DIPLOMATIC INTERVENTIONS IN MITIGATING ADVERSE EFFECTS OF CLIMATE CHANGE; THE CASE OF KENYA

BY

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AUGUST, 2018

DECLARATION BY THE CANDIDATE

The present work as stated above is of original nature and the conclusions are based on the data collected by myself. To the best of my knowledge this work has not been submitted previously, for the award of any degree or diploma, to this or any other University.

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DEDICATION

I dedicate this thesis to my siblings, my Mum and my late Dad, my friend's and comrades in MDF class 2016 Moi University Chapter. My research assistants Savwa Duncan and Nobert for the support throughout the project and for the many hours of proofreading, I further dedicate this work and give special thanks to my best friend, my wife and my wonderful children Kiprop, Kiplangat and Cherono for being there for me throughout the entire master's program. All of you have been my best cheerleaders.

ABSTRACT

Kenya has been experiencing climate change in recent years. Rainfall in this case has also been seen to vary with time therefore skillful monitoring, prediction and early warning of the extreme weather events is crucial in the planning and management of all rain dependent socio-economic activities. They are also vital for the development of effective disaster preparedness strategies.

The main objective of this paper is therefore to investigate measures that are needed to curb and mitigate adverse climate change effects.

The concept of vulnerability in climate change literature is underpinned by various theoretical contributions across different disciplines leading to differing understandings of what climate change effects entails. Several contributors and actors have helped not only to frame and shape different understanding of the adverse effects of climate change but also to define the conceptual and analytical elements considered as critical in any climate change vulnerability assessment.

The purpose of this thesis is to review the literature on climate change adverse effects and vulnerability and explore and synthesize those conceptual and analytical aspects considered fundamental in a vulnerable assessment and adverse climate change effects.

The design, methodology and approach that has been used in this research is based on the existing literature on adverse effects of climate change. The paper provides a review of the conceptual elements regarded as critical in integrated assessments of the adverse effects of climate change.

The findings that this paper has come up with includes: - a review of the existing literature review on issues to do with human environment interaction and interference, key components of adverse climate change effects, appropriate solutions, data analysis, comparative study, causal structures, engaging stakeholders, historical and prospective analysis and dealing with uncertainty. The paper presents a clear knowledge on existing literature on climate change as well as the legal framework that are in place to address adverse effects of climate change. The principal conclusion and recommendation that this paper has made is that Kenya should put in place proper legal framework on measures that mitigates climate change by ratifying both National and International legal instruments.

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ACRONYMS AND ABBREVIATIONS

AMCE	**African Ministerial Conference on the Environment**
ASALs	**Arid and Semi-Arid Lands**
AU	**African Union**
BASIC	**Brazil China India South Africa**
CAHOSCC	**Committees of Africa Heads of State and Government**
CIGI	**Centre for International Governance Innovation**
COP	**Climate Change Parties**
FCPF	**Forest Carbon Partnership Facility**
FiT	**Feed in Tariffs**
GHE	**Green House Effect**
GHG	**Green House Gas Emission**
IBSA	**India, Brazil and South Africa**
INDCs	**Intended Nationally Determined Contributions**
IPCC	**Inter-Governmental Panel on Climate Change**
KFS	**Kenya Forest Service**
KMD	**Kenya Meteorological Department**
KWS	**Kenya Wildlife Service**
MDGs	**Millennium Development Goals**
MTPs	**Medium Term Plans**
NAMAs	**Nationally Appropriate Mitigation Actions**
NCCAP	**National Climate Change Action Plan**
NCCRS	**National Climate Change Response Strategy**
NEMA	**National Environment Management Authority**
NGOs	**Non-Governmental Organizations**
RECs	**Regionally Economic Communities**
RECs	**Regional Economic Bodies**

REDD+ Strategy	**Reducing Emissions from Deforestation and Forests Degradation**
SDGs	**Sustainable Development Goals**
STCs	**Special Technical Committees**
UN	**United Nations**
UNDP	**United Nations Development Programme**
UNEP	**United Nations Environment Programme**
UNEA	**United Nations Environment Assembly**
UNFCCC	**United Nations Framework Convention on Climate Change**
UNOG	**United Nations office at Geneva**
USA	**United States of America**

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CHAPTER ONE

1.1 Introduction to the Study

“Forget making poverty history, climate change will make poverty permanent” Nazmul Chowdhury.

The United Nations Framework Convention on Climate Change (UNFCCC), defines climate change as a “change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods”[1]

Climate change is a phenomenon that has a potential of profound implications globally and more so to the developing countries. It is now generally accepted that climate change is regarded as the latest in a series of drivers of global conflicts that have been recognized in the recent years including others like deforestation, ozone layer depletion and drought.[2] As Ban Ki-moon once noted, “climate change not only exacerbates threats to international peace and security, it is a threat to international peace and security.”[3]

Developing countries and particularly African countries have added their voices to these concerns to climate change being a security concern especially under the auspices of the United Nations. Indeed, President Museveni of Uganda once remarked that climate change is an act of aggression by the developed world against the developing world and demanded compensation for the damage that climate change would cause the developing world. Similar remarks were made by the Namibian representative to the United Nations, Kaire Mbuende who referred to the developed countries' emissions of greenhouses tantamount to 'low intensity biological or chemical warfare’.[4] As such it is a concern for

developing countries albeit in a waning way since in the recent past climate change has not been such a big debate.

Research has shown that the linkage between security and climate change is mostly only supported by anecdotal research where conflict has been triggered by chronic scarcity caused by environmental change and overconsumption of resources which in a way suggests that this may not be accurate, the argument captures the whole point. This is because there is no better way to prove the results of climate change than by what has already been seen.

It has already been projected by the Intergovernmental Panel on Climate Change (Hereafter IPCC) that some of the ways that climate change will be exhibited in Africa which is one of the most vulnerable places include[5]:

(a) Inadequacy of current adaptations of food producers to cope with climatic variability
(b) Fall in the agricultural production in semi-arid areas
(c) Aggravation of existing water shortages
(d) Increase in rates of ecosystem change
(e) Increased risk of inundation in low lying areas
(f) Increase risks to human health from vector-borne diseases

As such it is crucial that policy makers and more particularly more effort is put in checking the issue to mitigate the consequences. Having briefly set out the background next is the context of the study.

1.2 Background to the Study

The issue of climate change has been noted as a major concern. One of the major responses has been the United Nations Framework Convention on Climate Change (hereafter called UNFCCC) under the auspices of the United Nations.[6] The ultimate objective of the convention and related instruments that the Conference parties adopt is to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate.[7]

Subsequently, there was the adoption of the Kyoto Protocol[8] that sought to clarify the provisions of the UNFCCC. The Kyoto Protocol sets out obligations that are incumbent upon states. Such duties include the implementation and further elaboration of policies and measures in accordance with the national circumstances of state parties; cooperation among state parties to ensure enhancement of effectiveness of policies and measures adopted.[9] There have been other efforts by countries to come up with strategies that would ensure that climate change albeit with minimal success.

The urgency of the problems or dangers associated with climate change have, even led to the problem of climate change being treated as a security issue especially among the developed countries. Such countries include the member states of the European Union as well as the United States.[10]

1.3 Statement of the Research Problem

Although the problem of climate change has been noted par excellence, the efforts made towards mitigation have been very little and even the best of this has failed.[11] The gap in the process has been how to ensure that there are significant emissions cuts. Although the

Kyoto Protocol creates obligations, the protocol will result in the reduction of less than 5% of the emissions by state parties and this has been attributed to the manner in which parties are allowed to meet their obligations.[12]

Tackling the immense and multidimensional challenge of climate change demands extraordinary ingenuity and cooperation. A “climate-smart” world is possible in our time yet, effecting such a transformation requires us to act now, act together, and act differently.

At the face of failure by collective action, states which are most likely to experience the adverse effects of climate change need to rise to the occasion and take significant diplomatic action. This thesis therefore explores diplomatic action that can be taken to ensure that developing countries take a leading role in encouraging the developed nations to take the action that is necessary to reduce climate change.

