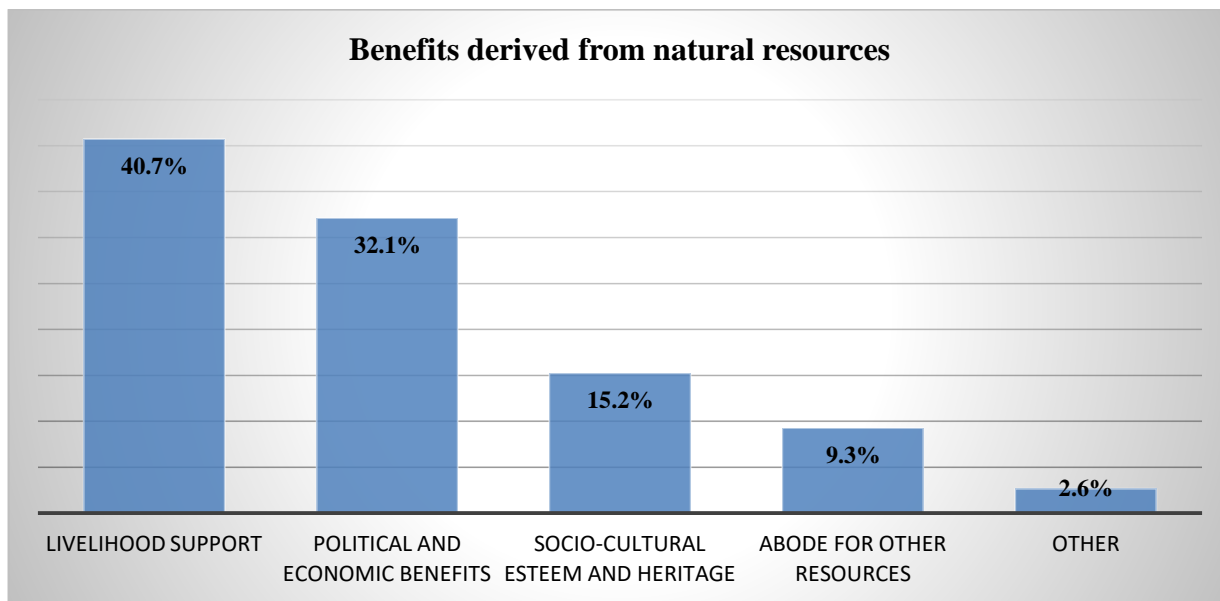


Figure 3.9: Benefits derived from natural resources in Kenya

Source: Author (2021).

The study results on how important cross border natural resource management is in Kenya show that half of the respondents at 50% consider resource management as being important. The other results are as follows; 20.5% rate the management as very important, 18.2% as less important, 8% as not important while 3.3% did not know. From the findings, an overwhelming majority at 88.7% rate the management as either being very important, important or less important. A substantial portion at 27.2% of the majority affirmative responses observe that among the main significances of cross border natural resource management is alleviation of poverty and sustaining of livelihoods as some communities entirely reliant on ecosystem resources for survival. This findings are corroborated by IUCN which notes that most Kenyans stay in rural areas and are often poor and mainly depended on environment and its resources to support their livelihoods.³⁹¹

³⁹¹Emerton L. *et al.*, IUCN, Environment, poverty and economic growth in Kenya: What are the links, and why do they matter? *Policy Brief No. 2*, (2001), <https://core.ac.uk/download/pdf/48022456.pdf>, accessed 26 September 2018.

Peaceful coexistence among communities due to structured control, use and sharing of natural resources stands at 20.5% whereas conservation of environment together with its resources for future use is at 16.4% of the positive responses. The figure below illustrates the importance of cross border resource management in Kenya.

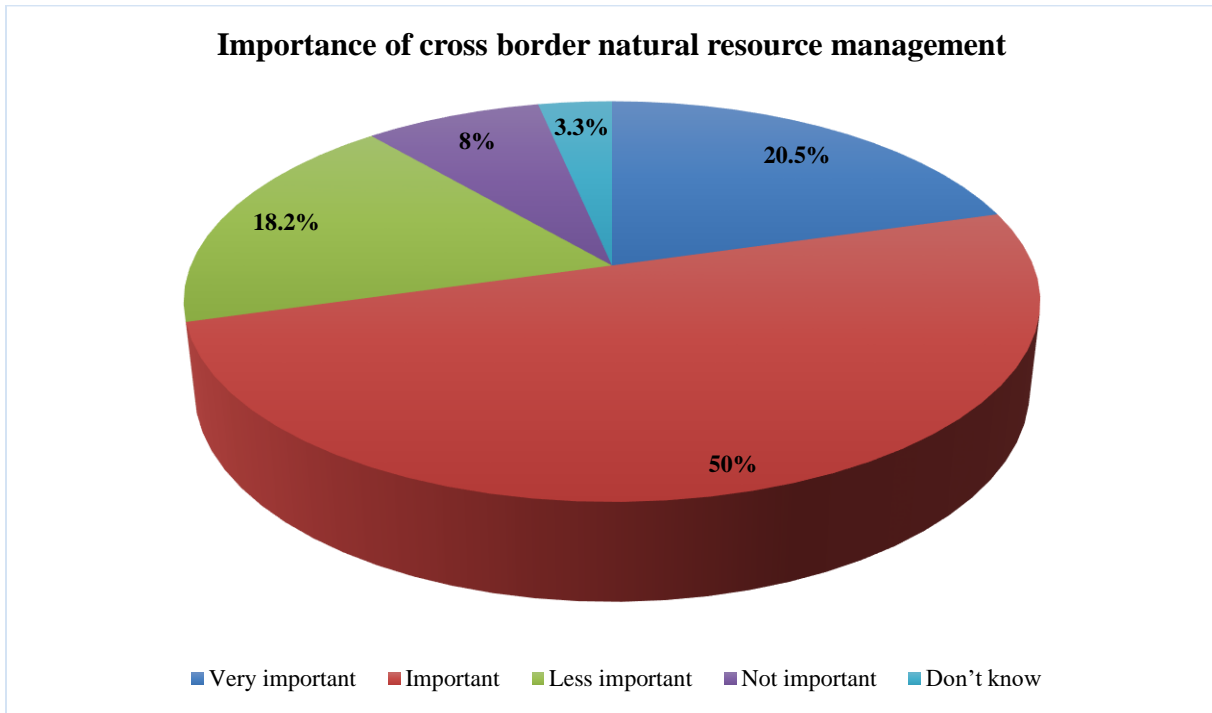


Figure 3.10: Importance of cross border natural resource management in Kenya

Source: Author (2021).

The affirmative results also list the significance of cross border natural resource management to include preservation of peoples' heritage at 10.5% of the affirmative responses, promoter of cooperation and integration at 9% and continued provision of requisite elements for sustainable economic growth and development at 8.2%. The results indicate that the management fosters a culture of shared responsibility and further promotes the adoption of sustainable values among stakeholders; an observation in line with a tenet of the neo-Malthusian view which postulates that there is need for the society to change its culture and attitude towards earth and adopt sustainable values since the resources are finite. This finding is supported by Worldwide Neighbours' call for collaborative resource management plans through development of shared responsibilities and decision-making among all stakeholders towards healthy ecosystems and

communities.³⁹² Furthermore, the management opens avenues for wider cooperation and integration as synergies are realized on many fronts towards sustainable peace among communities. The positive responses also maintain that best practices are partly being shared and domesticated to serve local resource management needs, more jobs are created within the sector and that the management further provides for improvement-based benchmarking on ecosystem and resource management in a more holistic framework.

The study findings further indicate that almost half of the total respondents at 46.4% and who also comprise a large portion of those individuals who have attained tertiary/graduate level of education observe that cross border natural resource management is either ‘very important’ or ‘important’ in Kenya. The study also notes that 47.4% of those individuals who consider cross border natural resource management as being ‘important’ have either attained secondary, tertiary/graduate or post graduate qualification. Nonetheless, 18.2% of those respondents who indicate that cross border natural resource management is either ‘less important,’ ‘not important’ or ‘did not know’ have either obtained primary level of education, ‘other’ forms of education which comprised mainly of informal instructions or have not attended any form of education. From the findings, the level of enlightenment and awareness on the importance attached to cross border natural resource management have a correlation with the individuals’ level of education attained. Those individuals who have obtained some reasonable levels of education are better off placed to be more enlightened and therefore consider the management as being important. Past studies have shown that individuals who have obtained higher education levels are often more concerned about the wellbeing of the environment and also take part in actions and processes that promote and support decisions towards protection of the environment, stable livelihoods, sustainable peace and overall progression of the society. Increase in level of education increases concern, awareness and attitude by seeing the environment as being important and can further encourage individuals to reduce their effect on the environment by being more efficient in the exploitation of scarce resources.³⁹³ The figure below shows how individuals of different levels of education respond on how important cross border resource management is in Kenya.

³⁹²Worldwide Neighbours, *Community-based natural resources management*, (2017), <https://www.wn.org/what-we-do/community-based-natural-resources-management/>, accessed on 27 September 2018.

³⁹³Aminrad, Z. *et al.*, ‘Influence of Age and Level of Education on Environmental Awareness and Attitude: Case Study on Iranian Students in Malaysian Universities,’ *The Social Science*, Vol. 6, Issue 1, (2011) pp. 15-19, DOI: 10.3923/sscience.2011.15.19.

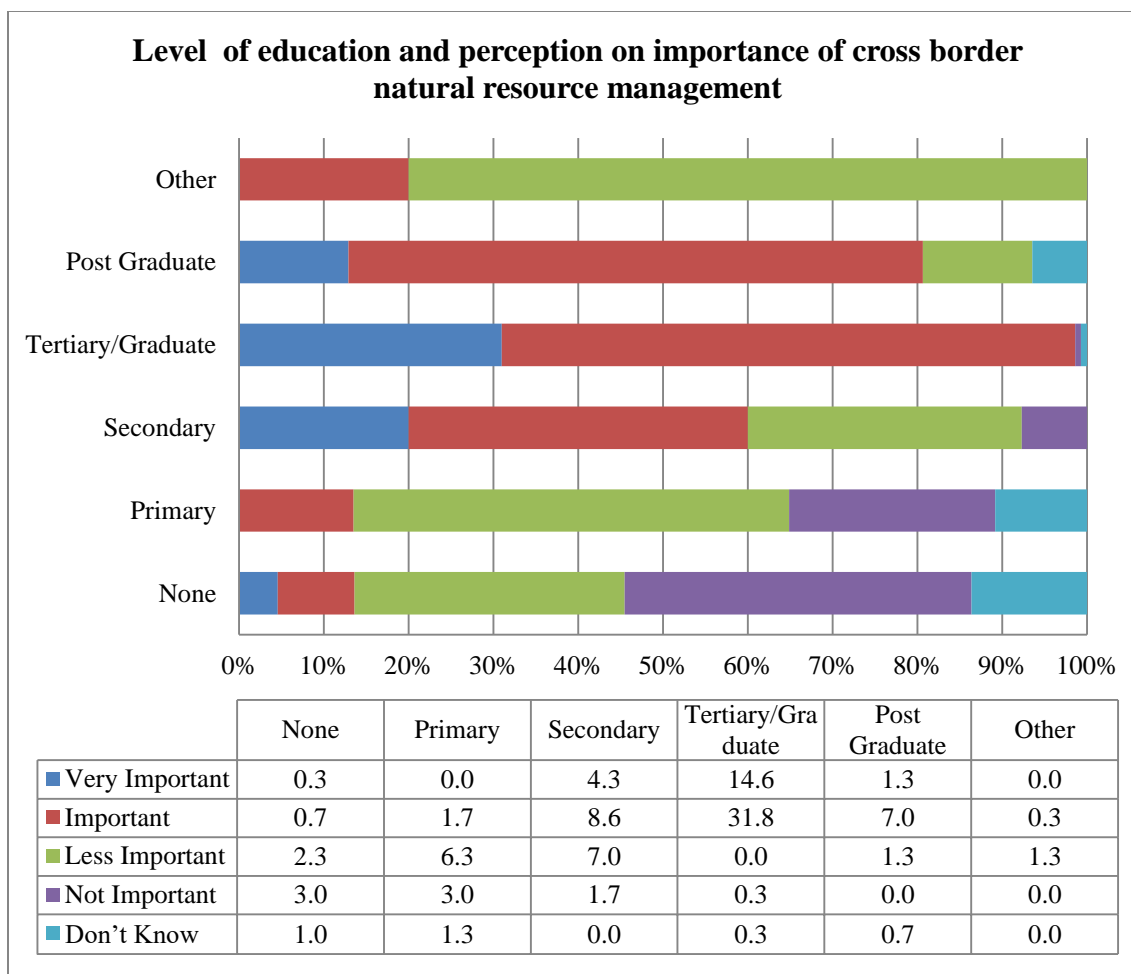


Figure 3.11: Level of education and perception on importance of cross border natural resource management

Source: Author (2021).

3.2.3 Challenges in cross border natural resource management in Kenya

Kenya's natural resources and other critical ecosystems have undergone continued degradation unabated, despite various initiatives by National and County governments, NGOs and other civil society establishments. Environmental problems are usually attributed to the complex relationship between policy, institutional and socio-economic aspects of resource management aggravated by rapid population increase and urbanization. Blunt antagonistic attitudes and perceptions by local communities that emerged from stringent enforcement and environmental conservation measures by colonialists over "their own resources" exacerbate the situation.³⁹⁴

³⁹⁴Yatich T, *et al.*, World Agroforestry Centre, Policy and institutional context for NRM in Kenya: Challenges and opportunities for Landcare, *ICRAF Working paper*, No. 43, (2007).

Challenges in transboundary natural resource management in Kenya are numerous, complex and interrelated, and are worsened by lack of a coherent region-wide strategy to guide national specific plans on environment.³⁹⁵

Rapid population increase has exerted pressure on ecosystem resources as well as the environment in general occasioning environmental changes and challenges through pollution, deforestation, soil erosion, wetland destruction and poor agricultural practices, among many other vices. Lack of alternate livelihood means and opportunities in certain areas has exposed some resources to heavy pressures in the absence of a comprehensive approach to resource management and sustainable livelihoods. The pressure has led to rapid diminishing of resource base and livelihood sources as competition over scarce resources increases with the possibility of tension and environmentally induced conflicts due to the worsening environmental conditions, increasing food and livelihood insecurity; an argument aligned to the resource scarcity perspective.

Lack of strategic, timely and comprehensive action towards tackling pressures on resources has been evidenced by the inability to eliminate rampant threats such as pollution and deforestation. Climate change characterized by decreased rainfall, increased droughts, increased temperature, increased evaporation and changes in wind patterns have also weighed in heavily on the resource quality and quantity. Extremely high incidence of poverty coupled with low living standards, particularly in the rural border areas has led to over-dependency on natural resources for economic, health and livelihood security with overall detrimental results on the environment. Cross border natural resource conservation and management is generally costly amid insufficient funds and lack of comparative investment initiatives on the often-long-term undertakings.³⁹⁶

Unreliable baseline research and data to help evaluate related trends, failure to translate field research into practical action plans and non-effective application of proven environmental management practices to reverse environmental degradation have aggravated problems surrounding the proper implementation of natural resource management initiatives.³⁹⁷ Lack of continuous public awareness; minimal relevant information sharing; poor feedback mechanism

³⁹⁵East African Community, *Policy brief on the environment and natural resources sector of the East African Community*, (2005), http://www.eac.int/lvdp/Policy_brief_04_2006.pdf, accessed on 10 June 2015.

³⁹⁶Lubovich, K., *Cooperation and Competition: Managing Transboundary Water Resources in the Lake Victoria Region, Foundation for Environmental Security and Sustainability Working Paper No. 5*, (2009), http://www.fess-global.org/WorkingPapers/Lake_Victoria_Working_Paper.pdf, accessed on 10 June 2015.

³⁹⁷GEF, *LVEMP-II project documents*, (2008), <http://www.thegef.org/uploadedfiles/11-08%20GEFID%203399%20Regional%20Lake%20Victoria%20-%20docs%20for%20web%20posting.pdf>, accessed on 10 June 2015.

among stakeholders and non-meaningful participation among elected officials, concerned communities and the society in general also hindered effective resource management.

Other nations' flawed environmental management approaches, reluctance and misconceived development plans have undermined conservation and management efforts by Kenya, thereby threatening livelihood security and development of the entire region. Competing interests, lack of transparency and the quest for economic growth have created incentives for governments to contravene cross border natural resource management strategies and agreements.³⁹⁸ Uganda has been operating in utter breach of the 'Agreed Curve;' the historical agreement and arrangement intended explicitly to facilitate balance of natural water levels within Lake Victoria and control the quantity of water to be released by Owen Falls, Nalubaale and Kiira dams for hydro-power generation. The alleged water 'over-release' from the dams by Uganda has contributed substantially to the falling lake levels in recent times.³⁹⁹ Weak institutional and legal structures and lack of synergy between sector policies and programmes have also proven to be impediments to prudent resource management. The disharmony in resource management frameworks at county, national and regional positions further poses a major impediment in the administration of transboundary resources in Kenya.

These numerous challenges experienced in the management of transboundary resources require urgent interventions to multilaterally address them conclusively since the challenges pressure resources and in the process diminish the resource base. Competition on resource access and threatened livelihoods are likely to lead to survival contests that may degenerate into full conflicts; an observation in tandem with the neo-Malthusian view. All actors should therefore engage on a platform of mutual understanding and cooperation to be able to dialogue, reconcile and amicably resolve their disputes towards conservation and the realization of sustainable peace and socio-economic development.

The study results on the respondents' knowledge of any cross border natural resource management challenges in Kenya indicate that 81.8% of the respondents confirm knowing cross border natural resource management challenges in Kenya whereas 18.2% state that they did not know any related challenges. Based on these findings, overwhelming majority of the respondents

³⁹⁸Orach-Meza *et al.*, *Background to the preparation of the second phase of the Lake Victoria Environmental Management Project (LVEMP-II)*, Paper presented at the Regional Stakeholders' Workshop on Launching the Preparation of the LVEMP Phase Two, (Arusha, Tanzania, 2005).

³⁹⁹Kiwango, Y.A. and Wolanski, E., Papyrus wetlands, nutrients balance, fisheries collapse, food security and Lake Victoria level decline in 2000–2006, *Wetlands Ecology Management*, (2007).

at 81.8% know cross border natural resource management challenges in Kenya, a position supported by Trouwborst who observes that despite the simplicity seen at the conceptual level, the real execution of natural resource conservation and management across borders was a challenging and complex matter.⁴⁰⁰ A noteworthy portion at 15.8% of the majority affirming results indicate that challenges in cross border natural resource management in Kenya encompass blatant misuse and abuse of natural resources and rampant corruption within the sector. Other results are as follows; poverty and over-dependency on natural resources at 13.8%, inapt laws and dissimilar approaches in resource management at 13% and instability and crime in resource locations at 11.3%. The findings also cite competing interests and lack of unity of purpose at 10.1%, inadequate financing at 8.9%, environmental change and continued degradation at 6.9% and low goodwill and commitment at 4.9%, among other challenges. The figure below shows the respondents' knowledge of cross border resource management challenges in Kenya.

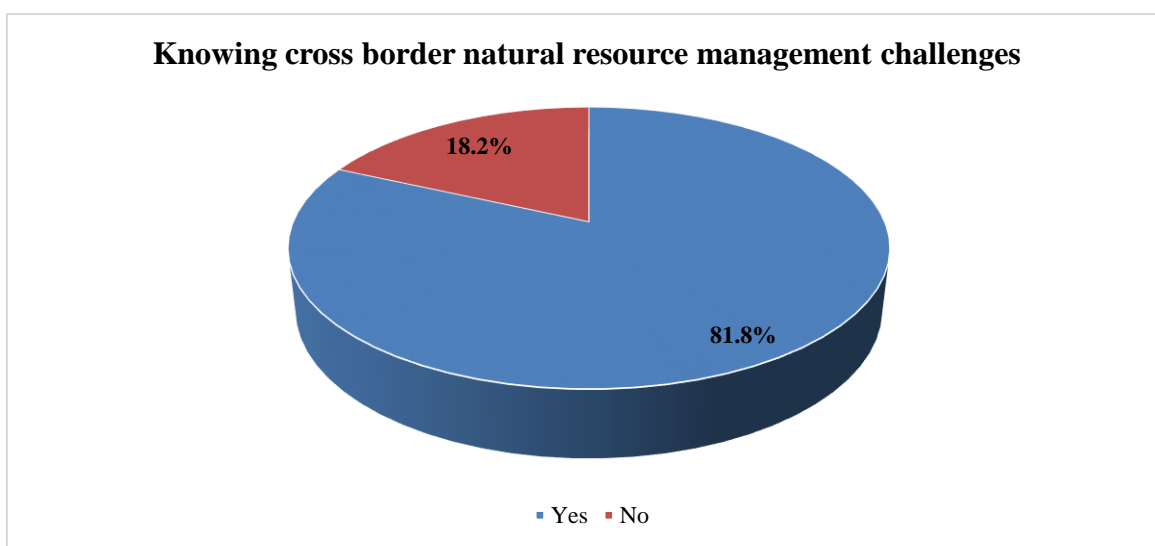


Figure 3.12: Knowing cross border natural resource management challenges in Kenya

Source: Author (2021).

The assenting results show lack of mutual respect and unity of purpose among communities living with, using and controlling the resources. Communities' nature of intolerance and animosity aggravated by high criminal activities involving natural resources is also so pronounced. The results further cite high poverty prevalence in resource areas which exacerbate over dependency

⁴⁰⁰Trouwborst, A., Law and conservation conflicts in S.M. Redpath, R.J. Gutiérrez, K.A. Wood and J.C. Young (eds.), *Conflicts in Conservation: Navigating towards Solutions*, (UK, Cambridge University Press, 2015).

on already overstretched resources leading to scarcity, competition and conflict; an argument aligned to the resource scarcity perspective. The findings note that the situation is made worse by lack of requisite infrastructure such as transport and communication networks which hamper timely response to resource management needs and emergencies. The findings also indicate that high unemployment rate exposes the already overstretched resources as vulnerable and easily available targets for subsistence. Several factors that include underdevelopment, population increase, poverty levels and unemployment lead to environmental degradation within the Mau complex since successive governments have not adequately tackled issues of landlessness and joblessness at the pretext of population growth.⁴⁰¹

The findings further reveal cases of human rights abuses occasioned by unequal access and distribution of proceeds derived through exploitation of resources, diminutive rule of law as enforcement efforts are not undertaken appropriately, rampant corruption and impunity which hamper effective implementation of resource management strategies. There is inappropriate and unfair legal systems for adjudicating over natural resource governance issues as resources are exposed to dissimilar management approaches and regimes across borders. Also of concern is delimitation and protracted unresolved sovereignty and border issues which are evident with utter disregard of the wellness and continuity of ecosystems across state boundaries. The findings note that high stakes and varied interests among stakeholders, lack of security in often inaccessible and far-flung border areas coupled with porous borders and instability in neighbouring countries hamper effective implementation and monitoring of resource management activities. This situation presents an opportunity for conflicts to manifest amid resource scarcity, competition and frail frameworks of resource management in alignment with the neo-Malthusian argument. Recurrent communal conflicts in the Lake Turkana region have created one of the deadliest, stubborn and complex border struggles within the unstable Karamoja cluster group. These conflicts encompass multiple borders namely; a disputed and overlapping communal border pitting the Turkana and Daasanach, the poorly defined inter-state border shared by Kenya and Ethiopia and a livelihoods boundary involving the valuable marshlands at the River Omo delta into Lake Turkana amid a shrinking water source whose access is essential to the existence of the local actors.⁴⁰²

⁴⁰¹Muiruri, S.M., *The impact of environmental degradation on security: A case study of Mau forest*, Master of Arts degree, University of Nairobi, 2016.

⁴⁰²USAID, *East Africa regional conflict and instability assessment final report*, (2012), <http://conflict.care2share.wikispaces.net/file/view/USAID+East+Africa+Share+Conflict+Assessment+March2012.pdf>, accessed on 27 September 2018.

The results also show inadequate human and financial resources to support appropriate implementation of resource management plans, capacity constraints among stakeholders and high illiteracy rates at community level as being among the impeding challenges. Colonial arrangements that did not resonate with modern day exploitation and management of some of these resources and effects of climate change together with globalization further added to the challenges. Competition between conservation efforts on one hand and livelihood support together with economic progression on the other are also cited in the study findings. The other challenges listed by the results include lack of relevant, updated and continuous data to inform correct programming; disharmony in policy, institutional and legal frameworks; lack of goodwill and commitment among resource management actors; clash between traditional and modern resource management approaches and continued degradation and depletion of ecosystems and natural resource base. Environmental degradation, resource depletion and scarcity are bound to instigate anxiety among groups whose livelihood support systems are threatened resulting in competition for survival and conflicts in concurrence with neo-Malthusian view. The Mau complex is made up mostly of indigenous montane forests and rivers and is an abode to rare species of flora and fauna. The Mau ecology heavily supports the Mara-Serengeti ecosystem, a significant part of the country and the East Africa region yet for many years, the complex has witnessed unchecked encroachment and exploitation which may wipe it out if the degradation is not stopped promptly,⁴⁰³ with adverse effects on dependent populations.

The study results on the extent to which challenges in cross border natural resource management in Kenya impact the resources and communities alike are as follows; 24.8% cite the impact as being to a very great extent, 38.7% note to a great extent, 17.9% cite to a fair extent, 13.9% note to a low extent while 4.64% state that they did not know. A significant portion of the results at 38.7% shows that the challenges in cross border natural resource management impact on the wellbeing of natural resources and host communities living with, using or controlling the resources to a great extent. Likewise, Coria and Sterner affirm that the two problems of poverty and environmental degradation tend to occur collectively, since environmental degradation results in reduced access to essential resources like water, firewood and fodder. They also note that conversely desperation and lack of proper judgement on the future due to poverty may drive poor

⁴⁰³Kanyadudi, O., 'Mau conservation debacle is perilous and ecological catastrophe,' *The Star*, (Nairobi), August 04, 2018 12.00 am.

communities to embrace unsustainable practices that further exacerbate degradation with attendant aggravated scarcity.⁴⁰⁴ In the wake of intensified scarcity, uncertainty surrounding livelihoods and competition emerge with possibility of conflict on the horizon in line with the principles of the resource scarcity perspective. Therefore, these resource management challenges require concerted efforts by all stakeholders in an agreed structured framework in order to arrest the degradation and depletion of ecosystems with the aim of reversing the situation tainted by scarcity, competition and conflicts. This move will instead support the realization of cooperation on conservation, stable livelihoods, sustainable peace and economic growth and development. The figure below illustrates the extent to which the challenges listed impact the resources and communities alike.

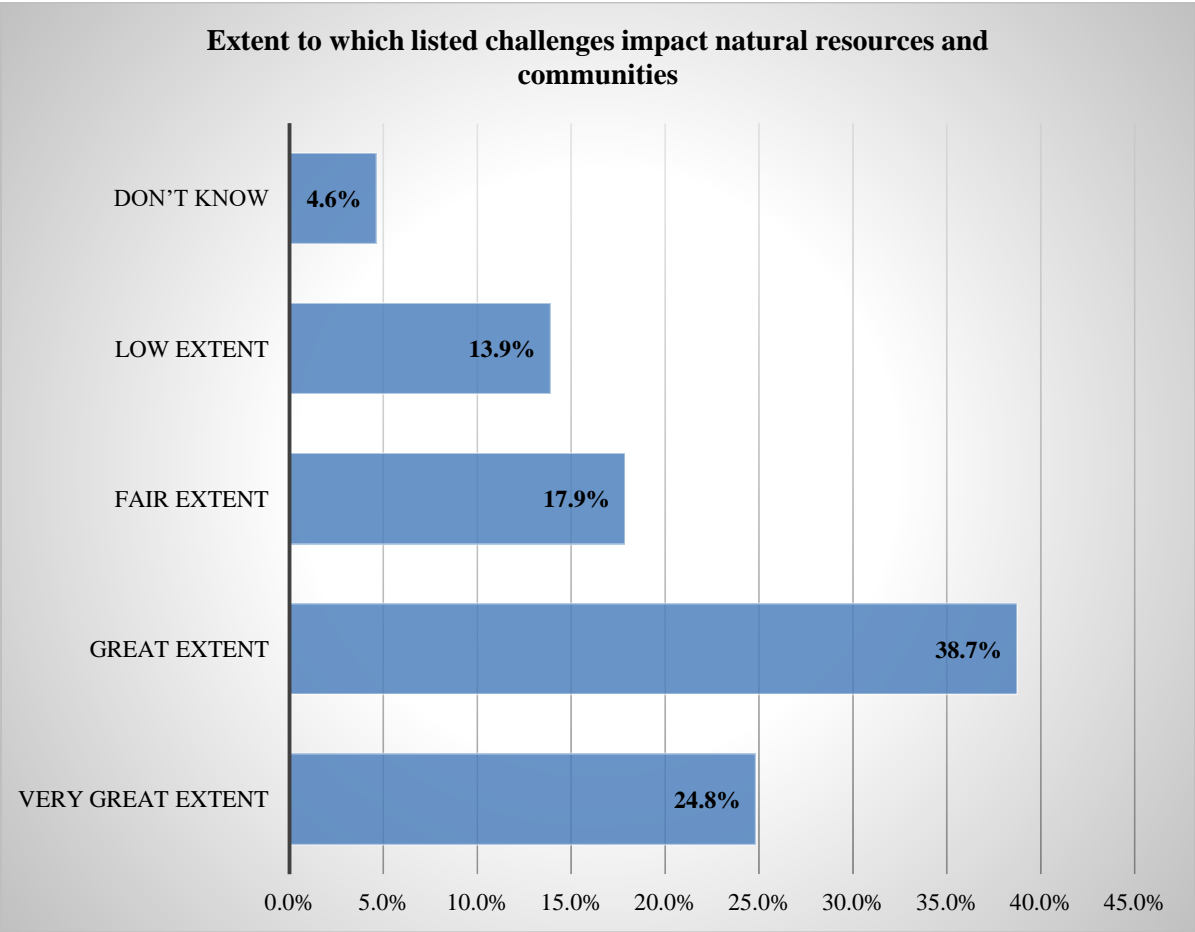


Figure 3.13: Extent to which listed challenges impact natural resources and communities

Source: Author (2021).

⁴⁰⁴Coria, J. and Sterner, T., Natural Resource Management: Challenges and Policy Options, *Working Papers in Economics, No. 480*, (Gothenburg, University of Gothenburg, 2011).

An interview with Mr. Maurice Otieno Nyunja the Chief Environment Planning Officer and Chair Sustainability Committee at NEMA reveals that the authority's mandate is broad as a regulator and enforcer on matters environment in the country since it is supposed to ensure the implementation of EMCA and further play general oversight role, yet it faces a major challenge occasioned by the resistance witnessed from other related agencies. The Officer observes that as oversight, NEMA is expected to execute its mandate through lead agencies but whenever the lead agencies fail the blame goes back to NEMA as the agencies' scapegoat. The interviewee states that although the agency relies mainly on public financing through the national budget process and indeed receives a lot of money, its mandate is so broad and thus the funds are not sufficient. The interview reveals that the agency also receives support for projects at both bi-lateral and multi-lateral levels such as support from Denmark and UNEP respectively, and that proposals are being developed to facilitate the agency to receive the Adaptation Fund and the Green Climate Fund in order to bridge the huge financing gap.⁴⁰⁵

The interview further reveals that "...there is lack of adequate personnel and equipment yet the desired levels of compliance and enforcement require a lot of staff amid blatant impunity and a myriad of challenges in the counties." The Officer owns up that omissions exist due to lack of adequate staff and thus resulting in the problem of reach. The interview also establishes that public private partnership is weak locally to be able to mobilize necessary resources and help in the transfer of technology and innovations and that the Public Private Partnership Act has only benefitted the energy, water and transport sectors but not the environment sector. The Officer indicates that there is disconnect between environmental knowledge generated by universities in Kenya and related technical aspects on the ground and that there is need for university knowledge to be more targeted towards solving real problems in the society.⁴⁰⁶ The problems that include flawed policies and rules on fighting degradation, non-diversified livelihoods and non-effective conflict resolution mechanisms, among others should be tackled accordingly so as to meet conservation goals, ensure guaranteed livelihoods and attain sustainable peace alongside development.

⁴⁰⁵Ombara, I., Interview with Mr. Nyunja, M. O., Chief Environment Planning Officer and Chair Sustainability Committee, NEMA, Nairobi, May 2018.

⁴⁰⁶Ombara, I., Interview with Mr. Nyunja, M. O., Chief Environment Planning Officer and Chair Sustainability Committee, NEMA, Nairobi, May 2018.

3.2.4 Milestones in the management of cross border natural resources in Kenya.

Policy environment in Kenya has been dynamic with micro and macro-economic policies working together at various levels hence influencing natural resource management approaches. Kenya adopted integrative policy and legislative reforms in the 1980s with policy development becoming multi-sectoral. As the population increased and the resources dwindled, the government promoted collective action which involved local communities in resource management as reflected in the 1974-1978 National Development Plan and other succeeding policy and legislative arrangements. Reform-based programs on national perspectives were supported through international policy processes, starting with the 1972 Stockholm Conference on Environment and Development and setting up of National Environment Secretariat.

Taking part in multilateral environmental agreements alongside attending the Earth Summits of Rio de Janeiro and Johannesburg marked the decisive change for mainstreaming environmental issues in long-term economic and sustainable development plans. This paradigm shift created opportunities for partnerships on sustainable natural resource management.⁴⁰⁷ The Government of Kenya formulated EMCA No. 8 of 1999 to facilitate the establishment of a suitable legal and institutional framework tailored towards management of environment. EMCA guided the establishment of institutional formations such as NEMA, National Environment Council (NEC), National Environment Restoration Fund, National Environment Trust Fund and several national statutory and decentralized relevant environment committees. NEC is responsible for laying down national goals and objectives, policy formulation, promoting partnerships on environmental management and determining environmental policies and priorities. NEMA is the government's main tool for enforcing all environmental policies by promoting integration of relevant issues into development policies, strategies, projects and programs.⁴⁰⁸ Overall, this is aimed at addressing issues relating to conservation, resilient coupled with diversified livelihoods, reduce conflicts towards promoting sustainable peace and development.

The Constitution of Kenya, 2010 distinguishes environment as the basis for socio-economic progression through promotion of equity, democratic environmental governance and public inclusivity in line with international policy processes. The current governance structure

⁴⁰⁷Yatich T, *et al.*, World Agroforestry Centre, Policy and institutional context for NRM in Kenya: Challenges and opportunities for Landcare, *ICRAF Working paper*, No. 43, (2007).

⁴⁰⁸NEMA, *NEMA mandate*, (2015), http://www.nema.go.ke/index.php?option=com_content&view=article&id=80&Itemid=470, 2015, accessed on 23 June 2015.

provides for more space in integrative implementation of innovative resource management strategies. Decentralization of resource management endeavors and corresponding financing through Constituency Development Fund (CDF) and County management systems provide opportunities for more participatory planning, decision-making and overall ownership of initiatives with obligations to improve and protect quality environment through diversified livelihood strategies. Environmental issues are also embedded in the social pillar in the Kenya Vision 2030 which aims at the realization of second world economic status come the year 2030,⁴⁰⁹ a realization that can only be actualized in an environment characterized by sustainable peace.

The study findings on whether there are any milestones in management of cross border natural resources in Kenya are as follows; 53.6% affirm that there are milestones in management of cross border natural resources in Kenya whereas 46.4% are of contrary opinion. From the analysis therefore, slightly over half of the respondents maintain that there are milestones in the management of these resources in Kenya. Due to the U.S. Government's 50-year partnership with the Government of Kenya on protection and administration of natural resources, there are notable milestones such as the setting up of relevant institutions and strengthening their capacity. Related infrastructure is also developed within resource areas with some bearing transboundary dimensions.⁴¹⁰ The figure below illustrates whether there are any milestones in the management of cross border natural resource management in Kenya.

⁴⁰⁹Kenya Vision 2030, *Pillars*, (2011), <http://www.vision2030.go.ke/>, accessed on 26 June 2015.

⁴¹⁰U.S. Embassy in Kenya, *USAID Launches Environment and Natural Resource Management Office IN Kenya*, (2014), <https://ke.usembassy.gov/usaids-launches-environment-and-natural-resource-management-office-in-kenya/>, accessed on 26 September 2018.

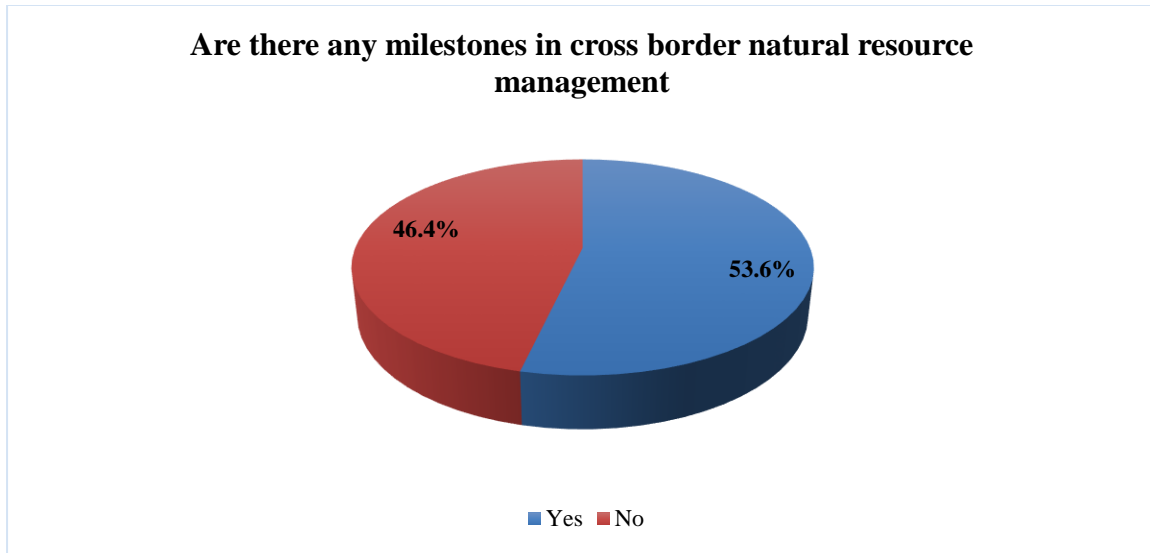


Figure 3.14: Are there any milestones in cross border natural resource management in Kenya

Source: Author (2021).

A substantial portion at 32.1% of the majority affirmative responses cite policy, institutional and legal frameworks as milestones in the management; 20.4% name sectoral mainstreaming; 17.3% mention international cooperation while 15.4% pick on devolution and participation. In addition, 9.3% of the assenting results note proactive implementation of plans whereas the remaining 3.7% allude to ‘other’ as milestones in management of cross border resources in Kenya. The findings elucidate that interlinked policy and institutional frameworks for targeted management of cross border resources are in place as evidenced by the establishment of relevant bodies such as NEMA and WRMA, among others. The results also indicate that substantive legal structures with accompanying legislations had been ensured with the Constitution of Kenya providing an overarching framework for a participatory approach to resource management in the country. Constitution of Kenya, 2010 under article 69 (1) d encourages;

“...public participation in the management, protection and conservation of the environment.”⁴¹¹

The study results reveal that national development plans such as Vision 2030 recognize role played by natural resources in the overall development agenda. The findings further note that natural resource management has partly been devolved with relevant financing mechanisms put in

⁴¹¹Government of Kenya, *The Constitution of Kenya, 2010*, (Nairobi, Government printer, 2010).

place since resources follow functions and that cross border natural resource management strategies have been implemented though not exhaustively. The findings show that environmental management issues have been mainstreamed in the undertakings by other sectors in the renewed call for action by the government and other actors on the need to safeguard the environment against degradation. This move will help mitigate related scarcity, competition and resultant conflicts; the principal elements in the resource scarcity perspective and in doing so, support the realization of sustainable peace and development. To support the realization of Vision 2030, leaders recognize the environment and ecosystem resources as grounds for stability and growth and call for an economic assessment of their importance to all sectors. There is need to develop on the existing legislative framework and tie environment to national development via the National Environmental Action Plan. This enlists concerted action at both political and technical levels to mainstream environment issues into peacebuilding endeavors, development planning undertakings and specific sector budgeting.⁴¹²

The study findings outline the concerted effort towards ensuring sustainable exploitation and administration of resources and the wider environment through the banning with penalties on logging, use of polythene bags, burning of charcoal, sand harvesting and wildlife poaching, among other similar deterrent initiatives. The study findings observe that Kenya is a state party to several regional cooperation and integration arrangements which encompass natural resource management and that the country has ratified a number of international statutes on environmental protection and resources management. Finally; the results notice the increase in advocacy and lobbying on the need for meaningful engagement of communities, women, youth and all actors in sound natural resource exploitation and management. Constitution of Kenya, 2010 under Article 69 (1) obligates the state to ensure that citizens are engaged in management and protection of the environment, particularly the County governments which are supposed to ensure public participation to curb resentment and disputes and instead ensure harmonious engagement under the Fourth Schedule.⁴¹³

3.3 Conclusion

The chapter evaluates cross border natural resource management frameworks in Kenya. The study contends that existing frameworks for managing transboundary resources have serious gaps as they are not comprehensive and compatible enough to support desired stakeholder

⁴¹²Krassowska, K., *Environmental Mainstreaming in Kenya; Status and Strategies for Stability and Development*, (Nairobi, Danida, 2009).

⁴¹³Government of Kenya, *The Constitution of Kenya, 2010*, (Nairobi, Government printer, 2010).

participation, synergy and cooperation towards conservation, peace and development of the region. The chapter also examines the current state of cross border resource management in Kenya by highlighting assorted resource management scenarios, related challenges and milestones. The study results point out to the fast-deteriorating state of a number of transboundary resources in the region amid insufficient resource management arrangements and a myriad of challenges. However, the findings also uncover some progress indicators in the management of resources offering a basis for possible future mitigation and improvement. The next chapter assesses the role and responsibilities of diverse actors in cross border resource management in support of sustainable peace in eastern Africa region. The assessment centres on actors at the community or local level, national, regional or continental level and global arena.

CHAPTER FOUR

ROLE AND RESPONSIBILITIES OF ACTORS IN CROSS BORDER NATURAL RESOURCE MANAGEMENT IN SUPPORT OF SUSTAINABLE PEACE IN EASTERN AFRICA REGION

4.0 Introduction

The chapter assesses the role and responsibilities of different actors in cross border natural resource management in Kenya while presenting an evaluation of local, national, regional and global entities. Different types of players have different roles and responsibilities to undertake in cross border natural resource management. The roles include facilitating, leading, advising, implementing and also championing processes, and these roles are not often fixed for they change with time whenever necessary as they become complementary and even implemented simultaneously. However, external actors should allow local communities to take lead in administering natural resources when they can while ensuring cooperation at different levels. This

is the key to unlocking more opportunities for conservation, livelihood support, peaceful coexistence and sustainable development.⁴¹⁴

4.1 Role of communities and County governments in resource management

Communities do regard integrity of resource base since it supports their survival. In the traditional African setup, elders play important role in communal management of cross border resources and also in the overall socio-political organization of the society. However, customary rules are not adequately enforced due to loss of influence by elders due to modernization of governance systems. The application and enforcement of traditional rules on water, land, forest and wildlife resources has greatly weakened due to institutional changes as the approach in planning and use of shared natural resources moves from communal to more individualistic approach amid state sovereignty. The advent of modern institutions for resource management has weakened viability of traditional institutions leaving them without power, mandate or legitimacy, yet they are the ones found on the ground in most resource areas.

This situation has led to ‘open access’ problem as resources are exploited in the absence of regulation resulting in environmental degradation and resource decline at community level,⁴¹⁵ with subsequent scarcity, competition and conflict in the midst of the ever-increasing population; a view in line with the resource scarcity perspective. Nonetheless, communities acknowledge and recognize the inevitable wave of change and embrace new frameworks such as resource users’ associations and other modern institutions capable of enforcing conservation rules, as being well fit to tackle modern challenges and new manifestations towards sustainable management of transboundary resources and progressive peaceful communities.

To strengthen ecosystem resource management traditional and modern systems interface in border areas, it is important to establish new regimes that include by-laws, since existing rules and systems for resource management mainly blend traditional and modern rules which heavily borrow from norms of different communities. A structured and participatory process of integration ensures community ownership and effective implementation of the new by-laws which when validated, agreed and adopted shapes regulation at county level. Communities should therefore,

⁴¹⁴Huggins, C. *et al.*, UNEP, Africa Environment Outlook 2, *Chapter 12: Environment for peace and regional cooperation*, (Nairobi, UNEP, 2006), <http://www.unep.org/dewa/africa/publications/aeo-2/content/195.htm>, accessed on 12 August 2014.

⁴¹⁵International Union for Conservation of Nature, *Local rules and customary regulations on natural resource management in Lower Tana catchment, Kenya Building Drought Resilience Project*, (Nairobi, IUCN, 2013), https://cmsdata.iucn.org/downloads/briefing_note_1_may_2013.pdf, accessed on 2 December 2015.

lobby County governments to buy-in and setup regulations that acknowledge and enforce related community by-laws.

Community participation with greater appreciation of local socio-economic processes aid in understanding of environmental concerns and in the development of plans which consider differences among communities for improved cross border natural resource management towards peace and environmental sustainability.⁴¹⁶ Implementing best practices and discarding harmful ones in a community-based approach guarantees more sustainable use of resources through improved co-ordination and co-operation between all interested groups. Respect for traditions and legitimate local aspirations and adopting a spirit of reconciliation helps secure commitments, encourages dialogue with wider involvement, ensures more equitable distribution of benefits and responsibilities, builds trust on either side of the border and also facilitates amicable resolution of conflicts and therefore improving the viability of local populations.⁴¹⁷

There are other opportunities for reinforcing resource management at the community level within policy, legal as well as institutional reforms occasioned by the adoption and implementation of Sessional Paper No. 3 of 2009 on National Land Policy;⁴¹⁸ the Constitution of Kenya, 2010 and other related vital deeds. These new frameworks strengthen community-based planning and expand space for meaningful participation in resources governance by communities. The constitution through the devolution political model shifted substantial responsibility on administration of natural resources lower to the 47 governments at the county level, away from the national government in order to create more space for more participatory and democratic environmental and natural resource governance which is key in cultivating the sense of ownership, cooperation and harmonious engagements.

The devolution decision presumes that local communities together with associated authorities are better placed to oversee the exploitation and management of ecosystem resources in counties given their greatest understanding and being the most directly affected by them as the hosts. This provides an effective framework for communities to negotiate and meaningfully contribute to related decision making and thus lessens resultant scarcity, competition and conflicts; the main principles of the neo-Malthusian view. However, it is necessary to capacity build the new

⁴¹⁶Broderick, K., 'Communities in Catchments: Implications for Natural Resource Management,' *Geographical Research*, Vol. 43, Issue 3, (2005) pp. 286-296, doi: 10.1111/j.1745-5871.2005.00328.x

⁴¹⁷Ayoo, C., 'Community-based natural resource management in Kenya,' *Management of Environmental Quality: An International Journal*, Vol. 18, Issue 5, (2007) pp.531-541

⁴¹⁸Republic of Kenya, *Sessional Paper No. 3 of 2009 on National Land Policy*, (Nairobi, The Government Printer, 2009).

County governments to carry out their mandated role that includes formulation and implementation of related legislations at the county level. Multi-sectoral cooperation is also vital, especially at the decentralized district levels, since these levels constitute the focal points for service delivery and grassroots support for sustainable community natural resources management and peacebuilding processes.

4.2 Role of National government in resource management

Kenya is currently focused on implementing SDGs and Vision 2030 which in its social pillar emphasizes the importance of sustainable environmental management so as to contribute towards overall goal of industrialization and economic progression. However, the resource base in the country has decreased over the years owing to environmental problems attributed to the compound interplay between policy, institutional and socio-economic issues aggravated by population growth, adverse human activities and climate change.⁴¹⁹ These situation presents an imminent risk of conflicts due to the ensuing scarcity and competition; an observation in agreement with the resource scarcity perspective. The government of Kenya through MENR is mandated to preserve and manage sustainably Kenya's environment alongside natural resources with the main intention of aiding in socio-economic development, reducing poverty and improving standards of living among its people.

The ministry is bestowed with responsibility of formulating, implementing and reviewing related appropriate policies and legislation which encourage sustainable management of resources and environmental conservation. It also enforces compliance to regulations, standards and guidelines, and coordinates all environmental matters through National Environmental Tribunals, Public Complaints Committees and Environmental Committees.⁴²⁰ The National government promotes international cooperation, ensures domestication and implementation of international standards and also develops mechanisms and institutions for monitoring compliance. The government mobilizes resources to support programming through partnerships involving civil society, communities, development partners or rather donors and private sector to facilitate management and utilization of cross border resources to benefit whole populations.

⁴¹⁹Ministry of Environment, Water and Natural Resources, *Draft National Climate Change Framework Policy*, (Nairobi, MEWNR, 2014), <http://www.environment.go.ke/wp-content/uploads/2014/09/Draft-Climate-Change-Policy.pdf>, accessed on 6 December 2015.

⁴²⁰The Redd desk project, *Ministry of Environment and Mineral Resources-Kenya*, (2015), <http://thereddesk.org/countries/actors/ministry-environment-and-mineral-resources-kenya>, accessed on 5 December 2015.