This study will generally be qualitative and will involve a survey of resources. The population of the study in some cases will be randomly chosen while in others it will be purposefully selected. The study area will mainly be Kenya’s Diplomatic pillar so far as Climate Change is concerned as well as the bilateral and multilateral relationships that the country has with other countries as well as regional bodies in some instances.

The study will also focus on other non-state actors like the civil society groups that have interest in matters of climate change. This is because the problem of climate change is a problem which affects interests of many states differently. As such there is need for other actors to exert their influence on the negotiations and actions in order to ensure that results are achieved.

1.4 Objectives of the study

The main objective of this study is to determine the role the Kenyan government is playing to reduce the effects of climate change.

1.5 Scope of the study

The specific objectives of the study are:

1. To assess the impact of climate change regimes in Kenya and the mitigation efforts being taken by the Government of Kenya.
2. To Analyze constructive ways of how Kenya can use Environmental Diplomacy to change the debate on Climate Change in developing countries.
3. To discuss effective ways of enhancing Climate Change diplomacy between Kenya, on one hand and developed countries on the other hand.

1.6 Research questions

The following are the research questions for the study:

1. Has the current climate change regime in Kenya been adequate to mitigate the effects of climate change?
2. Is there a current legal and policy framework for managing climate change and its effects in Kenya?
3. Are there constructive ways that Kenya has integrated the climate change policy in its diplomacy and what are the diplomatic dividends to Kenya in this effort?

4. Are there ways that Kenya can engage developed countries for better articulation of the dangers caused by climate change?

1.7 Significance of the study

This study hopes to bring about change not just in Kenya as the locality of the study but regionally, and globally as well. This is in line with a description of climate change as a "tragedy of commons[13]" and which makes it an issue for International Relations.

The findings of the study will locally be used by technocrats both in the field of foreign policy as well as matters of climate change and global warming in coming up with a way forward. This is because the study focuses both on the causes and ways of mitigating the effects of global warming and at the same time focuses on finding a viable solution for the same.

The study will also be useful for the regional bodies and in particular for the East African Community and the African Union. This is because for both, although they contribute some of the lowest quantities of emissions, they are likely to be most affected by the consequences of global warming.

Globally, the study hopes to ultimately make the world a better place. When the study comes up with useful recommendations, they will be important for the sake of security. This is important since climate change has been noted to be a threat to global security. This is just not in terms of food security but also military security since global warming has a potential of causing wars.

1.8 Research design

This being a doctrinal and non-doctrinal study, there will be both human participants as well as subjects. For the human participants, questionnaires will be administered. For the subjects such as states and Non-Governmental organizations, where appropriate, questionnaires would be administered but mostly since this is a sensitive topic, in some instances observation as well as survey of literature will be used. This will include books, journals and others secondary sources as well as the internet.

Where appropriate, actual face to face interviews will be chosen over questionnaires as the same give more information that questionnaires which only cover the information that is elicited from the structure of the question.

1.9 Theoretical framework

It is generally assumed that although the international system is anarchic, it is composed of competing sovereign states that are whole and reasonable.[14] This belief however is not the actual position. There is now overwhelming evidence that human induced climate change is altering the natural world, and this is changing international politics.[15]

To a large extent, this study is based on realism as was propounded by St.Thommas Aquinas.

Aquinas using the Aristotle Philosophy described climate change as being brought about by the great synthesis of faith and reason.[16] This was therefore one of the greatest achievements of the Medieval culture. Aquinas argued that the only two ways that God spoke to us was through Revelation and Nature. Richard Tarnas summed up this argument

and noted that it had been achieved. Aquinas affirmed the Creator’s providential

intelligence and the resulting order and beauty within Gods creation. He notes that the more

the world was explored and understood, the greater the knowledge and reverence for God

would result. Aquinas notes that Its God that created the world including Man and any achievement by man was and is derived from God just as both reason and faith is derived

from the same source (God).

Realists argue that states are not necessarily predisposed to cooperation. There is a frequent lack of cooperation behavior among state parties to global climate change negotiation. Powell 1991 argues that states looks for relative gains compared with other states. The reason why climate change negotiations often fail therefore may be simply explained by the realists. The USA has shown little interest in advancing climate negotiations. Snidal (1985) points out that a hegemon can act benevolently or malevolently.

This will be explained simply by the fact that perceptions about differences between states cannot be denied when we look at history. As such this study, will explore the events that have been occasioned by the increase rate of global warming. Some of these have however been reactionary and efforts at power maximization. It is important however to note that realism cannot exhaustively cover views on climate change.

To this end, another useful international relations theory that will come in or would be apparent from this study is the liberal theory[17] of international relations. This will emerge as we see rules created to ensure stability and predictability and stability in relations between states. This will be based on the two major elements that embody liberal theory which are the transformative power economically and the ability to control of public

accountability on the process of making foreign policy. Neoliberalist arguments will be key in arguing out this research in that it focusses on the role played by institutions within interstate cooperation. The roles of the United Nations Framework Convention on climate Change (UNFCCC) and the institutional framework such as the, Climate Change Parties (COP). Other proponents of liberalism such as Keohane and Nye (1989: 55) will be discussed further in the literature review chapter.

This study will also be shaped by the constructivist theory which also becomes apparent when states as will emerge collaborate because of shared interests and they get norms that exceed lawlessness and a major characteristic of their relations among themselves. A constructivist acknowledges the importance of both material as well as normative features of the international system. Colin Hay[18] constructivism argues that "the material and ideational are complexly interwoven and interdependent"

Wendt (1992) argues that states do not necessarily react to a predetermined structure as suggested based on socially defined and inter-subjective meanings.

Constructivists therefore enhance understanding of climate change as a social process. Constructivists have also helped provide scope to analyze the influence of non-state actors, referred to by Fogel 2007:99 as 'climate policy entrepreneurs which has made a formulation of climate change policy at the domestic level.

Constructivists have been able to investigate why states have come to regard climate policy as a national interest. Why governments have added inspirational norm of ecological integrity to traditional goals of wealth and power Haas,2002: 75

Bernstein et al 2010 have highlighted the role of normative consequences on carbon markets and effect on structure of the global climate governance architecture as a crucial element of shaping climate politics.

Further arguments from various scholars and proponents of the theories that support climate change shall be discussed at the literature review section in the next chapter

1.10 Limitations

The subject of this research is a global problem. It would be ideal if covered over a long period and over the whole world. Unfortunately, one of the limitations will be the issue of time. The other limitation is the issue of resources. Third but not least is the availability of literature. The same will now be handled at length below.

The following are some of the limitations to the research

1. Assumptions

This research covers a subject that involves inter-state relationships. As such in order to enable the researcher to make certain points without having to explain some matters that might not appear so obvious. As such at this point, it would be convenient to set out the assumption as follows:

2. The sovereignty and territorial integrity of states

Although states are interdependent in many ways, this research will assume that states are sovereign as indeed they are with borders whose integrity the research will recognize. The research will therefore consider states as equal constituencies and entities. It also

assumes that with this states with similar interests and sometimes states that share borders or come from particular regions will come together to further the same interests at various fora in order to further these interests. Indeed, the solution suggested will be towards this end.

3. Time

This programme only runs for two academic years. The subject that is covered here is climate change and it is a global problem. Two years would be an ambitious period of time to exhaustively cover such a crucial issue in interstate relations. This research will however make good use of the time that has been allocated to cover each issue that is raised.

4. Resources

Similarly, resources are another limitation that is apparent at this early stage of the study. The nature of the topic is such that it would involve extensive travel to explore the various resources available. This unfortunately may not readily present itself. The research will however utilize every resource available including human, financial and any other kind of resource to ensure that the study is successful, and the findings are not only useful but helpful as well locally, regionally and globally.

5. Scope

The scope of the research is Kenya, but it will use literature to cover the region, and the globe especially the key players in the global political and socioeconomic relations. The

purpose of this is that Kenya as well as other developing nations contributes little to the global emissions, yet it has been predicted that due to the nature of their economies they are the ones likely to be hard hit by the effects of global warming.

As such there would be extensive generalizability of data which where applicable will be supported by literature and other data. This is because to the above alluded to limitation of resources. The study will however go at length to ensure accuracy.

1.11 Topic Analysis

Various scholars have written topics on climate change as a security issue. This part analyses in part these efforts as an introduction although a more detailed literature review will be done in chapter 2 of this thesis. This however generally highlights the general ground that has been covered and identifies in brief the gaps that exist.

One of the most comprehensive efforts to study the issue of climate change that is closer to third world countries has been done by the Centre for International Governance Innovation(hereafter known as CIGI)(2009).[19] Indeed the various ways that climate change emerges as a security issues have been considered including with food security implications for climate change, it's potential for exacerbating health inequities in Africa and the consequent conflict resulting from the effects of climate change. This lends credence to the fact that climate change is a security issue and as such should be a problem that countries should explore. The CIGI report falls short of studying any particular country as a case study and this can be explained by the fact that it was meant to cover the continent which in any case has countries with various status.

Lichao He (2010) has analyzed the participation of China in climate change diplomacy and as emerges just like the developed nations, among others the motivation for the involvement of China among other reasons based on the need to have a greater voice in international affairs.[20] This therefore leaves a question of study on why third world countries are not involved in their own efforts to deal with climate change and what are the strategies they can use to assert their needs since they are the ones most likely to experience the consequences.

Robert O. Keohane and David G Victor (2011) have considered the question of the governing regime in climate change.[21] As emerges from their perspectives there is no integrated regime governing efforts to limit the extent of climate change. Instead there is a legal complex, a loosely coupled set of specific regimes. They acknowledge the importance of a climate change regime complex meeting specific criteria over any other politically feasible comprehensive regime. They however ignored the role of participation of the third world in an otherwise ambitious proposal that is not congruent with the interests of the developed world.

The need for well-founded policies and strategies has not been explored better than by Shreekant Gupta (2002). The need for technology in the efforts to come up with meaningful proposals is seen by the fact that as Gupta has described India has acted “a day late and a dollar short”. As such it is important that countries invest in technology that enables them to detect the effects of climate change no matter how diminutive.

Tora Skodvin (2003) has explored the Science policy interaction in the intergovernmental panel on climate change[22]. He explores the need to transform scientific knowledge into a

form in which it may serve as a premise for policy choice. This research provides the link between this scientific knowledge and policy. In many ways, this paper is founded on the proposals in the book but builds on the same with a view to ensuring that third world countries also take a significant role in a problem of immediacy such as climate change.

SUMMARY

Chapter 1

Chapter 1 is the introduction to the study. It introduces the subject, and then proceeds to give the background of climate change including the efforts that have been made so far at length. It also explains the results for such efforts. Next comes the statement of the problem. After this comes the purpose of the study. This follows the significance of the study, and then comes the primary research questions. The hypotheses are then given. There is then a brief description of the research design. This is because chapter 2 will describe the research design at length. This is followed by the theoretical framework of the study. This is followed by the delimitations which include the assumptions, the limitations and the scope of the study.

Chapter 2

Chapter 2 deals with related literature and the theoretical focus. It will survey the relevant material on the topic. At its conclusion, the thesis will discuss a summary of previous research results that the thesis wants to develop further or challenge.

Chapter 3

Chapter 3 will discuss the research methodology including the available methods of research and the approach taken in the thesis. It will give an in-depth description of how the actual research is conducted as well as the subjects of the study and their importance.

Chapter 4

This chapter will discuss the research results and the findings. A research formerly done by a consultancy firm shall be revisited and findings shall be used to aid this research. The research was done by Technical Air Solutions Company Limited in West Pokot and Turkana Counties. This will be followed by a discussion of the same in towards the end of the chapter. The raw data shall be hereby attached in the index pages.

Chapter 5

This will be the concluding chapter. It will give the problem in summary, the main findings and the discussion. It will fill in or attempt to correct areas emerging from literature covered in chapter 2 that may be perceived inaccurate. It will also address areas that need further research.

Chapter 6

This chapter will look at the Summary, conclusions and recommendations on the way forward with climate change.

CONCLUSION

There is no doubt that climate change will affect the lives of every person on this planet no matter who they are or where they live. It will threaten food and water security and human health as well as social, economic and political stability. It will reshape societies and change the natural world as we know it. By degrading and depleting the very resources on which life depends, climate change could reverse many of the development gains made by African countries during recent decades and could hamper development efforts. Kenya's National Climate Change Response Strategy (NCCRS) states that "Climate change is the biggest threat to humanity today", and this at a time when many parts of the world already experience environmental degradation, water shortages, poverty, hunger and inequality. However, many citizens, activists, scientists and policy makers hope that if we rise to the challenge of climate change, it could become our best chance to make the world a better place. In the subsequent discussions am going to focus majorly on the need for a renewed structured approach to climate change response strategy.

CHAPTER 2

LITERATURE REVIEW

"It is in the interest of all the world that climatic changes are understood and that the risks of irreversible damage to natural systems, and the threats to the very survival of man, be evaluated and allayed with the greatest urgency"

His Excellency Maumoon Abdul, Gayoom, President of the Republic of the Maldives (1978-2008).

2.1 Introduction

The main objective of this chapter is to look into the existing literature to analyze the same, establish gaps and recommend for review.

This second chapter explores the major themes of the research questions, Whether the current climate change regimes been adequate to mitigate the effects of climate change ,if there are constructive ways that third world countries can be involved in the climate change debate for better involvement in mitigation of the effects of climate change and finally if there are ways that third world countries can engage other countries for better articulation of the dangers caused by climate change and ways that third world countries can engage each other for better articulation of the dangers caused by climate change. Ordinarily, climate change would be treated as a scientific and geographical issue, however this research gives the topic a practical and dynamic perspective with a long-term aim of transforming the discussion to make climate change something that can be prevented or mitigated.

Stuart Bell, Donald McGillivray and Ole W. Pederson (2008) noted that one of the features of modern age of environmental law has been the international dimension of many environmental problems.[23] This is obviously an understatement since climate change and its effects are of a generally global nature and even if the same are mostly affecting third world countries, the same becomes an econo-political and diplomatic issue.

2.2 Climate Change in Kenya and Mitigation

Climate Change is a sustainable development issue in Kenya. A coherent and coordinated regulatory framework must therefore guide the National, County and local level responses to the impact of climate change.

Climate change costs Kenya's economy approximately three per cent of GDP. Governments and stakeholders should revitalize the global partnership for sustainable development, particularly through development cooperation and financing[24].

The Kenyan Constitution 2010 recognizes the right of every Kenyan to a clean and sustainable environment, Article 42 of the Constitution states that:

"Every Person has the right to a clean and healthy environment which includes-

a) To have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article 69
b) To have obligations relating to the environment fulfilled under Article 70".

Kenya has initiated a concerted national effort to respond to climate change, which commenced with the development of the National Climate Change Response Strategy (NCCRS) in 2010.It was the first National Planning document dedicated to addressing the threats posed by climate change and taking advantage of potential climate change related opportunities. The objective of this was to encourage low carbon climate resilient development through implementation of the NCCRS.

There is also the Sessional Paper No.3 of 2016 called the National Climate Change Framework Policy which was developed to facilitate a coordinated coherent and effective response to the local, national and global challenges and opportunities presented by climate change. This sessional paper considers that Kenya is highly dependent on the Natural resource base and this is highly vulnerable to climate variability and change. It is imperative that Kenya aims to attain sustainable development, which is framed by the Constitution as an important value of national governance. Climate change impacts will continue to place significant obstacles in the path of sustainable development mechanisms. Under article 69 and 70 of the Constitution there are legislative obligations the state must undertake through parliament to foster a sustainable environment; some acts have been enacted including the National Environmental Management Act, The Forestry Act, The Water Act and The Climate Change Act No 11 of 2016.