The government further enhances the capacity for natural resource governance through improvement of coordination for concerned ministries, departments and agencies by providing for public participation, facilitating environmental education and awareness and ensuring monitoring and compliance towards sustainable environmental management. It undertakes and co-ordinates research and sharing of relevant information geared towards assisting in appropriate management and preservation of the environment.⁴²¹ The nationally-developed but locally-specific environmental and natural resource management models enable identification and promotion of opportunities based on community action plans such as the National Peace Building and Conflict Management Policy. This policy is meant for proactively identifying and sustainably resolving grievances that set off intercommunity conflicts. However, most of these government endeavors are mainly sector-specific with less synchronization and poor coordination, hardly ever integrative and often flop in building synergy with other similar programmes. National programming is often vulnerable to regime change, government priority shifts and funding fluctuations and thus the risk of being at the vagaries of politics.⁴²²

4.3 Role of sub-regional and regional institutions in resource management

In Africa, eastern Africa boasts of the largest number of regional groupings notable among them the EAC and IGAD with both having immense influence on the agenda to integrate the region. Such established regional groupings are distinctively and better positioned with the capacity to lead cross border natural resource management endeavors founded on their regional mandates that are capable of overcoming complexities of working across borders.⁴²³ Sustainable management of transboundary natural resources often require regional approach and hence; regional institutions offer a platform for member states to harmonize related policies, strategies and actions; share lessons, experiences and best practices and collaborate with other regional groupings on environmental and natural resources management.

In addition, many regional bodies and strategies endeavor to strengthen cooperation among partner states in order to reverse environmental degradation and enhance the integration of natural resource concerns including transboundary resource issues into development plans for environmentally sustainable economic development in a peaceful environment. Nevertheless,

⁴²¹National Environment Management Authority, *Strategic Plan 2002-2010-Abridged version*, (Nairobi, NEMA, 2005).

⁴²²Yatich T, *et al.*, World Agroforestry Centre, Policy and institutional context for NRM in Kenya: Challenges and opportunities for land care, *ICRAF Working paper*, No. 43, (2007).

⁴²³United Nations Expert Group Conference Report on Natural Resources and Conflict in Africa, *Transforming a Peace Liability into a Peace Asset*, (United Nations Expert Group Conference, 17-19 June 2006, Cairo: Egypt).

eastern Africa belongs to between 2 and 4 regional bodies which remains counter-productive and often leads to conflicting goals and policies and also in the duplication of resources. The proposed setting up of the COMESA-EAC-SADC (CES) tripartite arrangement is a necessary bold move to address the multiple membership issue.

Although there has been collaborative management of ecosystem resources such as water resources including shared river basins among other transboundary natural resources,⁴²⁴ countries in the region still experience resource induced disputes mainly due to the diminishing renewable resources which eventually lead to competition for residual resources; an argument in agreement with the tenets of the resource scarcity perspective. River basin institutions have mainly been formed in order to regulate stakeholders by checking rights, responsibilities and roles played by various riparian states and in that retrospection the Nile Basin Initiative offers a basin-wide structure for improved management and attendant attainment of development potential on the Nile basin water resources. This Initiative strives towards fighting poverty, ironing out squabbles and promoting socio-economic progression through equitable use and sharing of the benefits within northern and eastern Africa sub-regions. Although there have been incidents of resentment over the unfair management system, countries in the Nile basin have cooperated over the last 3 decades; a promise which holds potential for greater regional integration and peaceful coexistence with even greater benefits.⁴²⁵

4.3.1 East African Community (EAC)

The permanent tripartite commission for East Africa cooperation was re-established in January 2001 via a treaty entered on 7 July 2000. Parties to the treaty were Uganda, Tanzania and Kenya before Rwanda and Burundi officially joined EAC on 18 June 2007. The EAC is a major driver of regional integration process geared towards a prosperous, secure, competitive and politically united region. The inter-governmental organization strives to establish policies and programs intended at enhancing cooperation among partner states in agreement with Article 5 (1) of the treaty⁴²⁶ as Chapters 19 and 20 offer structures for cooperation on environment matters

⁴²⁴UNEP, Africa Environmental Outlook 2, Policy and legal responses to sustainable development, *Peace, development and environmental cooperation*, (2006), <http://www.unep.org/dewa/Africa/publications/AEO-2/content/026.htm>, accessed on 2 September 2014.

⁴²⁵Nile Basin Initiative, *About Nile Basin Initiative*, (Entebbe, Nile Basin Initiative Secretariat, 2016), <http://www.nilebasin.org/>, accessed on 17 January 2014.

⁴²⁶AfDB/ADF, *Eastern Africa Regional Integration Strategy Paper*, 2011-2015, (September 2011), <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/East%20Africa%20-%20Rev%20RISP%20.pdf>, accessed on 17 August 2014.

which also encompass natural resource management including those that bear transboundary features.

EAC has facilitated development of policies and laws to support sustainable cross border resource management on forests, land, water resources, wildlife and mountainous environments, among other ecosystems. The Community has cooperative initiatives on water resources management such as the rejuvenated Lake Victoria Development Programme; an initiative with a shared perspective on the entire lake basin progression, inter-university cooperation, tourism, food security and lake resource conflict management. EAC also undertakes management of transboundary resources within Mounts Kilimanjaro and Elgon ecosystems as the East Africa Cross Border Biodiversity Project is carried out by partner governments identifying and promoting systemic national and regional policies and administrative actions mainly on forests towards reducing biodiversity loss and ensuring sustainable management of cross border ecosystems.⁴²⁷

The Community through the Protocol on Environment and Natural Resources Management which covers all matters touching on management of environment together with related resources in partner states including transboundary resources recognizes that human development endeavors pose harmful effects to environment resulting in its degradation and natural resources depletion; an observation aligned to the doctrine of the resource scarcity perspective. The protocol advocates for the adoption of a common vision in tackling challenges through sound transboundary natural resources management at all levels towards achieving sustainable peace, growth and development. It promotes shared responsibility and closer cooperation for sustainable, judicious and coordinated safeguarding, usage and management of transboundary natural resources and expands scope for integration and treating ecosystem management issues as being part of the development plans.⁴²⁸

The protocol fosters environmental awareness, information exchange and sharing of lessons learned, experiences and best practices. It also undertakes national and regional human and institutional capacity building. The protocol ensures joint development, adoption and review of harmonized common strategies, actions, policies and laws on transboundary natural resources towards sustainable peace and development. The protocol further strives to ensure that partner

⁴²⁷UNEP, Africa Environmental Outlook 2, Policy and legal responses to sustainable development, *Peace, development and environmental cooperation*, (2006), <http://www.unep.org/dewa/Africa/publications/AEO-2/content/026.htm>, accessed on 2 September 2014.

⁴²⁸EAC, *Protocol on Environment and Natural Resources Management*, http://www.eac.int/environment/index.php?option=com_content&view=article&id=122&Itemid=212, accessed on 4 January 2016.

states protect and restore critical ecosystems, adopt values and measures to minimize or avert adverse impacts and also respond to needs and opportunities by strengthening and implementing sound practices. It offers platform for party states to observe compliance on international norms and even enter into other complementary arrangements, undertake and support research and further conduct environmental impact assessments to inform appropriate interventions.

In addition, the protocol endeavors to ensure sustained balance between environmental management and socio-economic progression, poverty alleviation, food security and effective participation and engagement of local communities with recognition of their rights and shared benefits as means of safeguarding transboundary natural resource base and upholding peacebuilding processes. Through the protocol, EAC is able to compel members to integrate ecosystem issues into relevant sectoral and cross-sectoral policies, strategies and programmes, develop common approach in determining environmental standards; use compatible indigenous knowledge and control invasive alien species which constitute the second largest source of biodiversity loss after habitat change.⁴²⁹

4.3.2 Inter-Governmental Authority on Development (IGAD)

IGAD was formed in 1996 at the time to substitute Inter-Governmental Authority on Drought and Development (IGADD) and encompasses seven discrete countries in the larger Horn of Africa region namely South Sudan, Somalia, Ethiopia, Sudan, Djibouti, Uganda and Kenya, after Eritrea was suspended in 2011. IGAD's main mandate is that of guaranteeing food security, environmental conservation, sustain peace and security, prosperity and regional integration, in a region that is mainly dry and often afflicted by poverty, lack of food, widespread economic hardship, recurring droughts, conflicts and insecurity.⁴³⁰ This fragile environment supports an estimated 200 million inhabitants with a growing human population whose growth rate is between 0.3% and 3.7% per year amid the ravaging context of climate change, environmental degradation and advancing desertification.

Agro-pastoralism and pastoralism are key livelihood activities with the latter economically and ecologically being the most viable livelihood strategy in the region's vast ASALs. Institutional challenges that discourage continued adaptability and resilience appear in form of trends that relate

⁴²⁹EAC, *Protocol on Environment and Natural Resources Management*, http://www.eac.int/environment/index.php?option=com_content&view=article&id=122&Itemid=212, accessed on 4 January 2016.

⁴³⁰IGAD, *Inter-Governmental Authority on Development*, <http://www.igadregion.org/intergovernmental-authority-on-development/>, accessed on 17 January 2016.

with social marginalization, disintegration of traditional institutions, lack of infrastructure and poor dynamism in cross border relationships. There is also low development funding; increased conflicts over resources and the inhibitive nature of planning, policy formulation and implementation amid poor decision-making and administration approaches.⁴³¹ IGAD works towards formulation of appropriate policies, establishment of institutions and ensuring processes and practices on regional and cross border dimensions, mainly by encouraging resilience and productivity among communities whose livelihoods majorly depend on natural resources yet they reside in harsh and ever worsening ecological circumstances with increasing chronic vulnerability.

The region is the world's most food-insecure place with constant scarcity of freshwater and pasture aggravated by severe droughts and resource-based conflicts; an argument in line with the resource scarcity theory. The Authority's Environment and Natural Resources Strategy taps from regional and international agreements and various development processes as a coherent and comprehensive framework for the Authority's environment and resource programming. The strategy provides a situational analysis on main challenges and opportunities in environmental and natural resources endowment and management within the region with the aim of ensuring harmonized compatible resource governance systems, capacity and information.

The framework recognizes environment as being part of the agenda on sustainable development and thus it is responsive to the SDGs and other multilateral environmental agreements.⁴³² The organization carries out a number of programmes that complement one another such as IGAD Drought Disaster Resilience and Sustainability Initiative (IDDRSI), Conflict Early Warning and Response Mechanism (CEWARN) and IGAD Climate Prediction and Applications Centre (ICPAC), among others. IGAD promotes community-based resource management and being a governmental organization, it is capable of engaging with member states at the high level on cross border resource management and even mediate resource induced conflicts whenever necessary.

CEWARN has been engaged in collection and analysis of information towards alternative approaches in averting escalation of cross border pastoralist conflicts and other related issues by advocating for peaceful settlement of disputes and also empowering and encouraging cooperation

⁴³¹Flintan, F. *et al.*, 'Natural resource management in the drylands in the Horn of Africa: Brief prepared by a Technical Consortium hosted by CGIAR in partnership with the FAO Investment Centre,' *Technical Consortium Brief 1*, (Nairobi: Kenya, ILRI, 2013).

⁴³²IGAD, *IGAD Environment and Natural Resources Strategy*, (2007), http://igad.int/attachments/159_IGAD_ENR_Strategy.pdf, accessed on 17 January 2016.

among stakeholders encompassing collaborations with government bodies and the civil society.⁴³³ CEWARN has undertaken programmes in cross border regions of Karamoja cluster in Kenya, Uganda, Ethiopia and South Sudan and also among Somali cluster in Somalia, Kenya and Ethiopia. Through IDDRSI's new focus on knowledge management, IGAD provides an opportunity that promotes targeted and evidence based cross border intervention on drought resilience and sustainability.⁴³⁴

4.3.3 African Union (AU)

African Union is a continental body working closely with eastern Africa regional groupings on regional and cross border issues that include transboundary natural resources management by providing standards and frameworks which are rolled out to member states. The union offers platform for initiatives that incorporate two or even more regions such as NBI which involves 11 countries drawn from North, Central and eastern Africa. Rising trends in challenges of population growth, poverty, urbanization, climate change, drought and desertification, environmental degradation, loss of biodiversity, inequalities and eventual conflicts in line with the resource scarcity theory, necessitate interventions addressing their root causes with prioritized structural transformation to achieve comprehensive people-centred peace and development in Africa.⁴³⁵

AU supports creation of suitable policy, legislation and institutional frameworks and also promotes coordination and cooperation among various stakeholders in sustainable management of ecological resources and environment. African Union encourages budget allocations, research and development, sharing and exchange of information, produces protocols and regulations and also enforces the use and review of existing laws in accordance with international standards and developments. AU further offers capacity assistance, strengthens monitoring systems and promotes sustainable livelihoods in environmentally sensitive areas to enhance socio-economic benefits.⁴³⁶ This move minimizes competition over diminishing resources which aids in starting and sustaining conflicts and instead promotes sustainable peace.

⁴³³IGAD, *CEWARN*, <http://www.igadregion.org/cewarn/>, accessed on 17 January 2016.

⁴³⁴IGAD, *IGAD Drought Disaster Resilience and Sustainability Initiative*, (2005), <http://resilience.igad.int/index.php/about>, accessed on 17 January 2016.

⁴³⁵African Union, *Common African Position (CAP) on the Post-2015 Development Agenda*, (22nd Ordinary Session of the Assembly of the Union, 31 January 2014, Addis Ababa: Ethiopia), http://www.uneca.org/sites/default/files/uploaded-documents/Macroeconomy/post2015/cap-post2015_en.pdf, accessed on 14 January 2015.

⁴³⁶African Union, African Union initiative on promotion and development of Agenda 21 in Africa, *Partnership initiatives information sheet*, http://www.un.org/esa/sustdev/partnerships/activities_initiate/au_a21africa.pdf, accessed on 14 January 2016.

AU undertakes programmes that include African Union Border Program with the mandate to prevent and resolve border related disputes and instead nurture regional or even continental integration; an essential mechanism in the structural prevention of conflicts on the continent.⁴³⁷ AU Inter-African Bureau for Animal Resources facilitates and coordinates use of animal resources such as livestock, fisheries and wildlife to enhance human welfare in member states and also contribute to economic development, especially in rural areas. The Union engages closely with like relevant international and regional bodies in support of peace and security initiatives that include the African Development Bank whose core mandate is fostering regional integration.

AfDB through its Regional Integration Strategy focuses on specific concerns in the region that include transboundary conflicts, insecurity, governance challenges and cross-cutting issues touching on environment and climate change, among others. Environmental threats and concerns are often mainstreamed into broad strategies and effected in specific regional programs with individual national perspectives.⁴³⁸ The New Partnership for Africa's Development (NEPAD) is the calculated strategy for Africa's renewal focusing on peace and security as well as good governance as priority preconditions for growth and development.

NEPAD has the Sub-regional Environment Action Plan for eastern Africa and the Environment Initiative with its Capacity Building Action Plan developed with the headship of African Ministerial Conference on the Environment (AMCEN) to support the management of environment. AMCEN also encouraged the creation of Africa Environment Outlook and IGAD's first Environment Outlook in 2006.⁴³⁹ Management of environmental resources including transboundary ones holds the link between peace, lasting stability and the much-desired socio-economic development; which is the continent's new vision for renaissance and progression embodied in the AU together with its socio-economic framework for development towards achieving Sustainable Development Goals.⁴⁴⁰

However, African Union should collaborate with eastern Africa regional groupings in hastening the process of timely generation and review of minimum standards for environmental

⁴³⁷AU, *Through peaceful, open and prosperous borders*, (Addis Ababa, AU Peace and Security Dept., 2013), <http://www.peaceau.org/en/page/27-au-border-programme-aubp>, accessed on 17 January 2016.

⁴³⁸AfDB/ADF, *Eastern Africa Regional Integration Strategy Paper 2011-2015*, (2011), <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/East%20Africa%20-%20Rev%20RISP%20.pdf>, accessed on 17 August 2014.

⁴³⁹IGAD, *IGAD Environment and Natural Resources Strategy*, (2007), http://igad.int/attachments/159_IGAD_ENR_Strategy.pdf, accessed on 17 January 2016.

⁴⁴⁰UNEP, *Africa environment outlook 2, Harnessing the opportunities for environment and development*, (Nairobi, UNEP, 2006), <http://www.unep.org/dewa/Africa/publication/AEO-2/content/0.28.html>, accessed on 13 August 2014.

resources management including transboundary natural resources. The African Peer Review Mechanism should ensure more overt standards, benchmarks and relevant indicators on resource management in order to promote sharing of lessons learned and replication of best practices, as partaking states that include Kenya incorporate related issues into own assessment and action plans.

The regional bodies should build common positions capturing regional cross border natural resource needs and peculiarities for subsequent incorporation in continental resource management processes. AU should engage more through strategic partnerships in order to harness available national, continental and international resources and expertise to mainstream cross border natural resource issues in Africa's peacebuilding processes and development plans. It is imperative to promote innovative strategies through South-South cooperation and also build upon existing continental initiatives such as AMCEN which offers a wider stage for deliberating environmental issues and the AU Pastoral Policy framework which complements the ASALs policy in Kenya, among other enterprises.⁴⁴¹

4.4 Role of global institutions in resource management

The international community and especially the United Nations system collaborate with other partners to provide regional support on environmental issues for greater shared impact on sustainable peace and development in the eastern Africa region. Multilateral agencies which support environmental initiatives in Kenya include UNEP, UN Habitat, the United Nations Development Programme (UNDP) as well as the World Bank, among others. Former UN Secretary-General Kofi Annan in 1997 stated that;

“Safeguarding the environment is a cross-cutting United Nations’ activity. It is a guiding principle of all our work in support of sustainable development. It is an essential component of poverty eradication and one of the foundations of peace...”⁴⁴²

The UN through Office of the Special Adviser encourages international assistance and commitments towards conservation, long-lasting peace, security and sustainable progression in Africa by facilitating advocacy, offering financial and technical support and by enabling intergovernmental discussions on critical issues of concern in Africa.

⁴⁴¹United Nations Expert Group Conference Report on Natural Resources and Conflict in Africa, *Transforming a Peace Liability into a Peace Asset*, (United Nations Expert Group Conference, 17-19 June 2006, Cairo: Egypt).

⁴⁴²UN, Safeguarding environment transcends divisions, compels long-term cooperation, says secretary-general in message to UNEP Governing Council, *Press Release SG/SM/6155 HE/945*, (NY, UN meetings coverage and press releases, 1997), <http://www.un.org/press/en/1997/19970205.sgsm6155.html>, accessed on 18 January 2016.

UNEP being the center for environmental action and coordination at the UN recognizes that sustainable development which constitutes the centre of its mandate cannot be attained in the background of conflict and thus ensures the overall well-being of the environment as the structural and root source of conflict. The Programme creates knowledge and develops mechanisms for dissemination on association between environmental resources and related conflict, documents practices for reference and identifies risk factors and instruments for mitigation. As UNEP works to avert conflict with the environment, it is also aware of the opportunities presented by environmental resources for peace building by way of rectifying the unfair access and control of ecosystem resources through ways that ensure facilitative policy and legal options.

The UN agency undertakes or supports research and dissemination of information widely to support in formulation of policy to direct programming and monitoring of compliance in environment and resource management including transboundary resources. UNEP also enforces and monitors compliance with international agreements, guidelines and associated instruments, and further tackles the multiplicity issue of the legal systems used in administering natural resources, particularly on land matters with the aim of instigating harmonization.⁴⁴³ UNEP facilitates and hastens execution of African Peace and Security Architecture (APSA) priorities through continuously providing financial, technical and capacity assistance to African Union alongside member states, NEPAD and regional bodies so as to mainstream natural resource management issues in the development agenda.

However, global development partners should not impose governance related preconditions so as to provide development assistance or even promote externally driven parallel agenda, instead they should respect and support local-led courses. International legal instruments that include binding regulations and nonbinding guidelines consist of progressively vital instruments that support the attainment of bilateral and multilateral cooperation on the environment, yet their lacks powerful global entity to enforce them as their success relies on voluntary compliance.⁴⁴⁴ Therefore, there is need to bolster the UN capacity for coordinating all actors under their mandates in concerted international effort. This step will immensely support the

⁴⁴³United Nations Expert Group Conference Report on Natural Resources and Conflict in Africa, *Transforming a Peace Liability into a Peace Asset*, (United Nations Expert Group Conference, 17-19 June 2006, Cairo: Egypt).

⁴⁴⁴Petsonk, C.A., 'The Role of the United Nations Environment Programme in the Development of International Environmental Law,' *American University International Law Review*, Vol. 5, Issue 2, (1990) pp. 351-391.

achieving of structural conflict prevention strategies towards sustainable peace and development, as the UN highly approves the link between environment and conflict.⁴⁴⁵

4.5 Role of nongovernmental organizations in resource management

Nongovernmental organizations are an amalgamation of groups and institutions exclusively independent of government and created primarily by cooperative or humanitarian rather than commercial purposes. They include private voluntary, civil society and nonprofit organizations that pursue public interest agenda and range from watchdog activist and aid agencies to policy and development organizations. NGOs are dedicated to long-term issues, focus on commonly understood problems with aligned interests and shared responsibilities, and often have public trust hence they play a vital role in social development as a useful proxy for societal concerns that include climate change, conflicts, environmental and natural resources management.⁴⁴⁶

NGOs have shown leadership in promotion of sustainable community development by maintaining institutional autonomy and political neutrality, even though they have to collaborate with governments in fulfilling their mandates. Based on their meticulous ideology and nature, NGOs reach out, mobilize and empower poor and remote communities in border areas to regain control of their lives by increasing local economic diversity, self-reliance and greater co-operation among local entities towards peaceful coexistence, preservation and enhancement of biodiversity and management of resources. NGOs work with and strengthen local frameworks, often carry out projects more efficiently than government agencies, recognize the importance of strategic partnerships and have broader mandates that can create platforms for integrating entities drawn from several countries towards promotion of sustainable natural resource use in border regions and overall development.⁴⁴⁷

Agenda 21 of the UN recognizes the participatory role of NGOs in sustainable development partnerships and together with the relevant principles of sustainability emphasize environmental

⁴⁴⁵Kameri-Mbote, P., Environment and Conflict Linkages in the Great Lakes Region, *IELRC Working Paper*, (2005-6), <https://www.ielrc.org/content/w0506.pdf>, accessed on 13 May 2014.

⁴⁴⁶Hall-Jones, P., 'The rise and rise of NGOs,' *Public Services International*, (2006), <http://www.worldpsi.org/Template.cfm?Section=Home&CONTENTID=11738&TEMPLATE=/ContentManagement/ContentDisplay.cfm>, accessed on 4 January 2016.

⁴⁴⁷Young, S.T and K.K. Dhanda, Sustainability: Essentials for Business, *Chapter 9: Role of Governments and Nongovernmental Organizations in promoting sustainability*, (London, SAGE Publications Inc., 2013), http://uk.sagepub.com/sites/default/files/upm-binaries/52625_ch_9.pdf, accessed on 4 January 2016.

preservation as being part of the overall development process.⁴⁴⁸ To achieve the long-term aim of sustainable peace and development, environmental NGOs perform their indispensable multiple roles in cross border natural resource management often simultaneously in synergy. They conduct public advocacy to bring policies and behavior into alignment with conservation and sustainability agenda through voicing of environmental matters in cross-sector collaborative management processes. NGOs also use media to influence public opinion, lobby decision makers, incorporate local knowledge into international campaigns, provide legal aid through law suits to challenge administrative decisions and engage in direct action such as related public protests or demonstrations.

NGOs are managers who directly implement and engage in hands-on activities through administration or co-administration of natural resources, habitat restoration and service provision initiatives and help identify opportunities for cross border natural resource collaboration mainly in remote and underserved border areas. They also play the watchdog role by supporting the development and implementation of relevant minimum standards, enforcement of conservation agreements, preventing or stopping activities deemed as incompatible with conservation and sustainability agenda, monitoring compliance with existing laws and publicizing infractions or whistle blowing.⁴⁴⁹

The African Wildlife Foundation works in partnership with individuals, communities, governments, private sector and regional organizations towards conservation of wildlife in the transboundary Kilimanjaro heartland which holds great biological richness in the semi-arid savanna within the wider Amboseli ecosystem on the Kenya/Tanzania border. The organization participates in research, monitoring and formulation of targeted policy within relevant government wildlife authorities, fosters cooperation, secures important habitat linkages and wildlife dispersal areas, facilitates joint planning and management fora for key stakeholders and also offers opportunities for improved livelihoods and peaceful coexistence of local people and nature.⁴⁵⁰

NGOs perform enabler role by offering capacity building through outreach efforts, skills training, sharing of more diverse expertise, technical assistance and information support on

⁴⁴⁸UN, Agenda 21, Chapter 27, *Strengthening the Role of Non-Governmental Organizations: Partners for Sustainable Development*, (1993), http://www.un.org/esa/dsd/agenda21/res_agenda21_27.shtml, accessed on 4 January 2016.

⁴⁴⁹Crosman, K.M., *The roles of non-governmental organizations in marine conservation*, Master thesis, University of Michigan, August 2013.

⁴⁵⁰Muruthi, P. and K. Frohardt, The African Wildlife Foundation, Study on the Development of Trans-boundary Natural Resource Management Areas in Africa, *Kilimanjaro Heartland Case Study*, https://www.awf.org/old_files/documents/AWF_BSPKilicasestudy.pdf, accessed on 4 January 2016.

management decisions and use of best practices. They facilitate sharing of lessons learned and local knowledge and also carry out education and awareness raising campaigns to influence behavioral change and further promote sustainable natural resource use and management with eventual peace. These undertakings are under strict adherence to bottom-up approach which leads to improved resource management practices amongst communities as well as other stakeholders via various initiatives and mechanisms purposed to maximize participation and empowerment.

Environmental NGOs allow for wider participation and encouragement in partaking environmental politics in line with the Rio Declaration's Principle 10 which postulates that the participation of all stakeholders within their relevant levels offers best grounds for addressing environmental issues;⁴⁵¹ a view restated by the Johannesburg Declaration that also upholds the need for broad-based participation in areas of policy formulation, decision-making alongside their implementation at all necessary levels. NGOs conduct research and relevant analysis to support relevant processes and if enabling conditions are maintained, needs are identified, priorities set and managing initiatives implemented with appropriate follow-up towards biophysical impacts and sustainability as long-term eventual outcomes. They identify risks, assess environmental impacts, design and implement appropriate measures, and further maintain high level of political and public interest and commitment necessary as grounds for action.

The World Wildlife Federation has supported Mara River Basin Management Initiative in response to water resources management challenges that include scarcity, climate variability, environmental degradation, increasing competition and related conflicts; attributes which are aligned to the neo-Malthusian view, towards participatory, equitable use, conservation and sustainable integrated management through policy, legislation and institutional reforms.⁴⁵² NGOs provide or mobilize funding to support projects, act as funding conduits to local groups, offer equipment to facilitate monitoring and compliance, provide for cost sharing across networks of linked interests and hire locals to spread economic benefits to the community. The initiatives foster local economic development, self-reliance, motivate and encourage local buy-in through

⁴⁵¹UNEP, Rio Declaration on Environment and Development, *Principle 10*, (The United Nations Conference on Environment and Development, 3-14 June 1992, Rio de Janeiro: Brazil),

<http://www.unep.org/documents.multilingual/default.asp?documentid=78&articleid=1163>, accessed on 5 January 2016.

⁴⁵²Hepworth, N. and J. Onyando, Norad, Mara River Management Initiative, *Tanzania and Kenya Final evaluation report*, (Norway, WWF, 2010), <https://www.norad.no/om-bistand/publikasjon/ngo-evaluations/2011/wwf-mara-river-basin-management-initiative-tanzania-and-kenya--final-evaluation-report-dated-february-2010/>, accessed on 3 January 2016.

volunteerism which eases the pressures that lead people to misuse and destroy ecosystem resources.

The organizations also provide opportunity for stakeholder coordination and involvement, increased inclusivity and stakeholder ownership, ensure process facilitation network creation, build communication and broker information between stakeholders. Nevertheless, conventional public institutions often lack ability to collectively deal with economic, socio-political and ecological problems due to their top bottom remit, yet poverty, increase in population, environmental degradation together with resource depletion are inextricably related in concurrence with the resource scarcity theory and none of them can be successfully tackled in isolation. Therefore, NGOs present an adaptive institutional structure that is suitable for solutions to these fundamental problems, since they have a strong field presence at the community level.⁴⁵³

They promote self-organization of groups, create multi-stakeholder collaborative infrastructures, act as network liaisons between communities and systems, facilitate initial coordination and neutral continued mediation, broker resource induced conflict resolution and ensure equitable handling by all players. In ASAL border lands of northern Kenya which have been marginalized with less attention from the public sector over the years, ACTED alongside Kenya's civil society work with communities, County and National governments in strengthening resilience and supporting people's livelihoods through community-driven approaches. Through emergency food security, sound natural resources management and advocacy initiatives for meaningful involvement in peace and development processes, warring Garre and Dagodia clans are targeted in a region characterized by instability due to erratic rains that adversely affect availability of resources and local livelihoods.⁴⁵⁴

NGOs have however been criticized on efficacy grounds for their insufficient influence to promote environmental sustainability and for not being always democratic institutions as is the case of Greenpeace which is a protest organization focused on shaping views of own members rather than representing these views.⁴⁵⁵ Thus, NGOs should not usurp roles but instead understand

⁴⁵³Ramanathan, T.R., *Non-Governmental Organizations and Natural Resource Management in Africa: A Literature Review*, Forestry Support Program-USAID, <http://www.eldis.org/vfile/upload/1/document/0708/DOC4542.pdf>, accessed on 4 January 2016.

⁴⁵⁴ACTED, *Restoring peace through food security in Kenya*, (European Commission Humanitarian Aid & Civil Protection: Office of U.S. Foreign Disaster Assistance, Oxfam, 2014), <http://www.acted.org/en/kenya>, accessed on 3 January 2016.

⁴⁵⁵Young, S.T and K.K. Dhanda, *Sustainability: Essentials for Business, Part III Stakeholder Interest and Choices; Chapter 9: Role of Governments and Nongovernmental Organizations*, (London, SAGE Publications Inc., 2013).

their role as temporary actors, fill the gaps and support other relevant actors in effective management of transboundary resources towards the realization of sustainable peace.

To consolidate and safeguard the gains made, it is crucial that coordinated programming between NGOs, governments and donors should be accentuated, for without better integration, the achievements are more likely to end up as ad hoc and not capable to systematically spur row backs in environmental degradation and resource depletion,⁴⁵⁶ the key drivers of scarcity, competition and eventual conflict in line with the resource scarcity perspective. There is potential for greater collaboration between NGOs and other actors despite the challenges mainly due to differences between NGOs and public sector natural resources management styles, approaches and funding arrangements. Closer cooperation and strategic partnerships between and among NGOs, governments, international bodies and other like development players are vital for encouraging effective cross border resource management, environmental sustainability, sustainable peace and greater development.

The findings of the study on who are the key stakeholders in cross border natural resource management in Kenya indicate that a substantial section of the results at 27.5% identify communities as the key stakeholders in resource management. This could partly be qualified by the fact that communities were often the natural hosts and custodians of most natural resources; a finding echoed by Maloya who notes that communities are indeed owners of natural resources.⁴⁵⁷ The rest of the results are as follows; governments at 22.2%, development partners at 16.6%, civil society at 18.2%, investors at 9.6% and ‘others’ at 6%. The findings corroborate literature reviewed on the study and list the stakeholders to include individuals, families, communities, community elders, learning institutions, researchers, entrepreneurs, County and National governments, development partners, states sharing the resources, regional and international resource management entities, religious institutions, civil society and the media. The list also includes politicians, scholars, trade unions, investors, professional associations, multinational corporations, NGOs, youth groups, men and women, the general public and all actors in natural resource management. All these actors are charged with the responsibility of working together to

⁴⁵⁶Brown, M. *et al.*, *Non-Governmental Organizations and Natural Resources Management: Synthesis Assessment of Capacity-Building Issues in Africa*, J. McGann and D. K. Myers (ed.), (Washington D.C., The PVO-NCO/NRMS Project-U.S. Agency for International Development, 1996)

⁴⁵⁷Maloya, H., *Community-Based Natural Resources Management - the case of Lake Chilwa Wetlands, Malawi*, (Malawi, Ramsar Convention on Wetlands/COP13, 2001), <https://www.ramsar.org/news/community-based-natural-resources-management-the-case-of-lake-chilwa-wetland-malawi>, accessed on 25 September 2018.

ensure effective management of transboundary resources that promotes sustainable peace and development. The figure below shows who the key stakeholders are in cross border resource administration in Kenya.

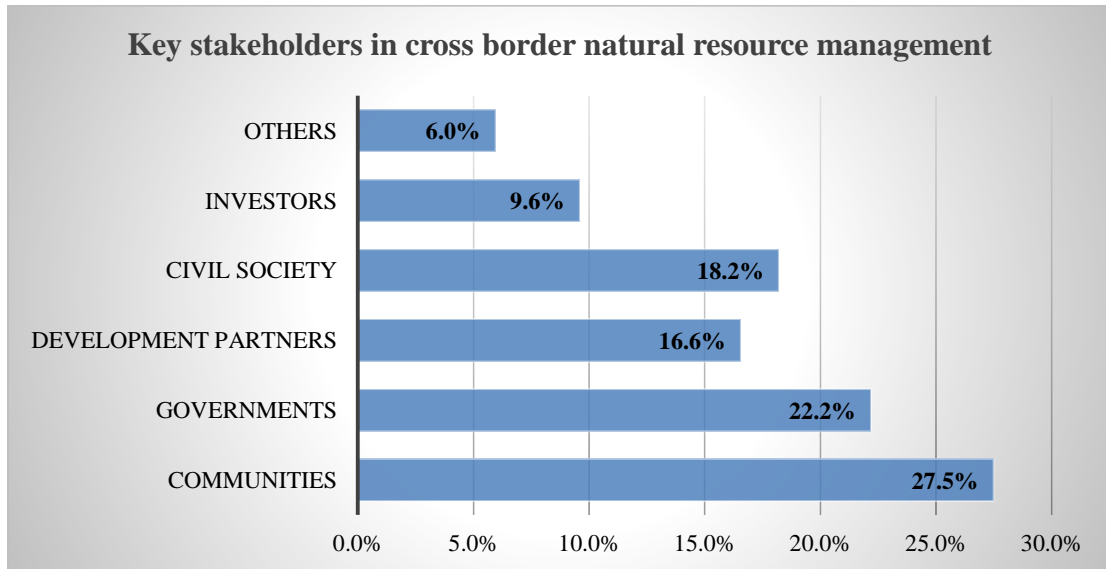


Figure 4.1: Key stakeholders in cross border natural resource management in Kenya

Source: Author (2021).

The study results on whether the respondents are aware of role and responsibilities of varied actors in cross border natural resource management in Kenya show that 64.6% are aware of the role and responsibilities of different actors whereas 35.4% are not aware. From the analysis, it can therefore be determined that majority of respondents at 64.6% are aware of the role and responsibilities of varied actors in cross border natural resource management in Kenya. The figure below illustrates whether the respondents are aware of role and responsibilities of diverse actors in cross border natural resource management in Kenya.

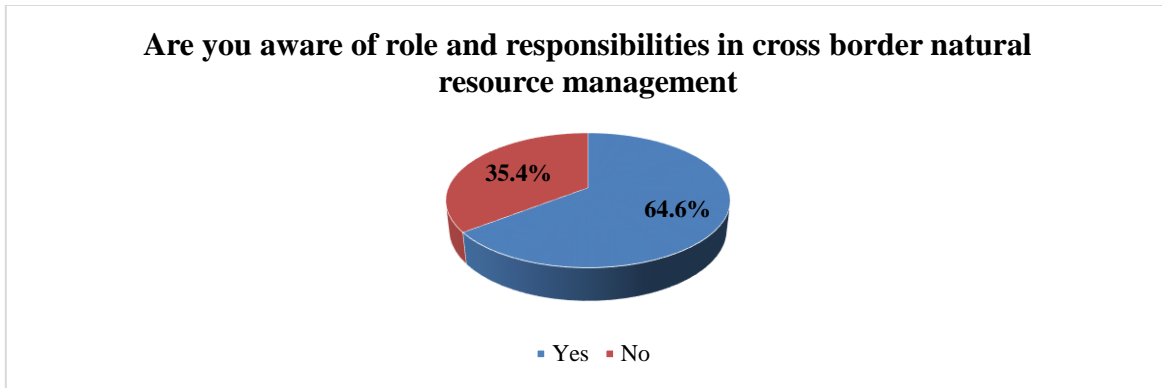


Figure 4.2: Are you aware of the role and responsibilities of various actors in cross border natural resource management in Kenya

Source: Author (2021).

A noteworthy segment at 19.5% of the majority assenting results cite exploit and conserve or degrade as the role and responsibilities different actors play in natural resource management. The other findings are as follows; formulation and implementation of policy, plans and laws at 18.5%; facilitate research and information sharing at 7.7%; monitoring and enforcement at 12.3%; coordination, support and financing at 17%; propagate peace or conflict at 15.4% and ‘others’ at 5.6%. The findings indicate that relevant laws, plans and guidelines which are in existence clearly outline role and responsibilities of different actors in natural resource management. The results further note that with the importance attached to the resources, various actors in their day to day endeavors interact with the resources in many ways that amount to the actual coordination or running of the resources. Marfo affirms that multiple actors who hold diverse perceptions, interests, values or even claims indeed impact use and administration of natural resources.⁴⁵⁸

The affirmative results note that the actors conduct research on the best approaches possible, implement plans and ensure enforcement of necessary rules and regulations. The findings also show that actors develop policy guidelines, legislate accordingly and monitor the management of natural resources. The assenting results further note that the actors conduct reviews on related policies and laws to ensure alignment to the changing trends and needs and also finance initiatives on sustainable resource exploitation and management. The findings affirm that the actors share updated knowledge and intelligence to inform rapid response action and in addition, ensure relevant training and advocacy on sound natural resource management. Findings note that the

⁴⁵⁸Marfo, E., *Powerful relations: The role of actor-empowerment in the management of natural resource conflict, A case of forest conflicts in Ghana*, PhD Thesis, Wageningen University, 2006.

actors also punish offenders involved in resource degradation and depletion, support conservation efforts and restore degraded and depleted natural resources. Mboya indeed confirms that many states including Kenya have long realized the importance of environmental rehabilitation and were engaged in attempts to mitigate the adverse effects on the natural resource base.⁴⁵⁹

The positive results indicate that the actors facilitate the resolution of conflicts arising from natural resource administration, preach peaceful coexistence among communities and ensure equitable sharing of natural resource benefits. The findings also note that the roles played by actors include ensuring accountability during engagements and report incidences of resource degradation and depletion. However, the findings also establish that the actors also propagate animosity, related conflicts, degradation, depletion and attendant scarcity of natural resources in line with the attributes of the neo-Malthusian argument. This is carried out through corruption, complicity, laxity, lack of commitment, impunity and at times unknowingly through ignorance due to illiteracy, among other negative attributes. The results also note that the actors cultivate lack of ownership and unacceptability of resource management initiatives within the community through incitement, stereotypes, sabotage and selfish drives at the expense of resource integrity. Hardin affirms that common resources which lack ownership are doomed to destruction since everyone own the resource but no one is incentivized to conserve them into the future.⁴⁶⁰

The results of the significant minority that are not aware of role and responsibilities of varied actors in cross border natural resource management in Kenya are as follows; a substantial portion at 32.7% of those not aware have never heard of any role and responsibilities. Other results include there are no specific role and responsibilities for various actors at 15%, the role and responsibilities are collective and vague at 18.7%, forgot at 8.4% and 'others' at 13.1%. The findings on those who are not aware of the roles indicate lack of well-structured, relevant and continuous civic awareness, education and campaigns to inform and empower people on their role and responsibilities so as to actively and meaningfully participate in management of cross border natural resources. The results also observe that relevant laws and guidelines have not been widely disseminated and that they are too technical for the ordinary people to easily understand. The findings maintain that this in turn impedes the stakeholders to effectively understand their role and responsibilities in resource management. Lack of public ownership and non-responsiveness to

⁴⁵⁹Mboya, S., 'Kenya can restore its forestry and ecology just like China has,' *Capital Digital Media*, (Nairobi), 29 March 2014.

⁴⁶⁰Hardin, G., 'The Tragedy of the Commons,' *Science-New Series*, Vol. 162, No. 3859, (1968) pp. 1243-1248.

stakeholder needs and aspirations are further cited by the findings as having left them without meaningful roles to play in resource management. Wagenet notes that it is recognized that the absence of meaningful stakeholder engagement together with the lack of other public involvement within the general planning process coupled with deficiency in collective learning impede democratic and successful environmental management.⁴⁶¹

The study results on what degree the role and responsibilities of various actors impact cross border natural resource management in Kenya are as follows; impact very much at 24.2%, impact much at 38.1%, impact fairly at 17.5%, impact slightly at 11.6% and don't know at 8.6%. The results indicate that a substantial portion of the respondents at 38.1% recognize that the role and responsibilities of various actors impact much on cross border natural resource management in Kenya. Barrow states that different stakeholders in a community may hold different interests in a particular resource amid changing roles and responsibilities, as they strive to control the resource. This in turn influences the strategies developed towards the exploitation and management of the resource.⁴⁶² The figure below illustrates to what degree does the role and responsibilities of various actors impact cross border natural resource management in Kenya.

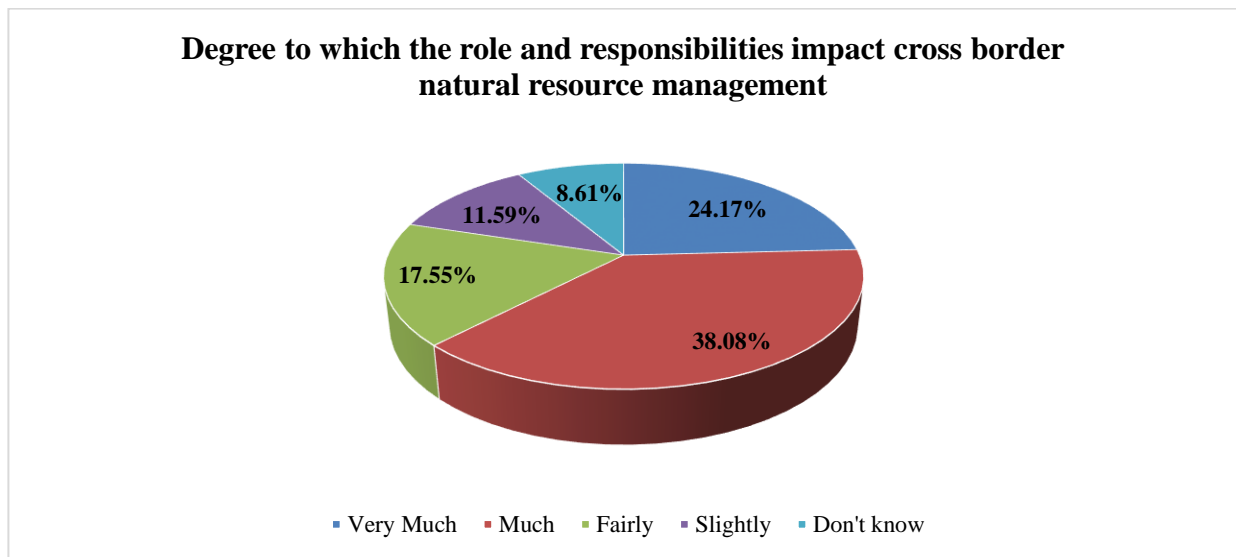


Figure 4.3: Degree to which the role and responsibilities impact cross border natural resource management in Kenya

⁴⁶¹Wagenet, L.P. and M.J. Pfeffer, 'Organizing Citizen Engagement for Democratic Environmental Planning,' *Society and Natural Resources*, Vol. 20, Issue 9, (2007) pp. 801-813. Doi: 10.1080/08941920701216578.

⁴⁶²Barrow, E. *et al.*, *Analysis of Stakeholder Power and Responsibilities in Community Involvement in Forest Management in Eastern and Southern Africa*, (Nairobi, IUCN, 2002).

Source: Author (2021).

The study findings further show that more men than women acknowledge that the role and responsibilities of various actors impact either very much, much, fairly or slightly on cross border natural resource management in Kenya. The results for men are as follows; impact very much at 14.2%, impact much at 23.5%, impact fairly at 9.6 and impact slightly at 6.3% of the study respondents as compared to their female counterparts at 9.9%, 14.6%, 7.9%, and 5.3% respectively. However, more females at 5.0% of the total respondents did not know to what degree did the role and responsibilities of various actors impact cross border natural resource management in Kenya as compared to their male counterparts at 3.6%. Different role and responsibilities of men and women in remote rural border areas vary across cultures and regions and often follow conventional gender role practices, the conventional division of labor or men and women perform complementary roles in resource management. These gender patterns are neither static nor simplistic and in case there is resource degradation, this may alter gender responsibilities leading to gender neglect or even conflict among resource users and managers. Since women are both victims and agents of ecosystem resource usage, control and administration, there is need for gender mainstreaming and more awareness targeting women towards sustainable management of resources and peace.⁴⁶³ The figure below illustrates the gender dimension in the degree to which role and responsibilities of various actors impact resource management.

⁴⁶³Fonjong, L.N., 'Gender roles and practices in natural resource management in the North West Province of Cameroon,' *Local Environment*, 13, 5, (2008) pp. 461-475. Doi: 10.1080/13549830701809809.

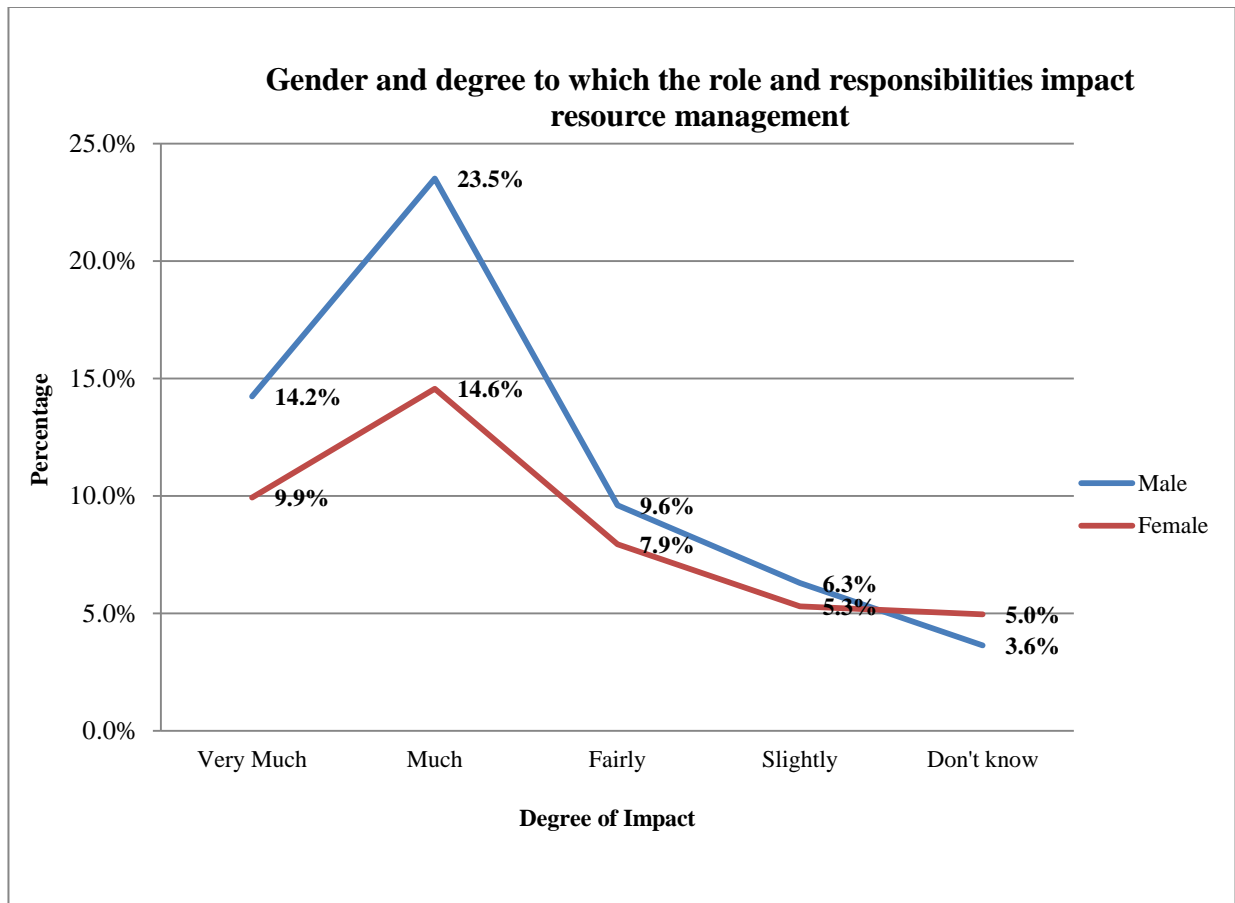


Figure 4.4: Gender and degree to which the role and responsibilities impact cross border natural resource management

Source: Author (2021).

4.6 Local gender roles in cross border natural resource management in Kenya

Traditional gender roles in Kenya place women in direct constant contact with resources that include water, land, forests, wildlife and biodiversity which they exploit and harness supplies from for their survival and that of their families. Being the ‘invisible’ managers of natural resources, women are crucial facilitators and sustainers to the rural micro-economic undertakings. However, this impacts on the environment with both economic as well as social elements which include population growth rate and size which instigate destruction of riparian habitats, forests and other sensitive ecosystems.⁴⁶⁴ Kenya’s rural population in remote and tacked away border areas is often among the highest in size and growth rates as the local natural resource base is constantly

⁴⁶⁴Ammado, ‘The role of rural women in natural resource management in Kenya,’ *Volunteers For Africa*, (Nairobi), 14 April 2009.

diminishing; an observation aligned to the principles of the resource scarcity theory. Women comprise over one-half of Kenya's total population and are more appropriate target group for socio-cultural and attitude change; an argument in line with the tenets of resource scarcity perspective on the need to change culture and attitude towards the earth and instead adopt sustainable values amid earth's limited carrying capacity.