If not mitigated climate change poses a significant challenge to these sustainable development goals in Kenya and globally.

Alysa Johl and Sebastien Duyck (2012) noted that it has increasingly become clear to many academic and international policy communities the implications of climate change.[25] He observes that it is now understood that the impacts of climate change are

threatening the rights to life, food and culture among other rights. He however points out that the international climate change regime has been cautious in the approach to the relationship between climate change and reference to this relationship in the UNFCCC has only been made once in the Cancun Agreement adopted in December 2011. He goes ahead to give four concrete proposals on addressing human rights that are that: there is need to recognize the need to respect human rights obligation and standards when implementing climate policies; ensuring full and effective civil society participation; establishing institutional safeguards systems and developing a loss and damage mechanism. As such there are lacunas in the regime when it comes to the way the regime addresses human rights.

Scott Barrett (2008) has pointed out that the current climate change regime strains to develop a unified approach to addressing climate change.[26] He observes that the regime focuses on net emissions-flows that both add to and subtract from the stock of atmospheric concentration. He points out the Kyoto protocol which aims at reforestation which is a way of removing carbon dioxide (hereafter CO_2) which can be substituted for abatement which would reduce emissions; the emissions of different countries could be traded and reductions in the emission of one gas can offset increases in the emission of another. Although he recognizes that the approach has a virtue; it promotes cost-effectiveness abatement he also points out that the approach has so far failed to address the more important objective which is to reduce greenhouse gas emissions and ultimately to stabilize atmospheric concentrations. He therefore suggests an approach that uses the strategy of breaking up the various sources and types of gases and addressing many of

them separately which would reduce cost effectiveness but at the same time the approach integrates the current regime in part. He therefore suggests a system of agreements as opposed to a collection of agreements. He however fails to link the current regime with diplomacy even though he acknowledges that third world countries are the ones likely to be affected by the effects of climate change.

2.3 Adaptive Measures in Place in Kenya and developing Countries

The climate change secretariat (2007) acknowledged that developing countries are the most vulnerable to climate change impacts because they have fewer resources to adapt: socially, technologically and financially. It also noted that climate change was anticipated to have far reaching effects on sustainable development of developing countries including their ability to attain the United Nations Millennium Development Goals by 2015. It is also noted that developing countries need international assistance to support adaptation in the context of national planning for sustainable development, more capacity building and the transfer of technology and funds. It is further acknowledged that developing countries have very different individual circumstances and the specific impacts of climate change on a country depend on the climate it experiences as well as well as its geographical, social cultural, economic and political situations. They proceed to give suggestions on how to adapt to climate change. However, the apparent need to point out whether the mechanisms available in the regime need to be reviewed or otherwise may be lacking after all.[27]

The Kenyan government in the Kenya National Climate Change Action plan(Hereinafter known as NCCAP) has acknowledged that a low carbon climate resilient development

pathway as set out in it, can help meet vision 2030s goals through actions that address both sustainable development and climate change and to help the government achieve the Millennium Development Goals (hereinafter MDGs) that have since been renamed to Sustainable Development Goals and other internationally agreed development goals without compromising the environment and the natural resource base. As such the Kenyan government, has demonstrated that climate change is not just a problem with only domestic implications but is a problem whose nature affects the global economy.[28] Peter G. McGregor *et al*, acknowledged the efforts that have been made by Kenya in the climate change area and particularly hail Kenya as being one of the first countries in Africa and one of the few worldwide to adopt a comprehensive general legal framework to address adverse consequences of climate change.[29] In particular it is pointed out that the act establishes a strong institutional and legal framework for adaptation and mitigation and guidelines for policy making at the national level and sub national level for achieving low carbon climate-resilient development.

2.4 Climate Change Engagement within the Global Community

Salome Bronkhorst and Webster Whande (2011) acknowledged that it is clear that climate change poses one of the key challenges for global economic development and human well-being and may put peace and security at risk as natural resources such as water, food and energy become scarce.[30] They also pointed out however that Africa has been relatively silent in the global climate and security political dialogue although the continent is most vulnerable to the effects of climate change and more likely to experience climate related conflicts. They therefore propose the putting in place of

mechanisms to develop continental positions on climate change diplomacy and acting on the basis that climate-related insecurity is a current issue rather than a future problem.

Nick Mabey *et al* have acknowledged that the dynamic and evolving climate regime has resulted in a challenge to maintain climate change as a priority given limited specialist diplomatic capacity.[31] They indeed point out that since 2009 there has been stagnation and even reduction of capacity in many countries. They therefore raise areas to prioritize for improving climate diplomacy capacity in governments and in non-governmental actors as including: understanding the national interest; intelligence gathering; understanding the future of political space, national coordination and political convening structures; developing diplomatic objectives and strategies; development of diplomatic objectives and strategies; and the development of options and objectives for the evolution of the international regime. These indeed would be a good starting point for any governmental actor and a perfect one for Kenya.

Oli Brown and Alec Crawford (2009) notes that Africa is changing in a variety of ways that will determine the African countries and their communities to adapt to climate change.[32] These include a growing and moving population, evolving economies and decline of health of environmental resources. These are factors that Kenya is predisposed to. In their analysis of African security in a changing climate, they identify four issues that they consider pressing issues that are most commonly identified by analysts: (a) increasing water scarcity; (b) decreasing food security; (c) increasing climate induced migration; and (d) the impact of climate change on poverty and state fragility. They identify regional diplomacy among one of the factors that will largely determine whether and how climate change moves from being a development challenge to presenting a

security threat.[33] The universal dimensions of the challenge therefore call for cooperation and they identify a myriad of levels for this: cooperation to develop comprehensive international strategies to manage forced migration; to share the most innovative approaches for adaptation and to administer shared resources.

Chris Abbott (2008**)** noted that there is a growing awareness of non-traditional threats to security.[34] He observes that climate change will have socioeconomic impacts which may in turn have security consequences. He however starts by observing that global change is characterized by: an increase in average temperatures; a rise in sea levels and altered weather patterns. He observes that although such environmental changes are devastating in their own way they have an impact on human surroundings which will result in socio-economic damage that is so concerning that includes: loss of infrastructure; resource scarcity and mass displacement of people. Such factors interact with each other and with existing tensions resulting in wide-ranging implications including on security such as civil unrest, intercommunal violence and international instability.

Patrick Huntjens and Katharina Nachbar (2015) wrote that the securitization of the climate debate has also triggered concerns among scholars as well as within the global policy community.[35] A major fear however is that conceptualizations of climate change as a threat to global stability and national security may lead states to resort to the traditional responses that are defensive and isolationist rather than collaborative. This has for instance been observed in the Security Council where debates have ended in controversy because some states together with the academic community and civil society organizations get concerned that an international discourse focusing on the security of a state and maintenance of international status quo may present the states that are most

vulnerable to the climate change challenge as threats rather than populations that need to be protected.[36] They therefore observe that the approach is problematic since climate change cannot be mitigated by one state and neither can it be approached militarily. They express fear that actors suspicious of the increasing attention by security organs to climate change are apprehensive of such debate given the simplistic assumptions about environmental change, resource competition and conflict can dominate the international agenda, thus pushing the collaborative approaches to the periphery.

Daniel S. Hall et al (2008) examined the intersection of interests between developing and developed countries concerning climate change.[37] They point out the key ingredients of successful engagement of developing countries of climate change mitigation as domestic policy improvement, international financing and diplomacy. This clearly suggests the inevitability of climate change. Although they mostly focus on the role of developing countries (appreciating their abundance of resources and their greater sense of urgency) and their engagement of developing countries they point out that developing countries are more focused on their rising need for resources to adapt to climate change. They however point out that engagement of developing countries as partners in climate change mitigation requires not only paying attention to the threat of physical impacts or the promise of funds for adaptation but also increased attention to domestic policies within developing countries, an increase in financial support from developed countries to help pay the incremental costs of shifting to cleaner technologies and creative diplomacy to carefully integrate different tools. They indeed acknowledge the potent threat of developing countries to cause more harm with their activities.