As is the norm in many African setups, women are either indirectly or directly engaged in resource use and management and thus deterioration of these resources affects them directly.⁴⁶⁵ Conservation efforts should therefore, follow and recognize the central role played by women to ensure sustainability given their hands-on experience and diverse indigenous knowledge on the exploitation of natural resources. Empowering women to perform complementary roles alongside men will reduce conflicts as a result of competition over limited yet highly needed resources. This will further allow for local use aimed at deriving benefits though with responsibilities that are closely linked to the realization of conservation and sustainable peace.

The study results on whether respondents know any role that gender plays in cross border natural resource management in Kenya show that 44.7% of the respondents know the role that gender plays whereas 55.3% do not know. From the findings, it can be inferred that slightly over half of respondents at 55.3% do not know any role that gender plays in cross border natural resource management in Kenya. The figure below illustrates the respondents' knowledge of any role that gender plays in cross border resource administration in Kenya.

⁴⁶⁵Ongugo, P. *et al.*, *Livelihoods, natural resource entitlements and protected areas: The case of Mt. Elgon forest in Kenya*, (Muguga, Kenya IFRI Collaborative Research Centre, 2002), <https://www.cbd.int/doc/case-studies/for/cs-ecofor-ke-02-en.pdf>, accessed on 10 June 2015.

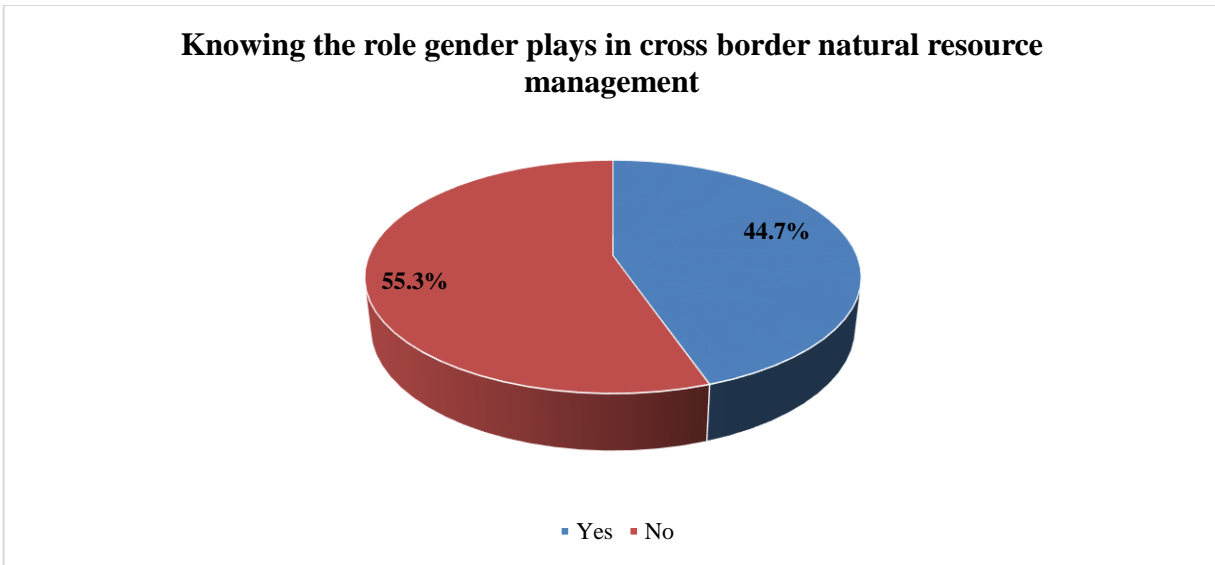


Figure 4.5: Knowing the role gender plays in cross border natural resource management in Kenya

Source: Author (2021).

A substantial portion at 25.2% of the minority affirmative responses cite agents of degradation and depletion as the role that gender plays in resource management. Other results are as follows; advocacy and depicting of related inequalities at 8.9%, implement protection and reclamation of resources at 20.7%, foster peace or conflict in the community at 18.5% and ‘others’ at 4.4% as the role that gender plays in management of cross border resources. The results observe that women and men collectively play a facilitative role as the key custodians of resources through their communal interactions and in the partaking of chores in support of their livelihoods. World Wide Fund affirms that men and women often have different vital roles to play within the usage and administration realm of ecosystem resources at both family and at the community level.⁴⁶⁶ The findings also indicate that the gender dimension supports in the implementation of initiatives, exposes related inequality and further helps in the advocacy and lobbying for sound environmental and resource management.

The affirmative respondents note that the gender dimension informs models for customized training, complements and champions prudent natural resource exploitation and management and also supports initiatives on reclamation of degraded and depleted resources. The results affirm that

⁴⁶⁶WWF-UK, *Natural resource management and the importance of gender*, (UK, WWF-UK, 2012), https://d2ouvy59p0dg6k.cloudfront.net/downloads/women_conservation_overview_2012.pdf, accessed on 24 September 2018.

gender roles help in enforcing rules and regulations to reduce the strain on natural resource base and also promote peace among communities residing with the resources. Nonetheless, the results also indicate that gender roles perpetrate natural resource degradation and depletion through unsustainable exploitation and also fuel resource related conflicts whenever women offered supplies to combatants in volatile resource locations; an observation that concurs with the tenets of the neo-Malthusian view. The results confirm that gender prejudices reinforce myths and stereotypes on resource exploitation and management and play accomplice to related destructive acts and illegal dealings. In most communities, women generally have lesser ownership rights than their male counterparts and they are often at a disadvantage in accessing natural resources in a situation where gendered relations and responsibilities in resources are subject to change.⁴⁶⁷

The study findings confirm that majority of respondents do not know any role that gender plays in resource management. In addition, most of those who do not know the role that gender plays in cross border natural resource management are females. Of the total number of females who took part in the study, majority at 58.9% do not know the role that gender plays in cross border resource management as compared to their male counterparts who do not know at 52.6%. This phenomenon could be attributed to the traditional and social biases as a result of patriarchal dominance which places men at privileged position in general decision-making and management process in the society. Furthermore, the results could partly be attributed to the women's general lower literacy levels in the community, minimum exposure and sensitization on their role in natural resource management as compared to their slightly more enlightened male counterparts; an observation in agreement with the Kenya National Adult Literacy Survey report.⁴⁶⁸

An interview with Mr. Michael Nyaguti the Director of Magnam; an Environmental Community Based Organization affirms that "...indeed gender-based initiatives that target women on capacity building and advocacy around sustainable communities should be encouraged and supported as they encompass environmental and natural resources management together with peacebuilding initiatives at the community level."⁴⁶⁹

⁴⁶⁷Rocheleau, D., Gender and Environment: A Feminist Political Ecology Perspective, in *Feminist Political Ecology: Global Issues and Local Experiences*, (ed.), D. Rocheleau, B. Thomas-Slayter, and E. Wangari, 3–23, (New York, Routledge, 2013).

⁴⁶⁸Eldis/Institute of Development Studies, *Kenya National Adult Literacy Survey report*, (Nairobi, UNESCO Nairobi Office, 2007), <http://www.eldis.org/document/A31868>, accessed on 25 September 25, 2018.

⁴⁶⁹Ombara, I., Interview with Mr. Nyaguti, M. O., Director, Magnam Environmental Network, Kisumu, May 2018.

4.7 Conclusion

This chapter assesses role and responsibilities of different actors in cross border resource management in Kenya at the community level, national, regional and global arena. The study findings reveal lack of continuous civic education and irregular dissemination of relevant guidelines on resource management. In turn, these impede the actors from better understanding their role and responsibilities so as to effectively take part in effective resource exploitation and management in support of the realization of sustainable peace and development. The next chapter critically analyzes the impact of cross border natural resource management on sustainable peace in the eastern Africa region.

CHAPTER FIVE

CROSS BORDER NATURAL RESOURCE MANAGEMENT AND SUSTAINABLE PEACE IN EASTERN AFRICA REGION

5.0 Introduction

Chapter five critically analyzes whether cross border natural resource management would impact on sustainable peace within the eastern Africa region. The backdrop of cross border resource management and sustainable peace in the region is presented. The chapter also discusses coping with scarcity and competition surrounding cross border natural resources towards peaceful coexistence among communities. The chapter then examines necessary reforms in resource management to help achieve sustainable peace and development, and further highlights the integrated and holistic natural resource management paradigm.

5.1 Backdrop of cross border resource management and sustainable peace in the region

When resources become relatively scarce due to population growth among other factors, they often happen to be more valuable and may prompt powerful groups within society to gain greater control over them, making them even scarcer. Therefore, demand-induced scarcity due to ever growing population may result in escalated structural scarcity owing to efforts by some quarters to monopolize the resources. Likewise, whenever essential resources that include fertile land turn out to be scarce due to increase in population, unfair distribution and imbalanced access, poor communities in their quest for survival often invade ecologically-sensitive areas like the tropical rain forests, wetlands, hillsides and areas facing risk of possible desertification. Rising population combines with unsustainable resource use practices resulting in environmental degradation and further scarcity.⁴⁷⁰

These numerous forms of environmental scarcity can lead to competition and other potentially destabilizing social effects such as migrations to areas of perceived opportunity, lower productivity, economic decline or stagnation, weakened governing institutions and conflict; an argument in line with the resource scarcity perspective. Although the connection between environmental scarcity and civil conflicts is usually incidental, environmental scarcity is never the solitary cause of conflict but often a contributing or aggravating factor. Since environmental protection, sustainable peace and tangible development are often

⁴⁷⁰Bingham K. Jr., Population Reference Bureau, *Environmental Scarcity and the Outbreak of Conflict*, (2001), <http://www.prb.org/Publications/Articles/2001/EnvironmentalScarcityandtheOutbreakofConflict.aspx>, accessed on 9 December 2015.

interdependent and indivisible,⁴⁷¹ efforts should be directed at prevention and resolution of conflicts through pursuit of appropriate interventions to avert various forms of environmental scarcity which include supply, demand as well as structurally-induced scarcities.

Across eastern Africa region, many conflicts have revolved around access and control over valuable but fragile ecological resources with delineation of access and use rights time and again leading to conflict whenever certain actors felt marginalized by the prevailing access and control regimes. Likewise, alienation of productive zones in the exploitation of ecological resource wealth has generated, triggered or sustained conflicts. Constrained access to and increased demands on and for ecosystem resources if not appropriately handled or rather managed can lead to deprivation, frustration and subsequent insurrection; a view in concurrence with the principles of the resource scarcity perspective. However, when resources are readily available for access by all, equitably distributed and well managed they provide a framework for mutual benefits and peaceful and progressive co-existence.⁴⁷²

The study findings on the respondents' understanding of 'sustainable peace' are as follows; lasting peace is at 20.9%, tangible peace at 15.2% and durable peace at 22.2%. Other results include endless peace at 17.5%, continuous peace at 13.2% and 'others' at 7.9%. From the findings, a substantial portion of the respondents at 22.2% understand 'sustainable peace' to imply durable peace. The results generally observe that the respondents understand 'sustainable peace' to imply enduring tranquility, fixed harmony, durable serenity and everlasting calmness. The findings also indicate that 'sustainable peace' denote the undying coolness, perpetual good relation, a state of continuous peacetime and long-term amicable relationship. The results further note that the concept could refer to genuine lasting reconciliation, lasting public order that serves the interest of all, lasting public order that addresses inequality and peace that impacts future generations. Sustainable peace should be considered as an important element that informs future prosperity since a sustainable future can never be achieved without it.⁴⁷³ The figure below shows respondents' understanding of the 'sustainable peace' concept.

⁴⁷¹United Nations, *Rio Declaration on Environment and Development in Report of the United Nations Conference on Environment and Development*, A/CONF.151/26 Vol. I. Annex 1, (United Nations Conference on Environment and Development, 3-14 June 1992, Rio de Janeiro: Brazil).

<http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>, accessed on 24 January 2014.

⁴⁷²Kameri-Mbote, P., *Environment and Conflict Linkages in the Great Lakes Region*, IELRC Working Paper, (2005-6), <https://www.ielrc.org/content/w0506.pdf>, accessed on 13 May 2014.

⁴⁷³UNESCO, *International Day of Peace; Sustainable Peace for a Sustainable Future*, (Proceedings of the High-Level Debate organized by UNESCO, 21 September 2012, Paris: France).

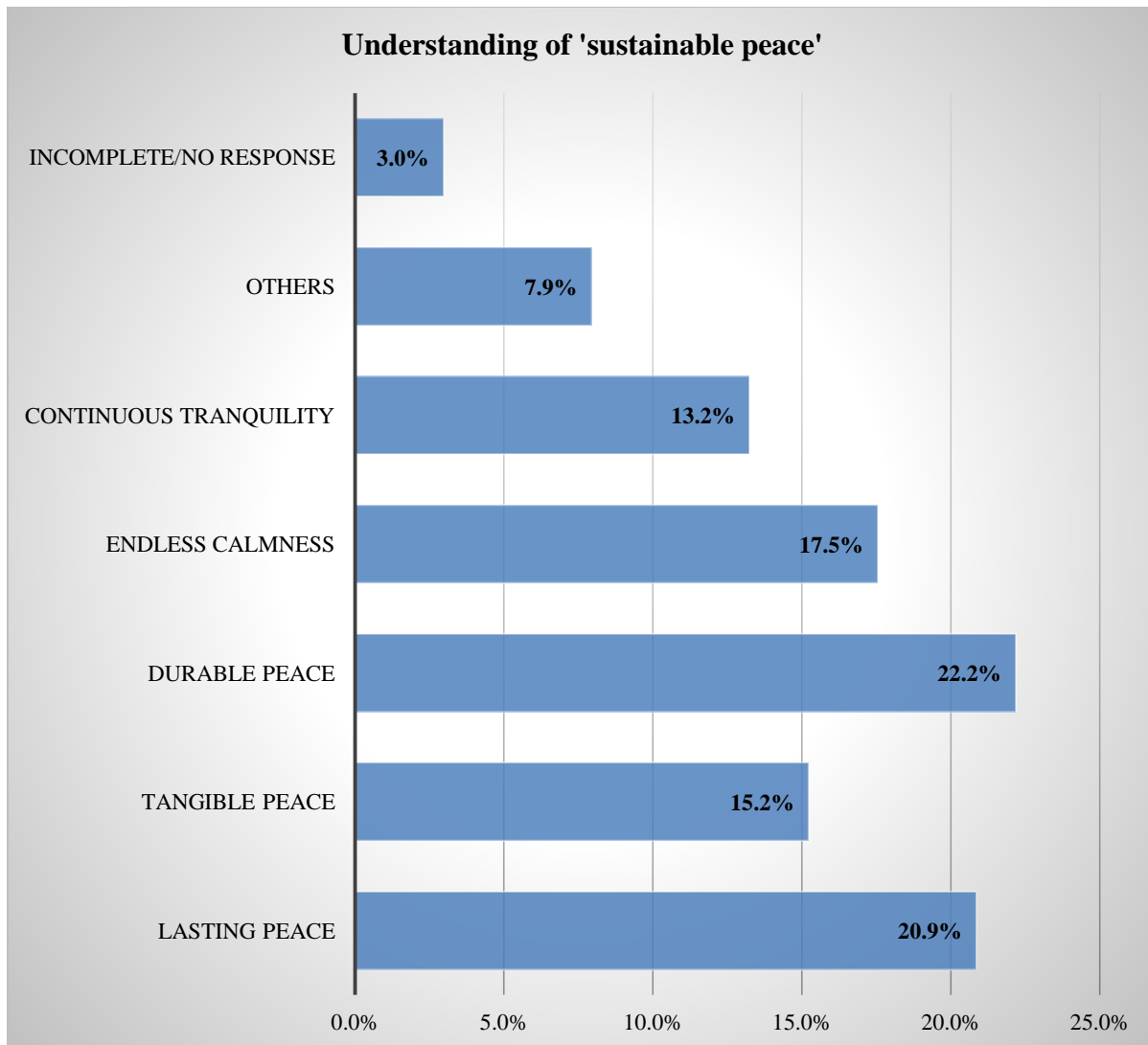


Figure 5.1: Understanding the concept of 'sustainable peace'

Source: Author (2021).

The study results on what opportunities are there for sustainable peace within cross border natural resource management frameworks in Kenya indicate that they include platforms for cooperation and reconciliation at 15.6%, overarching and proactive management systems at 21.9% and balancing conservation and subsistence needs at 13.6%. The other results are awareness campaigns and effective communication towards ownership and non-violence at 18.9%, law enforcement and security measures at 17.5% and 'others' at 7.9%. The findings show that a substantial portion at 21.9% identified overarching and proactive management systems as the opportunities for sustainable peace within cross border resource management frameworks in

Kenya. The table below illustrates what opportunities are there for sustainable peace within cross border resource management frameworks in Kenya.

Table 5.1: Opportunities for sustainable peace within cross border natural resource management frameworks in Kenya

Opportunities	Frequency	Percent (%)
Platform for cooperation and reconciliation	47	15.6
Overarching and proactive management systems	66	21.9
Balancing conservation and subsistence needs	41	13.6
Awareness campaigns on ownership and non-violence	57	18.9
Law and security enforcement	53	17.5
Others	24	7.9
Incomplete/No response	14	4.6
Total	302	100

Source: Author (2021).

The study results note that there can be platforms for reconciling both tradition and modern systems of resource management into harmonious and workable frameworks. The results also observe that there is room for improving existing frameworks into overarching systems for inclusive resource management to avert deprivation, grievances and resentment; some of the key attributes of the neo-Malthusian argument that lead up to conflict. The findings further mention the existence of possibility for marrying conservation efforts and livelihood endeavors so as to help curb degradation and depletion of ecosystems while at the same time ensuring stable livelihoods for all communities in a peaceful environment. In developing countries, availability, access and exploitation of highly contested renewable resources is important in supporting rural livelihoods. It is therefore vital to improve cooperation in the management of these resources; a practice increasingly perceived as being an essential part of the strategies towards long-term social-ecological resilience, conflict prevention and peacebuilding.⁴⁷⁴

The results indicate that there is a window for undertaking dialogue, advocacy and education campaigns to cultivate sense of ownership and restate the importance of prudent exploitation and management of natural resource towards conservation, peaceful coexistence and

⁴⁷⁴Ratner, B.D., *Resource Conflict, Collective Action, and Resilience: An Analytical Framework*, (Presented at the CAPRI Workshop on Collective Action, Property Rights, and Conflict in Natural Resources Management, 28 June-1 July 2010, Siem Reap: Cambodia).

tangible development for all. The findings also observe that the agencies responsible for natural resource management can work proactively in implementing strategies and enforcing relevant laws and guidelines to ensure that boundary regions are safeguarded together with their resources and communities. The findings also affirm that peace can be realized when related guidelines are sensitive to the needs of all actors for acceptability, communication channels developed complete with feedback mechanism for timely response on issues and culture of peace and non-violence fostered among resource hosting communities. The results further postulate that peace is achievable whenever there is timely and apt action in addressing causal and emerging issues in resource exploitation and management and advocacy is conducted on how costly conflicts are with emphasis on shelving selfish interests, promoting collective effort and enhancing cooperation towards the greater good for all actors. Upreti indeed confirms that when groups engrossed in disputes over natural resource management realize that the cost endured by engaging in conflicts is too high yet the benefits therein are too low, they often opt for negotiation and cooperation on resource management so as to accommodate all actors involved.⁴⁷⁵

An interview with Mr. Maurice Otieno Nyunja the Chief Environment Planning Officer and Chair Sustainability Committee at NEMA confirms that “...there are opportunities for a peaceful and healthy environment through the embracing of emerging environmental agenda on invasive species, cyclical economies which treats waste as resource material and blue economy which illuminates the strength of the oceans on managing resources.” The Officer notes that land degradation can be tackled by focusing on neutrality to help stop expansion of deserts considering that Kenya is 80% ASAL and that the country is state party to the UN Convention to Combat Desertification. The interviewee states that within the UN Framework Convention on Climate Change, Kenya has made commitment to reduce emissions by 30% and likewise under Vision 2030 the country is also committed to attaining 10% forest cover. The Officer also notes that NEMA has bolstered the research, innovation and technology component while working with universities to inform the National Environment Action Plan which is currently under development. The interviewee maintains that so as to improve integrity of ecosystems towards peace and development, there is need to engage on financing of environment and climate change

⁴⁷⁵Upreti, B.R., *Conflict Management in Natural Resources; A Study of Land, Water and Forest Conflicts in Nepal*, Dissertation, Wageningen University, 2001.

programming as a stand-alone issue since the environment can be used to raise funds through credits on carbon and water, environmental taxes and payment for ecosystem services.⁴⁷⁶

5.2 Coping with scarcity and competition over cross border natural resources and peaceful coexistence

Over the years, the association between natural resources and ensuing conflicts has been aligned to resource scarcity and the resultant competition for residual resource base; an argument anchored on the resource scarcity perspective which connects resource scarcity directly to social breakdown and conflict. Closely related to this approach has been the neoclassical economist perspective which concentrates on innovation towards conservation of natural resources which in turn helps in preventing conflict. The distributionist approach on its part holds the view that poor distribution of resources and related wealth was also a major driver for conflict, and in a rejoinder the ideology further observes that conflict and poverty are indeed drivers of resource depletion and degradation and not mere consequences.⁴⁷⁷

It is widely acknowledged that resource degradation together with ensuing scarcity could play a major role in escalating conflicts in line with the neo-Malthusian view, although it should also be noted that conflicts cannot be seen as being purely resource-driven. Scenarios in which tension around access and exploitation of resources exist, there are a number of determining factors whose outcomes might sometimes exacerbate the tension into violent conflict, though that may always not be the case as the situations may result in cooperative solutions.⁴⁷⁸ Sometimes, resource degradation is often due to conflict and not a cause since the advent of conflicts is viewed as having a correlation with the natural resource administration or the design of resource governance regimes.⁴⁷⁹ Nonetheless, in many instances, whenever resource matters are managed properly, they may support the development of environmental collaboration and peacebuilding. Therefore, proper and wise management of cross border resources in Kenya could help resolve resource conflicts, work to avert them and further result in peaceful mutual relations among involved or rather interested groups.

⁴⁷⁶Ombara, I., Interview with Mr. Nyunja, M. O., Chief Environment Planning Officer and Chair Sustainability Committee, NEMA, Nairobi, May 2018.

⁴⁷⁷Homer-Dixon, T., *Environment, Scarcity and Violence*, (Princeton, Princeton University Press, 1999).

⁴⁷⁸Noorduyn, R., The assertion of rights to agro-pastoral land in North Cameroon: A cascade to violence? *Leiden: African Studies Centre Research Report, 76*, (2005), <https://openaccess.leidenuniv.nl/handle/1887/3022>, accessed on 20 October 2017.

⁴⁷⁹Adano, W. R., *et al.*, 'Climate Change, Violent Conflict and Local Institutions in Kenya's drylands,' N. P. Gleditsch (ed.), *Journal of Peace Research, Special Issue 49, No. 1*, (2012) pp. 65-80.

Conca *et al.* maintain that as peace enhancement instrument, the environment provides some useful and unique attributes that lay ground for building peace and transformation of conflict, since environmental challenges disregard political borders, promote local and non-governmental participation, enlist long-term perspectives and prolong community development past polarized economic linkages.⁴⁸⁰ Environmental and other forms of interdependency reinforce the potential for collaboration. There are three partly overlapping groupings on ecological peace initiatives which have been distinctively differentiated namely; activities aimed at averting conflicts directly relating to environment, efforts to instigate and sustain dialogue around transboundary environmental cooperation between involved parties in conflict and programmes that pursue durable peace by encouraging environments for sustainable development. These initiatives bear complexities and should be embedded in larger political, institutional and economic frameworks as category one reduces pressure on natural resources and institutional procedures. Category two starts dialogue and creates cooperation on mutual environmental challenges as the last one reaches out for durable sustainable solutions and tenable management regimes.⁴⁸¹ Environmental cooperation in Kenya is often practiced in transboundary reserves such as the Mara-Serengeti Ecosystem, the wider Mt. Kilimanjaro ecosystem and shared river basin initiatives on the Nile and Mara Rivers, among other key resources.

In recent times, more focus has been on the part that climate change plays in escalating later conflicts. This thought has been informed by the outright recognition of the environment and the impact of associated features which include environmental degradation and depletion, resource scarcity and climate-change.⁴⁸² Globally, arguments have been advanced that perhaps four most essential underlying drivers of insecurity and troubled peace include rising human population and competition over resources, diminishing resource base amid climate change, global militarization and marginalization of most communities across the world; an observation in line with the tenets of the resource scarcity perspective. There is already greater military involvement in conflicts surrounding access, management and control of natural resources as poor communities become

⁴⁸⁰Conca, K., Building Peace Through Environmental Cooperation, in *The State of the World 2005: Redefining Global Security*, Worldwatch Institute, (New York, W.W. Norton & Company, 2005) pp. 144-155.

⁴⁸¹Carius, A., Environmental Peacebuilding: Conditions for Success, Special Report, *Environmental Change and Security Program Report, Issue 12*, (Washington D.C., ECSP, 2006-2007) pp. 59-75.

⁴⁸²Trombetta, M.J., 'Environmental Security and Climate Change: Analyzing the Discourse,' *Cambridge Review of International Affairs*, 21, No. 4, (2008) pp. 585-602.

more vulnerable to resource scarcity with depletion of the resources serving to cut down opportunities for empowerment and development.

Environmental matters are often politicized prior to them leading to violent mobilization as a forthright land conflict may become much more problematic and protracted when ethnic, identity or territorial factors (governable spaces) are implicated therein.⁴⁸³ Hence, highly efficient natural resource utilization arrangements ought to be established in situations where resource scarcity is being experienced. In increasingly common terms, uncertainty and conflict might also be viewed as sources of creativity and innovation so as to take up resource usage and governance systems; position linked to Boserup's theory which opposes the Malthusian view on population pressure and scarcity for being prerequisites for technological innovation.⁴⁸⁴ Although the prospect of 'water peace' is undercut by failure to effectively implement international water treaties among other laws, hegemonic power play, unsettled structural conflicts and water interdependence across national borders may just serve to promote cooperation and benefit sharing as opposed to competition and conflicts.

Availability of water is currently largely impacted by climate change as places which bore drought or flooding are now suffering these phenomena more often and intensely than in the past. The resultant increase in water insecurity may exert pressure on available arrangements for managing competition over shared reservoirs and rivers. Both local and political strains on agreements for management of such resources may drive conflict. In the northern frontier regions of Kenya, water scarcity has been exacerbated by climate change variability which has in turn aggravated the existing tensions among cross border communities as inequalities in the sharing of water and other resources bear long standing historical precedents.⁴⁸⁵ Competition over water resources may raise tension and conflict between neighbouring states and it is a factor in the on-going series of conflicts witnessed on the Kenya/Uganda border; an observation in concurrence with the resource scarcity perspective. Strain can be exacerbated by demographic changes, environmental degradation and contested ownership of the resources in question. In 2009, a diplomatic tussle arose surrounding the ownership of Lake Victoria's Migingo Island which is

⁴⁸³Watts, M., *The Sinister Political Life of Community: Economies of Violence and Governable Spaces in the Niger Delta, Nigeria, Working Paper 3*, (Berkeley: CA, University of California: Institute of International Studies, 2004).

⁴⁸⁴Burger, K. and F. Zaal, *Sustainable Land Management in the Tropics; Explaining the Miracle* (Farnham, Aldershot: Ashgate, 2009).

⁴⁸⁵Abbott, C., *An Uncertain Future: Law Enforcement, National Security and Climate Change*, (Oxford, Oxford Research Group, 2008).

home to hundreds of Kenyan fishermen. The ensuing public tension between Kenya and Uganda led to local vigilante action as residents of Kibera informal settlement in the Kenyan Capital of Nairobi uprooted train tracks that pass through the slum so as to preclude Uganda exports from reaching the Kenyan coast for subsequent shipment.⁴⁸⁶

There is urgent need to address water scarcity supported by principles of objectivity and least damage in potential water-conflict areas. Cooperative resolution is necessary amid ever competing and varied needs as this can be attained through initiatives which include joint basin management of vital water resources. In order to ensure water security, livelihood-oriented water availability to communities should be pivotal to any sustainable answer to water scarcity.⁴⁸⁷ In order to prevent ‘water wars,’ resource sharing agreements should be pre-emptively renegotiated and appropriately reviewed to accommodate environmental limits and sustainability so as not to fail when the resource base diminishes. Deeper trust between parties competing for scarce resources should be engendered as transparency and communication measures are encouraged.

In 2011, estimated 34 people died in a conflict pitting the Turkana of Kenya and the Merille of Ethiopia in the pastoralists’ arid and semi-arid border region.⁴⁸⁸ Although such tribal brawls have been common, the increasing scale of recent conflicts raises security fears for the concerned governments. The governments have since committed to improve security along the common border by tackling the challenges arising from competition for scarce natural resources and also by cracking down on proliferation of small arms, among other causal elements. The impacts of climate change may worsen resource degradation amid rising population pressures and increased conflict with even much dire consequences in line with the principles of the neo-Malthusian view. Competition over scarce resources is progressively becoming an urgent humanitarian issue as communities turn to violence in an environment characterized by insecure access to vital resources, inequality and marginalization.

Management of pastoral mobility within the Horn of Africa region which extends to Kenya’s northern drylands is not only essential to community relations but also to survival and thus agencies working with pastoralists need to understand the livelihood system institutionally on decision making and enforcement of access to range resources. Among key causes of rangeland

⁴⁸⁶Baguma, R., ‘Museveni Advises Kenya on Regional Trade Policy,’ *New Vision*, (Kampala), 3 April 2010.

⁴⁸⁷Habib, Z., ‘Water: Issues and Politics in Pakistan,’ *South Asia Journal*, Vol. 8, (April-June 2005).

⁴⁸⁸Tekle, T., ‘Ethiopia, Kenya agreed to enhance border security, curb tribal clashes,’ *Sudan Tribune*, (Addis Ababa), 6 June 2011, <http://www.sudantribune.com>, accessed on 11 August 2011.

degradation and conflicts is the erosion of respective institutions which are undermined by states' non-recognition of pastoral rights. Focus has been on tackling symptoms without conclusively analyzing causes with disappointing results. Development actors often propagate the formation of new institutions which include peace committees and in turn deny customary institutions decision-making powers. Development actors should understand how the changes they instigate affect power relations internally within communities, between different pastoralist communities and between pastoralists and involved states.⁴⁸⁹

The study findings on the respondents' awareness of any conflicts arising from cross border natural resource administration in Kenya indicate that 69.9% of respondents affirm that they are aware of conflicts arising from cross border natural resource administration in the country whereas the remaining 30.1% are not aware of any conflicts. Based on the study findings, majority of respondents at 69.9% are aware of conflicts arising from cross border natural resource administration. The figure below shows the respondents' awareness of any conflicts arising from cross border natural resource administration in Kenya.

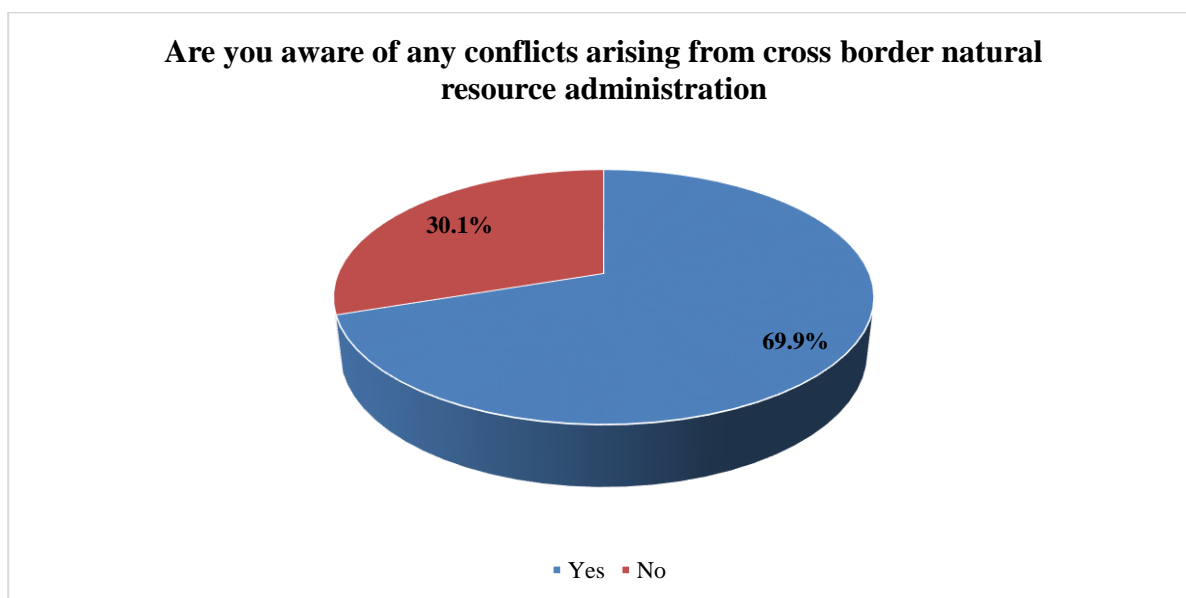


Figure 5.2: Are you aware of any conflicts arising from cross border natural resource management administration in Kenya

Source: Author (2021).

⁴⁸⁹Levine, S and S. Pavanello, Rules of the range Natural resources management in Kenya–Ethiopia border areas, *HPG Policy Brief 45*, (2012), <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/7628.pdf>, accessed on 12 December 2015.

A substantial section at 26.5% of the majority affirmative responses cite intra and inter-community conflicts as conflicts arising from cross border natural resource administration in Kenya. The other results are as follows; long standing ethnic rivalry and animosity at 18.5%; insecurity, instability and border disputes at 16.6% and incompatible management systems at 12.3%. The findings also include varied interests and marginalization at 13.3% and ‘others’ at 8.1% as conflicts arising from cross border natural resource administration in Kenya. The results note that the conflicts manifest as intra and inter-community disputes between members of the same or different clans or tribes existing on the same or different sides of the border, struggling to access or control traversing resources. The findings also cite competition over scarce and diminishing resources, long standing ethnic animosity, progressive deterioration of ethnic ties and proliferation of arms and armed groups in border areas amid security concerns, increased resource needs, disputed boundaries in resource areas and inter-state tension as being part of the conflicts in line with the attributes of the resource scarcity perspective. In the Karamoja cluster, there is increased unregulated and widespread availability of small arms within various groupings across the border which poses a threat to the region’s security. There has been violent competition surrounding access to diminishing pasture and water amid poor mitigation and response, retrogressive cultural practices and weak or absence of structures and institutions for preventing conflict. Differences and disputes are further compounded by little routine communication among communities and the marginalization of local pastoral communities from mainstream development agenda.⁴⁹⁰

The assenting responses also list incompatibility between traditional and modern systems of managing natural resources, disharmony as a result of varied stakes and interests in resource management and clashes between livelihood needs and conservation efforts within the cross border natural resource management domain as grounds for conflict. The results further identified marginalization of communities and lack of state and security personnel presence in often remote and far flung border areas as a driver of recurrent conflicts in regions that witness external attacks and incursions. The culture of violence among communities, ethnic and religious motives, existence of influential resource conflict entrepreneurs, porous national borders and instability in neighbouring counties with attendant huge number of refugees are also blamed for engineering

⁴⁹⁰Lokiru, F.D., *Transforming conflict across borders - the case of Kenya and Uganda*, (2014), <http://www.transconflict.com/2014/01/transforming-conflict-across-borders-kenya-uganda-281/>, accessed on 30 September 2018.

cross border resource related conflicts. Porous national borders coupled with Kenya's policy of open and free movement for refugees has led to an influx of refugees with attendant stress on local natural resources and concerns over national security.⁴⁹¹

5.3 Reforms in cross border natural resource management in Kenya towards sustainable peace and development

Reforms and reviews on administration of land, water, forest, wildlife and other resources encompass the formulation of new principles and processes for allocation, governance and decentralization of authority over resource management.⁴⁹² These reforms can support in tackling root causes of related conflicts which include unequal access to resources due to unclear tenure or blatant infringement of community rights. Democratic, transparent and inclusive representation in resource governance are key in averting conflicts. Improved access to both formal and customary conflict resolution mechanisms together with accompanying justice systems are a bonus and can be highly effective in stopping the escalation of disputes into large-scale conflicts. Reforms reveal the necessity for compatible management of shared natural resources by the concerned parties through enhanced implementation of plans such as the National Environmental Action Plans and updated biodiversity strategies amid actions with incentives and disincentives. The strategies with alternatives should combine several interlocking initiatives such as protection of water catchment areas which incorporates initiatives for forest conservation. However, in some cases there is lack of cross border agreements for cooperation and joint action and thus, the need for political and technical institutional linkages with holistic approach in resource management.

Kenya has witnessed a series of reforms among them environmental legal reforms such as the development of the EMCA, 1999 which provides for the overall sound management of environment. However, some of its provisions and many of the sectoral and cross sectoral laws and policies are inadequate and also in conflict with the Act itself and therefore require review and harmonization with the Constitution of Kenya, 2010 on the clarity of institutional mandates. On the institutional front, NEMA formed in 2002 is the designate national body with the responsibility for supervision and coordination on matters environment although, there is need to streamline and

⁴⁹¹Campbell, E. *et al.*, *Navigating Nairobi: A review of the implementation of UNHCR's urban refugee policy in Kenya's capital city*, (Nairobi, UNHCR, 2011).

⁴⁹²UNEP, *From conflict to peacebuilding: The role of natural resources and the environment, Policy Paper No. 1*, (Geneva: Switzerland, Multicolor S.A., 2009).

enhance the capacity of related environmental institutions at National and County levels to make them more effective and participatory.⁴⁹³

An interview with Mr. Michael Nyaguti the Director of Magnam; an Environmental Community Based Organization affirms the need for enhanced advocacy geared towards change in perception among the people in regard to prudent natural resource use and conservation. The interviewee however observes that “...the transformation in attitudes and awareness should be accompanied by the necessary changes in policy as some of the roles undertaken by NEMA should be scaled down to the counties to allow for ownership and more robust cross border engagements.” The Director confirms that this will promote cooperation, partnership and peaceful engagement on resource management at the community level.⁴⁹⁴

ASALs located in northern Kenya are prone to both domestic and cross border violence and insecurity often driven by ethnic identity, natural resources scarcity and competition in line with the resource scarcity perspective; factors which are aggravated by lengthy borders, the transboundary nature of the resources and nomadic pastoralism. Insecurity in this region bares international dynamics and implications, considering volatility of the neighbouring states and pastoralists’ requirement for mobility. In the past, border traversing peace measures have been initiated, though they were usually sporadic and under-resourced amid lack of comprehensive policy to facilitate effective coordination between states. Since border controls are frail, in some locations, peace is majorly sustained more by traditional community interactions between pastoralists than by manifestation of any state. Most protected areas within the country are curved from essential grazing grounds which reduces the mobility of pastoralists. If non-carefully planned interventions are sanctioned in the region, this may have immense environmental consequences with the increasing ramifications of climate change. Nonetheless, pastoral production continues to display its resilience as Kenya makes considerable investments in drought management systems, though there still lacks permanence and continuity in approach.

To recognize the connection between resilience, natural resource management and conflict, it is vital to develop a causal and overarching legal and policy framework on governance of cross border natural resources and pastoralism. Currently, there lacks such framework and very few

⁴⁹³Republic of Kenya, *National Environment Policy*, (2013), <http://www.environment.go.ke/wpcontent/uploads/2014/01/NATIONAL-ENVIRONMENT-POLICY-20131.pdf>, accessed on 19 October 2017.

⁴⁹⁴Ombara, I., Interview with Mr. Nyaguti, M. O., Director, Magnam Environmental Network, Kisumu, May 2018.

national policies focus on cross border sharing of natural resources. However, regional initiatives promote regional cooperation, peace and integration through policy, legal and other practical approaches that support cross border natural resource management systems. The African Union Border Programme aims at ensuring structural prevention of conflicts, advancing regional integration agenda and fostering of projects on cross border cooperation between groups.⁴⁹⁵ A strategy focusing on unique opportunities and challenges in the mostly frontier ASALs of northern Kenya was developed with the aim of complementing and deepening Vision 2030; a blueprint on the country's development launched in 2008. The ASALs strategy draws agenda for change and clarifies how the Vision's goals will be attained in northern part of Kenya. It meticulously recognizes the special circumstances of local marginalized communities and also focuses on alleviating poverty, reducing inequality and vulnerability, re-balancing development in the region and reaffirming rights of locals as being full citizens as per Constitution of Kenya, 2010.⁴⁹⁶

The National Land Policy and National Spatial Plan if fully implemented, will offer a framework for tackling associated land issues in ASALs such as high population growth, related boundary disputes, resource degradation alongside scarcity and lack of policy framework for sharing benefits resulting from these resources; an observation that carries the tenets of the resource scarcity perspective. Also, of importance is the Natural Resource Management Vision and Strategy for the ASALs which was formulated by the Arid Lands Resource Management Project. Kenya National Policy for the Sustainable Development of the Arid and Semi-Arid Lands strives to support coordinated transboundary actions on key issues among them natural resource management in the region.⁴⁹⁷ ASAL communities are supported in strengthening their inherent rights over resources by documenting and wooing County authorities to adopt customary law as by-laws. This entails legal recognition of indigenous related traditions and agreements on the corresponding and complementary roles of customary institutions and state. Although the frameworks are national, they carry cross border dimensions considering the transboundary nature of the local resources.

⁴⁹⁵African Union, *Summary Note on the African Union Border Programme and its Implementation Modalities*, (Conference of African Ministries in Charge of Border Issues, 4-7 June, 2007, Addis Ababa: Ethiopia).

⁴⁹⁶Republic of Kenya, *Vision 2030 Development Strategy for Northern Kenya and other Arid Lands, final* (2011), http://www.fao.org/fileadmin/user_upload/drought/docs/Vision2030%20development%20strategy%20for%20northern%20kenya%20and%20other%20dry%20areas%202011%20.pdf, accessed on 20 October 2017.

⁴⁹⁷Government of Kenya, *National Policy for the Sustainable Development of Arid and Semi-Arid Lands of Kenya*, (G.o.K, Office of the President: Special Programmes, (2007).

Devolution allows for self-determination as counties legislate according to local concerns and needs and for a region which needs policy solutions customized to its distinctive social and ecological realities, the practice presents a major opportunity. Under devolved governance, northern Kenya may however face specific challenges on cross border clan-based politics, how divided administrative territories will affect mobility and how to ensure transboundary sharing of resources. Susceptible groups which include minority clans, women and other vulnerable populations are likely to be marginalized and thus resulting in deprivation, grievances and conflict, an observation in line with the resource scarcity perspective. There is need for additional support on coordinated and inclusive frameworks for peace and dispute resolution in order for the practice to function successfully in fulfilling people's obligations. The Kenyan National Peace Building and Conflict Management Policy proactively identifies and sustainably resolves grievances that cause intercommunity conflicts. Through partnerships and integrated frameworks, such initiatives have been successful in cross border peace building between Ethiopia and Kenya.⁴⁹⁸ However, the policy is not directly connected to climate change features, just like the National Climate Change Response Strategy among other related government initiatives on climate change which remain silent on conflict deterrence and resolution.⁴⁹⁹ Transboundary conflicts have also been addressed through joint border commissions in parts of the expansive northern Kenya region.

Wildlife conservation and management in external territories away from duly specified or protected areas within East Africa has usually been influenced by land tenure systems within respective countries. In Kenya, conservation efforts before August 2010 progressed contrary to constitutionalism and legal arrangements that imposed restrictions on innovative perspectives as a result of tenure challenges. Recently witnessed policy and constitutional changes on land tenure and allied resource management frameworks are signs of a new beginning in conservation, away from the past where the law existed parallel to reality with adverse lack of recognition for the indigenous rights of local communities in relation to ownership, access and control. Kenya's new constitutional dispensation improves governance frameworks and enhances community level involvement in resource management as the reforms offer clear tenure system for acknowledging sound indigenous practices, provide for integration of customary arrangements in resource

⁴⁹⁸Flintan, F., Natural resource management in the drylands in the Horn of Africa, *Technical Consortium/CGIAR/FAO Investment Centre Brief 1*, (Nairobi, International Livestock Research Institute, 2013).

⁴⁹⁹Campbell, I. *et al.*, *Climate change and conflict: Lessons from community conservancies in northern Kenya*, (IISD, CDC and Safer world, 2009), <http://www.iisd.org/library/climate-change-and-conflict-lessons-community-conservancies-northern-kenya>, accessed on 26 October 2017.

management and further facilitate formulation of rules towards legal safeguarding of community conservancies, most of which are transboundary.⁵⁰⁰ There are Joint Community Conservancies on wildlife management which have transformed to embrace conflict resolution aspects in resource management.

When the management of wildlife resources is devolved to the communities, there is the likelihood for more sustainable management and cooperation among groups, and the provisions of the constitution on community land together with Community Land Act, 2011 support community land tenure and acknowledges community rights over land and the need for empowering communities to manage it. However, despite Kenya having progressive constitutional and legislative framework, the law only allows communities to participate on its own terms in wildlife management which constrains them to resentment. The protection and management are not devolved functions in the constitution and thus, remain the exclusive reserve of the National government and where communities are allowed, their role is limited and highly regulated and supervised.⁵⁰¹ This scenario contravenes the new governance concept which promotes devolution of wildlife resource management alongside the devolution of other features of governance. Similarly, governments are not ready to transfer ownership of national forest values and management to local communities. However, with the recognition that neighboring communities should be included in forests management, collaborative management with clear rights, roles and responsibilities of partners is imperative dependent on issues around tenure, ownership, access and institutional capacity to sustainably manage resources in partnership.⁵⁰²

Recent reforms undertaken within the water sector in Kenya have principally increased opportunities for local communities' cooperation and participation in the resource management. Nonetheless, traditional frameworks which are essential in sound resource management have been left out without their effective incorporation in the new arrangements, posing a major challenge on the institutional environment. While most major river basins on the African continent are protected by transboundary agreements, an estimated two thirds of these basins still don't have management agreements as only 25 percent of related agreements in effect encompass all riparian

⁵⁰⁰Odote, C., *The Impact of Recent Constitutional and Land Policy Reforms on Community Conservation Initiatives in Kenya*, (Nairobi, The Nature Conservancy, 2012).

⁵⁰¹Kabiri, N., *Global Governmental Governance and Community Based Conservation in Kenya and Tanzania*, DPhil Thesis, University of North Carolina, 2007.

⁵⁰²Rodgers, W.A., *Community conservation of closed forest biodiversity in East Africa: can it work?* (2002), <ftp://ftp.fao.org/docrep/fao/004/y3582e/y3582e06.pdf>, accessed on 26 October 2017.

nations.⁵⁰³ Increasing demands for water amid recurring droughts and increasing economic development endeavors have aggravated competing demands, scarcity and disputes in line with the tenets of the resource scarcity perspective, as evidenced in negotiations involving Kenya, Tanzania and Uganda over the usage of Lake Victoria water resources.⁵⁰⁴ Progress in transboundary water cooperation has been erratic and hampered by differences evidenced in state interests as exemplified under the NBI arrangement.

The Nile basin converges the greatest number of riparian nations than any other known river basin globally, and is intertwined in numerous geopolitical relationships that spread well beyond the basin. The basin is perhaps also one where intergovernmental tension has been most severe on the continent. In spite of all these setbacks, progress on collaboration has been registered in recent times which include bilateral cooperation prior to multilateral collaboration, with the Nile Basin Initiative as the most prominent multilateral effort. Other notable reforms on the basin include ‘The Nile Discourse,’ which is ‘A Shared Vision Programme’ and ‘A Subsidiary Action Programme’ of specific collaborative water management actions and negotiations for the formation of a Cooperative Framework Agreement that lays down principles for a fresh and equitable water sharing arrangement aimed at replacing the provisional Nile Basin Initiative with an actual Nile Basin Commission.⁵⁰⁵

There are other initiatives such as the Kilimanjaro Declaration of August 2016 in Arusha, Tanzania by stakeholders from across Africa who committed to foster a Pan-African movement that expands space for political and civic action, demands for change towards good governance by fighting corruption and impunity, identifies rights and freedoms of women and communities and demands for climate and environmental justice in sustainable natural resource use and control at a transboundary level.⁵⁰⁶ Relative resource scarcity affects men and women together with their coping strategies differently. Among the Karamoja people along the border region of Kenya and Uganda, pastoralist women may participate in the cultural reproduction of conflict by way of encouraging men to undertake raids and revenge attacks and also engage in ammunition trading.

⁵⁰³Lautze, J. and M. Giordano, ‘Trans-boundary water law in Africa: Development, nature, and geography,’ *Natural Resources Journal*, 45, 4, (2005) pp. 1053-87.

⁵⁰⁴Kagwanja, P., ‘Calming the Waters: The East African Community and Conflict over the Nile Resources,’ *Journal of Eastern African Studies*, 1, 3, (2007) pp. 321-337.

⁵⁰⁵Mekonnen, D., The Nile Basin Cooperative Framework Agreement Negotiations and the Adoption of a ‘Water Security’ Paradigm: Flight into Obscurity or a Logical Cul-de-sac? *European Journal of International Law*, 21, 2, (2010) pp. 421-440.

⁵⁰⁶Nakangu, B.B., NRGF Challenges and Opportunities in Eastern and Southern Africa, *NRGF Regional Scoping Report*, (Gland: Switzerland, IUCN/CEESP, 2016).

Due to the fact that women can be potentially warmongers on one hand and important peacekeepers on the other hand, successful efforts have been focused on sensitizing women to tackle these issues through initiatives such as the District Peace Committees in Kenya founded and built on an earlier venture by women in northern Kenya.