Catherine Lisinge *et al* (2016) acknowledged that climate change is a reality in Africa whose effects are devastating on the continent.[38] They also acknowledged that delay in action makes lower climate risks unattainable. They give the importance of climate diplomacy as ensuring the accurate assessment of other countries interests and intentions and finding agreement. This in turn establishes the links between domestic, foreign and international climate policy. they therefore recommend the ways forward for Africa as ensuring that all African countries ratify the Marrakech Accord and further to emphasize that adaptation remains a priority for the continent as well as urging developed countries to increase their provision of financial support to adaptation in the pre-2020 period and to better address immediate needs of vulnerable African states.

Jon Hovi *et al* argued that although there have been more than two decades of climate change negotiations which have produced a series of climate agreements e.g. the Kyoto Protocol and the Copenhagen Accords, such have made very limited progress in curbing emissions of greenhouse gases.[39] They therefore point out the characteristics of an effective climate agreement and most importantly the objective should be to cause substantial emission reductions either in the agreement's lifetime or by paving the way for a future agreement that causes substantial emissions reductions directly. They opine that for an agreement to reduce global emissions substantially it must satisfy three conditions: incentives for countries to ratify with deep commitments; incentives for countries that have ratified with deep commitments to abstain with withdrawal; and incentives for countries having ratified with deep commitments to comply with them. They however paradoxically come out clearly and observe that considering the constraints that characterize the climate change negotiations adopting the threefold

potent, enforcement will probably be politically infeasible both in the UNFCCC and in the framework of a more gradual approach and that as such expectations of successful climate change negotiations for an effective future agreement are unrealistic.

The common position of Africa which has many of the developing countries has been that they prioritize implementing climate change programmes and projects to attain development goals including the Millennium Development Goals and in particular alleviation of poverty with emphasis on achieving food security, especially for the most vulnerable groups.[40] It is also acknowledged that under the international multilateral process, developed countries and partners have an obligation to provide full support for the implementation of adaptation programmes of action prepared by least developed countries in Africa.

Henry Kissinger (2016) highlights the nature of approaches that some developing countries and focuses on South Africa that has taken a two-track approach to Science diplomacy that reflects the state's pursuit of international recognition as a producer and exporter of knowledge structure; and the second, where a shortfall in capacity and resources has increasingly seen the state as a "consumer" or importer of knowledge in meeting domestic priorities.[41]

Louise van Schaik (2009) observes that the Kyoto protocol operated relatively well since the turn of the twenty-first century and that the European Union was at the forefront of climate change.[42] He however expresses a pessimistic view of their united voice due to the diverse preferences of member states and the decreasing conviction for a strongly

united European position partly due to the then come back of the United States in climate negotiations.

Sander Happaerts *et al* (2013) noted that much has changed in the global climate change regime, albeit more is likely to happen considering the impeding change in global politics.[43] Among such changes is the emergence of new powerhouses. They observe that it is unsurprising that that a more complex world order is mirrored in a more complex climate change regime. As such they observe that there is a challenge of finding a way to overcome that complexity in time to deal with climate change. Focus is placed on the institutionalization of BASIC where China and India are clearly the leading members signaling a change in negotiating relations demonstrated through countries such as India and Brazil having adopted the position of leader or bridge builder in several instances in the UNFCCC since the start.

Xolisa Ngwadia wrote that Africa, especially sub-Saharan Africa, has been poorly served by climate finance.[44] He further observes that modest funding has been delivered through fragmented, overly bureaucratic structures that combine high transaction costs with minimal impact and that most finance has been earmarked for small-scale projects rather than national programmes. He observes that African governments can provide leadership in the global climate finance negotiations on approaches to adaptation. He also observes that bilateral aid dominates climate finance for Africa and that this has been heavily concentrated in a small number of countries, with projects in Kenya, Malawi, South Africa and Tanzania accounting for 70% of mitigation finance.

Kiran Sura and Nadia Schweimler (2013) have indicated that achieving an international climate agreement requires global coordination and cooperation-a difficult challenge.[45] They also indicated that the goal of climate diplomacy is twofold; to build the political conditions for an international agreement and to facilitate international coordination and cooperation beyond the UN negotiations. They however conclude by noting that the barriers can be overcome by establishing climate change as a national policy, developing the capacity of diplomats and climate diplomats and deploying diplomacy effectively at the international level.

Romy Chevallier (2011) wrote that it is now widely argued that Africa and its member states are not using their collective bargaining weight to its full advantage to influence international processes and to force international relations to re-examine and rethink contemporary conceptual and theoretical frameworks.[46] He notes that the Africa group is a regional grouping that serves as a negotiating coalition and is paramount in providing a platform from which to pursue the continents priorities in climate change. He explains that the role of pivotal countries in the developing world such as South Africa will play an increasingly important role in championing for the developing world and enhancing African Agency most notably encouraging a common voice on the impacts on Africa's development agenda. He however points out factors undermining African diplomacy from being operational to include lack of negotiating capacity and a shortage of skilled people, insufficient financial resources, overburdened development agendas, weak leadership and political will, a weak AU-RECs interface and the exclusion of civil society in African diplomacy. This study aims at finding the innovative roles a developing country of the status of Kenya and in the African continent can achieve.

Werner Scholtz (2010) expresses confidence that regional integration under the auspices of the AU has potential to facilitate cooperation pursuant to articulation of African interests at international environmental negotiations.[47] It is observed that although Africa can increase their adaptive capacity through international negotiations, but African states lack the resources to pursue this goal and as such AU is a suitable forum for facilitating the establishment of a common African position on climate change aimed at international climate change negotiations. He notes that although the actions of African states contains positive features such as grouping of African states based on shared vulnerability places the continent in a more powerful position that may counter marginalization it is clear that the African states have in the past failed to aspire to the objectives and principles of the AU in order to overcome climate change for instance during the COP 15 negotiations[48].

Siphamandla Zondi (2011) has a more optimistic view than Werner and observes that it has become common for AU to harmonize their individual negotiating positions on the major international issues in order to turn their numbers into real political clout in international negotiations.[49] He explains this as a consequence of an enlightened view of Africa's common interests than the interests of dominant African states.[50] He however points out that the common position is nevertheless undermined by weaknesses that include weak leadership, weak AU-RECs interface and the exclusion of civil society.

Laurence Camille-Richard (2011) observes that institutions of diplomacy and diplomatic machineries are bound to continue their adaptation due to contemporary challenges.[51] He observes that most of the assumptions on which traditional diplomacy was based have to some extent been modified in the past three decades: international relations are no longer seen as the monopoly diplomatic actors and diplomacy itself is no longer considered as

an exclusively intergovernmental and hierarchical activity but rather as it is recognized that the complexity of the contemporary international system demands that networks comprising governments, the general public, civil society organizations an private actors be created to effect policy outcomes.[52] He also observes that despite the changes, there is clearly a future for the institution of diplomacy which is more relevant than ever. The challenge apparent however is that is that foreign ministries have focused mostly on national governments and remain under-resourced and marginalized within state bureaucracies, something attributed to the fact that the diplomatic machinery of most developed countries not being properly adapted to the factors of change. If that is the position then, the challenge of developing countries would be to adapt or perhaps outdo developed countries which may seem unrealistic.

Andrew Scott (2016) indicated that following the UK referendum on leaving EU (hereinafter Brexit) there is uncertainty about how the exit would affect climate change policy and its implementation.[53] He however notes that the short term and long-term commitments of states may be unaffected by the exit since the existing emission reduction commitments for 2050 signal that the UK and the EU recognize the need for action. He however notes that the route to achieving emission reductions may be affected since the UK will be able to determine how its commitments should be met without EU-set parameters while plans for achieving emission reductions within the EU-27 could be developed without the UK.

He has further set out the factors of successful environmental agreements to include that they succeed when they have broad participation and more particularly some key global actors for instance the U.S., they set binding targets, addressing of equity more

particularly that the comprehensive agreement should include all major emitters and not just developed countries, there is a preference for shallow agreements that are less costly in terms of compliance as well as addressing the challenges of least developed countries with regard to mitigation and adaptation and information and information sharing shapes perspectives on climate change.[54]

Michele M. Betsill and Harriet Bulkeley (2006) indicated that traditional approaches to international law obscure how the governance of global climate change takes place through processes and institutions operating at and between a variety of scales and involving a range of actors with different levels and forms of authority.[55] They point out that it is increasingly clear that nation-states will be unable to meet their international commitments for addressing climate change without more explicit engagements with sub national action. They further argued that GHG emissions are a result of processes embedded in certain places and as such the local way is the best jurisdiction for bringing about any necessary reductions in such emissions. They however argue that the local governance of the global environment is not conducted at a discrete scale, but rather is constructed by relations of power and influence between sub national and national state and non-state actors and creation of new spheres of authority that create networks at the international level. Indeed, this kind of view becomes relevant to Kenya since Kenya is now a devolved country and the coming on board of counties becomes a matter of foresight.

Monica Hirst (2008) notes that because of the diffusion of power within the international arena, state powers that are emerging have been proactive in quite a number of

multilateral contexts that aim at promoting normative and operational changes.[56] It is noted that while the nations have simultaneously sought to expand their autonomy and recognition within the international systems the process has been gradual, disordered and uneven. Special reference is given to India, Brazil and South Africa (hereinafter IBSA) that have been dedicated to the rule making process of global governance agendas and institutions. She notes from this that unity of action in multilateral forums allows emerging powers to maximize their individual foreign policy stances as it can add weight to the views and values and on its own contribute to give more form and substance to what should become a multipolar order. The benefit of this as observed is that it is marked by soft power requests such as reformed governance procedures or more inclusive and multidimensional approaches and for such emerging powers the same implies an international order that is more dominated by institutions than force, more driven by political negotiations than strategic interests.[57]

2.5 Are there ways that Kenya can engage developed countries for better articulation of dangers caused by Climate Change?

The African Union has played a key role in ensuring that Africa takes united stand in global negotiations and evolving mechanisms. The African Group of Negotiators in the UNFCCC processes, inputs from relevant STCs, the work of the Committees of Africa Heads of State and Government **(**CAHOSCC) and African Ministerial Conference on the Environment (AMCEN) have all been brought into coherent African Union (AU) framework. The African Head of State and Government, having appreciated the gravity of the climate change challenge unfolding in the continent, made a number of seminal

decisions to help Member States deal effectively, efficiently and equitably with the risk posed by climate change.

In July 2009, the African Union Summit adopted a decision on the African Common Position on Climate Change, which was to be based on the Algiers Platform and its continued refinement by African Group of Negotiators. The Assembly further took note of the Commission's efforts to develop a comprehensive African Strategy on Climate Change, and requested the Commission, in collaboration with partners, to elaborate a comprehensive African Strategy on Climate Change, including development of Sector technical backup data on the impacts of climate change, its cost to the economy and amount of carbon sequestered in various African ecosystems. This is premise upon which the elaboration of the Strategy is based on.

The July 2009 Summit in Sirte, Libya adopted a decision which requested the Commission of the African Union, in collaboration with partners, to develop a comprehensive African Strategy on Climate Change, including development of sector technical backup data on the impacts of climate change its' cost to the economies of Africa and the amount of carbon sequestered in various African Ecosystem. Accordingly, the Commission embarked on the elaboration of the draft Strategy through a technically supported participatory process with their key stakeholders including Member States, Regional Economic Communities, UN agencies and other partners. The text of the Draft Strategy was developed and refined through small, specialized expert working groups.

The draft Strategy was submitted to the 4th extraordinary session of the African Ministerial Conference on Environment in Bamako, Mali in September 2011. The

African ministers of environment welcomed the report of the African Union Commission on the development of the African strategy on climate change and called upon the Commission to continue this work and reflect the inputs made at the fourth special session of African Ministerial Conference on the Environment in the strategy; especially, issues related to African common position on climate change, science of climate change and technology development and transfer.

The Vision of the African strategy is to provide the AU as a whole, the REC's Member States and other stakeholders with a reliable source of strategic guidance to enable them effectively address climate change challenges. The strategy also proposes to carry out other interventions to address some specific priority areas including adaptation and risk management, Nationally Appropriate Mitigation Actions (NAMAs) and as well as some specific cross-cutting issues. The strategy also identifies specific goals for each thematic area. For each of the goals, several actions are identified. These are used in defining and an implementation matrix.

The guiding principles take cognizance of the multidisciplinary and cross cutting nature of climate change, both in terms of discipline and sectors. It also recognizes that most aspects of this strategy will only be realized through partnerships and close collaboration among various sectors, institutions and stakeholders at global, regional and nation levels.

The African Climate Change Strategy is organized around four thematic pillars:

1. Climate Change Governance
2. Promotion of research, education, awareness raising and advocacy

3. Mainstreaming and integrating climate change imperatives in planning, budgeting,

and development processes; and

4. Promotion of national, regional, and international cooperation

Conclusion

The purpose of the review was to go through the emerging issue in the area of approaches taken to mitigate the effects of Climate Change and the contribution and needs of the third world countries that share similarity of factors economically and politically as an example. Alongside with this remains the issue of Climate Change as a security issue. Although views still come up on whether better approaches of tackling Climate Change, the study is crucial since the role of the third world countries in the Climate Change diplomacy area remains unexplored and they are important stakeholders

CHAPTER THREE

RESEARCH METHODOLOGY AND METHODS

3.1 Introduction

Climate change is one of the most complex challenges of our young century. No country is immune. No country alone can take on the interconnected challenges posed by climate change, including controversial political decisions, daunting technological change, and far-reaching global consequences. As the planet warms, rainfall patterns shift and extreme events such as droughts, floods, and forest fires become more frequent. Millions in densely populated coastal areas and in island nations will lose their homes as the sea level rises[58]. Poor people in Africa, Asia, and elsewhere face prospects of tragic crop failures; reduced agricultural productivity; and increased hunger, malnutrition, and disease. Developing countries will bear the brunt of the effects of climate change, even as they strive to overcome poverty and advance economic growth. For these countries, climate change threatens to deepen vulnerabilities, erode hard-won gains, and seriously undermine prospects for development. It becomes even harder to attain the Millennium Development Goals (Sustainable Development Goals) and ensure a safe and sustainable

future beyond 2020. At the same time, many developing countries fear limits on their critical call to develop energy or new rules that might stifle their many needs from infrastructure to entrepreneurship.

This chapter discusses in detail the research methodology that has been adopted in this study of Climate Change as a threat to Development of Third World Countries. The method that has been adopted in this research was so carefully designed as to go well with the area of inquiry. As the area of study is Kenya, the Ministry responsible for Environmental matters cooperation and information were important to me to know the significant changes that have been taking place after the Climate Change Response strategy was enacted and implemented.

This chapter gives an outline of research methods that were followed in this study. It provides information on the participants, that is, the criteria for inclusion in the study, who the participants were and how they were sampled. In this study, I will strive to describe the research design that was chosen for this study and the reasons for this choice. This will mainly be a qualitative study encompassing Empirical (Non-doctrinal) research this involves the collection of knowledge or information from first hand study or data related to this matter or topic of climate change and after analysis and interpretation of this information this study will seek to show how climate change poses a threat to the developmental pillar of Kenya. Empirical research is always more concerned with social values and people this is because law is an integral part of the social process. Lastly, the ethical issues that arise in the process will also be discussed. The research review has

greatly assisted in narrowing down and focusing on the areas that are of concern to this study.

3.2 Climate Change Diplomacy and International Conventions

Tackling the immense and multidimensional challenge of climate change demands extraordinary ingenuity and cooperation. A “climate-smart” world is possible in our time yet, effecting such a transformation requires us to act now, act together, and act differently.