The study findings on whether reforms are necessary in cross border natural resource management approaches towards conservation, sustainable peace and development in eastern Africa show that 71.5% of the respondents affirm that reforms are necessary in cross border natural resource management approaches towards conservation, sustainable peace and development in the region whereas 28.5% hold contrary opinion. From the findings, it can be inferred that a resounding majority at 71.5% envisage the need for reforms in the resource management approaches towards conservation, sustainable peace and development in the region. Efforts aimed at improving natural resource management are not merely technical issues, but rather call for policy engagement through support of relevant policy reforms in involved countries. This is geared towards enhanced participation and transparent engagement during decision making for greater consideration of environmental and other social issues.⁵⁰⁷ The figure below illustrates whether reforms are necessary in cross border resource management approaches towards conservation, sustainable peace and development in eastern Africa.

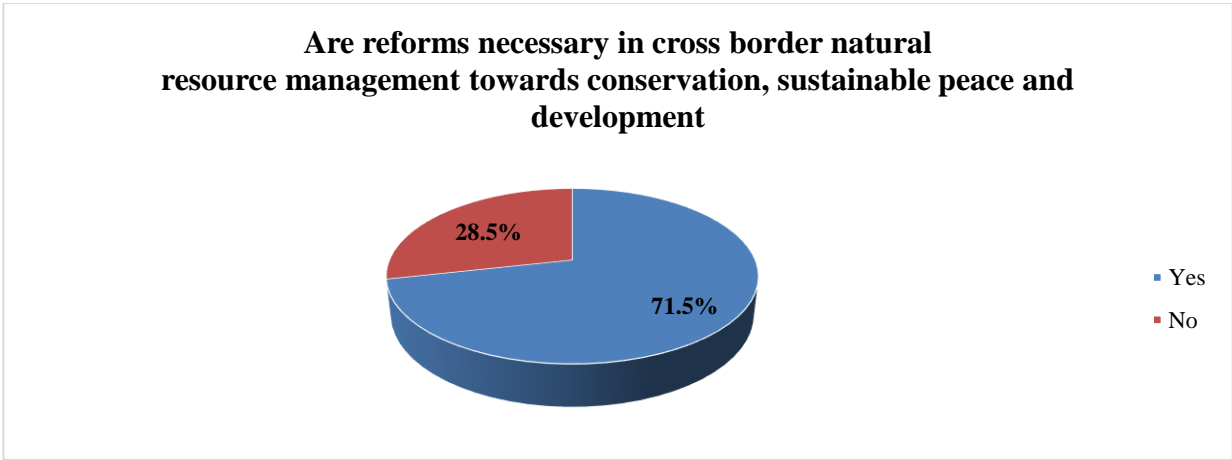


Figure 5.3: Are reforms necessary in cross border natural resource management towards conservation, sustainable peace and development

Source: Author (2021).

⁵⁰⁷Bugembe, B.N., *Natural resource governance framework challenges and opportunities in eastern and southern Africa: A Regional Scoping Synthesis of the Critical Natural Resource Governance Issues*, (Nairobi, IUCN, 2016).

A substantial portion at 25.5% of the majority affirmative responses cite transparent and holistic models as the reforms necessary in cross border natural resource management approaches towards conservation, sustainable peace and development in eastern Africa. The other results include proactive and proper implementation which constitute 19.4%, continuous reviews aligned to causes and needs at 17.6%, democracy and coherence between clear vision and sound policy at 16.7%, integrated and compatible approaches at 13% and ‘others’ at 4.6% as the necessary reforms in resource management approaches. The findings observe that there is need for proper and effective implementation of plans, adoption of a proactive approach and ensuring coherence between clear vision and sound policy on cross border natural resource management. This will go a long way in tackling continued degradation issues occasioned by population pressure, competition over scarce resources, inequitable access to resource benefits and attendant conflicts; an observation in tandem with the resource scarcity perspective. The findings indicate that it is important to have democracy, transparency and inclusive representation with increased coordination and participation of actors in resource governance endeavors. The findings further emphasize that it is necessary to adopt strategies which combine initiatives for conservation, livelihood sustenance, peaceful coexistence and economic growth in order to ensure compatible management of shared resources by party states. The results also indicate that the reform process on the systems should be continuous, aligned to the changing needs on the ground and should serve to conclusively tackle the root causes of conflicts which emanate from resource governance. The Constitution of Kenya, 2010 indeed has progressive provisions on environment and resource management and provides grounds for necessary reforms on the systems of resource management or even the development of new ones together with enabling legal instruments at both national and county levels. International Development Law Organization has been supporting these policy, institutional and legal reforms.⁵⁰⁸

The findings see it necessary to push for agreed, comprehensive, holistic and integrated approaches and frameworks for cooperation within the region on cross border natural resource management so as to address conservation, livelihood, peacebuilding and economic issues simultaneously. The affirmative responses maintain that protection and management of certain resources in Kenya including wildlife and biodiversity resources should be devolved to enhance

⁵⁰⁸International Development Law Organization, *IDLO in Kenya: Land, environment and natural resources management*, (2015), <https://www.idlo.int/idlo-kenya-land-environment-and-natural-resources-management>, accessed on 14 October 2018.

community ownership and participation and that resource management guidelines should be customized to serve social, ecological, security and economic demands at community level. The respondents also call for the incorporation of workable traditional resource management approaches into overarching resource management frameworks. By strengthening natural resource management approaches through increased consideration for both traditional and modern environmental knowledge, the move will ensure that the resources are managed more efficiently and sustainably to generate equitable and tangible benefits for the communities amid reduced conflicts.⁵⁰⁹

An interview with Ms. Anne Okelo, the Programs Manager at Friends of Lake Victoria (OSIENALA) confirms that there are policy gaps at the County level evidenced by lack of frameworks and roadmaps on how departments under the devolved system of government are supposed to work. This startling revelation inhibits partners and donors in the implementation of relevant programmes and therefore, departments should have relevant policy and legislation in place to facilitate implementation of initiatives. The interviewee also observes that existing frameworks should be operationalized and related advocacy undertaken to create awareness on them through local barazas and mainstream media. The Programs Manager also states that "...it was necessary to develop robust regional policies in order to address crosscutting resource management needs and issues across borders which include amicable resolution of related disputes whenever they arise."⁵¹⁰

Another interview with Mr. Alfred Adongo the Team leader of Sustainable Aid in Africa International also affirms that "...there are gaps in natural resource management frameworks such as the National Government's delay in operationalizing the Water Act that was passed in 2002 and took over 14 years for it to be operationalized in 2016, which hampered the proper execution of related initiatives." The interview calls on County governments to domesticate National Acts and further come up with County Specific Acts to fill in the gaps in resource management frameworks. The Team Leader notes that the civil society has been the most active entity in natural resource management in Kenya since other actors have not effectively played their roles as they ought to and thus the need for collective effort for tangible success to be realized.⁵¹¹

⁵⁰⁹Ayoo, C., 'Community-based natural resource management in Kenya,' *Management of Environmental Quality: An International Journal*, Vol. 18, Issue 5, (2007) pp.531-541. doi.org/10.1108/14777830710778292.

⁵¹⁰Ombara, I., Interview with Ms. Okelo, A., Programs Manager, Friends of Lake Victoria (OSIENALA), Kisumu, May 2018.

⁵¹¹Ombara I., Interview with Mr. Adongo, A., Team Leader, Sustainable Aid in Africa International (SANA), Kisumu, May 2018.

5.4 Integrated and holistic natural resource management paradigm

Following the 1992 United Nations Conference for the Environment and Development (UNCED) convened in the city of Rio de Janeiro, many states including Kenya adopted new principles towards integrated resource management focusing on water, forests and land, among other natural resources. Integrated Natural Resource Management (INRM), the program which is known by different names in different countries implies the process of managing ecological resources in an orderly manner, which encompasses various features of natural resource utilization such as socio-political, economic and biophysical to meet the goals of stakeholders which may include peacebuilding. Focus is on sustainability as the management incorporates all possible stakeholders in the processes right from the planning level in order to minimize possible conflicts that may arise later. The INRM's conceptual basis has grown to embrace approaches used in management of resources such as community-based resource management, adaptive management of resources as well as integrated natural resource management, among others.⁵¹² International Conventions and Protocols, a number of which Kenya remains signatory to and government policy statements in Kenya like the Environmental Management and Coordination Act, 1999 emphasize greater meaningful community involvement in sustainable resource management towards environmental conservation, poverty alleviation, sustainable peace and overall socio-economic development.

Community Based Natural Resource Management perspective fits conservation goals into economic utility of communities. The logic is tied to the premise that local communities are better positioned and knowledgeable to conserve resources, communities conserve resources which are associated directly with their quality of life and that people will conserve resources only if the benefits surpass the cost of conservation.⁵¹³ Once local communities' quality of life improves, their commitment and effort in ensuring future well-being of environment and related resources are concurrently enriched.⁵¹⁴ Well managed resources characterized by improved quality of life will minimize overexploitation and degradation, scarcity, competition and related conflicts which constitute the key elements of the resource scarcity perspective. Community-based, regional or territorial natural resource management is premised around principle of subsidiarity. Maasai Mara-

⁵¹²Lovell, C. *et al.*, 'The question of scale in integrated natural resource management,' *Conservation Ecology*, 5, 2, (2002) pp. 25.

⁵¹³Thakadu, O. T., 'Success factors in community based natural resources management in northern Botswana: Lessons from practice,' *Natural Resources Forum*, 29, 3, (2005) pp. 199-212. doi:10.1111/j.14778947.2005.00130.x.

⁵¹⁴Ostrom, E. *et al.*, *Institutional incentives and sustainable development: infrastructure policies in perspective*, (Oxford: UK, Westview Press, 1993) pp. 266.

Serengeti ecosystem is among cross border natural resources shared by Kenya and managed through this approach towards conservation, stakeholders' subsistence and sustained peaceful coexistence among local communities and wildlife.

Though the UN encourages CBNRM through the global Conventions focusing on Biodiversity and Combating of Desertification, absence of clear guidelines amid decentralized approach to natural resource management can lead to an uncertain socio-legal environment with local communities such as forest communities rushing in to exploit natural resources recklessly while stocks last. There may also arise the challenge of reconciling and harmonizing the goals of biodiversity protection, socio-economic development and sustainable resource utilization amid varied power relations and participatory levels⁵¹⁵ which may lead to resentment and disputes. In Kenya, CBNRM has been undertaken through partners working together with national agencies and local communities in social advocacy aimed at connecting environmental management agenda and social justice.⁵¹⁶ The benefits therein include diversification of livelihoods, incurred revenues, employment opportunities, peaceful coexistence and increased pride and identity. On the other hand, there are also emerging challenges as the distinct relevant concepts of indigenous, community, territory and conservation, among others are examined and shaped into politically varied strategies and programs in dissimilar places. The Mau forest and resources have suffered severe degradation and depletion in the past as supposed indigenous claimants and alleged intruders encroached and engaged in conflicts over control and exploitation of resources with little attention given to sound resource management; a position supported by the tenets of the resource scarcity perspective. It therefore calls for effective strategies to address conflicts resulting from CBNRM towards realization of efficient resource management and durable peace.

Natural resource management focuses on managing how people and natural landscapes interact as the practice integrates management of water resources, preservation of biodiversity, land use planning and sustainability of general resource exploitation. It acknowledges that livelihoods depend on the wellbeing and productivity of the resources with human actions as the critical determinants of their sustainability. The analysis of stakeholders in ecosystem resource

⁵¹⁵Kellert, S. *et al.*, 'Community natural resource management: promise, rhetoric, and reality (PDF),' *Society and Natural Resources*, 13, (2000) pp. 705-715.

⁵¹⁶Shackleton, S. *et al.*, Devolution and community-based natural resource management: Creating space for local people to participate and benefit? *Natural Resource Perspectives*, No. 76, (UK, ODI, 2002), <https://www.cifor.org/library/1033/devolution-and-community-based-natural-resource-management-creating-space-for-local-people-to-participate-and-benefit/>, accessed on 12 September 2017.

management enables appropriate identification of interest groups involved with the preservation and exploitation of resources.⁵¹⁷ Borrowing from Bwindi Impenetrable National Park located in Uganda, an inclusive stakeholder analysis would have been necessary in order to recognize the Batwa people as being the rightful stakeholders and therefore averting their alienation, resentment and loss of livelihoods, life and identity.

Natural resources are crucial drivers for socio-economic development and water in particular bears fundamental function in upholding the integrity of our natural environment. Nevertheless, water issue cannot be considered in isolation as it is a component of many vital natural resources. Demographic and climatic changes are factors which have exacerbated the stress on our resources as supplies dwindle amid ever-increasing demands, varied interests and feuds; an argument in concurrence with the resource scarcity perspective. The traditional fragmented approach to their management stands obsolete and a more holistic style is thus necessary. This explanation holds the rationale for the Integrated Water Resources Management method which has since been validated internationally to guarantee efficient, equitable and sustainable management and development of water resources to withstand conflicting demands.⁵¹⁸ In Kenya, IWRM is being implemented under a Memorandum of Understanding bringing together the East African Community and Nile Basin Initiative on the Mara River management, which is a transboundary resource, among other similar resources.

The UN describes Sustainable Land Management (SLM) as being the utilization of land resources to produce goods so as to satisfy changing human needs, whilst at the same time ensuring long-term productive potential and environmental functions of the resources are maintained. SLM involves a holistic approach towards realizing healthy and productive ecosystems by incorporating physical, socio-economic and biological needs and values, which contribute to sustainable development. Due to climate change coupled with related variability, the choice of the right land uses is vital in minimizing degradation, restoring the degraded, maximizing resilience and also ensuring sustainable use of land resources which include soils, water and biodiversity. SLM covers established approaches such as Integrated Landscape Management (ILM), natural resource management together with soil and water conservation. SLM embraces the principles of targeted

⁵¹⁷Dandy, N. *et al.*, 'Who's in and why? A typology of stakeholder analysis methods for natural resource management,' *Journal of Environmental Management*, Vol. 90, (2009) pp. 1933-1949.

⁵¹⁸UNDESA, *Integrated Water Resources Management*, (2014), <http://www.un.org/waterforlifedecade/iwrm.shtml>, accessed on 12 October 2017.

policy and institutional support that is land-user-driven, encompassing the development of mechanisms for incentive towards adoption of the management practice and upholding livelihoods at community level. SLM also advocates for integrated use of natural resources with participatory approaches and partnerships at all levels. FAO has undertaken various projects funded by Global Environment Facility (GEF) to tackle transboundary land degradation issues such as “Using Farmer Field School Approaches to Overcome Land Degradation in Agro-pastoral Areas of Eastern Kenya,” particularly in ASAL areas of Narok County situated on the Kenya-Tanzania border. Such programmes are aimed at helping in the monitoring of resource management activities through development of related indicators; reforming policies, norms and standards (including women’s access to land ownership); offering technical advice and implementing both national and local plans in the wake of land degradation and water scarcity.⁵¹⁹

The prevailing economic conditions coupled with policy environment in Kenya have not fully provided for essential incentives to communities living with resources to commit long-term investments in sustainable ecological resource management. Integrated natural resource management presumes that natural resources are destructible and finite through use and management practices in line with the neo-Malthusian view and thus they ought to be managed within a holistic and integrated arrangement. This style of management helps in accounting for intricacies of ecosystems and the inter-relations among components of the resource base in a clear ecological system. The style advocates for improved and agreed roles which interrogate tradition and challenge existing institutional frameworks. Concerned communities need to be engaged in preservation and management efforts through a framework of sustainability and in doing so, forest dwellers may be empowered to sustainably manage forests with positive outcomes.⁵²⁰ Communities should effectively be involved continuously on formulation of policies and regulations so as to instill ownership and responsibility in resource management and share in the utility derived from their use.

Whichever resource management and control system, there is likelihood of resistance during implementation if communities’ role and benefit-sharing arrangements are ignored. This may result in conflict situations in management of resources, particularly in scenarios where

⁵¹⁹FAO, *Sustainable Land Management*, (2017), <http://www.fao.org/land-water/land/sustainable-land-management/en/>, accessed on 04 September 2017.

⁵²⁰Campbell, B.M., Empowering forest dwellers and Managing Forests more sustainably in the landscapes of Borneo, in *Research towards Integrated Natural Resources Management*, R.R. Harwood and A.H. Kassam (eds.), (Rome, CGIAR, 2003).

resource control over and access is negotiated. With the current model of devolution in Kenya, the National government plays a key role of monitoring and providing technical support to communities on resource management. The decentralization details transfer of discretionary powers with secure rights and accountable representation. Cross border natural resource management is however more likely to attract conflict since stakes encompass critical issues such as national boundaries of political control or autonomy, varied management regimes, emotive sense of community identity and economic livelihoods. Beyond diverse roles by local stakeholders, conflicts in cross border resource management are not only manifested in resource locations in developing countries such as Kenya, but can escalate into libraries and conference rooms of environmental management and development, considering diverse state interests at play.⁵²¹ Hence, the need for effective and comprehensive cross border natural resource management approaches that integrate varied interests and ambitions into cooperation and mutual gains towards peace and socio-economic progression.

The study results on whether there is any role cross border natural resource management can play in enhancing greater cooperation between Kenya and its eastern Africa neighbours are as follows; 63.9% of the respondents note that cross border natural resource management in Kenya can play a role whereas 36.1% hold contrary opinion. Based on this findings, majority of the respondents at 63.9% are in agreement that cross border natural resource management in Kenya can play a role in enhancing greater cooperation between Kenya and its eastern Africa neighbours. A substantial portion at 32.1% of the majority assenting results cite common platform for tackling mutual issues as the role that cross border natural resource management in Kenya can play in enhancing greater cooperation between Kenya and its eastern Africa neighbours. Other results include renewed commitment and responsibility in other sectors at 19.2%, resource management as a platform for diplomacy and integration at 28.5%, knowledge exchange and best practices replication at 10.9% and 'others' at 6.2% as the role resource management can play in enhancing greater cooperation in the region. The figure below shows whether there is any role that cross border natural resource management in Kenya can play in enhancing greater cooperation between Kenya and its eastern Africa neighbours.

⁵²¹Amede, T. *et al.* (eds.), *Integrated Natural Resource Management in Practice: Enabling Communities to Improve Mountain Livelihoods and Landscapes*, (Proceedings of a conference held at ICRAF Headquarters/ African Highlands Initiative, 12-15 October 2004, Nairobi: Kenya).

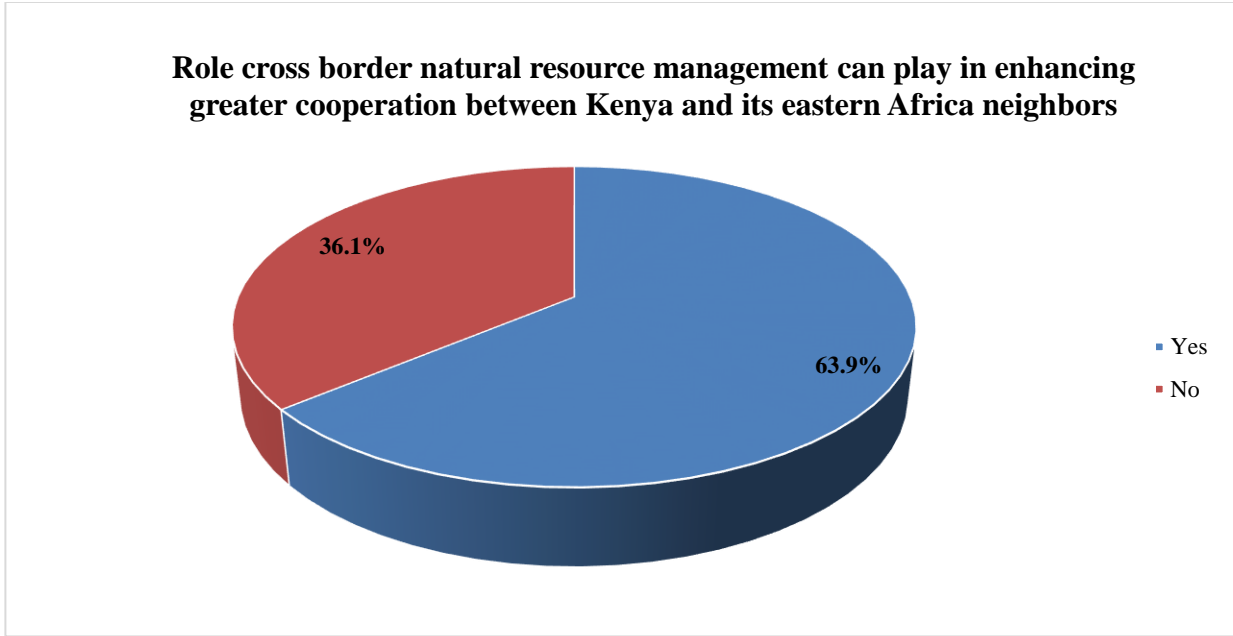


Figure 5.4: Is there any role that cross border natural resource management in Kenya can play in enhancing greater cooperation between Kenya and its eastern Africa neighbours

Source: Author (2021).

The affirmative results indicate that common challenges in shared natural resources could be tackled through shared commitment, responsibility and consolidated support for initiatives between Kenya and its affected neighbours. The results further state that for the overall well-being of shared ecosystems with optimum results, it is prudent to ensure seamless resource management approaches through cooperation on harmonized regulations and regimes. The findings note that natural resources of international importance could be managed better through collaboration since cross border natural resource management is a cross cutting issue in the sustainability agenda which thus enlists cooperation among states in the region. Best practices could also be shared and replicated between countries in the region, however the practices should be customized and domesticated at the national level as per needs on the ground. Similarly, both international environmental law and domestic environmental laws promote incorporation of best international practices into natural resources management in order to balance between environmental management and natural resource exploitation and further maximize benefits to the communities while minimizing any conflicts.⁵²²

⁵²²Muigua, K. *et al.*, *Natural resources and environmental justice in Kenya*, (Nairobi, Glennwood publishers, 2015).

The affirmative findings further observe that natural resource management could be used as a platform for addressing other equally important matters such as cultivation of mutual respect, steering regional peace and ensuring economic growth and development. The results maintain that resource management in border areas could be used as a precursor for tackling peace and security issues in these remote and often insecure locations and that trans-frontier security and enforcement initiatives could be undertaken collectively by states. The positive responses affirm that cooperation could be realized in relevant research, data sharing and knowledge exchange between states and allied agencies. The study findings also note that considering the compounding need for human survival which is linked to the natural resources, state parties are left with only one viable option of working together so as to secure a guaranteed future for their populations through effective management of shared resources in a peaceful environment. The responses assert that more political goodwill and commitment could be realized so as to guide relevant sectors as well as states to join together in their quest to better exploit, manage and maximize benefits from shared resources which include sustainable peace and development. Therefore, despite relevant laws being in place for regulation of use as well as management of natural resources, political goodwill was necessary to ensure the laws are well enforced and fully implemented. There should be sufficient goodwill and commitment from all actors to ensure seamless implementation of both relevant plans and reforms.⁵²³

A substantial section at 23.8% of the minority dissenting responses however cite varied capabilities and interests as the reason to why cross border natural resource management in Kenya could not enhance greater cooperation between Kenya and its eastern Africa neighbours. Other results are as follows; sovereignty and delimitation issues at 17.4%; high stakes, mistrust and suspicion at 14.6%; conflicts and severed relations at 11%; dissimilar and weak unifying frameworks at 20.2%; influence by external players at 6.4% and ‘others’ at 4.6% as the impediments towards greater cooperation between Kenya and its eastern Africa neighbours. The dissenting results note that there is state sovereignty and delimitation amid high stakes and varied interests constantly at play that hamper seamless engagement on administration of transboundary resources. This results in lack of commitment, unhealthy competition, suspicion, mistrust and selfish social and economic expediency between involved parties in the region. The results observe that the quest for exploitation and management of shared resources often results in severed

⁵²³Muigua, K. *et al.*, *Natural resources and environmental justice in Kenya*, (Nairobi, Glennwood publishers, 2015).

relations between states with escalated power and security issues as countries sometimes became increasingly entangled in ‘arms-race’ and border fortification activities. Past studies in environmental security have shown that management of renewable natural resources like rivers in the midst of the ongoing acute fresh water scarcity was capable of escalating local tensions into international conflicts;⁵²⁴ an observation in line with resource scarcity perspective.

The dissenting findings indicate that countries wage wars against one another as they assert dominance over contested resource areas and that free market situation opens up states for global cooperation with whoever they desired and more so for economic gains and thus, cooperation could not be limited to be a regional engagement. The findings also note that influence by external distant players who engage with individual countries many at times hamper greater cooperation between neighbours amid lack of agreed and unifying principles and frameworks for cooperation between states. The results further note that challenges in resource management varied between countries which enlist different local approaches and strategies and that varied capabilities too hamper cooperation as some countries either feel inferior or superior to effectively engage. The study results point out that existing dissimilar resource management frameworks could not encourage cooperation as their lacks harmony on how best to manage the resources. Lack of enabling policies and legislation together with policy and legal inconsistencies between states severely inhibit effectiveness of collaboration on sustainable natural resource management. Likewise, whenever laws are not equally applied to all actors, they favour a section of the stakeholders in management of cross border natural resources⁵²⁵ and this may lead to inequitable access to resources and their benefits, deprivation, grievances and conflict in line with the neo-Malthusian argument. Economic gains are often preferred to conservation efforts by states and therefore, countries are likely to cooperate in order to harness profits regardless of the adverse effects of their engagement amid exacerbated degradation and depletion of cross border natural resources with possibility of scarcity, competition and conflicts.

Study findings on whether effective cross border natural resource management would help promote peace in eastern Africa and even steer development within and beyond the region indicate that 72.8% of the responses note that effective cross border natural resource management would

⁵²⁴Lipiatou, E. *et al.*, Recent ecosystem changes in Lake Victoria reflected in sedimentary natural rocks and anthropogenic organic compounds, in: T.C. Johnson, and E.O. Odada, (eds.), *The limnology, climatology and paleoclimatology of the East African lakes*, (Toronto, Gordon and Breach Publishers, 1996) pp. 523-541.

⁵²⁵Van der Linde, H. *et al.*, *Beyond Boundaries: Transboundary Natural Resource Management in Sub-Saharan Africa*, With contributions from Anada Tiéga and Thomas Price, (Washington D.C., Biodiversity Support Program, 2001)

help promote peace and even steer development within and beyond the region whereas 27.2% are of contrary opinion. It can therefore be inferred that a resounding majority at 72.8% are in agreement that effective cross border natural resource management would help promote peace and even steer development within and beyond the region. The figure below shows whether effective cross border natural resource management would help promote peace in eastern Africa and even steer development within and beyond the region.

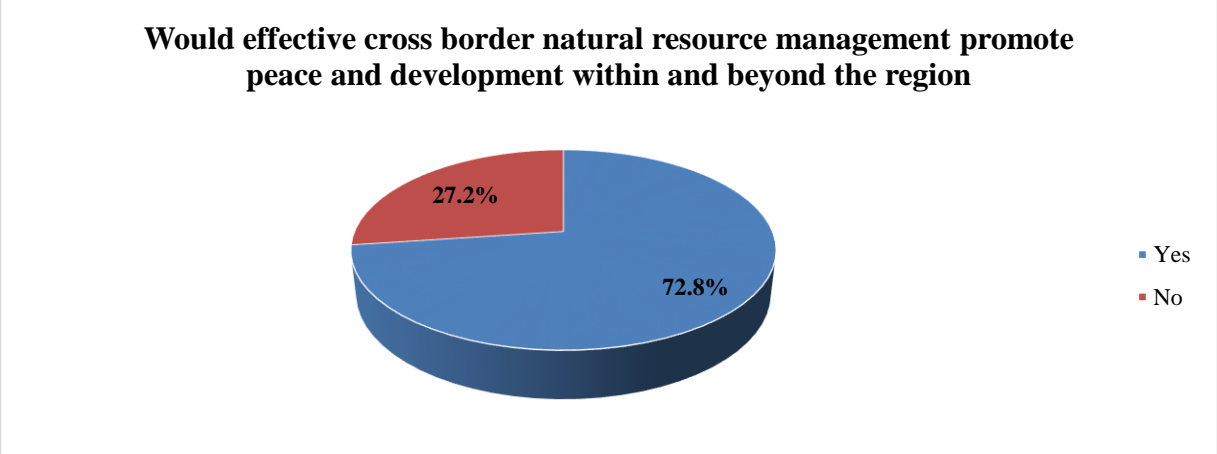


Figure 5.5: Would effective cross border natural resource management promote peace and development within and beyond the region

Source: Author (2021).

A substantial segment at 25.9% of the majority affirmative results state that peaceful coexistence and enhanced security would help promote sustainable peace in eastern Africa and even steer development within and beyond the region. The results also observe that integrated and cooperative frameworks at 17.3%, mitigation of emerging issues and sustainability measures at 13.2%, fairness and inclusivity with opportunities for progression at 18.7%, ownership and accountability for greater benefits at 15.9% and ‘others’ at 6.8% would help promote peace in eastern Africa and even steer development within and beyond the region. The assenting results indicate that effective natural resource management would ensure firm cooperation frameworks among actors with enhanced synergy towards equitable access to natural resources by all actors and equal opportunities for benefits, growth and development and in doing so responding to an attribute of the neo-Malthusian view on inequitable access to resources contributing to the manifestation of related conflicts. The findings note that sustainable resource exploitation and management is a requisite for peaceful coexistence between communities and states alike as it

offers ample environment for developmental undertakings and posterity. The responses observe that there would be reduced resource-induced conflicts that often lead to death, disruption of development programmes and wanton destruction of property. Study results note that in the absence of unfair resource exploitation and management practices, various groups would be able to fully explore their potential towards fostering of sustainable peace and progression. The positive responses affirm that with effective resource management in border areas, the security situation will improve by leveraging on the sound and efficient resource management structures since environmental conflicts have been described as major challenges to local, national, regional and even global peace and security.⁵²⁶

The affirmative findings maintain that dialogue and reconciliation would be embraced through resource management frameworks by parties involved in a ‘win-win’ scenario for both conservation and livelihood support components. Alternative or non-conventional dispute resolution mechanisms in natural resource conflicts have certain advantages such as being cost effective, often informal, flexible and allowing for utmost party autonomy through mediation, conciliation and negotiation. The mechanisms also offer room for parties involved to develop own lasting solutions on a multiparty ‘win-win’ platform which creates awareness on the importance of interdependence among stakeholders.⁵²⁷ The findings also observe that management of natural resources would be founded on more inclusive and participatory approaches and thus resulting in desired harmony which supports peace and development endeavors. The responses affirm that effective management of natural resources would promote ownership of resource management initiatives with greater mutual benefits realized for all actors amid minimized scarcity, lesser resource competition and averted conflicts in line with the principles of the resource scarcity perspective. The results state that accountability in resource management processes would be attained in the midst of reduced acrimony and mistrust among actors. The positive responses confirm that effective cross border natural resource management would ensure abundance for all actors and that other sectors dependent on the resources such as the manufacturing industry would thrive with more job opportunities and incidentally reduce the strain of over-dependency on natural resources for subsistence. The findings also note that by building on effective cross border natural

⁵²⁶Urmilla, B. and S. Bronkhorst, ‘*Environmental conflicts: Key issues and management implications*,’ (2002), pp. 9, <https://www.ajol.info/index.php/ajcr/article/viewFile/63307/51191>, accessed September 30, 2018.

⁵²⁷Buckles, D. (ed.), *Cultivating Peace: Conflict and Collaboration in Natural Resource Management*, (Ottawa, International Development Research Centre, 1999) pp. 5.

resource management, well thought out and robust ways of mitigating emerging issues in environmental management would timely be devised and implemented accordingly.

A substantial portion at 26.8% of the minority dissenting responses however cite the culture of violence and impunity as a hindrance to effective cross border resource management in Kenya geared towards promotion of peace in eastern Africa and even steering development within and beyond the region. The findings also note other peripheral influencing factors at 15.9%, inhibitive emerging issues at 11%, sovereignty and delimitation issues at 20.7%, separate independent frameworks for realizing peace and development at 18.3% and ‘others’ at 4.9% as impediments on resource management in the promotion of peace and development within the region and even beyond. The results indicate that effective natural resource management alone could not guarantee peaceful coexistence and progression and that there are other peripheral factors to be considered alongside so as to attain ultimate regional peace and development. The responses further note that there are emerging issues in management of transboundary resources and quest for sustainable peace and development which require more research and adequate valid information on how to address them. The state of natural resources across the world has been declining thus necessitating intensified research and policy action towards improved management of the resources. It is imperative that best practices are utilized in environmental protection and management to ensure sustainable peace and development alongside a secured future.⁵²⁸

Dissenting results observe that growing globalization is a new advent which presents other additional challenges to the known societal order and that other parameters such as enhancing security measures in border areas are vital in nurturing peace towards overall growth and development for the region. The results indicate that by fostering culture of peace amid non-violence among communities and ‘curing’ impunity are the foremost and essential steps in the peace and development agenda for the region. The findings concur with other scholarly works that although efficiency could be realized in resource management, population increase and high per capita consumption heightened demand for environmental and natural resources,⁵²⁹ which may in turn result in scarcity, competition and conflicts in concurrence with the resource scarcity perspective. Therefore, there is need to diversify livelihood sources so as to address the problem

⁵²⁸FAO, *Research on Natural Resources Management*, (2018), <http://www.fao.org/Wairdocs/TAC/X5790E/x5790e07.htm>, accessed 30 September 2018.

⁵²⁹Charles-Philippe, D. and G. Jean-Francois, ‘Natural Resources: A Source of Conflict?’ *International Journal*, Vol. 62, 1, (2006/7) pp. 5-17.

of over-dependency on natural resources for subsistence and instead support the well-being of ecosystems and the realization of sustainable peace. The results note that effective resource management in one state does not guarantee the same in the neighboring sovereign state and therefore the cycle of degradation and conflict may persist on. The findings further state that although resource management may be linked to peace and development, the latter two may as well have their own independent frameworks for realization, an argument that requires further interrogation.

5.5 Conclusion

The chapter critically analyzes the impact of cross border resource management towards sustainable peace in the eastern Africa region. The main focus is on coping with scarcity and competition, the backdrop of transboundary resource management and peace, and the necessary reforms in cross border natural resource management. The chapter also describes the integrated and holistic resource management paradigm. The study findings reveal the need for proactive and holistic approaches that simultaneously address conservation, livelihood, economic and sovereignty issues so as to contribute to the attainment of sustainable peace and socio-economic progression within the region. Chapter six presents the summary of study data findings and analysis.

CHAPTER SIX

PRESENTATION OF DATA FINDINGS AND ANALYSIS

6.0 Introduction

The study in chapters one to five examines themes on the impact of cross border natural resource management on sustainable peace within eastern Africa region. The preceding chapters scrutinize related literature and fuse it with empirical data of the study supported by relevant theory in order to derive informed and logical conclusions tied to the study objectives. This chapter presents summary of data findings and analysis guided too by key themes in line with the study objectives. Data analysis is undertaken through a number of appropriate data handling techniques.

6.1 General demographic description of the study

From the findings of field data analysis, distribution of the sample in categories of the target population is as follows; 19.5% of individuals are drawn from government agencies, 18.2% are from nongovernmental entities, 26% are from communities living with the resources, 18.2% are drawn from development partners and finally; 18.2% are scholars. Based on the findings, majority of the respondents who took part in the study at 30.5% are from the communities living with the resources. This is partly attributed to the communities being the immediate custodians, users and influencers of resource exploitation and management in their respective localities. This notion is supported by The Ramsar Convention on Wetlands which advocates for ‘people-centred’ approaches through active participation and ownership by communities at the grassroots level and affirms that communities are indeed the custodians and owners of resources and thus it is upon them to protect and use the resources.⁵³⁰

The other categories of the target population display a near even representation of the respondents as follows; nongovernmental entities are at 19.9%, scholars at 17.2%, development partners at 16.9% and governmental agencies at 15.6% of the total respondents. The distribution of respondents is essential as it ensures inclusivity and active participation of key resource management actors in the study. The table and figure below give a summary on the distribution of study sample and respondents in the categories of the target population.

⁵³⁰Maloya, H., *Community-Based Natural Resources Management - the case of Lake Chilwa Wetlands, Malawi*, (Malawi, Ramsar Convention on Wetlands/COP13, 2001), <https://www.ramsar.org/news/community-based-natural-resources-management-the-case-of-lake-chilwa-wetland-malawi>, accessed on 25 September 2018.

Table 6.1: Sample size and distribution of respondents in categories of the target population

Category of actors	Sample population	Actual number of respondents	Percentage distribution of the sample (%)
Government agencies	75	47	19.48
Nongovernmental entities	70	60	18.18
Communities living with resources	100	92	25.97
Development partners	70	51	18.18
Scholars	70	52	18.18
Total	385	302	100

Source: Author (2021).

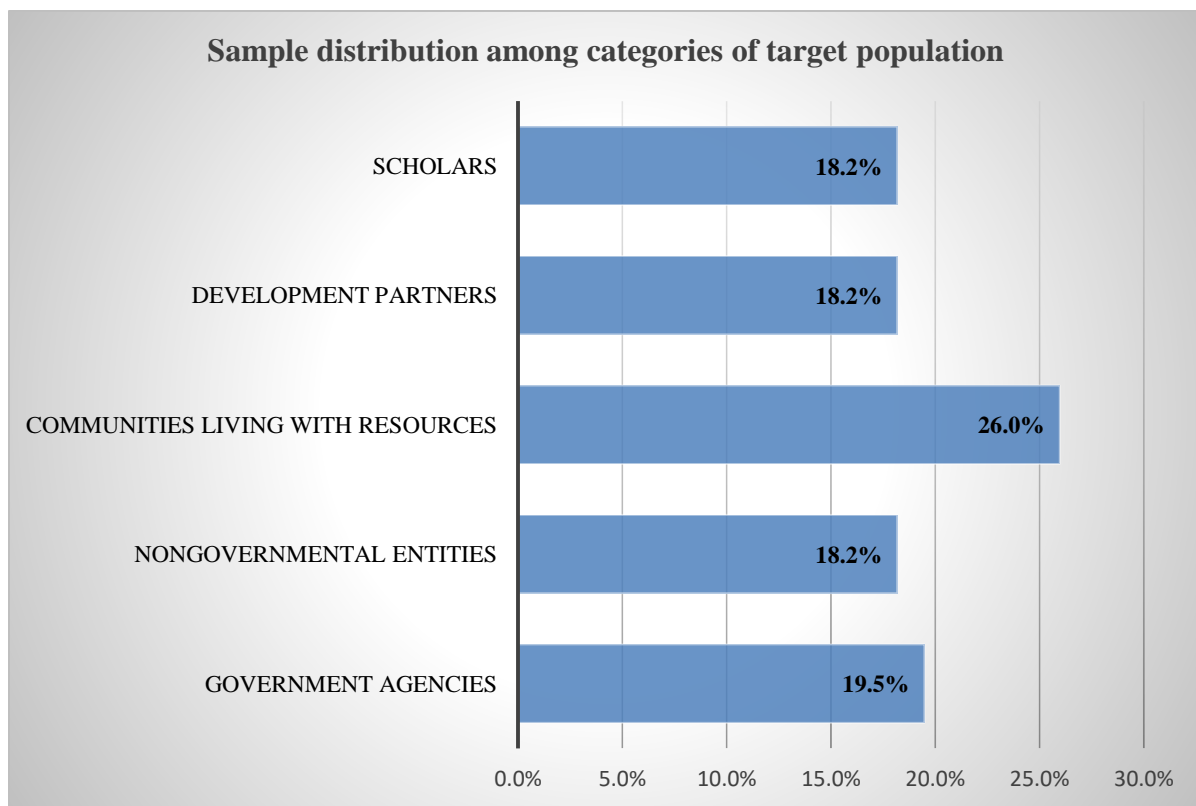


Figure 6.1: Sample distribution among categories of the target population

Source: Author, (2021).

Questionnaires response rate

The study findings on the questionnaires response rate indicate that out of a total of 385 questionnaires administered by researcher for the study, 302 of them received responses from a corresponding number of respondents who dully filled and returned the questionnaires to the researcher. This represents 78.4% of respondents who effectively participated in the study and the

information they provided was incorporated in the study analysis. On the other hand, 21.6% of the sample population either did not fill or return the questionnaires to the researcher. The study analysis therefore shows that majority of those targeted at 78.4% indeed effectively participated in the study; a response rate which is sufficient and acceptable for the study.⁵³¹ The figure below shows a summary of the study questionnaires response rate.

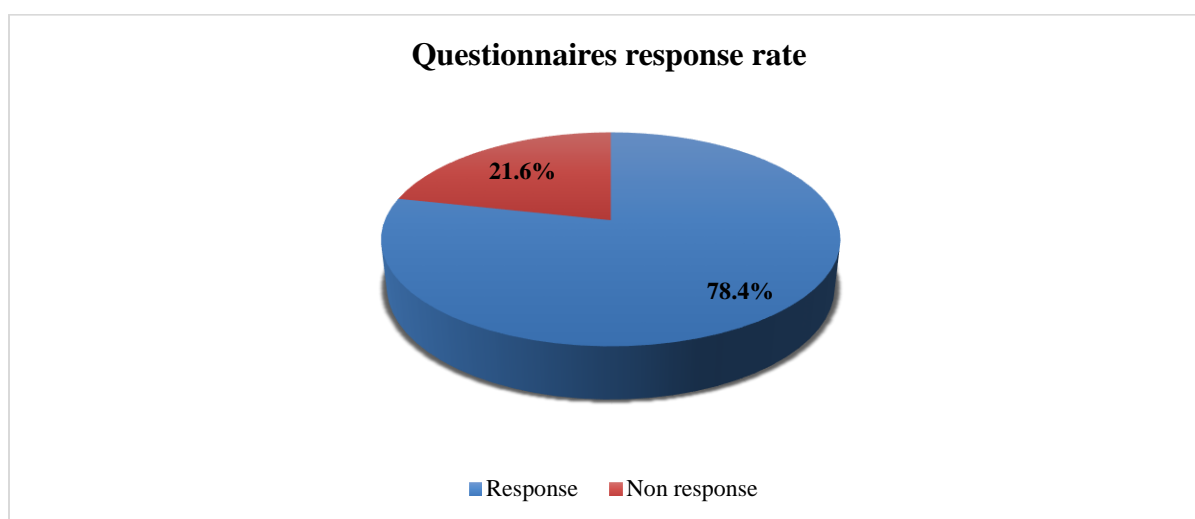


Figure 6.2: Questionnaires response rate

Source: Author (2021).

Gender of respondents

Of the 302 respondents who duly participated in the study, 57.3% are males whereas 42.7% are females and thus on the basis of the analysis, most of the individuals who participated in the study at 57.3% are male. The gender differential in the participation of the study may be partly attributed to among other factors general higher illiteracy levels among women and their generally lesser exposure and awareness levels, especially in rural borderland areas. The study findings confirm that more male respondents at 53% had obtained various forms of education as compared to their female counterparts at 39.7%. This is an observation that concurs with the Kenya National Adult Literacy Survey report which revealed that males had higher literacy rates at 64.2% as compared to 58.9% for females.⁵³² Apart from the general low levels of civic literacy among women, especially in the remote countryside, other socio-cultural factors which include the

⁵³¹Mundy D. (ed.), 'A Question of Response Rate,' *Science Editor*, Vol 25, No. 1, (2002) pp. 25.

⁵³²Eldis/Institute of Development Studies, *Kenya National Adult Literacy Survey report*, (Nairobi, UNESCO Nairobi Office, 2007), <http://www.eldis.org/document/A31868>, accessed on 25 September 2018.

patriarchal nature of male dominance and biases in societal processes impede women's effective participation and uptake of representation in decision making and governance matters, and more so in taking part in this study on the management of natural resource. Despite these structural limitations, women remain key players in the overall management of ecosystem resources including those that are shared across national boundaries; an argument in line with The World Wide Fund's observation that it is imperative to ensure women's meaningful contribution to decision-making processes for greater success and sustainability of initiatives on the protection and sound management of natural resources amid shared benefits.⁵³³ Therefore, this study ensured gender sensitivity by according equal opportunity to men and women so as to actively participate in the study. The figure below shows a summary of the respondents' participation in the study by gender.

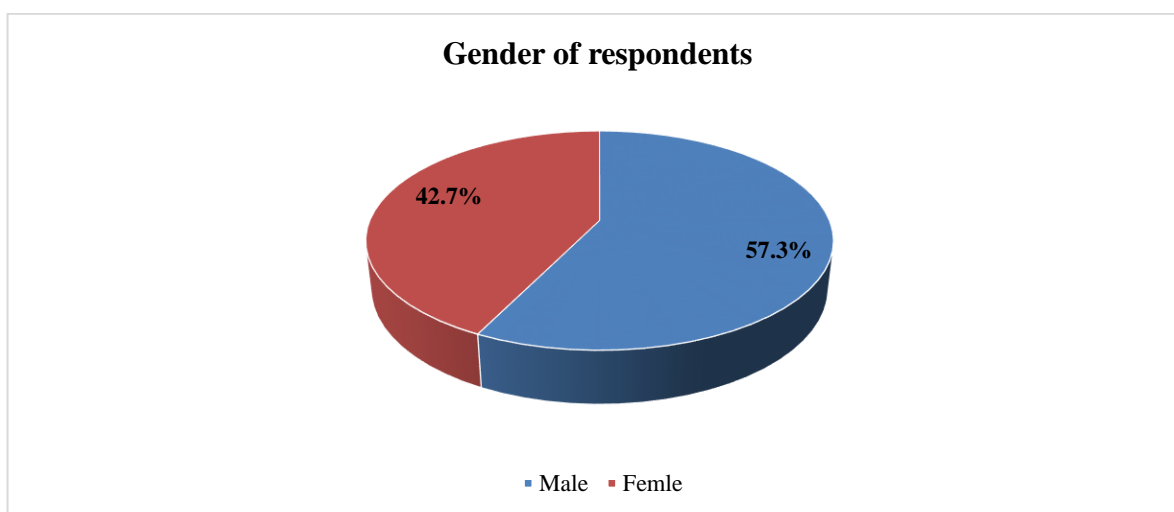


Figure 6.3: Distribution of respondents by gender

Source: Author (2021).

Age of respondents

The study results show that 16.9% of respondents are between ages 18 – 25 years, 29.5% are aged between 26 – 35 years, 25.5% are between ages 36 – 45 years, 15.2% are aged between 46 – 55 years whereas 12.9% of the respondents are above 55 years. The study findings show that majority of respondents are between ages 26 – 35 years at 29.5% of the total respondents. This

⁵³³WWF-UK, *Natural resource management and the importance of gender*, (UK, WWF-UK, 2012), https://d2ouvy59p0dg6k.cloudfront.net/downloads/women_conservation_overview_2012.pdf, accessed on 24 September 2018.

group comprises mostly of individuals in their prime and most productive ages who are usually through with their pursuit of basic education and on their peak in cognitive abilities. In addition, these individuals are most likely to be actively engaged in occupational and other societal endeavors. These possibly put them in near constant interaction with ecosystem resources or even position them to take part in key societal processes such as this study. The U.S. Department of Labor conducted a study on a wide selection of industries which compared output among individuals of diverse ages. The findings of the US study confirmed that job performance increased up to age 35, then steadily decreased afterwards.⁵³⁴ Other respondents' age groups are equally important to the study as ages 18 – 25 years at 16.9% are offered opportunity to share their experiences and knowledge for normally being at the apex of basic education acquisition and in the process they enrich the study with fresh ideas. Respondents in ages 36 – 45 years at 25.5%, ages 46 – 55 years at 15.2% and those above 55 years at 12.9% are likely to be within the decision-making bracket of the society either as senior managers, revered elders or even opinion leaders and thus they are key influencers of policy and as such they contribute immensely to the quality of this study given their perceived level of exposure and comprehension. The figure below displays the distribution of the ages of respondents.

⁵³⁴U.S. Department of Labor, 'Comparative Job Performance by Age; Large Plants in the Men's Footwear and Household Furniture Industries,' *Monthly Labor Review*, No. 80, (1957) pp. 1468-1471.

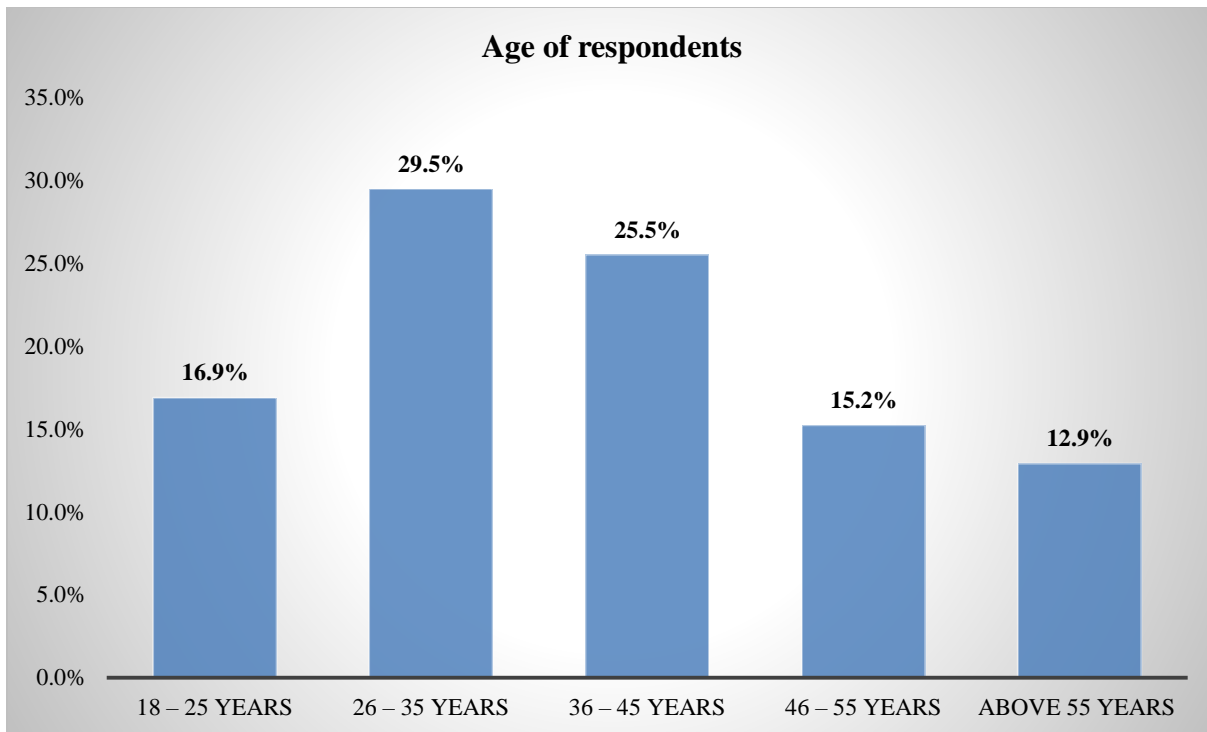


Figure 6.4: Age of respondents

Source: Author (2021).