Climate change is a global challenge that requires a global response. The international political response to climate change began with the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992. The convention sets out the framework for actions aimed at stabilizing the atmospheric concentration of Greenhouse Gas (GHG) at a level that would prevent dangerous anthropogenic interference with the climate system. The Conference of Parties, which manages the Convention and meets annually, adopted the Kyoto Protocol in 1997[59] that commits industrialized countries and countries in transition to market economies to reduce their overall emissions of GHGs. Similarly, the convention requires all countries to take up climate actions considering their common but differentiated responsibilities and respective capabilities.

It can be seen from the decisions adopted at the **sixteenth Conference of Parties (COP16)**;Cancun Agreements, recognize that ““addressing climate change by all countries, requires a paradigm shift towards building a low-carbon society that offers substantial opportunities and ensures continued high growth and sustainable

development, based on innovative technologies and more sustainable production and consumption and lifestyles, while ensuring a just transition of the workforce that creates decent work and quality jobs"[60].Further there is the Paris Agreement (Paris Climate Accord)[61] which was negotiated by representatives of 196 parties at the 21st Conference of the Parties of the UNFCCC in Paris and adopted by consensus on 12th December 2015.In this agreement each country determines, plans and regularly reports its own contribution it should make in order to mitigate global warming. Kenya is a party to the Paris agreement too. The aim of the Convention is described in Article 2 as enhancing the implementation of the UNFCCC through ;Holding the increase in the global average temperature to well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 degrees Celsius above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change; Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production and making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development. The Paris Agreement can be termed as the World's first comprehensive climate agreement.

Third world countries and particularly African countries have added their voices to these concerns to climate change being a security concern especially under the auspices of the United Nations. Indeed, President Museveni once remarked that climate change is an act of aggression by the developed world against the developing world and demanded compensation for the damage that climate change would cause the developing world. Similar remarks were made by the Namibian representative to the United Nations, Kaire

Mbuende who referred to the developed countries' emissions of greenhouses tantamount to 'low intensity biological or chemical warfare’. As such it is a concern for developing countries and Kenya is included in this supposed warfare. Kenya in the last few years has come face to face with the unprecedented challenges to climate change impacts and the corresponding socio-economic loses to the people and this has greatly hindered the development of Kenya as a growing market economy in the World and a super power in Africa.

Kenya currently contributes very little to global GHG emissions. However, a considerable number of priority development initiatives outlined in Vision 2030 and regular Medium-Term Plans (MTPs) will impact on Kenya’s levels of GHG emissions.

As this discussion on climate Change Continues it is a well-known fact that Kenya is a water-scarce country. The natural endowment of renewable freshwater is low, and water resources are unevenly distributed in both time and space. Climate change will worsen this already precarious situation as it affects the main hydrological components of precipitation and run-off. This will alter the spatial and temporal availability of water resources. Serious droughts have occurred in the last four consecutive years. Major rivers show severe reduced volumes during droughts, and many seasonal ones completely dry up. The consequent crop failures in 2009, for instance, placed an estimated 10 million Kenyans[62], or one fourth of the entire population, at risk of malnutrition, hunger and starvation. Droughts reduce the production of not only staple food crops such as maize but also other major crops such as tea, sugarcane and wheat. This increases imports (maize, wheat and sugar) and reduces exports like tea, weakening the country’s balance of payments.

The energy sector is a crucial driver of economic growth. However, fossil fuel-based electricity generation and consumption, and increases in fossil fuel use in the transportation sector contribute significantly to GHG emissions. The recent discovery of commercially viable deposits of oil and coal will likely contribute to increased emissions in Kenya. The extraction and use of these resources could take low carbon considerations into account, such as encouraging clean technologies with international support and considering allocation of royalties to a fund to support climate resilient and low carbon actions. Energy use in the form of fuel wood and charcoal by most the Kenyan population increases emissions and contributes to on-going deforestation and forest degradation. Kenya has significant renewable energy potential, including geothermal, wind, solar and hydro.

The agricultural sector is the largest contributor of GHGs emissions in the country mainly from livestock methane emissions and land-use change. GHG emissions for the livestock subsector are expected to increase by 30 per cent up to 2030.

At the end of this study it should be established on how the Third World Countries Manage the issue of climate change and development and how Kenya has managed to streamline all its important sectors to mitigate the effects of cli8mate change on the economic, social and political developments of the country. Kenya is also characterized by a rapidly growing population, rapid urbanization and growing urban poverty, water scarcity, falling food production and low resilience to climate change. The combined effects of climate change and rapid population growth are increasing food insecurity, environmental degradation and poverty levels in Kenya. Addressing population growth

and climate change together should be a top development priority if Kenya is to achieve sustainable development. To enhance integrated responses, the government of Kenya, donors and program implementers should harmonize roles of various climate change coordination entities, integrate population dynamics in all climate change policies and strategies (and vice versa), Secure financial and other resources for climate change and population responses, and enhance local technical capacity in multidisciplinary program design and research.

Climate change therefore affords opportunities as well as challenges. Actions to address climate change can help to catalyse Kenya's transition to a green economy and generate employment in new areas. A priority action will be the development of an enabling policy framework for green job creation, which will identify emerging green economy opportunities that promote private sector investment and engagement to maximise employment creation.

The United States of America recognises climate change not only as a development threat but also as a security threat. During one of the presidential debates in the United States one of the candidates when asked about climate change effects he responded as follows; "***In fact, climate change is directly related to the growth of terrorism. And if we do not get our act together and listen to what the scientists say, you're going to see countries all over the world…they're going to be struggling over limited amounts of water, limited amounts of land to grow their crops, and you're going to see all kinds of international conflict".***[63]

This facet of the climate change threat was brought into stark relief by a recent report from the World Bank[64], paints a depressing picture: without organized, sensible, and well-funded climate-informed development, one hundred million people could be forced into extreme poverty by 2030. Even before rising to the level of a security or political violence risk, vulnerable populations face climate-related natural disaster risk, threats to agricultural productivity, reduced water access (in terms of quantity and quality), and human health degradation from excess heat. Although some of these impacts are already being felt thanks to climate change already underway, it is by no means inevitable that the effects will be that dire[65].

With so many still in poverty and hunger, growth and poverty alleviation remain the overarching priority for developing countries. Climate change only makes the challenge more complicated. First, the impacts of a changing climate are already being felt, with more droughts, more floods, more strong storms, and more heat waves taxing individuals, firms, and governments, drawing resources away from development. Second, continuing climate change, at current rates, will pose increasingly severe challenges to development. By century's end, it could lead to warming of 5°C or more compared with pre-industrial times and to a vastly different world from today, with more extreme weather events, most ecosystems stressed and changing, many species doomed to extinction, and whole island nations threatened by inundation. Even our best efforts are unlikely to stabilize temperatures at anything less than 2°C above pre-industrial temperatures, warming that will require substantial adaptation. High-income countries can and must reduce their carbon footprints. They cannot continue to fill up an unfair and unsustainable share of the

atmospheric commons. But developing countries like Kenya whose average per capita emissions are a third those of high income countries need massive expansions in energy, transport, urban systems, and agricultural production. If pursued using traditional technologies and carbon intensities, these much-needed expansions will produce more greenhouse gases and, hence, more climate change. The question, then, is not just how to make development more resilient to climate change. It is how to pursue growth and prosperity without causing “dangerous” climate change. Climate change policy is not a simple choice between a high-growth, high-carbon world and a low-growth, low-carbon world but a simple question of whether to grow or to preserve the planet. Plenty of inefficiencies drive today’s high-carbon intensity. For example, existing technologies and best practices could reduce energy consumption in industry and the power sector by 20–30 percent, shrinking carbon footprints without sacrificing growth. Many mitigation actions—meaning changes to reduce emissions of greenhouse gases—have significant co-benefits in public health, energy security, environmental sustainability, and financial savings. In Africa, for example, mitigation opportunities are linked to more sustainable land and forest management, to cleaner energy (such as geothermal or hydro power), and to the creation of sustainable urban transport systems. So, the mitigation agenda in Africa is likely to be compatible with furthering development.