Education level of respondents

The findings on respondents' level of education reveal that 7.3% of the respondents had not attained any form of education, 12.3% had achieved primary level education, 21.5% had received secondary education and those with tertiary/graduate education are at 47%. In addition, 10.3% of the respondents had post graduate education while the remaining 1.7% had obtained 'other' forms of education. Based on these findings, majority of respondents at 57.3% had attained tertiary/graduate and post graduate education and thus were well enlightened to effectively participate in the study. Only a small portion of respondents at 7.3% had not attended any form of education, however in their regular interaction with the environment they had acquired some essential insights on natural resource management and therefore they were able to provide useful or rather relevant information for this study.

The respondents who had attained 'other' forms of education posted at 1.7% listed them to include vocational and adult education, artisanal training (gumbaru), traditional and spiritual instructions, self-learning and home schooling. These 'other' forms of education bore cognoscible levels of awareness on resource management and thus contribute positively to the study. These

findings also show that most of those individuals who had not attended any form of education or had attained ‘other’ forms of education are mainly from remote and rural borderland regions often characterized by higher illiteracy levels. This observation agrees with the Kenya National Adult Literacy Survey report which elucidated disparities in rural and urban situations with urban areas recording higher literacy levels than rural areas.⁵³⁵ Therefore, despite the respondents’ posting varied forms and levels of education, they all contribute significantly to the success of this study, as they provide essential information in the area of study. The figure below shows education level of respondents.

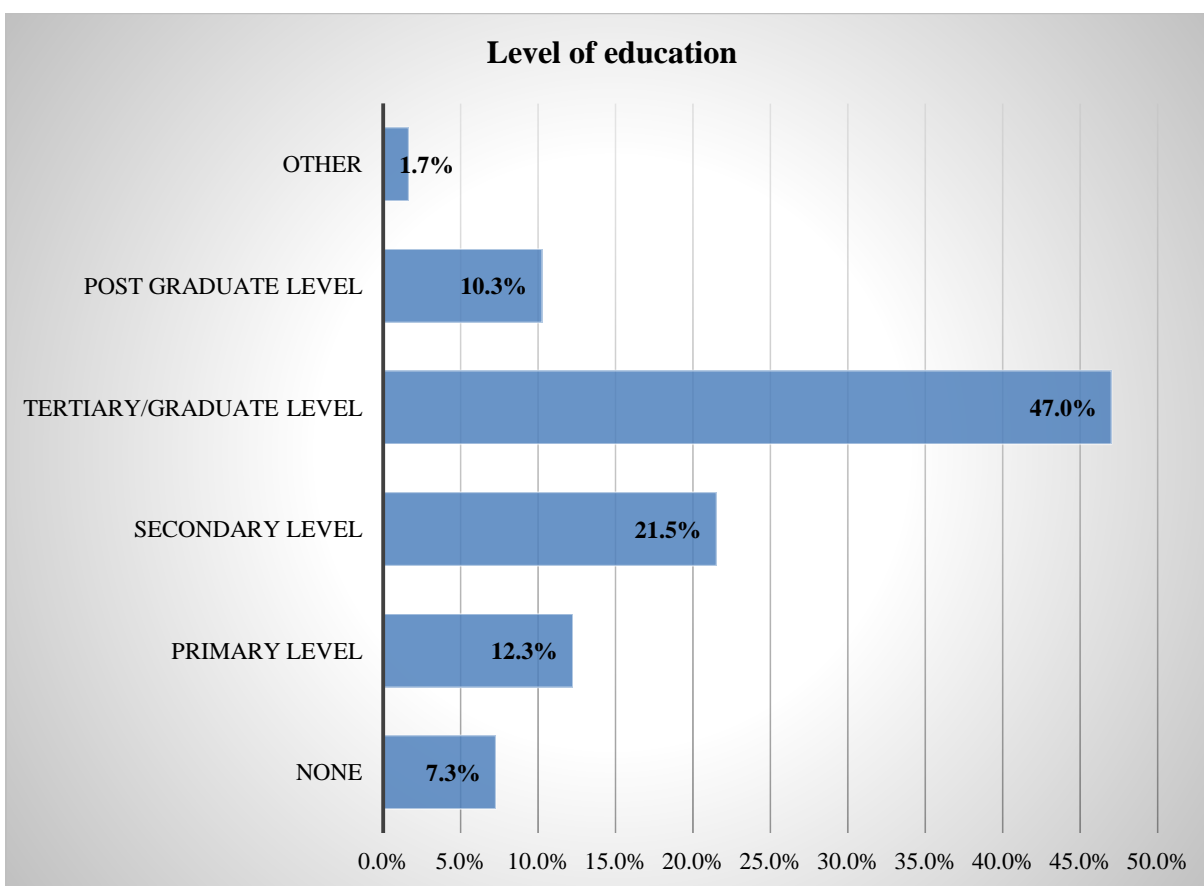


Figure 6.5: Education level of respondents

Source: Author (2021).

Level of education and gender of respondents cross tabulation

⁵³⁵Eldis/Institute of Development Studies, *Kenya National Adult Literacy Survey report*, (Nairobi, UNESCO Nairobi Office, 2007), <http://www.eldis.org/document/A31868>, accessed on 25 September 2018.

The study findings indicate that in each of the categories of the education level obtained there are more males as compared to their female counterparts. The male results are as follows; primary at 6.6% of the respondents, secondary at 12.9%, tertiary/graduate at 26.5%, post-graduate at 5.6% and other at 1.3%. On the other hand, the results for the female respondents are primary at 5.6% of the respondents, secondary at 8.6%, tertiary/graduate at 20.5%, post graduate at 4.6% and other at 0.3%. Nonetheless, majority of the respondents who had not obtained any form of education are male at 4.3% of the total respondents as compared to their female counterparts at 3.0%. It can therefore be inferred that more male respondents at 53% had obtained various forms of education as compared to the female respondents at 39.7%. Although the study observes principles of gender parity, these findings indeed impact the gender differential in the respondents' participation in the study. The table and figure below show education level and gender of respondents cross tabulation.

Table 6.2: Level of education and gender of respondents cross tabulation

			Gender of Respondent		Total
			Male	Female	
Level of Education	None	Count	13	9	22
		% of Total	4.3%	3.0%	7.3%
	Primary	Count	20	17	37
		% of Total	6.6%	5.6%	12.3%
	Secondary	Count	39	26	65
		% of Total	12.9%	8.6%	21.5%
	Tertiary/Graduate	Count	80	62	142
		% of Total	26.5%	20.5%	47.0%
	Post Graduate	Count	17	14	31
		% of Total	5.6%	4.6%	10.3%
	Other	Count	4	1	5
		% of Total	1.3%	0.3%	1.7%
	Total	Count	173	129	302
		% of Total	57.3%	42.7%	100.0%

Source: Author (2021).

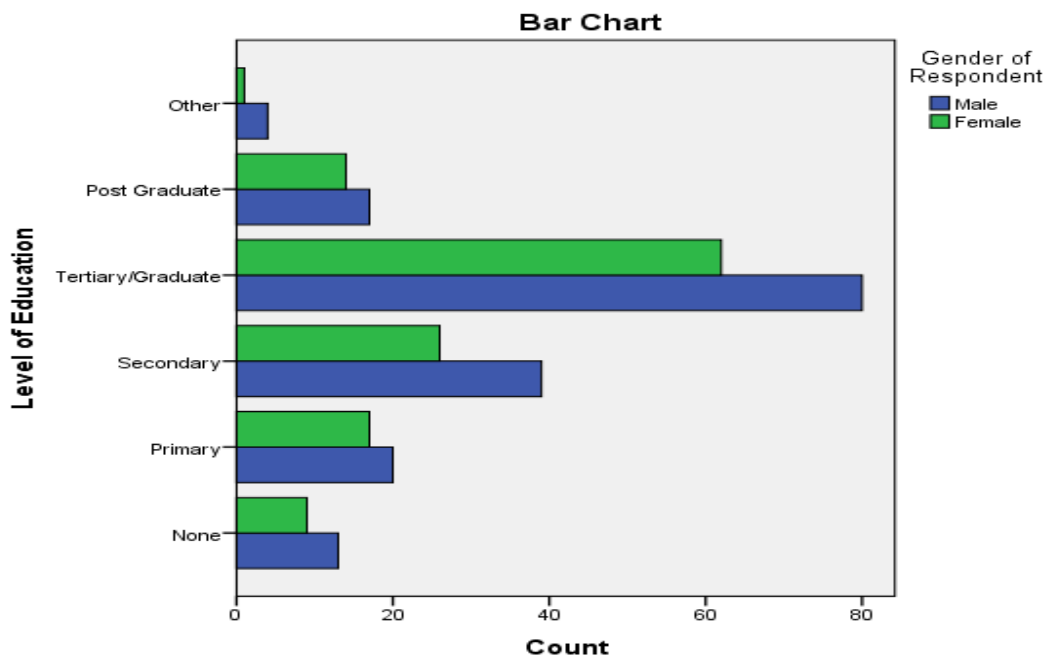


Figure 6.6: Level of education and gender of respondents cross tabulation

Source: Author (2021).

Age of respondents and level of education cross tabulation

The findings affirm that ages 18-25 have the most respondents who had attained secondary level of education at 7% of the respondents followed by ages 26-35 and 46-55 at 5.3% and 4.6% respectively. The results also show that ages 26-35 have the most respondents with tertiary/graduate education at 20.9% of the respondents followed by ages 36-45 and 18-25 at 15.9% and 7.6% respectively. In addition, ages 46-55 have the most respondents with post graduate qualification at 3.6% of the respondents followed by ages 36-45 and 26-35 at 3% and 2.6% respectively. The respondents aged above 55 have both the highest number of respondents with primary level of education and also those without any form of education although they had vast experience and informal knowledge which enrich the study. Majority of respondents are between ages 26–35 and most of them had obtained tertiary/graduate level education and thus, knowledgeable enough to effectively participate in the study and enrich the findings. The table and figure below illustrate the age of respondents against education level cross tabulation.

Table 6.3: Age of respondents and level of education cross tabulation

	Level of Education						Total
	None	Primary	Secondary	Tertiary/Graduate	Post Graduate	Other	

Age of Respondent	18-25	Count	0	2	21	23	3	2	51
		% of Total	0.0%	0.7%	7.0%	7.6%	1.0%	0.7%	16.9%
	26-35	Count	0	2	16	63	8	0	89
		% of Total	0.0%	0.7%	5.3%	20.9%	2.6%	0.0%	29.5%
	36-45	Count	4	6	9	48	9	1	77
		% of Total	1.3%	2.0%	3.0%	15.9%	3.0%	0.3%	25.5%
	46-55	Count	4	9	14	6	11	2	46
		% of Total	1.3%	3.0%	4.6%	2.0%	3.6%	0.7%	15.2%
	above 55	Count	14	18	5	2	0	0	39
		% of Total	4.6%	6.0%	1.7%	0.7%	0.0%	0.0%	12.9%
Total	Count	22	37	65	142	31	5	302	
	% of Total	7.3%	12.3%	21.5%	47.0%	10.3%	1.7%	100.0%	

Source: Author (2021).

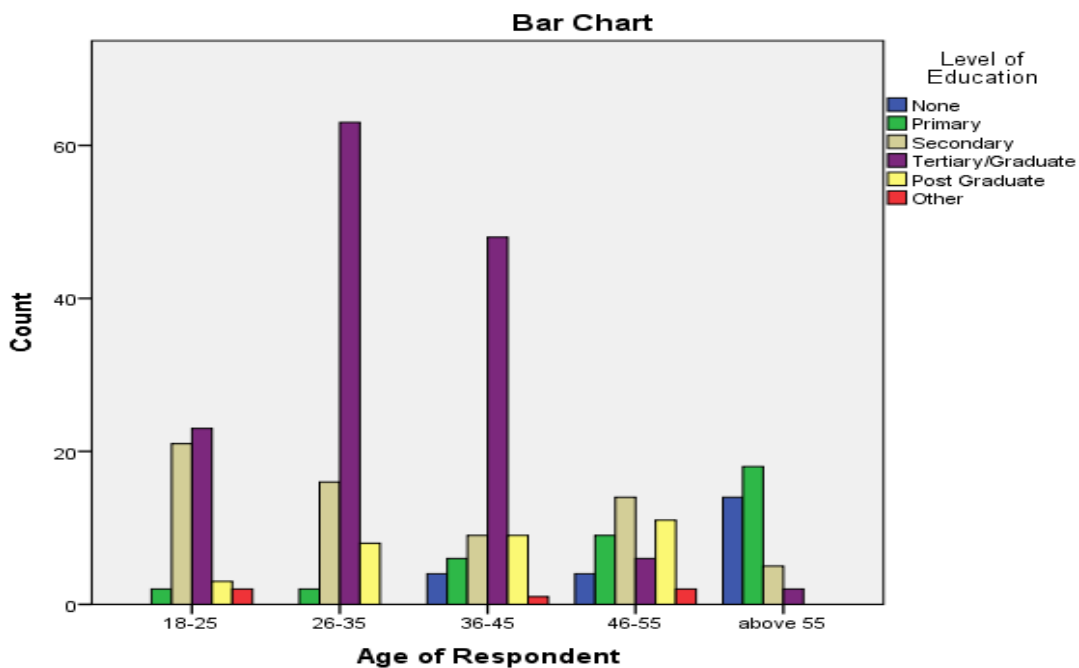


Figure 6.7: Age of respondents and level of education cross tabulation

Source: Author, (2021)

6.2 Introduction to Structural Equation Modelling (SEM)

The Structural Equation Modelling is picked for use in determining association between variables in the study data in order to explore and explain whether the sample data fits into the theory or rather tests quantitative predictions (hypothesized relationships) on whether theory works for the data collected. SEM embraces confirmatory factor analysis, path analysis and regression in a multivariate approach in establishing whether the independent (exogenous) variables are causally related to the dependent (endogenous) variables. In general, the model mainly comprises of two components namely; confirmatory factor analysis which evaluates the validity of those indicators associated with the underlying theoretical construct and the multivariate analysis of the structural relationships among variables which offers support to the study theoretical framework and conclusions.⁵³⁶

In doing so, the model can for instance strive to express $Y = bX + e$, where;

- a. Y is the dependent variable
- b. X is the independent variable
- c. b is regression coefficient (coefficient of determination)
- d. e is the error variance/disturbance term (other factors not measured)

In summary, the model helps in determining;

- i. The effect of X on Y
- ii. Establish if X and Y are associated
- iii. Ascertain causality in cases where there is direction (analyses causal relationship between observed variables)

Therefore, SEM is built from factor analysis of many variables (multivariate) though only those which explain variability are chosen in determining association. The model is suitable for this study since the variables of interest such as 'sustainable peace' which is a latent variable cannot be directly measured and thus they can be estimated using related measurable indicators which are the observed variables. Hence, Y is not observed but instead implied as it is often single latent construct (only one variable enters the prediction equation). In addition, the researcher carefully considers various aspects of the hypothesized model to ensure understandable justification of the

⁵³⁶Hox, J.J. and T.M. Bechger, 'An introduction to Structural Equation Modelling,' *Family Science Review*, 11, (1998) pp. 354-373.

study sample size for respective analysis with the ‘SEM rule of thumb’ which is anchored on the relationship between sample size and model complexity connoted as the ratio,⁵³⁷

$N: q$ which is 18:1 where;

N is the number of individuals (cases) = 302

q is the number of free parameters = 18

Thus, $302/18 = 16.78 \approx 17$. There are 17 test takers per estimated model parameter.

6.2.1 Correlation of indicators to feed the SEM path diagram

The correlations are undertaken through the Spearman’s correlation which measures the strength and direction of association between any two causal indicators listed as x_1 to x_{18} . In a sample, the Spearman’s correlation coefficient which is signified by r_s is intentionally constrained as $-1 \leq r_s \leq 1$.⁵³⁸ In the correlation matrix, a double star (**) indicates the correlation is significant at 0.01 α - level (90% confidence level). Consequently, the single star (*) indicate the correlation is significant at 0.05 α - level (95% confidence level).

As is the norm, this study recognizes a value of ± 1 to denote perfect linear correlation and when the value is close to 0, the correlation is either weak or there is no correlation. Similarly, a value of ± 0.7 upwards is considered to be strong correlation. Furthermore, whenever the value of two variables under observation increase or decrease in unison then it signifies a positive correlation and in case the value of one variable increase as the other decrease then it is a negative correlation.

From the correlation matrix, sig (1-tailed) is the p -value (probability value which runs between 0 and 1). Where the p -value is greater than alpha (α) which is the margin of error of the study or the level of uncertainty at 0.05, then there is no significant relationship. A small p -value (usually < 0.05) connotes strong evidence that there is a significant correlation between the variables. Similarly, a large p -value (> 0.05) indicates no evidence of a significant correlation between the variables. When the p -value is equal to 0.05 then it is considered to be marginal (could go either way). It is important to always report the p -value so that readers can draw own conclusions.

Considering that no assumptions had been made on the data prior to its analysis, the categorical variables are correlated using the Spearman’s correlation. During analysis,

⁵³⁷Ockey G. and I. Choi, ‘Structural Equation Modeling Reporting Practices for Language Assessment,’ *Language Assessment Quarterly*, Vol. 12, Issue 3, (2015) pp. 305-319, DOI: 10.1080/15434303.2015.1050101.

⁵³⁸Spearman’s correlation, <http://www.statstutor.ac.uk/resources/uploaded/spearmans.pdf>, accessed on 28 October 2018.

assumptions on linear relationships between two causal indicators are made and in places where the assumptions are not met, the data is transformed accordingly. Upon generation of the nonparametric correlations, sets of measured variables/causal indicators derived from relevant study questions and which are related or bear patterns of association on analysis of correlation coefficients (r_s) may be reduced by way of picking only one of them from each set-in order to increase efficiency ahead of the building of the structural equation model path diagram. The figure below illustrates the Spearman's correlation matrix.

Table 6.4: Spearman's Correlation Matrix

		X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉	X ₁₀	X ₁₁	X ₁₂	X ₁₃	X ₁₄	X ₁₅	X ₁₆	X ₁₇	X ₁₈
X₁	Corr. Coefficient	1.000	.355**	-.469**	.272**	-.385**	-.128*	-.120*	.113*	-.559**	-.272**	.167**	-.010	.106*	-.450**	-.045	-.386**	-.365**	-.342**
	Sig. (1-tailed)		.000	.000	.000	.000	.013	.019	.025	.000	.000	.002	.434	.033	.000	.218	.000	.000	.000
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₂	Corr. Coefficient	.355**	1.000	-.293**	.310**	-.414**	-.009	-.002	.145**	-.419**	-.158**	.084	.000	.126*	-.352**	-.077	-.344**	-.320**	-.319**
	Sig. (1-tailed)	.000		.000	.000	.000	.437	.486	.006	.000	.003	.073	.498	.014	.000	.091	.000	.000	.000
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₃	Corr. Coefficient	-.469**	-.293**	1.000	-.445**	.439**	.185**	.169**	-.132*	.565**	.200**	-.117*	-.085	-.209**	.419**	.030	.378**	.444**	.387**
	Sig. (1-tailed)	.000	.000		.000	.000	.001	.002	.011	.000	.000	.021	.071	.000	.000	.302	.000	.000	.000
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₄	Corr. Coefficient	.272**	.310**	-.445**	1.000	-.333**	-.173**	-.163**	.038	-.478**	-.296**	.046	.125*	.192**	-.407**	-.042	-.372**	-.424**	-.369**
	Sig. (1-tailed)	.000	.000	.000		.000	.001	.002	.258	.000	.000	.213	.015	.000	.000	.234	.000	.000	.000
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₅	Corr. Coefficient	-.385**	-.414**	.439**	-.333**	1.000	.249**	-.203**	.019	.561**	.275**	-.118*	-.050	-.109*	.518**	.051	.504**	.443**	.448**
	Sig. (1-tailed)	.000	.000	.000	.000		.000	.000	.371	.000	.000	.020	.193	.030	.000	.191	.000	.000	.000
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₆	Corr. Coefficient	-.128*	-.009	.185**	-.173**	.249**	1.000	.270**	.147**	-.295**	.251**	.039	-.029	.013	.225**	-.008	.193**	.154**	.267**
	Sig. (1-tailed)	.013	.437	.001	.001	.000		.000	.005	.000	.000	.250	.307	.414	.000	.443	.000	.004	.000
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₇	Corr. Coefficient	-.120*	-.002	.169**	-.163**	.203**	.270**	1.000	.768**	.120*	.282**	.089	-.052	-.029	.218**	-.025	.175**	.183**	.151**
	Sig. (1-tailed)	.019	.486	.002	.002	.000	.000		.000	.018	.000	.060	.185	.306	.000	.332	.001	.001	.004
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₈	Corr. Coefficient	.113*	.145**	-.132*	.038	.019	.147**	.768**	1.000	-.143**	.158**	.155**	-.037	.048	.045	-.030	.025	.003	-.005
	Sig. (1-tailed)	.025	.006	.011	.258	.371	.005	.000		.007	.003	.003	.263	.204	.215	.304	.330	.481	.466
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₉	Corr. Coefficient	-.559**	-.419**	.565**	-.478**	.561**	-.203**	.120*	-.143**	1.000	.388**	-.184**	-.039	-.098*	.660**	.041	.611**	.530**	.622**
	Sig. (1-tailed)	.000	.000	.000	.000	.000	.000	.018	.007		.000	.001	.252	.045	.000	.240	.000	.000	.000
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₁₀	Corr. Coefficient	-.272**	-.158**	.200**	-.296**	.275**	.251**	.282**	.158**	.388**	1.000	-.009	-.124*	-.005	.344**	-.023	.357**	.346**	.294**
	Sig. (1-tailed)	.000	.003	.000	.000	.000	.000	.000	.003	.000		.436	.016	.466	.000	.344	.000	.000	.000
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₁₁	Corr. Coefficient	.167**	.084	-.117*	.046	-.118*	.039	.089	.155**	-.184**	-.009	1.000	.004	.124*	-.291**	-.038	-.115**	-.127**	-.183**
	Sig. (1-tailed)	.002	.073	.021	.213	.020	.250	.060	.003	.001	.436		.474	.015	.000	.254	.023	.014	.001
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₁₂	Corr. Coefficient	-.010	.000	-.085	.125*	-.050	-.029	-.052	-.037	-.039	-.124*	.004	1.000	-.034	-.058	.067	-.036	-.067	-.022
	Sig. (1-tailed)	.434	.498	.071	.015	.193	.307	.185	.263	.252	.016	.474		.280	.158	.122	.266	.124	.349
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₁₃	Corr. Coefficient	.106*	.126*	-.209**	.192**	-.109*	.013	-.029	.048	-.098*	-.005	.124*	-.034	1.000	-.078	.002	-.137**	-.153**	-.067
	Sig. (1-tailed)	.033	.014	.000	.000	.030	.414	.306	.204	.045	.466	.015	.280		.089	.485	.009	.004	.122
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₁₄	Corr. Coefficient	-.450**	-.352**	.419**	-.407**	.518**	.225**	.218**	.045	.660**	.344**	-.291**	-.058	-.078	1.000	.014	.618**	.497**	.670**
	Sig. (1-tailed)	.000	.000	.000	.000	.000	.000	.000	.215	.000	.000	.000	.158	.089		.406	.000	.000	.000
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₁₅	Corr. Coefficient	-.045	-.077	.030	-.042	.051	-.008	-.025	-.030	.041	-.023	-.038	.067	.002	.014	1.000	-.032	-.074	-.013
	Sig. (1-tailed)	.218	.091	.302	.234	.191	.443	.332	.304	.240	.344	.254	.122	.485	.406		.290	.099	.411
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₁₆	Corr. Coefficient	-.386**	-.344**	.378**	-.372**	.504**	.193**	.175**	.025	.611**	.357**	-.115**	-.036	-.137**	.618**	-.032	1.000	.473**	.657**
	Sig. (1-tailed)	.000	.000	.000	.000	.000	.000	.001	.330	.000	.000	.023	.266	.009	.000	.290		.000	.000
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₁₇	Corr. Coefficient	-.365**	-.320**	.444**	-.424**	.443**	.154**	.183**	.003	.530**	.346**	-.127**	-.067	-.153**	.497**	-.074	.473**	1.000	.522**
	Sig. (1-tailed)	.000	.000	.000	.000	.000	.004	.001	.481	.000	.000	.014	.124	.004	.000	.099	.000		.000
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
X₁₈	Corr. Coefficient	-.342**	-.319**	.387**	-.369**	.448**	.267**	.151**	-.005	.622**	.294**	-.183**	-.022	-.067	.670**	-.013	.657**	.522**	1.000
	Sig. (1-tailed)	.000	.000	.000	.000	.000	.000	.004	.466	.000	.000	.001	.349	.122	.000	.411	.000	.000	
	N	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302

** Correlation is significant at the 0.01 level (1-tailed).

* Correlation is significant at the 0.05 level (1-tailed).

Key:

- X₁ – How important is cross border natural resource management
- X₂ – What is the current state of cross border natural resource management
- X₃ – Do you know cross border natural resource management challenges
- X₄ – To what extent do the challenges impact cross border natural resources and communities alike
- X₅ – Are there milestones in the management of cross border natural resources
- X₆ – Are you aware of cross border natural resource management levels
- X₇ – Do existing cross border natural resource management frameworks represent posterity
- X₈ – Has the Government of Kenya ensured resource management frameworks which serve development interest
- X₉ – Are you aware of the role and responsibilities of actors in cross border natural resource management
- X₁₀ – Do you know of any role that gender plays in cross border natural resource management
- X₁₁ – Who bears patronage responsibility over cross border natural resource management initiatives
- X₁₂ – What do you understand by sustainable peace
- X₁₃ – Other ventures to complement cross border resource management, sustainable peace and cooperation in the region.
- X₁₄ – Are there any conflicts arising from cross border natural resource administration
- X₁₅ – What opportunities are there for sustainable peace within cross border natural resource management frameworks
- X₁₆ – Is there any role cross border resource management can play in enhancing greater cooperation between Kenya and its regional neighbours
- X₁₇ – Are reforms necessary in cross border natural resource management towards conservation, sustainable peace and development in the region
- X₁₈ – Would effective cross border natural resource management promote peace and steer development in eastern Africa and beyond

6.2.1.1 Importance of cross border natural resource management

The analysis notes significant correlation between current state of cross border natural resource management and how important cross border resource management is in Kenya. Change in the value of one element projects the change in the value of the other element by a coefficient of 0.355 and thus, at 0.01 level of uncertainty there is a positive significant relationship between the two variables. The analysis therefore implies that although the management of these shared resources is seen in theory as being important, concerns over the current worsening state of resource management are a clear indication of how the management is less regarded in reality in favour of other socio-economic endeavors amid increased resource related animosity and conflicts. The chronology in which bad resource governance leads to degradation, depletion, scarcity, competition and ultimate conflict is aligned to the argument of the neo-Malthusian view. Literature

review on the study indeed affirms that the raging conflict between ecosystems sustainability and socio-economic growth is more severe and complex today than ever before.⁵³⁹

6.2.1.2 Current state of cross border natural resource management

The correlation matrix shows that the Spearman's correlation coefficient (r_s) equals 0.310, which displays a positive relationship between the current state of cross border natural resource management and extent to which the challenges impact cross border natural resources and communities alike. The p value = 0.000 which is less than 0.05 signifies a significant correlation both at 0.01 and 0.05 level of uncertainties. Therefore, it can be inferred that there is consistence in the extent to which the numerous challenges impact cross border natural resources and communities alike and the current deteriorating state of cross border natural resource management. The ensuing resource scarcity and competition in a framework characterized by poor governance may lead to conflict in line with the resource scarcity perspective and thus in turn affect attainment of sustainable peace within the eastern Africa region. Literature review on the study indeed confirms that the decrease in the quality and magnitude of these resources enriches the risk for conflict within the region.⁵⁴⁰

6.2.1.3 Cross border natural resource management levels

The correlation table indicates that the Spearman's correlation coefficient equals 0.295 which shows a positive relationship between cross border natural resource management levels and the awareness of role and responsibilities of various actors in cross border natural resource management. The p value = 0.000 which is less than 0.05 signifies a significant correlation both at 0.01 and 0.05 level of uncertainties. Hence, it can be concluded that cross border natural resource management levels may consistently inform and support the role and responsibilities of various actors in cross border natural resource management towards realization of sustainable peace. The review confirms that the Constitution of Kenya, 2010 opens a new paradigm and a fresh impetus for various actors to participate in the management of environmental issues at multilevel with clear designated roles.⁵⁴¹

6.2.1.4 Whether cross border resource management frameworks serve development interest

⁵³⁹Thiago, A. *et al*, 'Economic growth and environmental impacts: An analysis based on a composite index of environmental damage,' *Ecological indicators*, Vol. 76, c, (2017) pp. 119-130, <https://doi.org/10.1016/j.ecolind.2016.12.028>.

⁵⁴⁰Barnett, J. and W.N. Adger, 'Political Geography, Climate Change,' *Human Security and Violent Conflict*, 26, (2007) pp. 639-55.

⁵⁴¹Republic of Kenya, *The Constitution of Kenya, 2010*, (Nairobi, Government printer, 2010).

The relationship between the Government of Kenya ensuring cross border natural resource management frameworks that serve the country's development interest and existing cross border natural resource management frameworks representing posterity is significant and positive since the Spearman's correlation coefficient is 0.768 and significant when the p value = 0.000 at 0.01 level of uncertainty. Therefore, as cross border natural resource management frameworks fail to serve the country's development interests so do they also fail to represent the country's posterity. Certainly, literature review on the study confirms that land is a resource which is regarded as being very important among communities and is held in trust for future generations. Thus, the degradation and poor management of land resources affect livelihoods with adverse implications for poverty levels, economic growth, environment conservation and peaceful coexistence. Resource degradation as a result of ineffective management frameworks is thus recognized as a key development and sustainability issue.⁵⁴²

6.2.1.5 Role and responsibilities of various actors in cross border natural resource management

The Spearman's correlation coefficient (r_s) of 0.388 indicates that there is a positive significant relationship between awareness of role and responsibilities of various actors in cross border natural resource management in Kenya and the role that gender plays in the management of the transboundary resources. The correlation is significant when the p value = 0.000 at 0.01 level of uncertainty. Hence, it can be inferred that as the role and responsibilities of various actors are recognized so is the role that gender plays in the management of the transboundary resources and the subsequent overall nurturing of sustainable peace among communities. Literature review on the study affirms that it is important to embrace a gendered approach in the planning process and actual management of natural resources since the approach incorporates both women and men as they play various stipulated and vital roles,⁵⁴³ towards realization of peace and economic progression.

The Spearman's correlation coefficient (r_s) of -0.163 shows that there is a negative relationship between whether existing cross border natural resource management frameworks in Kenya represent posterity and extent to which the challenges impact cross border natural resources

⁵⁴²EAC/LVBC, *Regional Transboundary Diagnostic Analysis of the Lake Victoria Basin*, (Kisumu, LVBC, 2007), <http://iwllearn.net/iw-projects/2405/reports/regional-transboundary-diagnostic-analysis-of-the-lake-victoria-basin>, accessed on 11 January 2015.

⁵⁴³Fonjong, L.N., 'Gender roles and practices in natural resource management in the North West Province of Cameroon,' *Local Environment*, 13, 5, (2008) pp. 461-475. DOI: 10.1080/13549830701809809.

and communities alike. The p value equals 0.002 which is less than 0.05 and affirms the correlation as being significant. Therefore, it can be concluded that at 0.01 level of uncertainty, the interrogations on whether existing cross border natural resource management frameworks in Kenya represent posterity and extent to which the challenges impact cross border natural resources and communities alike are negatively correlated. The analysis implies that existing cross border natural resource management frameworks in Kenya are not representative of future prosperity since related challenges impact much the border traversing natural resources and affected communities alike. With the revealed significant relationship, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) accepted, considering that such weak frameworks for cross border natural resource management amid an array of daunting challenges are inadequate for the realization of sustainable peace in eastern Africa region. Literature review on the study indeed upholds that although there is remarkable progress registered, natural resources and the environment at large are still threatened as evidenced by their progressive degradation due to unsustainable use and overall poor management arrangements,⁵⁴⁴ which in turn jeopardize efforts towards the realization of tangible peace.

The correlation matrix shows that the Spearman's correlation coefficient (r_s) equals -0.320, which displays a negative relationship between the current state of cross border natural resource management and whether reforms are necessary in cross border natural resource management approaches towards conservation, sustainable peace and development in eastern Africa. The p value = 0.000 which is less than 0.05 signifies a significant correlation. Therefore, it can be inferred from the analysis that the deteriorating state of cross border natural resource management necessitates necessary reforms so as to mitigate related systemic flaws towards the realization of set goals on conservation, sustained livelihoods, sustainable peace and overall development in the region. Based on the confirmed significant relationship, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) accepted, since this appalling state of cross border natural resource management if it remains unabated is not sufficient for attainment of sustainable peace in eastern Africa region. Literature review confirms that there is less or poor coordination of initiatives with

⁵⁴⁴Ministry of Foreign Affairs of Denmark/DANIDA, *Natural resources management*, <http://kenya.um.dk/en/danida-en/nrm/>, accessed on 9 October 2014.

minimum cooperation among regional governments which escalate resource degradation and further increase competition and potential for resource induced violence.⁵⁴⁵

The Spearman's correlation coefficient shows that the relationship between awareness of role and responsibilities of various actors in cross border natural resource management in Kenya and whether effective cross border natural resource management in Kenya would help promote peace in eastern Africa and even steer development within and beyond the region is positive as the correlation is 0.622 and significant when the p value = 0.000 at 0.01 level of uncertainty. Therefore, the analysis infers that when different relevant actors diligently take up their role and responsibilities, their actions substantively contribute to the effective management of cross border natural resources with attendant ensuing peace and development for the regions concerned. With the shown significant relationship, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) accepted, considering that the role and responsibilities of different actors in cross border natural resource management are indispensable towards sustainable peace in eastern Africa. Indeed, collective action by various actors in the management of natural resources influence motivations for future resource sustainability, livelihoods, conflict or cooperation.⁵⁴⁶

The correlation matrix indicates that the relationship between whether effective cross border natural resource management in Kenya would help promote peace in eastern Africa and even steer development within and beyond the region and is there any role cross border resource management can play in enhancing greater cooperation between Kenya and its regional neighbours is positive as the correlation is 0.657 and significant when the p value = 0.000 at 0.01 level of uncertainty. Hence, the analysis confirms that indeed effective management of cross border natural resources would contribute to enhanced cooperation, peaceful coexistence and development for the entire region. With the shown significant relationship, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) accepted, bearing in mind that cross border natural resource management will impact on sustainable peace in eastern Africa region. Whenever communities

⁵⁴⁵Jong, W. and K. Evans, 'Natural Resource Governance in Border Regions: From National Backwaters to Transnational Territories and Global Commons,' *Journal of US-China Public Administration*, Vol. 8, No. 8, (Rosemead: CA, David Publishing, 2011) pp. 925-936, ISSN 1548-659.

⁵⁴⁶Ratner, B. D. *et al.*, 'Addressing conflict through collective action in natural resource management,' *International Journal of the Commons*, 11, 2, (2017) pp. 877-906, DOI: <http://doi.org/10.18352/ijc.768>.

hold dialogue on natural resource management across borders, it often results in improved resource management, strengthened livelihoods and peace.⁵⁴⁷

6.2.2 Building Structural Equation Model Path Diagram

It is important to ensure that the model developed is identified before estimation of parameters is undertaken. The model identification status can be checked using the counting rule, where;

- a. s is the number of observed variables in the model
- b. The number of non-redundant parameters = $1/2s(s + 1)$
- c. t is the number of parameters to be estimated and when $t > 1/2s(s + 1)$, then the model is unidentified and whenever $t < 1/2s(s + 1)$, then the model is over identified.

The model identification status can be;

- a. When known means of observed variables $<$ unknown model parameters to be estimated then the model is Unidentified
- b. When knowns = unknowns then the model is Just identified
- c. When knowns $>$ unknowns then the model is Over identified

Generally, SEM requires Over identification models in order to yield likelihood which can be used to assess model fit. The figure below displays the structural equation model path diagram.

⁵⁴⁷FAO, *Cross-border coordination of livestock movements and sharing of natural resources among pastoralist communities in the Greater Karamoja Cluster*, (2019), <http://www.fao.org/in-action/kore/good-practices/good-practices-details/en/c/1254370/>, accessed on 14 October 2020.



Figure 6.8: Structural Equation Model Path Diagram

Source: Author (2021).

Table 6.5: Table of estimates

Structural equation model Number of obs = 302

Estimation method = ml

Log likelihood = -13735.894

(1) [importance_of_mgt] effect_cb_nat_res_mgt = 1

(2) [opport_for_sust_peace] sustainable_peace = 1

	Coef.	OIM Std. Err.	z	P> z	[95% Conf. Interval]	
Measurement						
importance_of_mgt <- effect_cb_nat_res_mgt _cons	1 4.983444	(constrained) .8853241	5.63	0.000	3.24824	6.718647
state_of_mgt <- effect_cb_nat_res_mgt _cons	1.350214 4.403974	.3960982 .7961261	3.41 5.53	0.001 0.000	.5738756 2.843595	2.126552 5.964352
challenges_to_mgt <- effect_cb_nat_res_mgt _cons	-.0716843 .8178808	.0183261 .0222084	-3.91 36.83	0.000 0.000	-.1076029 .774353	-.0357658 .8614085
impact_of_challenges <- effect_cb_nat_res_mgt _cons	2.183446 6.195364	.6015323 1.039362	3.63 5.96	0.000 0.000	1.004464 4.158252	3.362428 8.232476
milestones_in_mgt <- effect_cb_nat_res_mgt _cons	-.0865891 .5364238	.0224141 .0286952	-3.86 18.69	0.000 0.000	-.1305199 .4801822	-.0426582 .5926655
frameworks_of_mgt <- effect_cb_nat_res_mgt _cons	-.0423991 .410596	.0130725 .0283081	-3.24 14.50	0.001 0.000	-.0680208 .3551132	-.0167774 .4660788
future_prosperity <- effect_cb_nat_res_mgt _cons	-.0331654 .2682119	.011024 .0254934	-3.01 10.52	0.003 0.000	-.054772 .2182457	-.0115588 .3181781
dev_interest <- effect_cb_nat_res_mgt _cons	.0022177 .3741722	.0083 .0278458	0.27 13.44	0.789 0.000	-.01405 .3195954	.0184854 .428749
achiev_s_and_best_pract <- effect_cb_nat_res_mgt _cons	-.011101 .4735099	.0089559 .0287314	-1.24 16.48	0.215 0.000	-.0286542 .4171975	.0064521 .5298224
stakeholders <- effect_cb_nat_res_mgt _cons	.4494119 8.145695	.3827443 1.274966	1.17 6.39	0.240 0.000	-.3007532 5.646808	1.199577 10.64458
role_responsibilities <- effect_cb_nat_res_mgt _cons	-.102497 .6456954	.0258672 .0275231	-3.96 23.46	0.000 0.000	-.1531957 .5917511	-.0517982 .6996396
impact_of_roles <- effect_cb_nat_res_mgt _cons	3.94579 9.569536	1.025914 1.386216	3.85 6.90	0.000 0.000	1.935035 6.852602	5.956545 12.28647
role_of_gender <- effect_cb_nat_res_mgt _cons	-.0583698 .4470199	.016402 .0286098	-3.56 15.62	0.000 0.000	-.090517 .3909458	-.0262225 .503094
planned_initiatives <- effect_cb_nat_res_mgt _cons	-.0578187 .4205298	.0162527 .028406	-3.56 14.80	0.000 0.000	-.0896735 .3648551	-.0259639 .4762045
patronage_responsibility <- effect_cb_nat_res_mgt _cons	-.6690266 6.102649	.3326105 1.008765	-2.01 6.05	0.044 0.000	-1.320931 4.125506	-.017122 8.079792
constraints_to_initiatives <- effect_cb_nat_res_mgt _cons	-.8176978 5.652318	.3437174 .9637893	-2.38 5.86	0.017 0.000	-1.491371 3.763326	-.1440242 7.54131
complementary_ventures <- effect_cb_nat_res_mgt _cons	5.165117 12.69868	1.329266 1.717487	3.89 7.39	0.000 0.000	2.559804 9.332462	7.77043 16.06489
opport_for_sust_peace <- sustainable_peace _cons	1 14.80464	(constrained) 1.790415	8.27	0.000	11.29549	18.31379
cb_nat_res_mgt_for_coop <- sustainable_peace _cons	-.0575095 .6390728	.018829 .0276354	-3.05 23.13	0.002 0.000	-.0944138 .5849085	-.0206053 .6932372
necessity_for_reforms <-						

	sustainable_peace	-.0512556	.0168234	-3.05	0.002	-.0842289	-.0182822
	_cons	.7152318	.0259688	27.54	0.000	.664334	.7661296
	var(e.importance_of_mgt)	222.9598	18.30086			189.8273	261.8752
	var(e.state_of_mgt)	166.35	13.8553			141.2948	195.8482
	var(e.challenges_to_mgt)	.0783077	.0073958			.0650747	.0942317
	var(e.impact_of_challenges)	260.7025	22.11789			220.7647	307.8653
	var(e.milestones_in_mgt)	.1455984	.013191			.1219099	.1738899
	var(e.frameworks_of_mgt)	.2172931	.0179882			.1847485	.2555707
	var(e.future_prosperity)	.1811527	.0149937			.1540253	.2130578
	var(e.dev_interest)	.2340997	.019052			.1995845	.274584
	var(e.achievs_and_best_pract)	.2476041	.0201785			.2110519	.2904869
	var(e.stakeholders)	488.1359	39.75552			416.1174	572.6189
	var(e.role__responsibilities)	.0843457	.0091708			.0681573	.104379
	var(e.impact_of_roles)	366.2847	33.08487			306.8552	437.224
	var(e.role_of_gender)	.2003546	.016924			.1697846	.2364289
	var(e.planned_initiatives)	.1977262	.0168194			.1673622	.233599
	var(e.patronage_responsibility)	301.1639	24.57961			256.6444	353.4061
	var(e.constraints_to_initiatives)	271.3328	22.19106			231.146	318.5064
	var(e.complementary_ventures)	524.0685	48.07097			437.8348	627.2863
	var(e.opport_for_sust_peace)	933.2511	76.44152			794.836	1095.77
	var(e.cb_nat_res_mgt_for_coop)	.1154262	.0127384			.0929751	.1432988
	var(e.necessity_for_reforms)	.1121423	.0114392			.0918209	.1369611
	var(effect_cb_nat_res_mgt)	13.74743	6.896145			5.143186	36.74609
	var(sustainable_peace)	34.83621	22.56543			9.787201	123.9948
	cov(effect_cb_nat_res_mgt,sustainable_peace)	21.27166	8.810854	2.41	0.016	4.002708	38.54062

LR test of model vs. saturated: $\chi^2(169) = 1155.53$, Prob > $\chi^2 = 0.0000$

6.2.3 Interpretation of outputs

When the confidence interval is used to test for significance of coefficient, a summary of the results indicates that;

- Importance of cross border natural resource management is constrained and thus it is not estimated.
- The coefficient of the state of cross border management at 1.350214 is within the confidence interval (.5738756 to 2.126552) which indicates that it is a significant predictor or indicator of effective cross border natural resource management.
- The coefficient of the challenges to cross border management at -.0716843 is within the confidence interval (-.1076029 to -.0357658) which shows that it is a significant predictor or indicator of effective cross border natural resource management.
- The coefficient of the impact of challenges on cross border natural resources and communities at 2.183446 is within the confidence interval (1.004464 to 3.362428) which indicates that it is a significant predictor or indicator of effective cross border natural resource management.
- The coefficient of the milestones in management of cross border natural resources at -.0865891 is within the confidence interval (-.1305199 to -.0426582) which indicates that it is a significant predictor or indicator of effective cross border resource management.

f. The coefficient of the frameworks of cross border natural resource management at -.0423991 is within the confidence interval (-.0680208 to -.0167774) which shows that it is a significant predictor or indicator of effective cross border natural resource management.

In addition, the coefficients of the other corresponding predictors listed in the table of estimates are all within their respective confidence intervals which indicate that they are significant indicators of effective cross border natural resource management. Similarly, the results indicate that;

- a. Opportunities for sustainable peace within cross border natural resource management is constrained and thus it is not estimated.
- b. The coefficient of the role that cross border natural resource management can play in enhancing greater cooperation at -.0575095 is within the confidence interval (-.0944138 to -.0206053) which indicates that it is a significant predictor or indicator of sustainable peace.
- c. The coefficient of the reforms necessary in cross border natural resource management towards conservation, sustainable peace and development in the region at -.0512556 is within the confidence interval (-.0842289 to -.0182822) which indicates that it is a significant predictor or indicator of sustainable peace.

Therefore, there is a positive covariance between the latent variables of the fitted model namely; effective cross border natural resource management and sustainable peace to ensure factor loadings are not biased. The loadings are expressed in terms of the relationship of each one of the variables to the underlying factors and also interpreted as regression coefficients. The linear association of the two latent variables shows that they are interdependent since sustainable utilization and administration of ecosystem resources would lead to harmonious relations among natural resource management actors. Similarly, in reverse retrospect conflicts also affect effective management of natural resources with the ensuing uncertainty leading to indiscriminate utilization or misuse of natural resources.⁵⁴⁸ Therefore, the use of SEM for this study offers an acceptable explanation of the relationships between measured parameters which in turn reinforces theory of study and conclusions.

6.3 Chi-Square (χ^2) analysis

⁵⁴⁸Huggins, C., *et al.*, UNEP, Africa Environment Outlook 2, *Chapter 12: Environment for peace and regional cooperation*, (Nairobi, UNEP, 2006), <http://www.unep.org/dewa/africa/publications/aeo-2/content/195.htm>, accessed on 12 august 2014.

The chi-square test is performed on the relationship between variables to test the study hypotheses. The table below shows crosstabulation on whether cross border natural resource management frameworks represent posterity and the extent to which challenges impact cross border resources and communities alike. The analysis reveals that related challenges impact both the resources and communities to a great extent at 38.7% and that existing resource management frameworks do not represent posterity at 73.2% of the responses.

Table 6.6: Whether cross border natural resource management frameworks represent posterity and the extent to which challenges impact resources and communities alike crosstabulation

			Would you say existing cross border natural resource management frameworks in Kenya represent posterity?		Total
			No	Yes	
To what extent do the challenges impact resources and communities alike?	Very Great Extent	Count	45	30	75
		% of Total	14.9%	9.9%	24.8%
	Great Extent	Count	88	29	117
		% of Total	29.1%	9.6%	38.7%
	Fair Extent	Count	42	12	54
% of Total		13.9%	4.0%	17.9%	
Low Extent	Count	36	6	42	
	% of Total	11.9%	2.0%	13.9%	
Don't Know	Count	10	4	14	
	% of Total	3.3%	1.3%	4.6%	
Total		Count	221	81	302
		% of Total	73.2%	26.8%	100.0%

Source: Author (2021).

The chi-square test of association between whether existing cross border natural resource management frameworks represent posterity and the extent to which the challenges impact cross border natural resources and communities alike is shown in the table below.

Table 6.7: Chi-square test of association between whether resource management frameworks represent posterity and extent to which challenges impact resources and communities alike

	Value	df	Asymp. Sig. (2-sided)
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Pearson Chi-Square	10.850 ^a	4	.028
Likelihood Ratio	10.814	4	.029
Linear-by-Linear Association	.000	1	.990
N of Valid Cases	302		

a. 1 cells (10.0%) have expected count less than 5. The minimum expected count is 3.75.
Source: Author (2021).

The value of the Pearson chi-square test of association is 10.850 and $p = 0.028$. Since the p-value is less than the level of uncertainty $\alpha = 0.05$, the null hypothesis is rejected and thus there is an association between whether existing cross border natural resource management frameworks represent posterity and to what extent the challenges impact cross border natural resources and communities alike. Considering the great impact related challenges have on the resources and communities, the frail cross border natural resource management frameworks which do not represent posterity are inadequate for the realization of sustainable peace in eastern Africa region.

The table below shows crosstabulation on the current state of cross border natural resource management and the necessity for reforms in cross border natural resource management towards conservation, sustainable peace and development in eastern Africa. The analysis affirms that the current state of cross border natural resource management is not good at 32.8% and that reforms are necessary in order to realize goals on conservation, sustainable peace and development in eastern Africa at 71.5% of the response.

Table 6.8: The current state of cross border natural resource management and the necessity for reforms in resource management towards conservation, sustainable peace and development in eastern Africa crosstabulation

			Are reforms necessary in cross border natural resource management towards conservation, sustainable peace and development in eastern Africa?		Total
			No	Yes	
What is the current state of cross border natural resource management?	Good	Count	14	61	75
		% of Total	4.6%	20.2%	24.8%
	Not Good, But Under Control	Count	13	86	99
		% of Total	4.3%	28.5%	32.8%
	Bad	Count	33	52	85
		% of Total	10.9%	17.2%	28.1%
	Very Bad	Count	19	17	36
		% of Total	6.3%	5.6%	11.9%
	Not Sure	Count	7	0	7
		% of Total	2.3%	0.0%	2.3%
Total		Count	86	216	302
		% of Total	28.5%	71.5%	100.0%

Source: Author (2021).

The chi-square test of association between the current state of cross border natural resource management and the necessity for reforms in cross border natural resource management towards conservation, sustainable peace and development in eastern Africa is shown in the table below.

Table 6.9: Chi-square test of association between the current state of cross border resource management and the necessity for reforms towards conservation, sustainable peace and development

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	47.477 ^a	4	.000
Likelihood Ratio	48.282	4	.000
Linear-by-Linear Association	20.680	1	.000
N of Valid Cases	302		

a. 1 cells (10.0%) have expected count less than 5. The minimum expected count is 1.99.
Source: Author (2021).

The value of chi-square test of association is 47.477 and $p = 0.000$. Since the p-value is less than the level of uncertainty $\alpha = 0.05$, the null hypothesis is rejected and thus there is an association

between the current state of cross border natural resource management and the necessity for reforms in cross border natural resource management towards conservation, sustainable peace and development in eastern Africa. Without necessary sweeping changes, the deteriorating state of cross border natural resource management is not sufficient for the attainment of sustainable peace in eastern Africa region.

The table below shows crosstabulation on awareness of the role and responsibilities of actors in cross border natural resource management and whether effective cross border natural resource management would promote peace and steer development in eastern Africa and beyond. The analysis reveals that there is significant awareness of the role and responsibilities of actors in cross border natural resource management at 64.6% and that effective cross border natural resource management would promote peace and steer development in eastern Africa and beyond at 72.8% of the responses.

Table 6.10: Awareness of the role and responsibilities of actors in resource management and whether effective cross border natural resource management would promote peace and steer development in eastern Africa and beyond crosstabulation

			Are you aware of the role and responsibilities of actors in cross border natural resource management?		Total
			No	Yes	
Would effective cross border natural resource management promote peace and steer development in eastern Africa and beyond?	No	Count	69	13	82
		% of Total	22.8%	4.3%	27.2%
	Yes	Count	38	182	220
		% of Total	12.6%	60.3%	72.8%
Total		Count	107	195	302
		% of Total	35.4%	64.6%	100.0%

Source: Author (2021).

The chi-square test of association between awareness of the role and responsibilities of actors in cross border natural resource management and whether effective cross border natural resource management would promote peace and steer development in eastern Africa and even beyond is shown in the table below.

Table 6.11: Chi-square test of association between awareness of role and responsibilities of actors in resource management and whether effective cross border natural resource management would promote peace and steer development

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	116.771 ^a	1	.000		
Continuity Correction ^b	113.866	1	.000		
Likelihood Ratio	118.455	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	116.384	1	.000		
N of Valid Cases	302				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 29.05.

b. Computed only for a 2x2 table

Source: Author (2021).

The value of chi-square test of association is 116.771 and $p = 0.000$. Since the p-value is less than the level of uncertainty $\alpha = 0.05$, the null hypothesis is rejected and thus there is an association between awareness of the role and responsibilities of actors in cross border natural resource management and whether effective cross border natural resource management would promote peace and steer development in eastern Africa and even beyond. Considering that collective action encourages resource sustainability and cooperation among groups, the role and responsibilities of different actors in cross border natural resource management are indispensable towards sustainable peace in eastern Africa.

The table below shows crosstabulation on would effective cross border natural resource management promote peace and steer development in eastern Africa and beyond and is there any role cross border resource management can play in enhancing greater cooperation between Kenya and its regional neighbours. The analysis reveals that effective cross border natural resource management would promote peace and steer development in eastern Africa and beyond at 72.8%. The study also shows that cross border resource management can play a role in enhancing greater cooperation between Kenya and its regional neighbours at 63.9% of the responses.

Table 6.12: Whether effective cross border natural resource management would promote peace and steer development in eastern Africa and beyond and is there any role cross border resource management in Kenya can play in enhancing greater cooperation between Kenya and eastern Africa crosstabulation

			Is there any role cross border resource management in Kenya can play in enhancing greater cooperation between Kenya and eastern Africa?		Total
			No	Yes	
Would effective cross border natural resource management promote peace and steer development in eastern Africa and beyond?	No	Count	72	10	82
		% of Total	23.8%	3.3%	27.2%
	Yes	Count	37	183	220
		% of Total	12.3%	60.6%	72.8%
Total		Count	109	193	302
		% of Total	36.1%	63.9%	100.0%

Source: Author (2021).

The chi-square test of association between whether effective cross border natural resource management would promote peace and steer development in eastern Africa and beyond and is there any role cross border resource management can play in enhancing greater cooperation between Kenya and its regional neighbours is shown in the table below.

Table 6.13: Chi-square test of association between whether effective cross border natural resource management would promote peace and steer development and is there any role cross border resource management in Kenya can play in enhancing greater cooperation between Kenya and eastern Africa

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	130.501 ^a	1	.000		
Continuity Correction ^b	127.442	1	.000		
Likelihood Ratio	134.859	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	130.069	1	.000		
N of Valid Cases	302				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 29.60.

b. Computed only for a 2x2 table

Source: Author (2021).

The value of chi-square test of association is 130.501 and $p = 0.000$. Since the p-value is less than the level of uncertainty $\alpha = 0.05$, the null hypothesis is rejected and thus there is an association between whether effective cross border natural resource management would promote peace and steer development in eastern Africa and even beyond and is there any role cross border resource management can play in enhancing greater cooperation between Kenya and its regional neighbours. When various actors collaborate to ensure effective management of resources, they leverage their comparative advantages to cooperate further and impact other spheres of their lives. In doing so, they promote the realization of socio-economic progression and attendant sustainable peace in eastern Africa and even beyond.

6.4 Conclusion

Chapter six presents study data findings and analysis. The chapter provides general demographic description of the study as the analysis uses SPSS's Cross Tabulation, Spearman's Correlation Coefficient, Structural Equation Modelling and Pearson's Chi Square to determine association between study variables and further test hypotheses. The analysis ascertains that there is significant relationship between cross border natural resource management and attainment of sustainable peace within the eastern Africa region. The next chapter presents the summary of key findings, conclusion on emerging issues and recommendations.

CHAPTER SEVEN

SUMMARY, CONCLUSION AND RECOMMENDATIONS

7.0 Introduction

This chapter carries summary of key study findings, conclusions on issues arising from the discussions and then policy and academic recommendations. The chapter also explores prospects for further study. The chapter links new and key emerging issues to study objectives and further highlights lessons learnt moving forward.

7.1 Summary of key findings

7.1.1 Role of cross border natural resource management in fostering sustainable peace in eastern Africa

The findings on the role of cross border resource management in fostering sustainable peace in eastern Africa are as follows;

Aware of cross border natural resource management initiatives between Kenya and its eastern Africa counterparts: A significant portion of the respondents at 42.1% is aware of cross border natural resource management initiatives between Kenya and its eastern Africa counterparts. The findings confirm that there are community, national and regional cooperation endeavors and partnerships on resource management which bring together different actors across national borders. However, there is minimal harmonization of resource management approaches and regimes with possibility of abetting degradation, scarcity, competition and conflicts in line with the resource scarcity perspective. There are initiatives on border region joint surveys involving contested resource areas, ongoing transboundary resource dispute resolution mechanisms, lake basins resource management initiatives and integrated river management systems. Other initiatives are on the management of forest resources, rangeland, protected areas and related security issues. Therefore, it can be inferred that there are a number of known resource management initiatives undertaken by and among relevant key actors towards the attainment of sustainable peace in the region.

Who bears patronage responsibility over the cross border natural resource management initiatives: A substantial portion of the respondents at 38.4% acknowledge that the Governments of Kenya and its eastern Africa counterparts are the ones to collectively bear the main patronage responsibility over the resource management initiatives. Governments possess authority and resources necessary in supporting initiatives on curbing environmental degradation

and resultant scarcity since these are the factors that may give forth to competition and subsequent conflicts in concurrence with the resource scarcity perspective. Other results are as follows; 18.2% identify the Government of Kenya whereas 10.3% identify public-private partnerships as the bearers of patronage responsibility over the initiatives. In addition, 12.6% recognize development partners and associate agencies, 16.9% identify communities residing with, controlling or using resources while 3.6% identify 'others' as the ones bearing patronage responsibility. It can be concluded that although governments of the region bear the main responsibility of managing the shared resources, other actors also support related initiatives that promote sustainable peace in eastern Africa.

Constraints on cross border natural resource management initiatives: A substantial segment of the respondents at 32.1% acknowledge competing and varied interests among actors as main constraints on the resource management initiatives. These competing interests may be catastrophic if they are not contained in time as they may degenerate delicate situations characterized by degradation and resource scarcity into conflicts; an observation in line with the neo-Malthusian view. Other findings are as follows; 15.9% identify inadequate resources whereas 27.5% identify weak management frameworks and capacities within states as the constraints on the initiatives. Furthermore, 21.2% recognize lack of commitment and cooperation by concerned countries as an impediment while 3.3% identify 'others' as the constraints on the initiatives. The findings note that non-coherence between vision and policy, poor implementation, insufficient human and financial resources and non-targeted research and data are challenges to the management initiatives. Sovereignty and delimitation issues, rampant insecurity and conflicts in border resource areas, non-domestication of best practices and new and emerging issues are also notable constraints. Therefore, there are a number of constraints on shared resource management initiatives, a revelation that may underplay the potential of resource management in contributing to the attainment of sustainable peace.

Other ventures to complement cross border natural resource management, sustainable peace and cooperation in eastern Africa region: A resounding majority of the respondents at 75.2% confirm that there are other ventures to complement cross border natural resource management, sustainable peace and cooperation in the region whereas 11.3% observe that there are no other ventures as 13.6% did not know. The findings list the ventures to include civil society initiatives such as media outreach, national and international development plans,

legislative frameworks, regional cooperation and integration enterprises and diplomacy. The ventures also encompass holistic initiatives by the UN system, public private partnerships, corporate social responsibility and efforts by scholars. Thus, there are other ventures to complement resource management, sustainable peace and cooperation in the region.

7.1.2 Current state and frameworks for cross border natural resource management towards sustainable peace in eastern Africa region

From the analysis on current state and frameworks for cross border resource management towards sustainable peace in eastern Africa region, the key findings are as follows;

Aware of cross border natural resource management levels: The results show that less than half of study respondents at 41.1% are aware of cross border natural resource management levels in Kenya. This low level of awareness may partly be attributed to the general low sense of responsibility and public interest which occasion non-meaningful involvement in environmental issues. Furthermore, natural resource management levels are not well comprehended among the general population due to the national government's firm hold, dominance and control over resource administration. The government's high-handedness may hamper community participation and perpetrate inequality and resentment around resource management which may fall short of supporting sustainable peace; an argument in concurrence with tenets of the neo-Malthusian view. Hence, associate government agencies are the most recognized levels in transboundary natural resource management.

Whether existing cross border natural resource management frameworks represent posterity: From the findings, a resounding majority at 73.2% of the respondents observe that existing cross border natural resource management frameworks in Kenya are not representative of the country's posterity plans. These dissenting results show political influence and interference, public discontent, low integrity and disharmony in resource management systems as the main hindrances within the frameworks. There is also lack of effective stakeholder consultation and participation, lack of democracy and a non-holistic approach to resource management. In addition, lack of timely necessary reforms and huge gap in replication of best practices are made worse by the frameworks' legitimacy deficit. It can therefore be inferred that the resource management frameworks are not accommodative of future generations.

Has the government ensured cross border natural resource management frameworks which favour development: The results indicate that majority of the respondents at 62.6%

maintain that the government had not done enough in ensuring the desired cross border natural resource management frameworks that served Kenya's development interest. The results indicate that there is lack of comprehensive resource management frameworks, inadequate support infrastructure, insufficient financing and lack of continuous public sensitization and feedback which inhibit the development agenda. Furthermore, insecurity in porous border areas, impunity and corruption, obsolete colonial agreements and low commitment by actors encourage wanton destruction of natural resources. Resource destruction is likely to cause scarcity, competition for survival and conflicts in line with the neo-Malthusian argument. Thus, the resource management frameworks are not sufficient in supporting the country's development agenda.

Are there achievements and best practices in cross border natural resource management: Nearly half of the respondents at 47.4% confirm that there are achievements and best practices in cross border resource management in Kenya. The findings indicate that communities are being encouraged to embrace negotiations and reconciliation and further incorporate conservation into their livelihood endeavors to ensure more robust ownership and accountability in management of resources. The country had adopted the Sustainable Development Goals on aspects of sustainable resource management and development and efforts are underway to restore some of the degraded environments to ease scarcity and competition towards peaceful coexistence among actors, a converse position to the resource scarcity perspective. Therefore, there are recognizable achievements and best practices within the management of shared resources in support of achieving sustainable peace.

Knowing the meaning of cross border natural resources: A resounding majority of respondents at 72.5% know the meaning of 'cross border natural resources.' This implies that they understand the main focus of the study that centres on the management of ecosystem natural resources that transcend national boundaries, occur or are shared between countries. The study further reveals that these are resources that may attract or integrate states which need not necessarily to be neighbours and that their occurrence in one state may often affect ecosystem wellness in another state (s). Thus, the concept of 'cross border natural resources' as used in the study is well understood as it is interrogated to ascertain whether it will contribute to the realization of sustainable peace in the region.

Current state of cross border natural resource management: A vast majority of the respondents at 72.8% observe that the current state of cross border natural resource management

in Kenya is either not good though under control, bad or very bad. Only 24.8% of the respondents recognize the current state as being good. In addition, 32.8%; 28.1% and 11.9% of the respondents rate the status as not good but under control, bad and very bad respectively. The remaining 2.3% of the respondents state that they were not sure of the current state of resource management. Therefore, the results largely resonate with the findings of the literature reviewed on the study which depict the continued deteriorating state of a number of cross border natural resources occasioning scarcity, competition over residual resources and attendant conflicts amid inadequate matching interventions; an observation in concurrence with the neo-Malthusian view.

Most important resources: Respondents' perspectives on the most important resources in Kenya indicate that over quarter of the respondents at 27.8% identify water resources as the most important resources, a significant portion at 42.1% pick on land resources while 7.6% identify wildlife and biodiversity. In addition, 18.2% of the respondents recognize forest resources whereas 4.3% note 'others' as the most important resources. These findings are a pointer to the fact that although all natural resources are considered important, land matters in Kenya are often very sensitive and that the resource is highly regarded among communities.

Benefits derived from natural resources: A significant section of the respondents at 40.7% pick on livelihood support as the benefits derived from natural resources in Kenya. Other results are 32.1% who note 'political and economic benefits' whereas 15.2% identify 'socio-cultural esteem' and 'heritage.' In addition, 9.3% of the respondents identify 'abode for other natural resources' while 2.6% note 'other' as benefits from natural resources. It is clearly evident that there are several benefits derived from natural resources and that a significant portion of the populace highly depended on natural resources for subsistence.

Importance of cross border natural resource management: The study results show that half of respondents consider cross border natural resource management in Kenya as being important, 20.5% as very important, 18.2% as less important, 8% as not important while 3.3% did not know. Therefore, an overwhelming majority of the respondents at 88.7% rate the management as either being very important, important or less important. The findings identify the main significance of the management as helping in alleviation of poverty and ensuring sustained livelihoods. It can therefore be inferred that the management is essential in many aspects and that some communities are entirely reliant on ecosystem resources for their survival.

Knowing cross border natural resource management challenges: An overwhelming majority of the respondents at 81.8% know cross border natural resource management challenges in Kenya. The results show that there are numerous challenges which encompass related criminal activities, immorality and individual attitudes, resource inadequacy, socio-economic demands, political stakes and systemic failure amid associated emerging issues which beleaguer the management of the transboundary resources. The interplay between these numerous challenges may result in acute scarcity as competition for survival breeds animosity with deadly repercussions; a position that resonates with the principles of resource scarcity perspective. Therefore, it can be inferred that there are many known challenges which continue to affect cross border natural resource management.

Extent to which challenges in resource management impact the resources and communities: A significant portion of the respondents at 38.7% note that challenges in cross border natural resource management impact on the wellbeing of resources and communities living with, using or controlling the resources to a great extent. Other results are as follows; 24.8% cite the impact as being to a very great extent, 17.9% to a fair extent, 13.9% to a low extent while 4.6% state that they did not know. It can be concluded that the challenges in resource management affect respective resources and concerned communities a great deal since the resources are degenerated denying communities livelihood means and in their quest for survival, competition and disputes ensue in line with the neo-Malthusian argument.

Milestones in the management of cross border natural resources: Slightly over half of the respondents at 53.6% note that there are milestones in the management of cross border natural resources in Kenya. The findings indicate that resource management had been devolved to ensure meaningful involvement of actors, mainstreamed in undertakings by other sectors and that interlinked support systems had been established in the country. Kenya being a state party to regional cooperation and integration arrangements had ratified relevant international statutes on environmental protection and prudent management of resources. Generally, there are progression indicators in management of transboundary resources towards contributing to the realization of sustainable peace.

7.1.3 Role and responsibilities of various actors in cross border natural resource management in support of sustainable peace in eastern Africa region

The study results on role and responsibilities of various actors in cross border natural resource management in Kenya are as follows;

Key stakeholders in cross border natural resource management: A substantial section of the respondents at 27.5% identify communities as the key stakeholders in cross border natural resource management. The findings could partly be ascribed to the mere fact that communities are often the natural hosts and custodians of most natural resources. The rest of the results are as follows; governments at 22.2%, development partners at 16.6%, civil society at 18.2%, investors at 9.6% and ‘others’ at 6%. Thus, it is clearly evident that there are a number of key stakeholders in cross border natural resource management in Kenya.

Aware of role and responsibilities of various actors in cross border natural resource management: Majority of respondents at 64.6% are aware of the role and responsibilities of various actors in cross border natural resource management in Kenya. The findings indicate that with the importance attached to natural resources, various actors in their day to day endeavors interact with the resources in many ways that amount to actual coordination and running of the resources by way of conservation, exploitation or degradation. The actors facilitate understanding and resolution of conflicts arising from resource administration. They also support peaceful coexistence or even propagate animosity and conflict, among many other responsibilities. Actors propagate animosity and conflict by unsustainably managing the resources and thus occasioning scarcity and competition in line with the resource scarcity perspective. Hence, it can be acknowledged that various stakeholders have different roles to play in resource management towards attainment of sustainable peace.

Degree to which role and responsibilities of various actors impact cross border natural resource management: A substantial portion of the respondents at 38.1% recognize that the role and responsibilities of various actors impact much cross border natural resource management in Kenya. The findings indicate that the role and responsibilities either support efforts towards effective management of the resources, reverse the gains so far made or even impede the overall management of the resources. Other results are as follows; impacted very much at 24.2%, impacted fairly at 17.5%, impacted slightly at 11.6% and don’t know at 8.6%. Therefore, it can be

affirmed that the role and responsibilities of different actors differently influence the management of transboundary natural resources in the quest for sustainable peace.

Knowing any role that gender played in cross border natural resource management:

The results show that slightly below half of the respondents at 44.7% know the role that gender played in management of cross border natural resource in Kenya. The results observe that both women and men collectively play a facilitative role as the key custodians of natural resources in their day-to-day communal interactions and when partaking chores in support of their livelihood endeavors. Nonetheless, gender roles also perpetrate degradation of environments through unsustainable exploitation and fuel resource conflicts in line with the neo-Malthusian view, and that related prejudices reinforce myths, biases and stereotypes. It can be concluded that gender plays varied roles in the management of transboundary resources in the country.

7.1.4 Impact of cross border natural resource management on sustainable peace in eastern Africa region

The findings on impact of cross border natural resource management on sustainable peace in eastern Africa region are as follows;

Understanding the meaning of sustainable peace: A substantial portion of the respondents at 22.2% understand ‘sustainable peace’ to imply durable peace. The findings allude to the fixed harmony which impacts future generations. Other results are as follows; lasting peace at 20.9%, tangible peace at 15.2%, endless peace at 17.5%, continuous peace at 13.2% and ‘others’ are at 7.9%. It can be concluded that the concept of ‘sustainable peace’ as used in the study is generally understood since it is the anticipated end product to be realized as a result of the practice of managing resources.

What opportunities are there for sustainable peace within cross border natural resource management frameworks: A substantial portion of respondents at 21.9% identify overarching and proactive management systems as opportunities for sustainable peace within cross border natural resource management frameworks in Kenya. Other results include platforms for cooperation and reconciliation at 15.6% and balancing conservation and subsistence needs at 13.6%. Awareness campaigns and effective communication towards ownership and non-violence are at 18.9%, law enforcement and security measures at 17.5% and ‘others’ at 7.9%. The results note that there can be platforms therein for proactive, holistic, harmonious and workable systems for conservation, livelihoods support, peaceful coexistence and economic progression to avert

deprivation, grievances and resentment among actors, which depict the tenets of the resource scarcity perspective. Window can be provided for dialogue, timely feedback and campaigns on cultivating sense of ownership and renewed resolve on prudent exploitation and management of resources. A stage for collective effort and cooperation on addressing emerging issues can be established and thus, there are opportunities for sustainable peace within the resource management frameworks.

Aware of conflicts arising from cross border natural resource administration: Majority of the respondents at 69.9% are aware of conflicts arising from cross border natural resource administration in Kenya. The results note that conflicts manifest as disputes between actors competing to access or control scarce border traversing resources for own expediency in line with the neo-Malthusian view. Long standing ethnic animosity, progressive deterioration of ethnic ties, ethnic and religious motives, culture of violence and proliferation of arms and armed groups in often porous border areas are indicators to the conflicts. The study also establishes that disputed boundaries in resource areas, inter-state tension, existence of influential resource conflict entrepreneurs, insecurity and instability in neighbouring counties with attendant huge influx of refugees and increased resource needs escalate the conflict situation. Therefore, it can be inferred that there are varied conflict dimensions in resource administration.

Whether reforms were necessary in cross border natural resource management approaches towards conservation, sustainable peace and development in eastern Africa: A resounding majority of respondents at 71.5% envisage the need for reforms in cross border natural resource management approaches towards conservation, sustainable peace and tangible development within the region. The results indicate that the reform process should be continuous, aligned to the changing needs on the ground and should serve to address the root causes of resource-induced conflicts that include environmental degradation, scarcity and competition for survival; attributes aligned to the neo-Malthusian argument. Thus, reforms are undoubtedly necessary in resource management approaches towards conservation, sustainable peace and development in the region.

Whether there was any role cross border natural resource management in Kenya can play in enhancing greater cooperation between Kenya and its eastern Africa neighbours: Majority of the respondents at 63.9% are in agreement that cross border natural resource management in Kenya can play a part in enhancing greater cooperation between Kenya and its

neighbours. The findings indicate that common challenges that include continued environmental degradation and disputes arising from struggles around resource scarcity in line with the resource scarcity perspective could be tackled through mutual goodwill and commitment, responsibility and consolidated support for initiatives as best practices are customized and replicated in the region. The overall well-being of shared ecosystems and resources of international importance could be ensured with optimum results through cooperation on harmonized and seamless management regimes. The management could be used as a collective platform for addressing other equally important regional matters such as steering relevant research, peace, security and economic growth and development. Thus, there is a crucial role that resource management can play in enhancing greater cooperation in the region.

Whether effective cross border natural resource management would help promote peace in eastern Africa and even steer development within and beyond the region: A resounding majority of the respondents at 72.8% are in agreement that effective cross border natural resource management would help promote peace in eastern Africa and even steer development within and beyond the region. The findings indicate that wise management would involve processes that mitigate degradation of ecosystems, ensure resilient communities and encourage diversified livelihoods in order to contain the effects of scarcity and attendant disputes; the key attributes of the neo-Malthusian view. Effective resource management would promote ownership in resource management through adoption of more inclusive and participatory approaches that support dialogue and reconciliation in a 'win-win' scenario for conservation, livelihood support, peaceful coexistence and economic growth and development. It can be confirmed that effective cross border natural resource management would influence the advancement of sustainable peace and encourage development within and beyond the region.

7.2 Conclusion on study issues

The study affirms that international borders are rather political and not ecological limits hence many vital ecological components and systems are divided by national boundaries and often subjected to dissimilar management practices across borders. The disparate management activities are at times incompatible destroying natural resource base and resulting into survival pressures on borderland human and ecosystem dependents. The grim situation is aggravated by weak political and technical institutional linkages, unsupportive policy and legal structures, lack of transparency, competing interests, quest for national economic supremacy and poor political and corporate

governance practices on regulation and sustainable use of cross border natural resources. Degraded resources often offer grounds for local scarcity, competition and conflicts.

The study establishes that although working in different political spaces may limit opportunities for negotiation on management of trans-frontier resources, internationalization of strategic resource governance through international agreements strives to alleviate the situation. However, gains are quickly reversed through weak compliance and enforcement of both national and international laws amid lack of appropriate mechanisms for international agreements to complement each other. In eastern Africa, states have ratified many related strategies and agreements, yet some are either contravened or not appropriately implemented amid intensified resource misuse. The scenario has led to continued environmental degradation and resource depletion with far-reaching effects which include resource scarcity, threatened livelihoods, underdevelopment, competition over residual resources and attendant conflicts; an argument in line with the tenets of the resource scarcity theory.

The study ascertains that international legal instruments that include binding regulations and non-binding guidelines comprise of increasingly important systems for realizing bilateral and multilateral collaboration on the environment, yet their lacks powerful global entity to enforce them as their success relies on sheer voluntary compliance. Conventions are far too many and Kenya together with other regional states just like other contracting parties are experiencing tremendous difficulties in domesticating and meeting the reporting requirements of the agreements and hence also troubled in meeting requirements for accessing technical and financial assistance. Nonetheless, obsolete colonial and past agreements on cross border natural resources have served to intensify regional tensions since they lack cooperative, equitable and sustainability dimensions as is the case on the Nile and other contested catchment areas.

The study establishes that management of cross border natural resources can be done across borders though it should not replace national resource management, but instead it should be an extension of it built on trust and partnerships if it favors specific circumstances of each situation such as in areas with high resource value, yet facing very high pressure. In the Virunga-Bwindi contiguous parks where endangered mountain gorillas are conserved and on Lake Jipe; a Ramsar wetland of international importance and only home to the endangered Oreochromis Jipe fish, shared cross border threats are jointly handled with mutual benefits gained collaboratively. Emerging and re-emerging issues that encompass recurrent conflicts and invasive species within

border resource areas can also be addressed jointly, although in some scenarios it would be efficient for countries to individually administer their sections of shared resources if collaboration offered little net gain.

The study makes certain that the type of natural resource affects management issues surrounding the resource as land resources can visibly be demarcated and more easily monitored as compared to vast water resources along borders as is the case with the contested Migingo Island and adjoining waters on the Kenya-Uganda common border. The type of natural resource also informs how resource management evolves influenced by ecology, political, economic and socio-cultural principles. However, ineffectiveness of past interventions and response approaches prove to offer less enduring remedies to environmental and cross border resource management recurrent problems and hence opens floodgates for possible survival contestations amid scarcity.

The study ascertains that rising trends in challenges of population growth and intensified high poverty levels in often remote, marginalized and disenfranchised border areas conditioned local populations to rely more on ecosystems for their livelihoods in complex socio-economic and conservation relationships. The over-dependency on natural resources is also partly due to antagonistic perceptions and attitudes coupled with low levels of awareness and social responsibility. This often culminated into a vicious sequence of environmental degradation, loss of biodiversity, inequalities, scarcity, competition over residual resources and eventual resource-induced conflict; an observation that concurs with the principles of the resource scarcity theory. The situation is made worse through impacts of climate change, recurrent droughts, increasing desertification, urbanization, poor planning, failure to recognize the value of natural resources and lack of comprehensive and strategic action to address these threats.

The study also confirms that relevant conventional public institutions often lack the ability to collectively deal with economic, socio-political and ecological problems due to their single-track and top bottom remit; yet poverty, population growth, environmental degradation and resource depletion which often lead to conflict are inextricably related. Government endeavors are mainly sector-specific silos with less synchronization and poor coordination, hardly ever integrative and often fail in building synergy with other similar programmes. To make matters worse, both national and county programming is often vulnerable to regime change, government priority shifts and funding fluctuations and thus the risk of being at the vagaries of politics.

The study further determines that an inequitable society in which its members are not allowed and empowered enough to effectively take part in the formulation of policy and other relevant decisions that touch on their well-being was prone to perennial misunderstanding and conflicts in concurrence with the principles of the resource scarcity perspective. This is evidenced by the erosion of cultural values on environmental management in border areas and lack of a comprehensive framework to integrate traditional institutions and indigenous knowledge found on the ground in most areas with modern perspectives. Traditional resource management needs, rights, roles and systems in the fragile pastoralist drylands in border regions have been increasingly constrained and not recognized due to political, sovereignty, security and economic forces such as the ambitious LAPSET development programme. The programme may affect herd mobility as a coping strategy in this harsh terrain; yet equitable distribution of resource wealth and other derived benefits, following the law and fostering a culture of respect and tolerance for diversity are vital for sound natural resource use and management towards peaceful co-existence and sustainable development.

The study reveals lack of a coherent region-wide strategy to direct national specific plans; lack of synergy and proper coordination and the disharmony in policies, strategies and actions as posing a major challenge to cross border natural resource management, sustainable peace and development for the region. Poor institutional governance which affects proper implementation of activities is evident through weak administrative and technical capacity in the region's natural resource sector. This can partly be blamed on eastern Africa belonging to between 2 and 4 regional bodies which has been counter-productive and often led to conflicting goals and policies and even duplication of resources. The Mara River ecosystem lacks explicit policy instruments and suffers from a non-holistic management approach which is worsened by inadequate inter-sectoral coordination and limited transboundary collaboration among relevant government institutions. These sequentially inhibit monitoring and efficiency through duplication of effort, reduction of economies of scale together with lessening of available opportunities. Similarly, there is little management of transboundary wildlife in the region across borders, despite of the connectivity and great potential for cross border tourism boom towards sustained livelihoods.

The study establishes that flawed environmental management and non-well thought out development plans by neighboring states have undermined cross border natural resource management efforts in Kenya, thereby threatening livelihoods, security, peace and overall

development of the entire region. Governments often strive to control their national territories as a constitutional responsibility by enforcing administration for economic, security and political reasons, and they are at times reluctant to hand over aspects of national sovereignty that include fragile cross border ecosystems to established cross border or international authorities for effective management. This pitfall together with protracted sovereignty and delimitation disputes strain a number of cross border ecosystems as migration and herd movement as part of a coping strategy among pastoral communities in border dryland regions is not regarded.

The study affirms that cross border natural resource management is expensive and that the inadequate financing is characterized by budgetary constraints and inability to access potential external incremental financial resources partly due to technical constraints. This resource challenge hampers initiatives on targeted research and development, implementation of actions to strengthen resource management frameworks, establishment of alternative livelihood opportunities, enhancing state capacity to handle insecurity along the often-porous border regions, resolution of resource-induced disputes and the restoration and maintenance of sustainable peace. These ventures are often costly and further complicated by the need for greater and sustained levels of communication, understanding, trust and collaboration; on a platform and atmosphere of uncertainty on attaining agreeable results.

The study concludes by observing that effective cross border natural resource management in one state may not guarantee the same in the neighboring sovereign state and hence the cycle of degradation, scarcity, competition and attendant conflicts may persist on in tandem with the standpoints of the neo-Malthusian argument. Although cross border resource management may be linked to peace and development, conflicts should not be seen as being purely resource-driven and that peace and development may as well have their own independent frameworks for realization. The study establishes that effective resource management alone may not guarantee peaceful coexistence and progression and that there may be other peripheral factors to be interrogated and considered alongside so as to attain ultimate tangible peace and development for the region.

7.3 Study recommendations

Based on study findings and issues afore cited, the researcher makes recommendations as follows to researchers, policymakers and general implementers on cross border natural resource management towards sustainable peace in eastern Africa region;

7.3.1. Academic recommendations

The study affirms that there are issues and areas which require further research to enrich information on the subject of study that include:

- a. Researchers should examine ways of exploiting cross border natural resources in the aftermath of conflict without triggering new conflicts and instead support post-conflict peacebuilding and recovery. This study reveals that gains in resource management are often reversed through weak compliance and enforcement of both national and international frameworks for resource management, hence paving way for attendant recurrent conflicts.
- b. Researchers should conduct more targeted studies on how to effectively predict, cope and tackle new and emerging issues and also accommodate the ever-changing needs in the management of transboundary natural resources, the avoidance of resource related conflicts and the overall quest for sustainable peace and development in the eastern Africa region. This study reveals emerging and re-emerging issues in the management of natural resources that include impacts of climate change, recurrent droughts, increasing desertification, urbanization and poor planning of development, among other threats as being drivers of scarcity, competition and resultant conflicts.
- c. Universities in the region should conduct similar studies with more categories of the target population in similar settings in order to broaden perspectives and discussions on management of cross border natural resources and the projected attainment of sustainable peace. This will also ensure more inclusion and participation of actors since this study only engaged 5 categories of the target population, yet actors in natural resource management are so many and diverse.
- d. Researchers should conduct similar studies with similar target groups and contexts in other countries within eastern Africa region so as to generate a more worthwhile and wholesome view on cross border natural resource management and sustainable peace in the region and further corroborate the findings of this study. This should happen on the backdrop of the finding of this study which demystifies physical borders and instead articulates ecosystem continuity in cross border resource management, yet this study focuses mainly on Kenya.
- e. Scholars should incorporate more primary data collection procedures other than self-administered questionnaires and interviews as is the case in this study. They should include techniques such as focus group discussions in future similar studies since this particular technique will influence quality through new thinking and far more in-depth engagements on

cross border natural resource management and sustainable peace, leading to valuable outputs and thereby producing results which stand out as stronger and more compelling.

7.3.2. Policy recommendations

The study reveals issues and situations which enlist recommendation of action to inform appropriate decision making on the following areas:

- a. Governments and non-state actors should develop and adopt strategies which combine initiatives on conservation, livelihood support and economic progression in order to facilitate compatible and sustainable resource management for peace and posterity. Resource actors should examine and recognize the link between cross border resource management and conflict as the basis for upholding tangible peace in the region, since well managed resources offer better contexts for subsistence and economic wellness; the key drivers to the converse elements of competition and disagreement if unattended to.
- b. Resource actors should instigate appropriate preventative and corrective measures with stringent governance systems on cross border natural environments that are vulnerable to degradation and attendant conflict. Actors should search for and ensure interventions which address root causes of affliction by maintaining links in transboundary ecological settings in order to uphold crucial functions and processes namely; hydrological systems, flow of genetic material, animal migrations, biological corridors and wild animal access to critical resources; an auxiliary strategy for handling globalization, climatic and economic shocks. There is need to promote value addition of resource related products to maximize the derived benefits whilst depletion is reduced, conservation is ensured and economic development alongside sustainable peace are fostered.
- c. Regional states should ensure the best approach in addressing transboundary threats across borders through strategic, comprehensive and expeditious strategies and actions towards sustainable use and management of cross border resources for peaceful coexistence among communities. This should be facilitated through good political and corporate governance practices, collaborative control of ecosystem resource exploitation and associated trade, control of alien invasive species and adoption of integrated natural resource management.
- d. Resource actors should strengthen information sharing and feedback mechanism through in-depth research and development based on identified research agenda on specific cases of cross border resource exploitation, management and conflict. Actors should ensure wide

dissemination of information through the media and other channels to promote exchange of experiences, demystify antagonistic perceptions and attitudes and enhance awareness on wise use of resources towards sustainable peace. It is imperative to determine trends, track inputs and outputs, assess performance impacts and harmonize information frameworks through an interactive national database such as the National Integrated Monitoring and Evaluation Systems for early warning, risk factors identification, related policy formulation, remedy instigation and sustainability.

- e. Governments should improve inter-sectoral and institutional coordination, monitoring, compliance and enforcement amid information sharing with full resource inventory. There is need to create coordinated regional centres of excellence for integrated environmental research and information management with a clearing house mechanism to complement resource management efforts in the region. These approaches will lead to full utilization of synergies and complementarities between regulatory mechanisms which include the African Peer Review Mechanism towards greater corporate social responsibility and public private partnerships. Institutionalization of cooperation will also facilitate institutional capacity for dialogue and management, aid working with other regional and international organizations, help build trust for revising obsolete agreements and provide pragmatic solutions to the challenges in transboundary natural resource administration and peaceful coexistence.
- f. Governments should recognize that resource management is often costly and hence provide high levels of political commitment in order to attain acceptable standards of cross border natural resource management as the nexus between peaceful coexistence and socio-economic development. They should prioritize resource management for attainment of peace needs, establish consensus on best approaches and allocate adequate funds through their budgetary processes. They should also support generation of funds from ecosystems services, introduce penalties and taxes on natural resource products based on their value and further build strategic partnerships by encouraging participation of all players.
- g. Governments together with partners should ensure strategic planning and embrace proactive and innovative approaches such as the use of tourism development to mobilize enough funds for the sector. To achieve sustainable financing for effective cross border natural resource management and sustainable peace, funding mechanisms should take into account local resource rights and governance needs through collective responsibility, incremental financial

resourcing and a clear road map for priority peacebuilding initiatives. Actors should collectively assess promising related peace development scenarios and formulate consistent investment strategies tied to relevant evaluation indicators with accountability tools.

- h. Governments should encourage strategic partnerships to support structural transformation towards diversification of livelihood opportunities for communities. They should support initiatives that foster local economic development, self-reliance, resilience and also motivate local buy-in through voluntary compliance which eases pressures that lead to abuse and destruction of natural resources. This will further ease resource scarcity and competition and instead contribute to the fostering of sustainable peace. The governments should borrow relevant best practices to be domesticated into local resource situations, as local resource management best practices are identified and documented for replication and reference.
- i. Regional governments should enhance communities and institutions' administrative and technical capacity to properly plan and implement sound resource management towards lasting peace through relevant and continuous civic education, training and skills enhancement. They should build capacity of public libraries, government documentation centres together with community resource centres to improve accessibility to information on issues and roles, and further incorporate more resource management for sustainable peace content in education curriculum. There is also need to build capacity of local governments to effectively carry out their mandate of ensuring relevant legislation, apt response mechanisms, enduring solutions and conducting research, among other functions. Capacity development should focus on strengthening long-term monitoring and evaluation of environmental impacts, compliance and enforcement mechanisms, human resources development and leveraging other networks towards averting related conflicts and achieve sustainable peace.
- j. Regional governments should ensure timely and continuous analysis and review of policy, institutional and legal structures to aptly tackle root causes to resource degeneration and conflicts and further realign programmes and interventions to conform to the ever-changing needs in resource conservation, peacebuilding and economic development. Policy driven support structures should be developed and mainstreamed in development agendas for effective planning and guiding of initiatives in a holistic manner. Efficiency should be enhanced through minimum standards and guidelines developed based on resource management needs, coherence between clear vision and sound policy, inter-sectoral policy

dialogue and harmonized systems. Regulatory and enforcement frameworks on policy implementation should be founded on principles of participatory democracy, transparency and accountability with investments in targeted long-term institutionalized monitoring, assessment and compliance.

- k. Regional governments should ensure that cross border natural resource management takes into consideration political, economic, socio-cultural, institutional and ecological concerns of all stakeholders in an integrated, democratic, transparent and inclusive way. There should be demonstrated political will and commitment to ensure genuine and meaningful engagement and contribution by actors in the participatory development of environmental policy and peaceful resolution of conflicts. Stakeholders should be encouraged to adopt mutual gains approach in acknowledging that most disputes were not ‘zero-sum.’ To build solutions in areas of common interest; stakeholders should recognize the importance of cross border natural resources in the overall peace agenda; learn from their varied interests, diversities and held knowledge on resources as well as their decision limits, incentive and disincentive arrangements that frame their actions.
- l. Governments should ensure resource management is driven mainly by communities in their vicinity through comprehensive and well-coordinated frameworks of strategies and actions in a ‘community-based’ or ‘people-centred’ approach towards promoting ownership by interest groups which include women and youth. Authority of valuable customary approaches or legitimate local aspirations including indigenous knowledge should be recognized, respected and integrated in overarching resource management; especially for pastoralist communities in dryland border areas of northern Kenya where mobility is inherent in their nomadic life. This will foster peace and non-violence among communities, ‘cure’ impunity and support a reconciliatory spirit to help secure commitments, encourage dialogue with wider involvement, ensure equitable distribution of benefits and responsibilities, build trust and facilitate amicable resolution of conflicts amid improved viability of local populations.
- m. The National government should devolve the preservation and management of certain resources in Kenya that include wildlife and biodiversity resources to enhance genuine involvement, participation, community ownership and durable peaceful ties through a ‘bottom-up’ approach. General resource management guidelines should be customized to serve social, ecological and economic needs at the community level. It is essential to establish new regimes

encompassing community by-laws to strengthen the interface between traditional and modern systems of resource management for peace as communities and allies lobby county governments to buy-in and develop appropriate regulations for acknowledgement and application of these by-laws.

- n. The government of Kenya should ensure proper implementation of relevant sections of the Constitution of Kenya, 2010 particularly, on devolved functions as local communities and authorities are considered as being best placed to effectively manage the protection and utilization of ecosystem resources, based on their greater understanding and being the most and directly affected by them. Similarly, Vision 2030 should be executed as the plan supports community-based planning and expands space for direct participation in management of natural resources. These deeds offer an effective framework for communities to negotiate and contribute to decision-making and sound practices towards mitigating scarcity, competition and conflicts. However, multi-sectoral cooperation is vital especially at the district and other decentralized levels, which constitute focal points for meaningful service delivery and facilitation towards viable community resource management and sustainable peace.
- o. Regional governments should adopt a coherent, strategic and comprehensive regional approach to support national perspectives in recognizing the inter-connectedness between resource management, sustainable peace, regional security and development. National issues relating to management of shared resources should be mainstreamed in specific regional plans and programs since poverty reduction, corruption and impunity, food security, trade, regional peace, environmental protection, integration and cooperation, amongst other factors, all have cross-cutting dimensions and are linked on the larger development platform.
- p. Regional governments should front common positions capturing regional resource management peculiarities and needs for subsequent incorporation into continental management processes towards sustainable peace. The governments should enter into strategic partnerships meant to negotiate for international support and commitments and further harness continental and international resources and expertise. The region should promote innovative strategies through South-South cooperation and further build on existing continental initiatives such as the AU Pastoral Policy framework which complements the ASAL policy in Kenya and AMCEN which offers a bigger stage for deliberating environmental issues, socio-economic progression and peacebuilding on the continent.

- q. Regional governments should enhance their commitment to international obligations, ensure political and technical institutional linkages and also operationalize existing regional protocols in order to jointly tackle competing interests, sovereignty and delimitation issues, economic supremacy battles and shared cross border threats relating to resource management and peacebuilding. There is need to promote effective participation in international fora, support synergistic approaches and ensure domestication of multilateral environmental agreements, as member states are assisted to implement relevant provisions. Mutual, equitable and sustainable benefits will then be realized across borders as border region conflicts within neighboring states shall be minimized through sound resource management. Thus, cases such as the Ilemi Triangle conflict will be opened up for genuine regional mediation to achieve lasting agreements in a peaceful and beneficial environment.
- r. Regional governments should strengthen the capacity of regional institutions through regional level ecosystems approaches to resource management such as on river basins so as to offer platforms for member states to jointly develop, adopt and review harmonized policies, strategies and actions. States should also be able to share lessons, experiences and best practices and further collaborate with other regional groupings. Regional frameworks should recognize the environment as being a sustainable development component and consequently be responsive to related SDGs and other multilateral environmental agreements. These frameworks should thus endeavor to strengthen collaboration among partner states so as to reverse environmental degradation and in turn enhance integration towards environmentally sustainable economic development and peace.
- s. Regional governments should fast-track establishment of the proposed COMESA-EAC-SADC (CES) tripartite arrangement to address the problem of eastern Africa's multiple memberships to regional groupings which has been counter-productive on many fronts including environmental management and peaceful habitation. African Union should collaborate with eastern Africa regional groupings in hastening the process of timely generation and review of minimum standards in cross border natural resource management towards sustainable peace. The African Peer Review Mechanism should ensure more explicit standards, indicators and benchmarks for resource management to inspire sharing of lessons and good practices, as well as incorporation of related issues into participating countries' assessment and action plans in order to promote peace, stability, development and prosperity.

- t. Regional governments and partners should mobilize additional financial support by broadening cooperation to include non-traditional donors, tap into opportunities within resource management frameworks and also explore other regional sources towards realization of sustainable peace. It is crucial to build capacity of member states to comply with relevant provisions so as to access incremental financial resources from international environmental facilities and instruments that include the Convention on Biological Diversity. There are more opportunities in the region's natural resources for greater domestic financing through benefits from the carbon market and other ecosystem services or even by adding to the partner states' seed capital in a regional environment endowment fund. The governments should use prospective efficiencies, economies of scale and leveraging by engaging across borders on monitoring and evaluation, research and sharing of information and also use financial and human resources communally. They should initiate environmental management sector reforms to achieve effectiveness and peace, which will in turn compel donors to offer even more support towards worthwhile investments founded on local valid commitments.
- u. Governments should increase the role of development partners and the civil society including NGOs and other non-state players in managing cross border natural resources and emerging issues so as to capitalize on their comparative advantages, scale-up promotion of self-organization of groups and create multi-stakeholder collaborative infrastructures. Development partners should also scale-up their role as network liaisons between communities and relevant systems, facilitate initial coordination and neutral continued mediation, broker resource induced conflict resolution, help maintain sustainable peace and ensure equitable handling by all players.
- v. Governments should emphasize coordinated programming among actors to consolidate and safeguard gains, for without better integration and partnership, achievements would probably be ad hoc without the push to systematically foster row backs in environmental degradation and resource depletion; the key agents for scarcity, competition and eventual conflict. Closer cooperation and strategic partnerships among all actors are vital for effective cross border resource management, environmental sustainability, peaceful coexistence and greater development. However, development partners should respect and support local-led processes, rather than enforce governance related preconditions for development aid or even promote externally driven parallel enterprises. Likewise, NGOs should not usurp roles but instead they

should understand their role as temporary actors, fill in the gaps and support other relevant entities on the ground.

7.4 Prospects for further study

This study examines the management of natural resources that transcend national boundaries by exploring ways for mitigation and improvement towards sustainable peace in the eastern Africa region. The growing significance attached to cross border natural resource management as a contributor of sustainable peace therefore warrants future studies to provide more revised, precise and valid information towards better understanding of resource needs for improved administration. There is need to exhaustively explore other targeted initiatives other than cross border natural resource management with the potential to either individually or collectively spur sustainable peace and development for the eastern Africa region. More trends should be analyzed between phenomena such as climate change factors that include less rainfall and increasing drought patterns against incidence of resource-induced conflicts in border areas in order to uncover and scrutinize associated underlying subsidiary agents which are often ignored. In addition, university research and knowledge should be more targeted towards solving real problems on the ground since there is disconnect between environmental knowledge generated by universities in Kenya and the bare practical needs on the ground that include stability among communities.

7.5 Conclusion

This study demystifies physical borders and articulates ecosystem continuity in cross border natural resource management. Linkages between biodiversity conservation, livelihood support, sustainable peace and development were in the past poorly comprehended and as a result, policy initiatives and related programming in the region evolved in part autonomously usually with overlapping or rather with goals and responsibilities that were conflicting. This scenario has partly led to persistent conflicts in border areas with increased poverty, decline in biological diversity and the diminishing resource base which seriously affect livelihoods of the dependents of these resources. The situation is worsened by weak institutional frameworks, sectoral wars over resource allocation, perennial food insecurity, climate change and inadequate enforcement of legislation, among other key drivers which combine into unique challenges.

As pressure ever mounts on the environment, it is important to find sustainable answers to environmental and ecosystem resource management challenges by understanding the consequences of inept and diverse management approaches. It is imperative to devise means to

reconcile the environment and its resources on one side and the needs of the society and the evident insatiable targets for economic progression on the other side. Effective cross border natural resource management reflected in equitable benefits from sustainable exploitation and preservation of unique and general ecosystems will help avert related conflicts mainly induced by scarcity and competition. This will instead promote sustainable peace in eastern Africa with improved livelihood opportunities and prospective regional economic investment and development. Although Kenya has made notable improvement within the realm of managing natural resources over the years, more still needs to be done to end continued environmental degradation, resource depletion and resultant conflicts witnessed around transboundary resource administration in the region.

Kenya and eastern Africa at large can create new or even more opportunities for the well-being of their populations through development of appropriate strategies and effective implementation of resource management policies and initiatives. These strategies should be tailored to ensure realignment of priorities to recognize the importance of sustainable peace and security in the overall national development agenda. Similarly; incorporating and operationalizing sustainable development principles; ensuring meaningful community participation; adopting proactive, holistic and precautionary approaches and mainstreaming environmental issues in development planning and decision making is indeed a recipe for ultimate success in the management of resources. The ensuing sustainable peace will increase competitiveness and productivity for the region through trade and investment, and deepen economic and social integration among communities. Kenya and its eastern Africa counterparts should therefore develop appropriate relevant sectoral strategies tailored to their own circumstances, aspirations and needs and ensure their effective implementation. This study determines that there is significant relationship between cross border natural resource management and sustainable peace within the region and thus, effective cross border natural resource management is definitely a contributor to the attainment of sustainable peace in the greater eastern Africa region.

BIBLIOGRAPHY

- Abbott, C., *An Uncertain Future: Law Enforcement, National Security and Climate Change*, (UK, Oxford Research Group, 2008).
- Abdallah, H., 'DR Congo head off dispute as river alters border,' *The East African News*, (Uganda), Monday, 9 November 2009.

- Abu-Taleb, F. M., 'Environmental management in Jordan: Problems and recommendations,' *Environmental Conservation*, Vol. 21, spring, (1994) pp. 35-40.
- ACTED, *Restoring peace through food security in Kenya*, (European Commission Humanitarian Aid & Civil Protection: Office of U.S. Foreign Disaster Assistance, Oxfam, 2014), <http://www.acted.org/en/kenya>, accessed on 3 January 2016.
- Adan, M. and R. Pkalya, *Conflict Management in Kenya; Towards Policy and Strategy Formulation*, in E. Muli (ed.), (UK, Practical Action, 2006).
- Adano, W. R., *et al.*, 'Climate Change, Violent Conflict and Local Institutions in Kenya's drylands,' in N. P. Gleditsch (ed.), *Journal of Peace Research, Special Issue*, 49, No. 1, (2012) pp. 65-80.
- Adedeji, A. (ed.), *Comprehending and Mastering African Conflicts: The Search for Sustainable Peace and Good Governance*, (London, Zed Books, 1998) pp. xvi.
- AfDB/ADF, *Eastern Africa Regional Integration Strategy Paper, 2011-2015*, (2011), <http://www.afdb.org/fileadmin/uploads/afdb/Documents/PolicyDocuments/East%20Africa%20-%20Rev%20RISP%20.pdf>, accessed on 17 August 2014.
- Africa Science News Service, 'Kenya, Tanzania Need to Save Lake Jipe,' (2008), http://africasciencenews.org/asns/index2.php?option=com_content&do_pdf=1&id=408, accessed on 11 October 2014.
- African Bound Adventures, *8th Wonder of the World-Wildebeest Migration*, (2013), <http://www.africaboundadventures.com/8th-wonder-world-wildebeest-migration>, accessed on 21 August 2014.
- African Natural Heritage, *Serengeti National Park – Tanzania*, (2014), <http://www.africannaturalheritage.org/serengeti-national-park-tanzania/>, accessed on 11 August 2014.
- African Union, African Union initiative on promotion and development of Agenda 21 in Africa, *Partnership initiatives information sheet*, (2003), http://www.un.org/esa/sustdev/partnerships/activities_initiate/au_a21africa.pdf, accessed on 14 January 2016.
- African Union, *Common African Position (CAP) on the Post-2015 Development Agenda*, (22nd Ordinary Session of the Assembly of the Union, 31 January 2014, Addis Ababa: Ethiopia).
- African Union, Delimitation and Demarcation of Boundaries in Africa, *General Issues and Case Studies*, (Addis Ababa, Commission of the African Union: Department of Peace and Security, 2013).
- African Union, *Summary Note on the African Union Border Programme and its Implementation Modalities*, (Conference of African Ministries in Charge of Border Issues, 4-7 June 2007, Addis Ababa: Ethiopia).
- African Union, *The African Convention on the Conservation of Nature and Natural Resources*, (1968), <http://faolex.fao.org/docs/pdf/mul45449.pdf>, accessed on 16 August 2015.
- African World Heritage Sites, *Lamu Old Town - Kenya*, (2011), <http://www.africanworldheritagesites.org/cultural-places/swahili-coast/lamu-old-town.html>, accessed 20 May 2015.
- African World Heritage Sites, *Through peaceful, open and prosperous borders*, (2013), <http://www.peaceau.org/en/page/27-au-border-programme-aubp>, accessed on 17 January 2016.

- Akamine, J., Circumventing the sea cucumber war: Self-regulation of sea cucumber fisheries in Rishiri Island, Japan, in W. de Jong, D. Snelder, and N. Ishikawa (eds.), *Transborder Governance of Forests Rivers and Seas*, (London, Earthscan, 2010) pp. 99-114.
- Akwiri, J., 'Kenya expects higher tourism revenue arrival in 2013,' *Standard Digital News-Business*, (Kenya), 28 June 2013, <http://www.standardmedia.co.ke/business/article/2000087004/kenya-expects-higher-tourism-revenues-arrivals-in-2013>, accessed on 11 September 2014.
- Alao, A., United Nations Expert Group Conference Report, *Natural Resources and Conflict in Africa: Transforming a Peace Liability into a Peace Asset*, (United Nations Expert Group Conference Session one - Key discussion points, 17-19 June 2006, Cairo: Egypt) pp. 13.
- Ali, S. H. (ed.), *Peace parks: Conservation and conflict resolution*, (Boston, MIT Press, 2007).
- Aligica, P.D., "Julian Simon and the 'Limits to Growth' Neo-Malthusianism," *The Electronic Journal of Sustainable Development*, 1, 3, (2009) pp. 49-60, <https://ppe.mercatus.org/publication/julian-simon-and-limits-growth-neo-malthusianism-0>, accessed on 12 October 2014.
- Amede, T. *et al.* (eds.), *Integrated Natural Resource Management in Practice: Enabling Communities to Improve Mountain Livelihoods and Landscapes*, (Proceedings of a conference held at ICRAF Headquarters/African Highlands Initiative, 12-15 October 2004, Nairobi: Kenya).
- Aminrad, Z. *et al.*, 'Influence of Age and Level of Education on Environmental Awareness and Attitude: Case Study on Iranian Students in Malaysian Universities,' *The Social Science*, Vol. 6, Issue 1, (2011) pp. 15-19, Doi: 10.3923/sscience.2011.15.19.
- Ammado, 'The role of rural women in natural resource management in Kenya,' *Volunteers For Africa*, (Nairobi), 14 April 2009.
- Amutabi M.N., 'Land and Conflict in the Ilemi Triangle of East Africa,' *Kenya Studies Review*, Vol. 1, No. 2, (2010) pp. 23.
- Amutabi M.N., *Cattle Rustling Among Pastoralists in Northern Kenya: The Genesis and the Truth*, (Article presented at the conference on Community Education co-hosted by Action-Aid and Association for World Education, 25-28 August 1999, Isiolo: Kenya).
- Appiah, M. and T. Zhang, Escaping the Resource Curse in Sub-Saharan Africa, *Policy Brief 4*, (The Hague, The Hague Institute for Global Justice, 2013).
- ASEAN Cooperation on Environment, *Marine resources*, (2013), <http://environment.asean.org/46-2/>, accessed on 24 January 2015.
- Ashton, J.P., 'Avoiding Conflicts over Africa's Water Resources,' *Ambio*, Vol. 31, No. 3, (2002) pp. 236-242.
- Ayoo, C., 'Community-based natural resource management in Kenya,' *Management of Environmental Quality: An International Journal*, Vol. 18, Issue 5, (2007) pp. 531-541 doi.org/10.1108/14777830710778292.
- Bäeochler, G. *et al.*, *Kriegsursache Umweltzerstörung*, (Zurich, Rüegger, 1996).
- Bäeochler, G., *Violence Through Environmental Discrimination*, (Dordrecht, Kluwer, 1999).
- Baguma, R., 'Museveni Advises Kenya on Regional Trade Policy,' *New Vision*, (Kampala), 3 April 2010.
- Barnett, J. and W.N. Adger, 'Political Geography,' *Climate Change, Human Security and Violent Conflict*, 26, (2007) pp. 639-55.

- Barrow, E. *et al.*, *Analysis of Stakeholder Power and Responsibilities in Community Involvement in Forest Management in Eastern and Southern Africa*, (Nairobi, IUCN, 2002).
- BBC News, 1967: *Six-Day War*, (2009),
http://news.bbc.co.uk/2/shared/spl/hi/middle_east/03/v3_israel_palestinians/maps/html/six_day_war.stm, accessed on 29 April 2014.
- Ben-Ari, N., 'Poverty is Worsening in African LCD's,' *Africa Recovery*, 16, (2002) pp. 9.
- Bernaer, T., Managing international rivers in R. Y. Oran (ed.), *Global Governance Drawing Insights from the Environmental Experience*, (Cambridge: USA, MIT Press, 1997) pp. 155-196.
- Bigagaza, J. *et al.*, 'Land Scarcity, Distribution and Conflict in Rwanda,' J. Lind and K. Sturman (eds.), *Scarcity and surfeit: The Ecology of Africa's conflicts*, (Pretoria, Institute of Security Studies, 2002) pp. 51.
- Bingham K. Jr., Population Reference Bureau, *Environmental Scarcity and the Outbreak of Conflict*, (2001),
<http://www.prb.org/Publications/Articles/2001/EnvironmentalScarcityandtheOutbreakofConflict.aspx>, accessed on 9 December 2015.
- Biodiversity Support Programme, Study on the Development of TBNRM Areas in Southern Africa, *Highlights and Findings*, (Washington D.C., Biodiversity Support Program, 1999).
- BirdLife International, *Collaboration to enhance management of transboundary ecosystems*, (2015), <http://www.birdlife.org/africa/news/collaboration-enhance-management-transboundary-ecosystems-launched>, accessed on 10 May 2016.
- Biryabarema, E., 'Uganda says pollution of Lake Victoria worsening,' *Reuters-US Edition*, (Kampala), 22 March 2010.
- Blench, R.M., Pastoralists and national borders in Nigeria, in P. Nugent and A.I. Asiwaju (eds.), *African boundaries: barriers, conduits and opportunities*, (Edinburgh, Francis Pinter for Centre of African Studies, 1996) pp. 111-128.
- Borrini-Feyerabend, G. *et al.*, *Indigenous and Local Communities and Protected Areas: Towards Equity and Enhanced Conservation*, (2004), http://cmsdata.iucn.org/downloads/pag_011.pdf, accessed on 2 December 2017.
- Boserup, E. and T. P. Schultz, (eds.), *Economic and Demographic Relationships in Development*, (Baltimore; MD, Johns Hopkins University Press, 1990).
- Brabeck-Letmathe, P., Nestle, *Conflict over water in cross border river basin-the need for peaceful cooperation*, (2013),
<http://www.water-challenge.com/post/2013/08/22/Conflict-over-water-in-cross-border-river-basins-the-need-for-peaceful-cooperation.aspx>, accessed on 30 April 2014.
- Brittain, V, 'Ethiopia forces Ogaden exodus,' *The Guardian News*, (Mogadishu), 20 May 2010.
- Broderick, K., 'Communities in Catchments: Implications for Natural Resource Management,' *Geographical Research*, Vol. 43, Issue 3, (2005) pp. 286-296.
- Brogden, M.J. and J.B. Greenberg, 'The Fight for the West: A Political Ecology of Land Use Conflicts in Arizona,' *Human Organization*, Vol. 62, No. 3, (2003) pp. 289-298.
- Brown, M. *et al.*, *Non-Governmental Organizations and Natural Resources Management: Synthesis Assessment of Capacity-Building Issues in Africa*, J. McGann and D. K. Myers (eds.), (Washington D.C., The PVO-NCO/NRMS Project/U.S. Agency for International Development, 1996).
- Brownlie, I., Royal Institute of International Affairs, *African Boundaries: A Legal and Diplomatic Encyclopedia*, (London, C. Hurst and Co., 1979) pp. 867-884, 917-921.

- Brundtland, G. (ed.), *Our Common Future: The World Commission on Environment and Development*, (UK, Oxford University Press, 1987).
- Buckles, D. (ed.), *Cultivating Peace Conflict and Collaboration in Natural Resource Management*, (Ottawa, International Development Research Centre, 1999) pp. 5.
- Bugembe, B.N., *Natural resource governance framework challenges and opportunities in eastern and southern Africa: A Regional Scoping Synthesis of the Critical Natural Resource Governance Issues*, (Nairobi, IUCN, 2016).
- Burger, K. and F. Zaal, *Sustainable Land Management in the Tropics; Explaining the Miracle* (Farnham, Aldershot: Ashgate, 2009).
- Byers, M. and N. Dragojlovic, 'Darfur: A Climate Change-Induced Humanitarian Crisis?' *Human Security Bulletin*, (Vancouver), October 2004, pp. 2.
- Campbell, B.M., Empowering forest dwellers and managing forests more sustainably in the landscapes of Borneo, in R.R. Harwood and A.H. Kassam (eds.), *Research towards Integrated Natural Resources Management*, (Rome, CGIAR, 2003).
- Campbell, E. *et al.*, *Navigating Nairobi: A review of the implementation of UNHCR's urban refugee policy in Kenya's capital city*, (Nairobi, UNHCR, 2011).
- Campbell, I. *et al.*, *Climate change and conflict: Lessons from community conservancies in northern Kenya*, (2009), <http://www.iisd.org/library/climate-change-and-conflict-lessons-community-conservancies-northern-kenya>, accessed on 26 October 2017.
- Carius, A., 'Environmental Peacebuilding: Conditions for Success, Special Report,' *Environmental Change and Security Program Report*, Issue 12, 2006-7, (2007) pp. 59-75.
- Central Intelligence Agency, (2012), <https://www.cia.gov/library/publications/the-world-factbook/geos/ke.html>, accessed on 26 February 2014.
- Centre for Governance and Development n.d, *Pastoralism, Policy legislation and Governance, Online*, <http://www.cgd.or.ke/documents/Pastoralism%20Report.pdf>, accessed on 7 June 2015.
- Change.org, *Petition to Suspend Plans for the Proposed Lamu Port*, <https://www.change.org/p/petition-to-suspend-plans-for-the-proposed-lamu-port>, accessed on 19 May 2015.
- Charles-Philippe, D. and G. Jean-Francois, 'Natural Resources: A Source of Conflict?' *International Journal*, Vol. 62, 1, (2006/7) pp. 5-17.
- Chimeli, A.B. *et al.*, 'Climate Fluctuations, Demography and Development - Regional Case Studies,' *Journal of International Affairs*, 56, 1, (2002) pp. 213-234.
- Chiras, D. D., *Natural Resource Conservation: Management for a Sustainable Future*, (New York, Prentice-Hall, 2004).
- Coleman, P. T. and M. Deutsch, (eds.), *Psychology's Contributions to Sustainable Peace*, (New York, Springer Books, 2012).
- Coleman, P., 'The Missing Piece in Sustainable Peace,' Earth Institute, 6 November 2012, <http://blogs.ei.columbia.edu/2012/11/06/the-missing-piece-in-sustainable-peace/>, accessed 17 January 2019.
- Collier, P. and A. Hoeffler, *Greed and grievance in civil war*, (Washington DC, World Bank, 2000) p. 42.
- Collier, P. and A. Hoeffler, 'Greed and Grievance in Civil War,' *Oxford Economic Papers, New Series*, 56, 4, (2004) pp. 563-595.
- Collier, P., *The Bottom Billion: Why the Poorest Countries are Failing and What Can Be Done About It*, (UK, Oxford University Press, 2007).

- Collins, R.O., 'The Ilemi Triangle,' *Annales d'Éthiopie*, Vol. 20, (2005) pp. 5-12.
- Commission for the Implementation of the Constitution, *Legislation: The Wildlife Conservation and Management Act, 2013*, <http://www.cickenya.org/index.php/legislation/acts/item/364-the-wildlife-conservation-and-management-act-2013#.VloG8dIrI4w>, accessed on 29 July 2015.
- Conca, K., Building Peace Through Environmental Cooperation, Chapter 8 in *The State of the World 2005: Redefining Global Security*, (New York and London, W.W. Norton & Co., 2005) pp. 144-157.
- Cooley, K. J., 'The war over water,' *Foreign Policy*, No 54, spring, (1984) pp. 3-26.
- Coria, J. and T. Sterner, Natural Resource Management: Challenges and Policy Options, *Working Papers in Economics, No. 480*, (Gothenburg, University of Gothenburg, 2011).
- Council on Foreign Relations, Primary Resources, *Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region; Nairobi Convention*, (1986), <http://www.cfr.org/world/convention-protection-management-development-marine-coastal-environment-eastern-african-region-nairobi-convention/p20590>, accessed on 1 May 2015.
- Critchley, W. H. and T. Terriff, *Environment and Security*, in S.R. Godson and T. Greenwood (eds.), (1993) pp. 312-348.
- Crosman, K.M., *The roles of non-governmental organizations in marine conservation*, Master Thesis, University of Michigan, 2013.
- Daily Nation, 'NEMA: Managing Wetlands for our future,' *Daily Nation*, (Nairobi) Friday, 23 January 2015.
- Dandy, N. *et al.*, 'Who's in and why? A typology of stakeholder analysis methods for natural resource management,' *Journal of Environmental Management*, Vol. 90, (2009) pp. 1933-1949.
- De Jong, W. *et al.* (eds.), *Transborder governance of Forests, Rivers and Seas, 1st ed.*, (UK, Routledge, 2010),
- Deligiannis, T., *High Altitude Turbulence: Challenges to the Cordillera Del Cóndor of Peru*, (Washington D. C., Woodrow Wilson International Center for Scholars, 2010).
- Demissie, M. Z., *The Natural Resource Curse in Sub-Saharan Africa: Transparency and International Initiatives*, PhD Thesis, The University of Southern Mississippi, 2014, Dissertations, Paper 6.
- De Soysa, I., 'Paradise Is a Bazaar? Greed, Creed, and Governance in Civil War, 1989–99,' *Journal of Peace Research*, 39, 4, (2002) pp. 395-416.
- Dhamee, Y., The Victorian Web, *Thomas Robert Malthus, (1995)*, <http://www.victorianweb.org/economics/malthus.htm>, accessed on 10 April 2014.
- Disaster Risk Reduction in the Drylands of the Horn of Africa, ed. 4, *Innovations in policy and practice from the ECHO DRRAP partners and beyond*, (Nairobi, Georgebensons Ltd. 2013), http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/REGLAP%20Journal%204_FINAL.pdf, accessed on 13 April 2014.
- Dos Santos Rocha, J., *Session Five: Roles and Responsibilities of African Regional and Sub-regional Organizations and Civil Society Perspectives*, (UN Expert Group Conference, 17-19 June 2006, Cairo: Egypt).
- EAC, *Policy brief on the environment and natural resources sector of the East African Community*, (2005), http://www.eac.int/lvdp/Policy_brief_04_2006.pdf, accessed on 10 June 2015.

- EAC, *Protocol on Environment and Natural Resources Management, Draft 5*, (Arusha, EAC, 2005).
- EAC, *Regional Transboundary Diagnostic Analysis of the Lake Victoria Basin*, (Kisumu, LVBC, 2007).
- EAC, *Serengeti-Maasai Mara Ecosystem Transboundary Protection and Monitoring Plan*, (Arusha, EAC, 2012).
- EAC, *Trans-boundary Ecosystems*, <https://www.eac.int/environment/natural-resources-management/trans-boundary-ecosystems>, (2017), accessed on 29 September 2017.
- Ehrlich, P.R., *The Population Bomb*. (New York, Ballantine Books, 1968).
- Eldis/Institute of Development Studies, *Kenya National Adult Literacy Survey report*, (Nairobi, UNESCO Nairobi Office, 2007), <http://www.eldis.org/document/A31868>, accessed on 25 September 2018.
- Emerton L. *et al.*, Environment, poverty and economic growth in Kenya: What are the links, and why do they matter? *IUCN Policy Brief No. 2*, (2001), <https://core.ac.uk/download/pdf/48022456.pdf>, accessed 26 September 2018.
- Esty, D.C. *et al.*, *State Failure Task Force Report: Phase II Findings*, McLean; VA, Science Applications International for State Failure Task Force, 1998.
- Fabricius, C. and S. Collins, 'Community-based natural resource management: governing the commons,' *Water Policy*, 9, 2, (2007) pp. 83-97.
- Fairhead, J., The conflict over natural and environmental resource, in E.W. Nafziger, F. Stewart and R. Vayrynen, (eds.), *War, hunger and displacement: The origin of humanitarian emergencies*, (Oxford, Oxford University Press, 2000) pp. 147-178.
- Falkenmark, M., 'The Massive Water Scarcity now Threatening Africa: Why isn't it Being Addressed?' *In Ambio*, Vol. 18, No. 2, (1989) pp. 112-118.
- FAO, *Cross-border coordination of livestock movements and sharing of natural resources among pastoralist communities in the Greater Karamoja Cluster*, (2019), <http://www.fao.org/in-action/kore/good-practices/good-practices-details/en/c/1254370/>, accessed on 14 October 2020.
- FAO, *Research on Natural Resources Management*, (2018), <http://www.fao.org/Wairdocs/TAC/X5790E/x5790e07.htm>, accessed 30 September 2018.
- FAO, *Status and potential of fisheries and aquaculture in Asia and the Pacific, 2010*, (Bangkok, FAO, 2010), <http://www.fao.org/docrep/013/i1924e/i1924e00.pdf>, accessed on 11 January 2015.
- FAO, *Sustainable Land Management*, (2017), <http://www.fao.org/land-water/land/sustainable-land-management/en/>, accessed on 4 September 2017.
- Fikret, B., *Coasts for People: Interdisciplinary Approaches to Coastal and Marine Resources Management*, (New York, Routledge, 2015).
- Finke, J., *Lake Turkana Mankind's Origins*, (2001), <http://bluegecko.crosswinds.net/tribes/turkana/prehist.htm>, accessed on 19 September 2014.
- Fishpool, L. D. C. and M. I. Evans (eds.), 'Important Bird Areas in Africa and associated islands: Priority sites for conservation,' *BirdLife Conservation Series, No. 11*, (Newbury & Cambridge: UK, Pisces Publications & BirdLife International, 2001).
- Flintan, F. *et al.*, 'Natural resource management in the drylands in the Horn of Africa: Brief prepared by a Technical Consortium hosted by CGIAR in partnership with the FAO Investment Centre,' *Technical Consortium Brief 1*, (Nairobi, ILRI, 2013).

- Fonjong, L.N., 'Gender roles and practices in natural resource management in the North West Province of Cameroon,' *Local Environment*, 13, 5, (2008) pp. 461-475.
DOI: 10.1080/13549830701809809.
- Foulds, K.E., The Nile Basin Initiative: Challenges to Implementation, *Managing Shared Waters: Lessons Learned II*, (The paper was presented at the Managing Shared Waters Conference, 23-28 June 2002, Hamilton: Ontario-Canada).
- Furedi, F., *Population and Development: A Critical Introduction*, (NY, St. Martin's Press, 1997).
- Gardiner, S.M., *The perfect moral storm: The ethical tragedy of climate change*, (Oxford, Oxford University Press, 2011).
- GEF, *LVEMP-II project documents*, (2008), <http://www.thegef.org/uploadedfiles/11-08%20GEFID%203399%20Regional%20Lake%20Victoria%20%20docs%20for%20web%20posting.pdf>, accessed on 10 June 2015.
- Gettleman, J., 'Ripples of Dispute Surround Tiny Island in East Africa,' *The New York Times-Mingogo Island Journal*, (Africa), 16 August 2009.
- Gichana, A., 'Bid to save Mara River Basin ecosystem,' *The Star News*, (Kenya), 26 July 2013.
- Glaser, B.S., Council on Foreign Relations, 'Armed Clash in the South China Sea,' *Contingency Planning Memorandum*, No. 14, (2012).
- Gleditsch, N., *et al.*, Climate Change and Conflict: The Migration Link, *Working paper*, (New York, International Peace Academy, 2007).
- Gleditsch, N.P. and H. Urdal, 'Ecoviolence? Links Between Population Growth, Environmental Scarcity and Violent Conflict in Thomas Homer-Dixon's Work,' *Journal of International Affairs*, 56, 1, (2002) pp. 283-302.
- Gleditsch, N. P., *Conflicts over Shared Rivers: Resource Wars or Fuzzy Boundaries?* (Paper presented at the 45th Annual Convention of the International Studies Association, 17-20 March 2004, Montreal; Quebec) pp. 253.
- Gleick H. P., 'Question of Equity at the Heart of Water Conflict Management,' *Water and Conflict Prevention*, (The Second World Water Forum, 17-22 March 2001, The Hague: Netherlands).
- Gleick H. P., 'Water and conflict,' *International Security*, Vol. 18, No 1, summer, (1993) pp.79-112.
- Global International Waters Assessment/UNEP, East African Rift Valley Lakes, *Regional Assessment 47*, (Kalmar: Sweden, University of Kalmar, 2004).
- GlobalSecurity.org, *Military: International Disputes*, (2015), <http://www.globalsecurity.org/military/world/war/disputes-c.htm>, accessed on 14 December 2015.
- Global Water Partnership, *Kenya: Community management in Lake Victoria Drainage Basin*, (2012), <http://www.gwp.org/en/ToolBox/CASE-STUDIES/Africa/Kenya-Community-management-in-Lake-Victoria-Drainage-Basin-51/>, accessed on 30 May 2016.
- Goering, L., 'Peru, Ecuador Reach Deal On Border Dispute,' *Chicago Tribune News*, (Ecuador), 24 October 1998.
- Granit, J., *The Collective Action Dilemma in Managing Transboundary Freshwaters: An Analysis of an Outcome-Driven Framework*, Dissertations from the Department of Physical Geography and Quaternary Geology, Stockholm University, 2012.
- Grunfeld, L., *Jordan River Dispute*, ICE Case Studies, No. 6, (1997), <http://www.american.edu/projects/mandala/TED/ice/JORDAN.HTM>, accessed on 20 January 2019.

- Guo, R. and K. Yang 'Political Economy of Transnational Water Pollution: What Do the LMB Data (1985-2000) Say?' *Environmental Management*, Vol. 33, 4, (2003) pp. 333-44.
- Guo, R., *Cross-Border Resource Management: Theory and Practice*, Volume 10 of Developments in Environmental Science, (UK, Elsevier, 2005).
- Habib, Z., 'Water: Issues and Politics in Pakistan,' *South Asian Journal*, Vol. 8, (2005). pp. 35-43.
- Hall-Jones, P., 'The rise and rise of NGOs,' *Public Services International*, (2006), <http://www.worldpsi.org/Template.cfm?Section=Home&CONTENTID=11738&TEMPLATE=/ContentManagement/ContentDisplay.cfm>, accessed on 4 January 2016.
- Hardin, G., 'The Tragedy of the Commons,' *Science-New Series*, Vol. 162, No. 3859, (1968) pp. 1243-1248.
- Hardin, R. *et al.*, Social, spatial, and sectoral boundaries in transboundary conservation of central African Forests, in W. de Jong, D. Snelder and N. Ishikawa (eds.), *Transborder Governance of Forests Rivers and Seas*, (London, Earthscan, 2010) pp. 15-30.
- Harrison, P., *The Third Revolution: Population, Environment and a Sustainable World*, (London; UK, Penguin Books Ltd., 1993).
- Hartmann, B., Will the Circle be Unbroken? A Critique of the Project on Environment, Population, and Security, Chapter 2 in N. L. Peluso and M. Watts, (eds.), *Violent Environments*, (Ithaca; NY, Cornell University Press, 2001) pp. 39-62.
- Haskins, C., *The Ilemi Triangle: A forgotten conflict*, (Nairobi, Shalom Centre for Conflict Resolution and Reconciliation, 2010).
- Hauge, W. and T. Ellingsen, 'Beyond Environmental Scarcity: Causal Pathways to Conflict,' *Journal of Peace Research*, 35, 3, (1998) pp. 299-317.
- Hazell, P. *et al.*, 'Managing droughts in the low-rainfall areas of the Middle East and North Africa,' *EPTD Discussion Paper*, No. 78, (2001).
- Hearn, S., *How to Achieve Sustainable Peace, The Radical Potential of Implementing UN Sustainable Development Goal 16*, (New York, Friedrich-Ebert-Stiftung, 2016).
- Hecky, R. E., 'The Eutrophication of Lake Victoria,' *Proc. Int. Ass. Theor. Appl. Limnol*, 25, (1993) pp. 39-48.
- Hennop, E., Institute for Security Studies, Guns, goats and ganja; Firearms, drug trafficking and stock theft on the Lesotho border, *Nedbank ISS Crime Index*, Vol. 5, No. 6, (2001).
- Hensel, P. R. *et al.*, *Conflict Management of Riparian Disputes: A Regional Comparison of Dispute Resolution*, (Paper presented at the 2004 International Studies Association Meeting, 2004, Montreal; Quebec).
- Hepworth, N. and J. Onyando, Norad, Mara River Management Initiative, *Tanzania and Kenya Final evaluation report*, (Norway, WWF, 2010).
- Homer-Dixon, T.F. and J. Blitt, *Ecoviolence: Links Among Environment, Population and Security*, (Lanham; MD, Rowman and Littlefield, 1998).
- Homer-Dixon, T.F., *Environment, Scarcity, and Violence*, (Princeton; NJ and Oxford, Princeton University Press, 1999).
- Homer-Dixon, T.F., 'Environmental Scarcities and Violent Conflict: Evidence from Cases,' *International Security*, 19, 1, (1994) pp. 5-40, doi: 10.2307/2539147.
- Homer-Dixon, T.F., Thresholds of turmoil: Environmental scarcities and violent conflict, *Contested Grounds: Security and Conflict in the New Environmental Politics*, D.H. Deudney and R.A. Mathew (eds.), (Albany, State University of New York Press, 1999) pp. 61.

- Homer-Dixon, T., 'On the Threshold: Environmental Changes as Causes of Acute Conflict,' *International Security*, Vol. 16, No.2, (1994) pp. 76-116.
- Houten, H., FARM-Africa, *Natural Resource Management best practices from FARM-Africa's Pastoralist Development Project in Kenya*, (Nairobi, Colourprint, 2002).
- Howard, P. and T. F. Homer-Dixon, The Case of Chiapas, *Mexico*, Chapter 2 in T.F. Homer-Dixon and J. Blitt, (eds.), *Ecoviolence: Links Among Environment, Population, and Security*, (Lanham; MD, Rowman and Littlefield, 1998) pp. 19-65.
- Howard, P., *Nature conservation in Uganda's tropical forest reserves*, (Gland, International Union for Conservation of Nature, 1991).
- Hox, J.J. and T.M. Bechger, 'An introduction to Structural Equation Modelling,' *Family Science Review*, 11, (1998) pp. 354-373.
- Huggins, C. et al., UNEP, *Africa Environment Outlook 2, Chapter 12: Environment for peace and regional cooperation*, (Nairobi, UNEP, 2006).
- ICJ Reports, Judgment, The Land and Maritime Boundary Between Cameroon and Nigeria, *Cameroon v. Nigeria: Equatorial Guinea intervening*, (2002) pp. 303.
- IGAD, *CEWARN*, <http://www.igadregion.org/cewarn/>, accessed on 17 January 2016.
- IGAD, *IGAD Drought Disaster Resilience and Sustainability Initiative*, (2005), <http://resilience.igad.int/index.php/about>, accessed on 17 January 2016.
- IGAD, *IGAD Environment and Natural Resources Strategy*, (2007), http://igad.int/attachments/159_IGAD_ENR_Strategy.pdf, accessed on 17 January 2016.
- IGAD, *Intergovernmental Authority on Development*, <http://www.igadregion.org/intergovernmental-authority-on-development/>, accessed on 17 January 2016.
- Institute for nature conservation of Serbia, *Internationally important areas*, http://www.zzps.rs/novo/index.php?jezik=en&strana=zastita_prirode_medjunarodno, accessed on 21 May 2015.
- Institute of Law and Environmental Governance, *Land and Natural Resources*, (2014), <http://www.ilegkenya.org/index.php/our-work/land-natural-resources>, accessed on 9 October 2014
- International Court of Justice, *Maritime Delimitation in the Indian Ocean (Somalia v. Kenya)*, *Press release 2018/12*, (2018), <https://www.icj-cij.org/en/case/161>, accessed on 29 September 2018.
- International Development Law Organization, *IDLO in Kenya: Land, environment and natural resources management*, (2015), <https://www.idlo.int/idlo-kenya-land-environment-and-natural-resources-management>, accessed on 14 October 2018.
- International Institute for Sustainable Development, *Environmental Diplomacy and Peacebuilding*, (2013), <https://www.iisd.org/ecp/diplomacy/>, accessed on 16 December 2015.
- International Organization for Migration Kenya, *About Lokiriyama Peace Accord*, <http://kenya.iom.int/about-lokiriyama-peace-accord>, accessed 28 November 2015.
- International Organization for Migration Kenya, *Mitigating the impact of climate change among pastoralist communities*, (2011), <https://www.iom.int/jahia/webdav/shared/shared/mainsite/activities/countries/docs/kenya/Mitigating-Resource-Based-Conflict-among-Pastoralist-Host-Communities.pdf>, accessed on 13 December 2017.

- International Union for Conservation of Nature, *A Spotlight on Burkina Faso's 'W' National Park, part of the WAP Complex in West Africa*, (2015), https://www.iucn.org/about/work/programmes/gpap_home/?21739/A-Spotlight-on-Burkina-Fasos-W-National-Park-part-of-the-WAP-Complex-in-West-Africa, accessed on 14 December 2015.
- International Union for Conservation of Nature, Local rules and customary regulations on natural resource management in Lower Tana catchment, *Kenya Building Drought Resilience Project*, (Nairobi, IUCN, 2013).
- International Waters Governance, *LVBC and the LVFO*, <http://www.internationalwatersgovernance.com/lake-victoria-basin-commission-and-the-lake-victoria-fisheries-organization.html>, accessed on 1 June 2016.
- IPCC, *Climate Change 2001: Impacts, Adaptation, and vulnerability*, in J.J. McCarthy, O.F. Canziani, N.A. Leary, D.J. Dokken and K.S. White, (eds.), (UK, Cambridge University Press, 2001) pp. 36.
- IRIN, 'Analysis: Ten years of talks - and still no resolution to Nile controversy,' *IRIN Africa*, (Entebbe), 19 May 2010.
- Jägerskog, A., UNDP, *Managing Transboundary Waters for Human Development*, (2006), <http://hdr.undp.org/en/reports/global/hdr2006/papers/jagerskog%20anders.pdf>, accessed on 10 October 2014.
- Jebet, V. and K. Bett, 'Agreement: Historic pact signed in border town of Moyale; Sh. 20 billion deal to make border safe,' *Daily Nation*, (Nairobi), Tuesday, 8 December 2015.
- Joint report, 'Simmering border disputes in battle to control oil, gas,' *The East African News*, (Nairobi), Saturday, 25 August 2012 at 17:54.
- Jong, W. and K. Evans, 'Natural Resource Governance in Border Regions: From National Backwaters to Transnational Territories and Global Commons,' *Journal of US-China Public Administration*, Vol. 8, No. 8, (2011) pp. 925-936.
- Jong, W., Territorialization, regionalism and natural resource management in the Peruvian Amazon, in W. Jong, D. Snelder and N. Ishikawa (eds.), *Transborder Governance of Forests Rivers and Sea*, (London, Earthscan, 2010) pp. 67-82.
- Kabiri, N., *Global Governmental Governance and Community Based Conservation in Kenya and Tanzania*, DPhil Thesis, University of North Carolina, 2007.
- Kagwanja, P., 'Calming the Waters: The East African Community and Conflict over the Nile Resources,' *Journal of Eastern African Studies* 1, 3, (2007) pp. 321-337.
- Kahl, C.H., *States, Scarcity and Civil Strife in the Developing World*, (Princeton: NJ and Oxford, Princeton University Press, 2006).
- Kameri-Mbote, P., Environment and Conflict Linkages in the Great Lakes Region, *IELRC Working Paper* (2006), <https://www.ielrc.org/content/w0506.pdf>, accessed on 13 May 2014.
- Kamugisha, J.R. *et al.*, Parks and People-Conservation and Livelihoods at the Crossroads: Four Case Histories, *Technical Report 17*, (Nairobi, Regional Soil Conservation Unit/SIDA, 1997).
- Kansiime, F. *et al.*, 'Functioning and dynamics of wetland vegetation of Lake Victoria: An overview,' *Wetlands Ecology Management*, 15, (2007) pp. 433-451.
- Kanyadudi, O., 'Mau conservation debacle is perilous and ecological catastrophe,' *The Star*, (Nairobi), 4 August 2018 12.00 am.

- Kaplan, R., 'The coming anarchy: How scarcity, crime, overpopulation and disease are threatening the social fabric of our planet,' *Atlantic Monthly*, Vol. 273, No. 2, (1994) pp. 44-74.
- Kayumba A. A., Academia, *Preventing a potential oil ownership conflict over Ilemi Triangle*, http://www.academia.edu/6710740/Preventing_a_Potential_Oil_Ownership_Conflict_over_Ilemi_Triangle, accessed on 2 September 2014.
- Kellert, S. *et al.*, 'Community natural resource management: promise, rhetoric, and reality (PDF),' *Society and Natural Resources*, 13, (2000) pp. 705-715.
- Kelly, K. and T.F. Homer-Dixon, The Case of Gaza, Chapter 3 in T.F. Homer-Dixon and J. Blitt, (eds.), *Ecoviolence: Links Among Environment, Population, and Security*, (Lanham; MD, Rowman and Littlefield, 1998) pp. 67-107.
- Kennedy, Bingham, Environmental Security: PRB Talks with Homer-Dixon, T., Population Reference Bureau, Washington, DC, January 2001.
- Kenya Ministry of Agriculture and Rural Development, 'Policies and strategies for the delivery of veterinary services in Kenya,' *draft paper*, (Nairobi, G.o.K, 2002).
- Kenya Vision 2030, *Pillars*, (2011), <http://www.vision2030.go.ke/>, accessed on 26 June 2015.
- Kenya Wetland Forums, (2010), http://www.kenyawetlandsforum.org/index.php?option=com_content&view=article&id=24:threats-and-challenges-to-wetlands, accessed on 4 January 2015.
- Kenya Wetland Forums, (2010), <http://www.kenyawetlandsforum.org/>, accessed on 17 May 2015.
- Kenya Wildlife Service, (2014), <http://www.kws.org/>, accessed on 15 October 2014.
- Kenya Wildlife Service, 'Tsavo West National Park,' (2007), <http://www.kws.org/tsavowest.html>, accessed on 18 September 2014.
- Kenya, Atlas of Our Changing Environment, *Chapter 3: Transboundary Issues*, (2011), http://na.unep.net/atlas/datlas/sites/default/files/unepsiouxfalls/atlasbook_1135/Kenya_Screen_Chapter3.pdf, accessed on 9 October 2014.
- Khamadi, S., *Counties struggle to gain control over local natural resources in Kenya*, (2014), <http://www.shitemi.com/devolution/counties-struggle-to-gain-control-over-local-natural-resources-in-kenya/>, accessed on 14 October 2018.
- Kimaru, E., *County governments: Key to ensuring sustainable development paths*, (WWF-UK, Nairobi, 2015).
- Kitheka, J.U. *et al.*, 'Dynamics of suspended sediment exchange and transport in a degraded mangrove creek in Kenya,' *Ambio*, Vol. 31, No. 7-8, (2002) pp. 580-587.
- Kiwango, Y.A. and E. Wolanski, 'Papyrus wetlands, nutrients balance, fisheries collapse, food security and Lake Victoria level decline in 2000–2006,' *Wetlands Ecology Management*, 16, (2008) pp. 89-96.
- Krampe, F., 'Toward Sustainable Peace: A New Research Agenda for Post-Conflict Natural Resource Management,' *Global Environmental Politics*, Vol. 17, No. 4, (2017) pp. 1-8.
- Krassowska, K., *Environmental Mainstreaming in Kenya; Status and Strategies for Stability and Development*, (Nairobi, Danida, 2009).
- Kuria, D., *From a central to devolved system governing system in Kenya: Which way for natural resources?* (2014), <http://peoplefoodandnature.org/blog/from-a-central-to-devolved-governing-system-in-kenya-which-way-for-natural-resources/>, accessed on 14 October 2018.
- Lake Victoria Basin Commission, (2014), <http://www.lvbcom.org/>, accessed on 16 September 2014.

- Lake Victoria Basin Commission, *Serengeti Maasai Mara Ecosystem Joint Transboundary Ecosystem Protection and Monitoring Plan*, (Kisumu, LVBC, 2012).
- Lake Victoria Basin Commission, *Strengthening community based natural resource management in the Maasai Mara-Serengeti ecosystem*, (Kisumu, LVBC, 2011).
- Lamphear, J., The Evolution of Ateker 'New Model' Armies: Jie and Turkana in K. Fukui and J. Markakis (eds.), *Ethnicity and Conflict in the Horn of Africa*, (London, James Currey and Ohio University Press, 1994) pp.63-94.
- Lautze, J. and M. Giordano, 'Transboundary water law in Africa: Development, nature and geography,' *Natural Resources Journal*, 45, 4, (2005) pp. 1053-87.
- Leung, H., *Relationship between environmental, social and economic elements of development*, (Hong Kong, Hong Kong Baptist University, 2016).
- Lipiatou, E. *et al.*, Recent ecosystem changes in Lake Victoria reflected in sedimentary natural rocks and anthropogenic organic compounds, in T.C. Johnson, and E.O. Odada, (eds.), *The limnology, climatology and paleoclimatology of the East African lakes*, (Toronto, Gordon and Breach Publishers, 1996) pp. 523-541.
- Lokiru, F.D., *Transforming conflict across borders - the case of Kenya and Uganda*, (2014), <http://www.transconflict.com/2014/01/transforming-conflict-across-borders-kenya-uganda-281/>, accessed on 30 September 2018.
- Lomborg, B., *The Skeptical Environmentalist: Measuring the Real State of the World*, (Cambridge, Cambridge University Press, 2001).
- Lovell, C. *et al.*, 'The question of scale in integrated natural resource management,' *Conservation Ecology* 5, 2, (2002) pp. 25.
- Lubovich, K., Cooperation and Competition: Managing Transboundary Water Resources in the Lake Victoria Region, *Working Paper, No. 5*, (2009).
- Lutz, W. *et al.*, (eds.), *The End of World Population Growth in the 21st Century: New Challenges for Human Capital Formation and Sustainable Development*, (London and Sterling; VA, Earthscan, 2004).
- Maasai Mara National Reserve, *Maasai Mara National Reserve General Management Plan, 2009-2019*, (Narok, Narok & Trans Mara County Councils, 2009).
- MacDougall, I. *et al.*, Letters to nature, 'Stratigraphic placement and age of modern humans in Kibish, Ethiopia,' *Nature, International weekly journal of science*, 433, (2005) pp. 733-736.
- Magha, M. *et al.*, Beyond Boundaries: Transboundary Natural Resource Management in "W" Park, in Biodiversity Support Program, *Beyond Boundaries: Transboundary Natural Resource Management in West Africa*, (Washington D.C., Biodiversity Support Program, 2001).
- Makubuya, R. and F. Akello, UNDP, 'Delivering as One, Hand in hand towards a better future: Cross border peace dialogues promote peace among East African Pastoralist communities,' *United Nations Communications Group Newsletter*, (Uganda), October 2013.
- Maloya, H., *Community-Based Natural Resources Management - the case of Lake Chilwa Wetlands, Malawi*, (Malawi, Ramsar Convention on Wetlands/COP13, 2001), <https://www.ramsar.org/news/community-based-natural-resources-management-the-case-of-lake-chilwa-wetland-malawi>, accessed on 25 September 2018.
- Malthus, T. R., An Essay on the Principle of Population, in *The Works of Thomas Robert Malthus*, E.A. Wrigley and D. Souden (eds.), 6th ed., Vol. 2 & 3, (London, William Pickering, 1986).

- Manek, M, *The Implementation of Biodiversity-Related Conventions: A Kenyan case study report*, (Nairobi, UNEP-BPSP Project/ FIELD, 2001).
- Mangano *et al.*, ACTED; *Good practice principles and lessons learnt from cross-border programming in the dry lands of the Horn of Africa*, (2013), <http://www.disasterriskreduction.net/east-central-africa/reglap>, accessed on 21 April 2014.
- Manson, K. and B. Daragahi, 'Water: Battle of the Nile, Ethiopia \$4.8b plan to dam Africa's longest river has infuriated states downstream,' *Financial Times Analysis*, 19 June 2013.
- Marfo, E., *Powerful relations: The role of actor-empowerment in the management of natural resource conflict, A case of forest conflicts in Ghana*, PhD Thesis, Wageningen University, 2006.
- Markakis, J., *Resource Conflict in the Horn of Africa*, (London, Sage Publications, 1998).
- Masha, J., 'Kenya fares badly in human development,' *Standard Digital News-Study*, (Kenya), 13 June 2013, http://www.standardmedia.co.ke/?articleID=2000085846&story_title=study-kenya-fares-badly-in-human-development, accessed on 14 April 2014.
- Matshanda, N., *Migingo Island Dispute May Threaten East African Integration*, (Tshwane: Pretoria, African Security Analysis Programme, 2009).
- Mayell, H., 'Shrinking African Lake Offers Lessons on Finite Resources,' *National Geographic News*, 26 April 2001.
- Mbaria, J., 'Kenya and Somalia in bitter dispute over Indian Ocean border,' *The East African News*, (Nairobi), 25 October 2014 at 16:42.
- Mboya, S., 'Kenya can restore its forestry and ecology just like China has,' *Capital Digital Media*, (Nairobi), 29 March 2014.
- McQuaid, R. W., The theory of partnership: why have partnerships? In S. P. Osborne, (ed.), *Public-Private Partnerships: Theory and Practice in International Perspective*, (London, Routledge, 2000) pp. 9-36.
- Médard, C., 'Indigenous' land claims in Kenya: A case study of Chebyuk, Mount Elgon District, Pages 19-36 in W. Anseeuw and C. Alden (eds.), *The struggle over land in Africa: conflicts, politics and change*, (South Africa, HSRC Press, 2010).
- Mekonnen, D., "The Nile Basin Cooperative Framework Agreement Negotiations and the Adoption of a 'Water Security' Paradigm: Flight into Obscurity or a Logical Cul-de-sac?" *European Journal of International Law*, 21, 2, (2010) pp. 421-440.
- Mekonnen, K., *The Defects and Effects of Past Treaties and Agreements on the Nile River Waters: Whose Faults Were they?* <http://www.ethiopians.com/abay/engin.html>, accessed on 18 May 2014.
- Mellos, K., *Neo-Malthusian Theory*, In *Perspectives on Ecology*, (London, Palgrave, 1988) pp. 15-42.
- MENR, *Kenya Wetlands Atlas*, (Nairobi, Progress Press Co Ltd: Malta, 2012).
- Mildner, S.A. *et al.*, 'Scarcity and Abundance Revisited: A Literature Review on Natural Resources and Conflict,' *International Journal of Conflict and violence*, Vol. 5, 1, (2011) pp. 155-172.
- Ministry of Environment and Natural Resources/FAO, *National Integrated Natural Resources Assessment*, (2007), www.fao.org/, accessed on 8 October 2014.

- Ministry of Environment and Natural Resources, *National Action Programme; A framework for combating desertification in Kenya*, In the Context of the United Nations Convention to Combat Desertification, (Nairobi, National Environment Secretariat, 2000).
- Ministry of Environment, *Water and Natural Resources*, (2013), <http://www.environment.go.ke/?cat=28>, accessed on 8 October 2014.
- Ministry of Environment, *Draft National Climate Change Framework Policy*, (Nairobi, MEWNR, 2014).
- Ministry of Foreign Affairs of Denmark/DANIDA, *Natural Resource Management*, <http://kenya.um.dk/en/danida-en/nrm/>, accessed on 7 April 2015.
- Ministry of Foreign Affairs of Denmark/DANIDA, *Natural Resources Management Programme*, <http://kenya.um.dk/en/danida-en/nrm/annual-natural-resource-management-form/>, accessed on December 9, 2015.
- Mnjama, N., *Records Management And The Migingo Island Saga*, (SCECSAL XXth Conference Presentation, 4-8 June 2012, Nairobi: Kenya).
- Muhumed, M., 'Somalia Cabinet rejects appeal for talks on border dispute with Kenya,' *Standard Digital News*, (Nairobi), 10 June 2013, <http://www.standardmedia.co.ke/print/2000085623/somalia-cabinet-rejects-appeal-for-talks-on-border-dispute-with-kenya>, accessed on 14 August 2014.
- Muigua, K. *et al.*, *Natural resources and environmental justice in Kenya*, (Nairobi, Glennwood publishers, 2015).
- Muigua, K., *Natural Resources and Conflict Management in East Africa*, (Paper Presented at the 1st NCMG East African ADR Summit held at the Windsor Golf Hotel, 25-26 September 2014, Nairobi: Kenya).
- Muiruri, S.M., *The impact of environmental degradation on security: A case study of Mau forest*, Master of Arts degree, University of Nairobi, 2016.
- Mundy D. (ed.), 'A Question of Response Rate,' *Science Editor*, Vol 25, No. 1, (2002) pp. 25.
- Mungai, C., 'Election, maritime dispute hit Kenya oil hopes,' *The East African News*, (Nairobi), Saturday, 18 August 2012 at 17: 41.
- Muruthi, P. and K. Frohardt, The African Wildlife Foundation, *Study on the Development of Transboundary Natural Resource Management Areas in Africa: Kilimanjaro Heartland Case Study*, https://www.awf.org/old_files/documents/AWF_BSPKilicasestudy.pdf, accessed on 4 January 2016.
- Mwagiru, M *et al.*, *Borders, Frontiers and Conflict in Africa, Working Papers on Conflict management*, 3, (Nairobi, Friedrich Ebert Stiftung: Centre for Conflict Research, 2001).
- Mwakubo, S.M. *et al.*, *Status and challenges of wetlands management towards livelihood improvement: The case of Lake Victoria wetlands*, (2004), <http://users.ictp.it/~eee/workshops/smr1686/Mwakubo.doc.>, accessed on 29 December 2015.
- Mwaura, C., 'Kenya and Uganda Pastoral Conflict Case Study,' *Occasional Paper in Human Development Report*, (Nairobi: UNDP Human Development Report Office, 2005).
- Nakangu, B.B., *NRGF Challenges and Opportunities in Eastern and Southern Africa, NRGF Regional Scoping Report*, (Gland: Switzerland, IUCN/CEESP, 2016).
- Nalule, A. S., *Social Management of Rangelands and Settlement in Karamoja*, (2010), http://www.fao.org/fileadmin/user_upload/drought/docs/1_Social%20Management%20of%20Rangelands%20in%20Karamoja.pdf, accessed on 14 October, 2014.

- Nation Correspondent, 'Kenya, Tanzania to manage Mara River Ecosystem,' *Daily Nation*, (Kenya), September 16, 2014.
- National Council for Law Reporting, Kenya Law, *Legal Notice No. 160 of 2006*, <http://kenyalaw.org/kl/index.php?id=624>, accessed on 10 September 2014.
- National Geographic Wild Channel, *Ultimate Animal Countdown*, Wildlife-Swarms, 27 April 2014, 2000hrs.
- National Land Commission, (2014), <http://www.nlc.or.ke/>, accessed on 11 October 2014.
- NEMA, Kenya State of the Environment and Outlook 2010, *Supporting the Delivery of Vision 2030*, (Malta, Progress Press Co. Ltd, 2011).
- NEMA, *NEMA mandate*, (2015), http://www.nema.go.ke/index.php?option=com_content&view=article&id=80&Itemid=470, 2015, accessed on 23 June 2015.
- NEMA, *Strategic Plan 2002-2010; Abridged version*, (Nairobi, NEMA, 2005).
- Neo-Malthusians or Cornucopians? <http://www.uvm.edu/rsenr/nr2/downloads/ds4example3.pdf>, accessed on 11 April 2014.
- Ngaruiya, G.W and J. Scheffran, 'Actors and networks in resource conflict resolution under climate change in rural Kenya,' *Earth Syst. Dynam.*, 7, (2016) pp. 441–452.
- Ng'wanakilala, F., 'Tanzania suspends officials over wildlife smuggling,' *Reuters*, (Nairobi), 19 August 2011 4.46 pm.
- Niger-Thomas, A., *Women caught in armed conflict: The Cameroon Vs Nigeria sovereignty dispute over Bakassi Peninsula*, A project submitted to the WARC-WARA Peace Initiative for West Africa for the fulfillment of the December 2011 Scholarship Award.
- Nile Basin Initiative, *About Nile Basin Initiative*, (Entebbe, Nile Basin Initiative Secretariat, 2016), <http://www.nilebasin.org/>, accessed on 17 January 2014.
- Noorduyn, R., The assertion of rights to agro-pastoral land in North Cameroon: A cascade to violence? *Leiden: African Studies Centre Research Report*, 76, (2005), <https://openaccess.leidenuniv.nl/handle/1887/3022>, accessed on 20 October 2017.
- Nordas, R.N. and N.P. Gleditsch, Political Geography, Climate Change and Conflict: The Migration Link, *Coping with Crisis Working Paper Series*, (New York, International Peace Academy, 2007).
- Nunzio, J., Future Directions International, *Conflict on the Nile: The future of transboundary water disputes over the world's longest river*, (Dalkeith: Australia, Future Directions International Pty Ltd, 2013).
- Ockey G. and I. Choi, 'Structural Equation Modeling Reporting Practices for Language Assessment,' *Language Assessment Quarterly*, Vol. 12, Issue 3, (2015) pp. 305-319, Doi: 10.1080/15434303.2015.1050101.
- Odongo, L.W.R. *et al.*, Framework for natural resource governance in dryland landscapes in Kenya: Making ecosystem-based management a reality, *ILRI Policy Brief 12*, (Nairobi, ILRI, 2014).
- Odote, C., 'Kenya needs workable land use policy,' *Business Daily*, (Nairobi), Sunday, 24 June 2018 22:00
- Odote, C., *The Impact of Recent Constitutional and Land Policy Reforms on Community Conservation Initiatives in Kenya*, (Nairobi, The Nature Conservancy, 2012).
- Oduntan, G., 'Africa's border disputes are set to rise – but there are ways to stop them,' *The Conversation Media Group*, (Australia), 14 July 2015.

- Okumu, O., 'Resources and Border Disputes in Eastern Africa,' *Journal of the Eastern African Studies*, 4, 2, (2010) pp. 279-297.
- Olima, W.H.A. *et al.*, 'Towards a gender analysis model for environmental management of ecotourism resources in Kisumu County, Kenya,' *International Journal of Liberal Arts and Social Science*, Vol. 3, No. 5, (2015) pp. 123-133.
- Oluoch, N., 'Uganda slaps work visas on Kenyans in Migingo,' *The Standard*, (Kenya), 7 March 2009.
- Ongiri, I., 'Alarm as Somalia claims Kenya's territorial waters,' *Sunday Nation*, (Nairobi), 14 September 2014.
- Ongugo, P. *et al.*, *Livelihoods, natural resource entitlements and protected areas: The case of Mt. Elgon forest in Kenya*, (Muguga: Kenya, Kenya IFRI Collaborative Research Centre, 2002).
- Open Society Justice Initiative, *Legal Remedies for the Resource Curse: A digest of experience in using law to combat natural resource corruption, Annex V-Harnessing the continent's natural resources for peace and development: Civil Society Perspective-Introduction*, (New York, Open Society Institute, 2005).
- Opolot, F., 'Migingo Island Press Release,' *Uganda Media Centre*, (Kampala), 12 March 2009.
- Orach-Meza *et al.*, *Background to the preparation of the second phase of the Lake Victoria Environmental Management Project (LVEMP-II)*, Paper presented at the Regional Stakeholders' Workshop on Launching the Preparation of the LVEMP Phase Two, (2005).
- Oslo Accords, (2008), http://www.knesset.gov.il/lexicon/eng/oslo_eng.htm, accessed on 11 February 2014.
- Ostrom, E. *et al.*, *Institutional incentives and sustainable development: infrastructure policies in perspective*. (Oxford: UK, Westview Press, 1993) pp. 266.
- Osumo, W. M., '*Effects of Water Hyacinth on Water Quality of Winam Gulf, Lake Victoria*,' (Reykjavik, The United Nations University, 2001).
- Otieno, D., 'Migingo now a different kettle of fish,' *Daily Nation*, (Kenya), 29 March 2009.
- Owino, O., *et al.*, *Chapter 4, Unlocking the Future Potential for Kenya: The Vision 2030, Preliminary draft*, (2009) <http://www.csae.ox.ac.uk/conferences/2009-edia/papers/509-owino.pdf>, accessed on 16 December 2015.
- Oxfam, Kotido Pastoral Development Programme, *An overview of Oxfam GB's work in Northeastern Uganda*, http://www1.chr.up.ac.za/chr_old/indigenous/documents/Uganda/Report/OXFAM%20Kotido%20Pastoral%20Development%20Programme.pdf, accessed on 1 December 2015.
- Pavanello, S. and S. Levine, Rules of the range, Natural resources management in Kenya–Ethiopia border areas, *HPG Policy Brief 45*, (2012).
- Peluso, N. L. and M. Watts, (eds.), *Violent Environments*, (Ithaca; NY, Cornell University Press, 2001) pp. 25-26.
- Percival, V. and T. Homer-Dixon, 'Environmental Scarcity and Violent Conflict: The Case of South Africa,' *Journal of Peace Research*, 35, 3, (1998) pp. 279-298, <https://doi.org/10.1177/0022343398035003002>.
- Petsonk, C.A., 'The Role of the United Nations Environment Programme in the Development of International Environmental Law,' *American University International Law Review*, Vol. 5, Issue 2, (1990) pp. 351-391.
- Pettit, P. *Republicanism: A theory of freedom and government*, (Oxford; New York, Clarendon Press; Oxford University Press, 1997).

- Powers, J.C., Climate Change and the Turkana and Merille Conflict, *IEC Case Studies, No. 238*, (2011), <http://www1.american.edu/ted/ice/turkana-merille.htm>, accessed 12 April 2014.
- Premium Times, 'Kofi Annan attributes Africa's underdevelopment to conflicts,' *Premium Times News*, (Nigeria), 20 June 2013.
- Price, F., The Bakassi Peninsula: The Border Dispute between Nigeria and Cameroon, *ICE Case Studies, No. 163*, (2005).
- Print Edition; International, 'Rivers and conflict, Streams of blood, or streams of peace,' *The Economist*, (Nairobi), 1 May 2008.
- PRIO Network, *Maritime Conflict in Asia*, (2011), <http://www.prio.no/Maritime-Conflict-in-Asia/>, accessed on 18 January 2015.
- Raleigh, C. and H. Urdal, 'Climate Change, Environmental Degradation and Armed Conflict,' *Political Geography*, 26, 6, (2007) pp. 674-694.
- Ramanathan, T.R., *Non-Governmental Organizations and Natural Resource Management in Africa: A Literature Review*, <http://www.eldis.org/vfile/upload/1/document/0708/DOC4542.pdf>, accessed on 4 January 2016.
- Ramsar, *The Ramsar Convention and its mission*, (2014), <http://www.ramsar.org/about/the-ramsar-convention-and-its-mission>, accessed on 19 July 2014.
- Ramsar, *Wetlands of international importance*, (2014), <http://www.ramsar.org/about/wetlands-of-international-importance>, accessed on 17 May 2015.
- Ratner, B. D. *et al*, 'Addressing conflict through collective action in natural resource management,' *International Journal of the Commons*, 11, 2, (2017) pp. 877-906, DOI: <http://doi.org/10.18352/ijc.768>.
- Ratner, B.D., *Resource Conflict, Collective Action, and Resilience: An Analytical Framework*, (Presented at the CAPRI Workshop on Collective Action, Property Rights and Conflict in Natural Resources Management; 28 June-1 July 2010; Siem Reap: Cambodia).
- Regoniel, P.A., Simply Educate.Me-Environmental Issues, *Malthusians vs. Cornucopians: A Contemporary Perspective on Population Growth*, (2012), <http://simplyeducate.me/2012/12/03/malthusians-vs-cornucopians-a-contemporary-perspective-on-population-growth/>, accessed on 20 April 2014.
- Renner, M., *Fighting for Survival: Environmental Decline, Social Conflict, and the New Age of Insecurity*, 2nd ed., Worldwatch Environmental Alert Series, (New York, W.W. Norton & Co., 1996).
- Republic of Kenya/Danish Ministry of Foreign Affairs, Natural Resource Management Programme, 2010-2014, *Kenya Programme Document final, File: 104.Kenya.806-20*, (2009).
- Republic of Kenya, Economy, *Nairobi continues its growth as a regional hub*, (2010), <http://republicofkenya.org/facts/nairobi-continues-growth-regional-hub/>, accessed on 18 September 2014.
- Republic of Kenya, *Kenya National Land Policy*, (Nairobi, Government Printer, 2009).
- Republic of Kenya, *Kenya Vision 2030, The Popular Version 2007*, (Nairobi, G.o.K, 2007).
- Republic of Kenya, *National Development Plan*, (Nairobi, Government Printer, 2008).
- Republic of Kenya, *National Environment Policy*, (Nairobi, Government Printer, 2013).
- Republic of Kenya, *National Policy for the Sustainable Development of Arid and Semi-Arid Lands of Kenya*, (Nairobi, G.o.K, 2007).

- Republic of Kenya, Office of the Prime Minister, *National Regional Integration Strategy and Implementation Plan for Kenya Final Report*, (Nairobi, Charmy Inv. Ltd., 2013).
- Republic of Kenya, *The Constitution of Kenya, 2010*, (Nairobi, Government printer, 2010).
- Republic of Kenya, *The Draft National Resources Development and Management Policy*, (Nairobi, Government Printer, 2012).
- Republic of Kenya, Towards Integrated Management of Coastal and Marine Resources in Kenya, *State of the Coast Report*, (Nairobi, NEMA, 2009) pp. 88.
- Republic of Kenya, *Vision 2030 Development Strategy for Northern Kenya and other Arid Lands*, (Nairobi, Government Printer, 2011).
- Reuveny, R., 'Political Geography,' *Climate Change-induced Migration and Violent Conflict*, 26, (2007) pp. 656-73.
- RNW Media, 'River alters border of Uganda and DRC,' *Radio Netherlands Worldwide Africa*, (Uganda), 9 November 2009.
- Roberts A.M., *The role of Transboundary Natural Resources Management in Peace Building across international borders*,
<http://www.cbd.int/doc/pa/tools/The%20Role%20of%20Transboundary%20Natural%20Resource%20Management%20In%20Peace%20Building%20Acr.pdf>, accessed on 11 May 2014.
- Rocheleau, D., Gender and Environment: A Feminist Political Ecology Perspective, in *Feminist Political Ecology: Global Issues and Local Experiences*, (ed.), D. Rocheleau, B. Thomas-Slayter, and E. Wangari, 3-23, (New York, Routledge, 2013).
- Rodgers, W.A., *Community conservation of closed forest biodiversity in East Africa: Can it work?* (2002), <ftp://ftp.fao.org/docrep/fao/004/y3582e/y3582e06.pdf>, accessed on 26 October 2017.
- Rosenthal, G, *Reflections on the Meaning of 'Sustainable Peace,' Findings to the Advisory Group of Experts on the 2015 Review of the United Nations Peacebuilding Architecture*, (Presented to the Presidents of the UN General Assembly and UN Security Council, June 2015, New York; US).
- Rotich N. *et al.*, Ministry of Environment, Water and Natural resources, *Lifting the siege: Securing Kenya's wildlife, Task force on wildlife security report*, (Nairobi, MEWNR, 2014).
- Sabin, P., *The Bet, Paul Ehrlich, Julian Simon, and Our Gamble over Earth's Future*, (London; UK, Yale University Press, 2013),
<http://www.goodreads.com/book/show/17572998-the-bet>, accessed on 17 May 2014.
- SADC/ELMS, *SADC Policy and Strategy for Environment and Sustainable Development*, (Maseru, SADC/ELMS, 1996).
- Saeed, A., 'Study to Assess Factors Contributing to Conflict among Pastoralists, Agro-pastoralists and Sedentary Farmers,' *Nomadic People*, 13, 1, (2009) pp. 173-176.
- Salmi, R.H., 'Water, the red line: The interdependence of Palestinian and Israeli water resources,' *Studies in Conflict and Terrorism*, Vol. 20, Issue 1, (1997) pp. 15, 51.
- Savenije H. H. G., and P. van der Zaag, 'Conceptual Framework for the Management of Shared River Basins with Special Reference to the SADC and EU,' *Water Policy*, Vol. 2, Is. 1-2, (2000) pp. 9-45.
- Science in Africa Magazine, 'The Nile: water conflicts,' *IRIN*, (Entebbe), May 2003.
- Seal, M., Departures International, *The Fight over the Serengeti Highway*, (2013),
<http://www.departures.com/articles/the-fight-over-the-serengeti-highway>, accessed on 10 July 2014.

- Sean, A., *What future for Lake Turkana*, (Oxford, University of Oxford, 2013).
- Secretariat of the Convention on Biological Diversity, *Handbook of the Convention on Biological Diversity Including its Cartagena Protocol on Biosafety*, 3rd ed., (Montreal, Canada, 2005).
- Serengeti Watch, *World Scientists Petition for Alternate Highway/Warn of Dangers*, (2010), <http://www.savetheserengeti.org/news/highway-news/world-scientists-petition-for-alternate-highwaywarn-of-dangers/>, accessed on 11 August 2014.
- Shackleton, S. *et al.*, Devolution and community-based natural resource management: Creating space for local people to participate and benefit? *Natural Resource Perspectives*, No. 76, (2002).
- Shaka, J., Campus for Peace, UOC., 'Misingo Island: Kenyan or Ugandan Territory?' *Journal of Conflictology*, Vol. 4, Issue. 2, (2013) pp. XX-XX.
- Simon, J.L., 'Lebensraum: Paradoxically, Population Growth May Eventually End Wars,' *Journal of Conflict Resolution*, 33, 1, (1989) pp. 164-180.
- Simon, J.L., *The Ultimate Resource 2*, (Princeton, Princeton University Press, 1996).
- Singh, J., Study on the Development of Transboundary Natural Resource Management Areas in Southern Africa, *Global Review*, (Washington D.C., Biodiversity Support Program, 1999).
- Smith, R., 'Battle for Resources Grows as Lake Victoria Shrink,' *NPR News*, 29 May 2008.
- Soini, E., International Union for Conservation of Nature, *Past and present land tenure and incentives for land management in the five districts surrounding Mount Elgon*, (Nairobi, Mt. Elgon Regional Ecosystem Conservation Programme, 2007).
- SOS Sahel International UK, *Engaging Youth and Women in Natural Resource Management and Conflict Reduction Process*. Internal Report, Kadugli, South Kordofan, (UK, SOS Sahel International, 2009).
- Southern African Development Community, *Maloti Drakensberg Trans frontier Conservation and Development Area (MDTFCA/MDTP)*, <https://www.giz.de/de/downloads/giz2015-entfca-maloti-drakensberg.pdf>, accessed on 15 December 2015.
- Spearman's correlation, <http://www.statstutor.ac.uk/resources/uploaded/spearmans.pdf>, accessed on 28 October 2018.
- Stalley, P., 'Environmental Scarcity and International Conflict,' *Conflict Management and Peace Science*, 20, 1, (2003) pp. 33-58.
- Stern *et al.*, *The Economics of Climate Change*, (London, Cambridge University Press, 2007).
- Stewart, F., 'Root causes of violent conflict in developing countries,' *BMJ*, 324, 7333, (2002) pp. 342-345.
- Stoll-Kleemann, S., 'The Rationale of Socio-Economic Research for the Successful Protection and Use of Wetlands: The Example of Participatory Management Approaches,' *Hydrobiologia*, 527, (2004) 15-17. doi:10.1023/b:hydr.0000043313.98247.ef.
- Swain A., Water scarcity as a source of crises, in E.W. Nafziger, F. Stewart and R. Vayrynen, (eds.), *War, hunger and displacement: The origin of humanitarian emergencies*, (Oxford, Oxford University Press, 2000) pp. 179-205.
- Tanzania Natural Resource Forum, Best practices in wildlife management; learning from the region, *brief 6*, (2008).
- Tekle, T., 'Ethiopia, Kenya agreed to enhance border security, curb tribal clashes,' *Sudan Tribune*, (Addis Ababa), 6 June 2011.
- Terer, T. *et al.*, 'Socio-economic values and traditional strategies of managing wetland resources in Lower Tana River, Kenya,' *Hydrobiologia*, 527, (2004) 3-15.

- Thakadu, O. T., 'Success factors in community based natural resources management in northern Botswana: Lessons from practice,' *Natural Resources Forum*, 29, 3, (2005) pp. 199-212. doi:10.1111/j.14778947.2005.00130.x.
- The Concise Encyclopedia of Economics, "Thomas Robert Malthus, "(1766-1834)," (2015), <http://www.econlib.org/library/Enc/bios/Malthus.html>, accessed 17 March 2014.
- The Economist, 'Rivers and conflict, Streams of blood, or streams of peace, Talk of thirsty armies marching to battle is surely overdone, but violence and drought can easily go together,' *The Economist*, (Nairobi), 1 May 2008).
- The EU-UN Partnership on Land, *Natural Resources and Conflict Prevention*, (2020), <https://www.un.org/en/land-natural-resources-conflict/>, accessed on 24 October 2020.
- The Institute of Economic Affairs, *Biodiversity related international initiatives and national policy coherence for development and poverty reduction in Kenya, Issue 23*, (2009) pp. 1-12.
- Theisen, O. M., *Other Pathways to Conflict? Environmental Scarcities and Domestic Conflict*, (Paper presented at the 47th Annual Convention of the International Studies Association, 22-25 March 2006, San Diego: CA).
- The Macaulay Institute, *Bordering on a water crisis: The Need for Integrated Resource Management in the Mara River Basin, Policy brief*, <http://www.macaulay.ac.uk/INTREPID/PolicyBrief.pdf>, accessed on 14 August 2014.
- The Redd desk project, *Ministry of Environment and Mineral Resources-Kenya*, (2015), <http://theredddesk.org/countries/actors/ministry-environment-and-mineral-resources-kenya>, accessed on 5 December 2015.
- The Sojourner Project, *In the Face of a Receding Lake, Water Conflict at the Ethiopia-Kenya Border*, (2012), <https://thesojournerproject.wordpress.com/category/globalization/africa/ethiopia/>, accessed on 17 May 2014.
- The World Bank Group, *GDP growth (annual %)*, <http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?page=1>, accessed on 13 January 2016.
- The World Bank Group, World Development Indicators database, *Gross domestic product 2014*, (2015), <http://databank.worldbank.org/data/download/GDP.pdf>, accessed on 9 December 2015.
- Thiago, A. *et al*, 'Economic growth and environmental impacts: An analysis based on a composite index of environmental damage,' *Ecological indicators*, Vol. 76, c, (2017) pp. 119-130, <https://doi.org/10.1016/j.ecolind.2016.12.028>.
- Thiongo, J., 'State launches Sh20bn programme in Marsabit,' *The Standard*, (Nairobi), Tuesday, 8 December 2015.
- Thirgood, S., 'Can parks protect migratory ungulates? The case of the Serengeti wildebeest,' *Animal Conservation*, Vol. 7, issue 2, (2004) pp. 113-120.
- Timura, C.T., 'Environmental Conflict and the Social Life of Environmental Security Discourse,' *Anthropological Quarterly*, Vol. 74, No. 3, (2001) pp.104-113.
- Townsend, R., *Resolving Disputes over Natural Resources in Disputed Areas*, Issue Brief for the GA First Committee-DISEC, (Norfolk, ODUMUNC, 2015).
- Transboundary ecology, *Description and definition of transboundary impacts and resources; Distinguishing between transboundary resources and transboundary impacts*, http://mekong.riverawarenesskit.org/html/1.11.2_description_transboundary.html, accessed on 25 September 2018.

- Trombetta, M.J., 'Environmental Security and Climate Change: Analyzing the Discourse,' *Cambridge Review of International Affairs*, 21, No. 4, (2008) pp. 585-602.
- Trouwborst, A., Law and conservation conflicts in S.M. Redpath, R.J. Gutiérrez, K.A. Wood and J.C. Young (eds.), *Conflicts in Conservation: Navigating towards Solutions*, (UK, Cambridge University Press, 2015).
- UN, Agenda 21, Chapter 27, *Strengthening the Role of Non-Governmental Organizations: Partners for Sustainable Development*, (1993), http://www.un.org/esa/dsd/agenda21/res_agenda21_27.shtml, accessed on 4 January 2016.
- UN, *Bakassi Peninsula: Recourse to the law to prevent conflict*, <http://www.un.org/events/tenstories/06/story.asp?storyID=900>, accessed on 5 September 2014.
- UN, Safeguarding environment transcends divisions, compels long-term cooperation, says secretary-general in message to UNEP Governing Council, *Press Release SG/SM/6155 HE/945*, (1997).
- UN, *Status of environment and natural resources statistics in Kenya*, https://unstats.un.org/unsd/environment/envpdf/UNSD_UNEP_ECA%20Workshop/Kenya.pdf, accessed on 25 September 2018.
- UN, *Transforming our world: The 2030 Agenda for Sustainable Development*, <https://sustainabledevelopment.un.org/post2015/transformingourworld>, accessed on 16 December 2015.
- UN, United Nations Expert Group Conference Report on *Natural Resources and Conflict in Africa: Transforming a Peace Liability into a Peace Asset*, (United Nations Expert Group Conference, 17-19 June 2006, Cairo, Egypt).
- UN, United Nations Report of the Open-ended Ad Hoc Working Group on the Causes of Conflict and the Promotion of Durable Peace and Sustainable Development in Africa, *Fifty-sixth Session, Supplement No. 45 (A/56/45)*, (2001).
- UNDESA, *Integrated Water Resources Management*, (2014), <http://www.un.org/waterforlifedecade/iwrm.shtml>, accessed on 12 October 2017.
- UNDP, *Sustainable Development Goals (SDGs)*, (2015), <http://www.undp.org/content/undp/en/home/mdgoverview/post-2015-development-agenda.html>, accessed on 16 December 2015.
- UNEP, Africa Environment Outlook 2, *Harnessing the opportunities for environment and development*, (2006), <http://www.unep.org/dewa/Africa/publication/AEO-2/content/0.28.html>, accessed on 13 August 2014.
- UNEP, Africa Environmental Outlook 2, Policy and legal responses to sustainable development, *Peace, development and environmental cooperation*, (2006), <http://www.unep.org/dewa/Africa/publications/AEO-2/content/026.htm>, accessed on 2 September 2014.
- UNEP, Disasters and Conflicts, *Environmental Diplomacy and Mediation Support*, <http://www.unep.org/disastersandconflicts/Introduction/ECP/EnvironmentalDiplomacy/ta/bid/105991/Default.aspx>, accessed on 16 December 2015
- UNEP et al., *Women and Natural Resources Unlocking the Peacebuilding Potential*, (Nairobi, UNEP, 2013).
- UNEP, From conflict to peacebuilding: The role of natural resources and the environment, *Policy Paper No. 1*, (2009).

- UNEP, *'Lake Victoria Basin Environment Outlook: Environment and Development,'* (Nairobi, UNEP, 2006).
- UNEP, *'Toolkit and Guidance for Preventing and Managing Land and Natural Resources Conflicts, Renewable resources and conflict,'* (Nairobi, UNEP, 2012).
- UNEP, United Nations Conference on Environment and Development, *The Rio Declaration on Environment and Development; Principle 10,* (The Rio Earth Summit, 3-14 June 1992, Rio de Janeiro: Brazil).
- UNEP/WCMC, *World Database on Protected Areas,* (2007), <http://www.unep-wcmc.org/wdpa/index.htm>, accessed on 11 October 2014.
- UNESCO, *International Day of Peace; Sustainable Peace for a Sustainable Future,* (Proceedings of the High-Level Debate organized by UNESCO, 21 September 2012, Paris: France).
- UNESCO, *Lake Turkana National Parks,* (2015), <http://whc.unesco.org/en/list/801>, accessed on 30 May 2015.
- UNESCO, *Lamu Old Town,* (2015), <http://whc.unesco.org/en/list/1055>, accessed on 20 May 2015.
- UNESCO, *Mt. Kenya National Park/Natural Forest,* (2014), <http://whc.unesco.org/en/list/800>, accessed on 10 August 2014.
- UNESCO, *Serengeti National Park,* (2015), <http://whc.unesco.org/en/list/156>, accessed on 9 June 2015.
- UNESCO, *State of Conservation (SOC); Lamu Old Town -Kenya,* (2012), <http://whc.unesco.org/en/soc/241>, accessed on 17 April 2015.
- UNESCO, *World Heritage Convention,* (2014), <http://whc.unesco.org/en/convention/>, accessed on 15 September 2014.
- United Nations, *A More Secure World: Our Shared Responsibility,* Report of the High-level Panel on Threats, Challenges and Change, (United Nations, 2004, New York; US), <http://www.un.org/secureworld/report2.pdf>, accessed on 22 February 2014.
- United Nations, *Convention on Biological Diversity,* (1992), <https://www.cbd.int/doc/legal/cbd-en.pdf>, accessed on 14 July 2014.
- United Nations, *Rio Declaration on Environment and Development in Report of the United Nations Conference on Environment and Development, A/CONF.151/26 Vol. I. Annex 1,* (The Rio Earth Summit, 3-14 June. 1992, Rio de Janeiro: Brazil).
- United Nations, *Sustainable development knowledge platform: Kenya; Voluntary national review 2017,* (2017), <https://sustainabledevelopment.un.org/memberstates/kenya>, accessed on 28 September 2018.
- United Nations, *The Challenge of Sustaining Peace: Report of the Advisory Group of Experts on the Review of the Peacebuilding Architecture,* UN Doc, A/69/968-S/2015/490, 30 June 2015.
- United Nations, United Nations Expert Group Conference Report on Natural Resources and Conflict in Africa, *Transforming a Peace Liability into a Peace Asset,* (United Nations Expert Group Conference, 17-19 June 2006, Cairo: Egypt).
- United States Geological Survey, Mkomazi Game Reserve, *Tanzania Product Summary,* (2008), <http://edc2.usgs.gov/pathfinder/mkomazi/mkt050af.php>, accessed on 30 September 2014.
- United States Institute of Peace, Natural Resources, Conflict, and Conflict Resolution, *A Study Guide Series on Peace and Conflict for Independent Learners and Classroom Instructors,* (Washington D.C., USIP, 2007).

- Upreti, B.R., *Conflict Management in Natural Resources: A Study of Land, Water and Forest Conflicts in Nepal*, Dissertation, Wageningen University, 2001.
- Urdal, H., 'People vs Malthus: Population Pressure, Environmental Degradation and Armed Conflict Revisited,' *Journal of Peace Research*, 42, 4, (2005) pp. 417-434.
- Urdal, H., 'Population, Resources, and Political Violence,' *Journal of Conflict Resolution*, 52, 4, (2008) pp. 590-617.
- Urmilla, B. and Bronkhorst, S., '*Environmental conflicts: Key issues and management implications*,' (2002), pp. 9,
<https://www.ajol.info/index.php/ajcr/article/viewFile/63307/51191>, accessed 30 September 2018.
- USAID, *East Africa regional conflict and instability assessment final report*, (2012),
<http://conflict.care2share.wikispaces.net/file/view/USAID+East+Africa+Conflict+Assessment+March2012.pdf>, accessed on 27 September 2018.
- US Department of Agriculture, Foreign Agricultural Service, '*Historical Water Level Gauge Data from Jinja, Uganda near Lake Victoria's Outlet*,' (2005),
http://www.fas.usda.gov/pecad/highlights/2005/09/uganda_26sep2005/index.htm, accessed on 11 October 2014.
- US Department of Labor, 'Comparative Job Performance by Age; Large Plants in the Men's Footwear and Household Furniture Industries,' *Monthly Labor Review*, No. 80, (1957) pp. 1468-1471.
- US Embassy in Kenya, *USAID Launches Environment and Natural Resource Management Office IN Kenya*, (2014), <https://ke.usembassy.gov/usaids-launches-environment-and-natural-resource-management-office-in-kenya/>, accessed on 26 September 2018.
- Van de Giessen, E., Institute for Environmental Security, *Peace Park amid Violence? A report on environmental security in the Virunga-Bwindi region*, (The Hague, IES, 2005).
- Van der Linde, H. *et al.*, *Beyond Boundaries: Transboundary Natural Resource Management in Sub-Saharan Africa*, with contributions from Anada Tiéga and Thomas Price, (Washington D.C, Grammarians Inc. /Biodiversity Support Program, 2001).
- Vanderveest, P. and N. Peluso, 'Territorialization and state power in Thailand,' *Theory and Society*, 24, (1995) pp. 385-426.
- Venema, J. and S. Bunning, FAO, Assessment of transboundary issues in relation to sustainable land management in Sub-Saharan Africa: A review, *Project Development Facility for TerrAfrica and the associated Strategic Investment Program (SIP) for Sustainable Land Management in Sub-Saharan Africa*, Activity 1-3, (Rome, FAO, 2007).
- Visser, L. E. and D. S. Adhuri, Territorialization reexamined: Transponder marine resources exploitation in Southeast Asia and Australia, in W. de Jong, D. Snelder and N. Ishikawa (eds.), *Transborder Governance of Forests Rivers and Seas*, (London, Earthscan, 2010) pp. 83-98.
- WAC, '*Restoring Kenya's Degraded Land*,' (Nairobi, World Agro forestry Centre, 2008).
- Waddilove, H., *Cross-Border Resource Management: How Do the Nile Countries Fare?* (2012),
<https://www.internationalrivers.org/resources/cross-border-resource-management-how-do-the-nile-countries-fare-7736>, accessed on 19 January 2019.
- Wafula, O., 'Resources and border disputes in Eastern Africa,' *Journal of Eastern African Studies*, 4, 2, (2010) pp. 279-297, Doi: 10.1080/17531055.2010.487338.

- Wagenet, L.P. and M.J. Pfeffer, 'Organizing Citizen Engagement for Democratic Environmental Planning,' *Society and Natural Resources*, Vol. 20, Issue 9, (2007) pp. 801-813 doi:10.1080/08941920701216578.
- Walker, D., 'An Under-Reported War Over Water,' *Photo District News Features*, 26 January 2011.
- Wallenstein, P. and Sollenberg, M., 'The end of international war? Armed conflict, 1989–95,' *Journal of Peace Research*, 33, (1996) pp. 353-70.
- Wario, R. A. *et al.*, *Scarcity of natural resources and pastoral conflicts in northern Kenya: An inquiry*, (Amsterdam, Amsterdam Institute for Social Science Research, 2009).
- Watts, M., *The Sinister Political Life of Community: Economies of Violence and Governable Spaces in the Niger Delta, Nigeria*, *Working Paper 3* (Berkeley: CA, University of California: Institute of International Studies, 2004).
- Wells, M.P. and T.O. McShane, 'Integrating Protected Area Management with Local Needs and Aspirations,' *Ambio*, 33, 8, (2004) pp. 513-519.
- Westing, A. H., 'Establishment and management of transfrontier reserves for conflict and prevention and confidence building,' *Environmental Conservation*, 25, 2, (1980) pp. 91-94.
- Wetlands International, *Degradation of Kenya's wetlands*, (2014), <http://www.wetlands.org/OurWork/Ouractionstobedeleted/Kimanawetlands,Kenya/DegradationofKenya%E2%80%99swetlands/tabid/2257/Default.aspx>, accessed on 17 May 2015.
- Wetlands International, *What are wetlands?* (2014), <https://rsis.ramsar.org/>, accessed on 18 May 2015.
- Wingfield-Hayes, R., 'Why China warned US to stay away,' *BBC News Magazine*, (Tokyo), 24 June 2015.
- Wolf, A.T. *et al.*, *Managing Water Conflict and Cooperation*, in M. Renner *et al.*, (eds.), *State of the World 2005: Redefining Global Security*, (New York and London, W.W. Norton & Co., 2005) pp. 80-95.
- Wolfgram, A.F., *Population, Resources and Environment: A Survey of the Debate*, (2005), <http://www-rohan.sdsu.edu/faculty/dunnweb/rprnts.2005.10.10Malthus.pdf>, accessed 17 April 2014.
- Wonnacott, T.H. and R.J. Wonnacott, *Introductory Statistics*, 5th ed., (New York, John Wiley & Sons, 1990).
- Woodley, D., 'The Challenges of Running Kenya's Biggest National Park,' *Tsavo Trilogy*, (2008), <http://tsavotriology.com/10.html>, accessed on 12 October 2014.
- Woodroffe, R. *et al.*, *Omo-Gibe River integrated basin development master plan study, Final report for the Ministry of Water Resources of the Federal Democratic Republic of Ethiopia, Vol. 15*, (Addis, Mascott Ltd, 1996).
- World Bank data, (2013), <http://data.worldbank.org/country/kenya>, accessed 17 March 2014.
- World Bank, 'Kenya Tanzania and Uganda: Lake Victoria Environment Management Project,' *GEF Documentation Report No. 1552=41-ARF*, (1996).
- World Trade Organization, *World Trade Report 2010: Trade in Natural Resources*, (Geneva; Switzerland, WTO, 2010).
- WREM International, *Mara River Basin, Nile Basin Initiative: Nile Equatorial Lake Subsidiary Action Program, 2007-2008*, <http://www.wremintl.com/index.php/Recent-Projects/mara-river-basin>, accessed on 12 May 2015.

- WRI, *‘Watersheds of the World: Lake Turkana Watershed and Earth Trends,’* (Washington D.C., World Resources Institute, 2002).
- WWF, East African Marine Eco-region Programme; *The Root Causes of Biodiversity Loss, Synthesis report,* (Nairobi, WWF-EARPO, 2001).
- WWF Global, *Managing the Mara River in Kenya and Tanzania,* (2015), http://wwf.panda.org/who_we_are/wwf_offices/tanzania/?uProjectID=9F0749, accessed on 3 December 2014.
- WWF Global, *Massive loss of elephants in the Mara Serengeti ecosystem concerns conservationists,* (2014), <http://wwf.panda.org/?227810/Massive-Loss-of-Elephants-in-the-Mara-Serengeti-Ecosystem-concerns-Conservationists>, accessed on 16 September 2014.
- WWF Global, *‘Transboundary Water in the Mara River Basin,’ Where We Work.* (Gland; Switzerland, World Wildlife Fund, 2006).
- WWF, Mara River Basin Management Initiative: Kenya and Tanzania, *Phase III-final evaluation report,* (Norway, WWF, 2013).
- WWF-UK, *Natural resource management and the importance of gender,* (UK, WWF-UK, 2012), https://d2ouvy59p0dg6k.cloudfront.net/downloads/women_conservation_overview_2012.pdf, accessed on 24 September 2018.
- Yatich T. *et al.*, Policy and institutional context for NRM in Kenya: Challenges and opportunities for Landcare, *ICRAF Working paper No. 43,* (Nairobi, World Agroforestry Centre, 2007).
- Young, S.T and K.K. Dhanda, Sustainability: Essentials for Business, Part III Stakeholder Interest and Choices, *Chapter 9; Role of Governments and Nongovernmental Organizations in promoting sustainability,* (London, SAGE Publications Inc., 2013).

RESEARCH INSTRUMENTS

APPENDIX 1: RESEARCH QUESTIONNAIRE

GENERAL INFORMATION

Questionnaire Number _____

Name and designation of Respondent _____

Place of interview _____

Date of Interview _____

My name is Ombara Isaac, a Doctor of Philosophy (Ph.D.) in International Studies candidate at the University of Nairobi. I am conducting my Ph.D. research on ‘Cross border natural resource management and sustainable peace in eastern Africa region: A case study of Kenya.’ You have been identified to offer essential information for this study so kindly help me fill in this questionnaire. All answers provided will be acknowledged, treated with confidentiality and strictly used only for academic purposes. Where choices are provided please tick as appropriate and where there are no options, please respond in your own words. Your participation is highly appreciated.

PERSONAL PARTICULARS

(Tick or record the responses appropriately)

1. Gender

- a) Male
- b) Female

2. Age

- a) 18 – 25
- b) 26 – 35
- c) 36 – 45
- d) 46 – 55
- e) Above 55

3. Education level of respondent

- a) None
- b) Primary
- c) Secondary
- d) Tertiary/Graduate
- a) Post Graduate
- b) Other (Please specify) _____

GENERAL KNOWLEDGE

4. Do you know what ‘cross border natural resources’ mean?

- a) Yes
- b) No

5. If ‘Yes,’ please explain.

6. Which one of the following are the most important resources in Kenya?

- a) Water resources
- b) Land resources
- c) Wildlife and Biodiversity
- d) Forest resources
- e) Others (Please specify) _____

7. What are some of the benefits derived from natural resources in Kenya?

- a) Livelihood support
- b) Political and economic benefits
- c) Socio-cultural esteem and heritage
- d) Abode for other resources
- e) Other (Please specify) _____

STATE OF CROSS BORDER NATURAL RESOURCE MANAGEMENT IN KENYA

8. How important is cross border natural resource management in Kenya?

- a) Very important
- b) Important
- c) Less important
- d) Not important
- e) Don't know

9. If affirmative, please explain importance.

10. What is the current state of cross border natural resource management in Kenya?

- a) Good
- b) Not good, but under control
- c) Bad
- d) Very bad

e) Not sure

11. Do you know of any cross border natural resource management challenges in Kenya?

a) Yes []

b) No []

12. If 'Yes,' please explain (list them).

13. To what extent does the challenges (listed in 12 above) impact the resources and communities alike?

a) Very great extent []

b) Great extent []

c) Fair extent []

d) Low extent []

e) Don't know []

14. Are there any milestones in the management of cross border natural resources in Kenya?

a) Yes []

b) No []

15. If 'Yes,' please explain (list them).

**CROSS BORDER NATURAL RESOURCE MANAGEMENT
FRAMEWORKS IN KENYA**

16. Are you aware of any cross border natural resource management levels in Kenya?

- a) Yes ()
- b) No ()

17. If 'Yes,' please explain (list them).

18. In your opinion, would you say that the existing cross border natural resource management frameworks in Kenya were representative of the country's posterity plans?

- a) Yes ()
- b) No ()

19. If 'Yes,' please explain.

20. If 'No,' please explain.

21. In your opinion do you think the Government of Kenya has done enough in ensuring that the desired cross border natural resource management frameworks are in place to serve Kenya's development interest?

- a) Yes ()
- b) No ()

22. If 'Yes,' kindly explain.

23. If 'No,' kindly explain.

24. Are there achievements and best practices in cross border natural resource management in Kenya?

- a) Yes []
b) No []

25. If 'Yes,' please explain (list them).

ROLES AND RESPONSIBILITIES OF VARIOUS ACTORS IN CROSS BORDER
NATURAL RESOURCE MANAGEMENT IN KENYA

26. Who are the key stakeholders in cross border natural resource management in Kenya?

27. Are you aware of the roles and responsibilities of various actors in cross border natural resource management in Kenya?

- a) Yes []

b) No { }

28. If 'Yes,' kindly explain (list them)

29. If 'No,' kindly explain.

30. To what degree does the roles and responsibilities of various actors impact cross border natural resource management in Kenya?

- a) Very much { }
- b) Much { }
- c) Fairly { }
- d) Slightly { }
- e) Don't know { }

31. Do you know of any role that gender plays in cross border natural resource management in Kenya?

- a) Yes { }
- b) No { }

32. If 'Yes,' kindly explain.

PLANNED AND CONTINUING CROSS BORDER NATURAL RESOURCE
MANAGEMENT INITIATIVES IN KENYA

33. Are there cross border natural resource management initiatives you are aware of between Kenya and its eastern Africa counterparts?

- a) Yes
- b) No

34. If 'Yes,' please explain.

35. Who bears patronage responsibility over the cross border natural resource management initiatives?

- a) Government of Kenya
- b) Governments of Kenya and its eastern Africa counterparts
- c) Public-Private Partnerships
- d) Development partners and Associate agencies
- e) Communities residing with/controlling/using the resources
- f) Others (Please specify) _____

36. What would be the constraints on the initiatives (in 33 above)?

- a) Inadequate resources
- b) Competing and varied interests among actors
- c) Weak management frameworks and capacities within states.
- d) Lack of commitment and cooperation by countries involved
- e) Others (Please specify) _____

37. Are there other ventures to complement cross border natural resource management, sustainable peace and cooperation in eastern Africa region?

- a) Yes

- b) No []
- c) Don't know []

38. If 'Yes,' please explain.

IMPACT OF CROSS BORDER NATURAL RESOURCE MANAGEMENT ON
SUSTAINABLE PEACE IN EASTERN AFRICA REGION: A CASE STUDY OF KENYA

39. What do you understand by sustainable peace?

40. Are you aware of any conflicts arising from cross border natural resource administration in Kenya?

- a) Yes []
- b) No []

41. If 'Yes,' please explain.

42. What opportunities are there for sustainable peace within cross border natural resource management frameworks in Kenya?

43. Is there any role that cross border natural resource management in Kenya can play in enhancing greater cooperation between Kenya and its eastern Africa neighbours?

- a) Yes []
- b) No []

44. If 'Yes,' please explain.

45. If 'No,' please explain.

46. Are reforms necessary in cross border natural resource management approaches towards conservation, sustainable peace and development in eastern Africa?

- a) Yes []
- b) No []

47. If 'Yes,' please explain.

48. In your overall assessment, do you think effective cross border natural resource management in Kenya would help promote peace in eastern Africa and even steer development within and beyond the region?

- a) Yes []
- b) No []

49. If 'Yes,' please explain.

50. If 'No,' please explain.

APPENDIX 2: INTERVIEW GUIDE

1. What is the meaning of 'cross border natural resource management'?
2. Why is cross border natural resource management important?
3. Which are the most important ecosystem natural resources in Kenya?
4. What are some of the benefits derived from natural resources in Kenya?
5. What is the current status of cross border natural resource management in Kenya?
6. Are there achievements, milestones and best practices in cross border natural resource management in Kenya?
7. What are the challenges facing cross border natural resource management in Kenya?
8. What are the existing frameworks for cross border natural resource management in Kenya?
9. Are the existing cross border natural resource management frameworks in Kenya representative of the country's posterity plans?

10. Do you think the Government of Kenya has done enough in ensuring that the desired cross border natural resource management frameworks are in place to serve Kenya's development interest?
11. Who are the stakeholders in cross border natural resource management in Kenya?
12. What are the roles of various stakeholders in cross border natural resource management in Kenya?
13. To what degree does the roles and responsibilities of various actors impact cross border natural resource management in Kenya?
14. Do you know of any role that gender plays in cross border natural resource management in Kenya?
15. Are there cross border natural resource management initiatives you are aware of between Kenya and its eastern Africa counterparts?
16. Who bears patronage responsibility over the cross border natural resource management initiatives in eastern Africa?
17. What would be the constraints on the cross border natural resource management initiatives in eastern Africa?
18. Are there other ventures to complement cross border natural resource management, sustainable peace and cooperation in eastern Africa region?
19. What do you understand by sustainable peace?
20. Are you aware of any conflicts arising from cross border natural resource administration in Kenya?
21. Are there opportunities for sustainable peace within cross border natural resource management frameworks in Kenya?
22. Is there any role that cross border natural resource management in Kenya can play in enhancing greater cooperation between Kenya and its eastern Africa neighbours?
23. Are reforms necessary in cross border natural resource management approaches towards conservation, sustainable peace and development in eastern Africa?
24. Do you think effective cross border natural resource management in Kenya would help promote peace and spur development in eastern Africa region?

APPENDIX 3: RESEARCH PERMITS

a). Research Permit for 2016 - 2017

THIS IS TO CERTIFY THAT:
MRS. ISAAC ONDUSIE OMBARA
of UNIVERSITY OF NAIROBI, 0-100
Nairobi, has been permitted to conduct
research in All Counties
on the topic: IMPACT OF CROSS
BORDER NATURAL RESOURCE
MANAGEMENT ON SUSTAINABLE PEACE
IN EASTERN AFRICA REGION: A CASE
STUDY OF KENYA
for the period ending:
25th July, 2017.

Permit No. : NACOSTI/P/16/31279/12749
Date Of Issue : 25th July, 2016
Fee Received : Ksh 2000

(Signature)
Director General
National Commission for Science, Technology & Innovation



CONDITIONS

- 1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit**
- 2. Government Officers will not be interviewed without prior appointment.**
- 3. No questionnaire will be used unless it has been approved.**
- 4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.**
- 5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.**
- 6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice**

RESEARCH CLEARANCE PERMIT

Serial No. A 10280

CONDITIONS: see back page



REPUBLIC OF KENYA



National Commission for Science, Technology and Innovation

b). Research Permit for 2018 - 2019 (Renewed/Extended)

**THIS IS TO CERTIFY THAT:
MR. ISAAC ONDUSIE OMBARA
of UNIVERSITY OF NAIROBI, 0-100
Nairobi, has been permitted to conduct
research in All Counties**

**Permit No : NACOSTI/P/18/31279/23498
Date Of Issue : 19th July,2018
Fee Received :Ksh 2000**

**on the topic: *IMPACT OF CROSS
BORDER NATURAL RESOURCE
MANAGEMENT ON SUSTAINABLE PEACE
IN EASTERN AFRICA REGION: A CASE
STUDY OF KENYA***



**for the period ending:
19th July,2019**


.....
**Applicant's
Signature**


.....
**Director General
National Commission for Science,
Technology & Innovation**

CONDITIONS

1. The Licence is valid for the proposed research, research site specified period.
2. Both the Licence and any rights thereunder are non-transferable.
3. Upon request of the Commission, the Licensee shall submit a progress report.
4. The Licensee shall report to the County Director of Education and County Governor in the area of research before commencement of the research.
5. Excavation, filming and collection of specimens are subject to further permissions from relevant Government agencies.
6. This Licence does not give authority to transfer research materials.
7. The Licensee shall submit two (2) hard copies and upload a soft copy of their final report.
8. The Commission reserves the right to modify the conditions of this Licence including its cancellation without prior notice.



REPUBLIC OF KENYA



**National Commission for Science,
Technology and Innovation
RESEARCH CLEARANCE
PERMIT**

Serial No.A 19526

CONDITIONS: see back page

APPENDIX 4: CERTIFICATE OF CORRECTIONS

UNIVERSITY OF NAIROBI
Faculty of Social Sciences
Department of Diplomacy and International Studies

INTERNAL MEMO

FROM: DIRECTOR, IDIS

DATE: APRIL 28, 2021

TO: DIRECTOR, GRADUATE SCHOOL

REF: R80/50514/2016

**SUBJECT: CERTIFICATE OF CORRECTIONS: MR ISAAC OMBARA
PHD THESIS**

I the undersigned hereby certify that Mr. Isaac Ombara, whose PhD thesis in the academic field of International Studies entitled: **CROSS BORDER NATURAL RESOURCE MANAGEMENT AND SUSTAINABLE PEACE IN EASTERN AFRICA REGION: A CASE STUDY OF KENYA**, has done all the corrections as requested by the Board of Examiners, as contained in the attached oral defense minutes and a hard copy of the revised PhD thesis.

Thanking you for your continued support.

A circular purple stamp from the University of Nairobi, Faculty of Social Sciences, Department of Diplomacy and International Studies. The stamp contains the word "APPROVED" at the top and "SIGN:....." at the bottom. A handwritten signature in blue ink is written over the stamp.

Prof. Maria Nzomo
Director, IDIS
& Professor of International Relations & Governance

APPENDIX 5: CERTIFICATE OF ORIGINALITY

Cross border natural resource management and sustainable peace in eastern Africa region:

A case study of Kenya

ORIGINALITY REPORT

9%

SIMILARITY INDEX

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INTERNET SOURCES

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PUBLICATIONS

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