The Ministry of Foreign Affairs and international trade[66]has developed a Climate Change Policy Framework that forms the basis of engagement of the state with other actors on the issue of Climate Change, the ministry in short has set the standard for Climate Change Diplomacy, The Formulation of this Policy was initiated within the framework of the

National Climate Change Action Plan (NCCAP, 2013-2017) whose objective is to encourage low carbon climate resilient development through implementation of the NCCRS. This Policy has been informed extensively by the NCCAP process and outputs.

This Policy is therefore designed to provide a framework to guide the development and implementation of specific, detailed and costed climate change interventions through regular and periodic Climate Change Action Plans. By putting in place this policy architecture, Kenya aims to safeguard the wellbeing of its citizens, their property, and the country's prosperity in the face of a changing climate. This Policy therefore aims to enhance adaptive capacity and build resilience to climate variability and change, while promoting a low carbon development pathway.

The research will look to give a detailed summary of how third world countries can mitigate the effects of climate change and foster development in their sectors and the case of Kenya and the bulging population growth and high levels of poverty brought about by climate change and the need to address this in Kenya and other developing democracies. It therefore goes without saying that unmitigated climate change is incompatible with sustainable development. In this paper, I seek to discuss the impact and problem brought about by climate change in the following headings;

Higher Temperatures

Earth's temperatures in 2015 were the hottest ever recorded[67] . Why does this matter? Because a change of even 1-degree Fahrenheit which may sound small can upset the delicate balance of ecosystems and affect plants and animals that inhabit them.

Changing Landscapes and Wildlife Habitat

Rising temperatures and changing patterns of precipitation are changing where plants grow, and in the case of our oceans, encouraging the proliferation of species that impact native ocean habitat. As landscapes and habitats literally shift, wildlife must quickly adjust. Experts predict that one-fourth of Earth's species will be headed for extinction by 2050 if the warming trend continues at its current rate.

Rising Seas

As ocean waters, warm, they expand, causing sea-levels to rise. Melting glaciers compound the problem by dumping even more fresh water into the oceans. Rising seas threaten to inundate low-lying areas and islands, threaten dense coastal populations, erode shorelines, damage property and destroy ecosystems such as mangroves and wetlands that protect coasts against storms.

Increased Risk of Storms, Droughts, and Floods

Climate change is intensifying drought, storms, and floods around the world. Where nature has been destroyed by development, communities are at risk from these intensified climate patterns. Scientists around the world are studying how nature can be a buffer for these intensified weather patterns.

Communities at Risk

In the U.S.A alone, half of its residents live within 50 miles of the coast. Worldwide, approximately 100 million people live within three feet of sea level. Sea level rise associated with climate change could displace tens of millions of people in low-lying areas – especially in developing countries. Inhabitants of some small island countries that rest barely above the existing sea level are already abandoning their islands, some of the world's first climate change refugees[68]. In Kenya for example Mombasa, Lamu, Kwale lie on coastal land and are susceptible to flooding.

3.3 Conclusion

Climate change is occurring on a one-century time scale giving societies and ecosystems little time to adapt to the rapid pace. Such a drastic temperature shift would cause large dislocations in ecosystems fundamental to human societies and economies such as the possible dieback of the Amazon rain forest, complete loss of glaciers in the Andes and the Himalayas, and rapid ocean acidification leading to disruption of marine ecosystems and death of coral reefs. The speed and magnitude of change could condemn more than 50 percent of species to extinction. Sea levels could rise by one meter this century, threatening more than 60 million people and $200 billion in assets in developing countries alone, this can be seen from the recent hurricane catastrophes in America and its territories where the loss exceeded 20 billion dollars. Agricultural productivity would likely decline throughout the world, particularly in the tropics, even with changes in

farming practices. And over 3 million additional people could die from malnutrition each year. Even 2°C warming above pre-industrial temperatures would result in new weather patterns with global consequences. Increased weather variability, more frequent and intense extreme events, and greater exposure to coastal storm surges would lead to a much higher risk of catastrophic and irreversible impacts. Between 100 million and 400 million more people could be at risk of hunger. And 1 billion to 2 billion more people may no longer have enough water to meet their needs.

Developing countries are more exposed and less resilient to climate hazards. These consequences will fall disproportionately on developing countries. Warming of 2°C could result in a 4 to 5 percent permanent reduction in annual income per capita in Africa and South Asia, as opposed to minimal losses in high-income countries and a global average GDP loss of about 1 percent. These losses would be driven by impacts in agriculture, a sector important to the economies of both Africa and South Asia. Agriculture is also central to most of the Kenyan families, Also Developing countries are particularly reliant on ecosystem services and natural capital for production in climate-sensitive sectors. Much of their population lives in physically exposed locations and economically precarious conditions and their financial and institutional capacity to adapt is limited.

In the following chapters, the study will show the many ways in which this effects and problems faced by third world countries can be limited with special emphasis to Kenya.

We must as a society act now, because what we do today determines both the climate of tomorrow and the choices that shape our future remembering through this that climate change is a problem of the common so the need to act together.

CHAPTER FOUR

RESEARCH RESULTS AND FINDINGS

1.1 INTRODUCTION

The effects of climate change on socio-economic development are no longer a mystery but are rapidly becoming a stark reality. Accelerating emissions of the greenhouse gases (GHGs) in developing countries, especially in the emerging economies like Kenya, have raised serious concerns about the relationship between climate change and economic growth. Rising GHG emissions are resulting in the increased temperatures and are having serious impacts on climate. Although climate change may initially have some positive effects for some developed countries, the impacts of climate change are not evenly

distributed – the poorest countries and people will suffer earliest and most[69]. This is because these countries are more vulnerable to the negative effects of climate change on water resources, ecosystems, crop production, fisheries and human health. These countries have a large population dependent on climate sensitive sectors and they have low adaptive capacity to develop and implement adaptation strategies.

Kenya on one hand is characterized by a rapidly growing population, rapid urbanization and growing urban poverty, water scarcity, falling food production and low resilience to climate change. The combined effects of climate change and rapid population growth are increasing food insecurity, environmental degradation and poverty levels in Kenya. Kenya has been a pioneer in instituting policies and programmes to address population challenges. The country was also among the first in setting up a climate change response strategy. The 2013-2017 implementation plans for the country's development blueprint, Vision 2030, has identified population dynamics and climate change among key priorities. However, the two issues are not strongly linked in current policies and intervention programs to address them are implemented separately.

The impacts of Climate Change in Kenya are likely to stall the country's development, pose a serious risk to food security and adaptive capacity. The National Climate Change Response Strategy, National Climate Action Plan and other Enabling Legislations are among the processes that sought to establish specific provisions for dealing with climate change issues, understanding the extent of the threat and putting in place specific actions to manage potential impacts.

Science has clearly demonstrated that there is extreme urgency in taking real action to avoid irreversible damages to our planet. Reports of the Inter-Governmental Panel on Climate Change[70] (IPCC) state that Africa will suffer the most from the impacts of climate change. The serious under-development of the continent signifies high vulnerability to climate change impacts. The global nature of climate change requires the widest cooperation and participation in an effective and appropriate international response comprising mitigation and adaptation measures based on the principles of the Climate Change Convention.

However, taking note that the impacts of climate change are felt at the local level and most felt by the poor communities due to their low adaptive capacity, the Government of Kenya has developed amongst other mechanisms a National Climate Change Response Strategy to guide national response measures in addressing the impacts of Climate Change.

Kenya as a country has also come up with serious and varied intervention mechanisms on the issue of climate change with the enactment of The Climate Change Act No 11 of 2016. The Act provides guidance on integration of climate change issues into National Development Planning processes at national, provincial, district and local levels and ensures coordinated activities.

Kenya as a developing country is also using HCFC gases but to the limit as prescribed by the Montreal Convention. The country in the recent past carried out surveys in Turkana and West Pokot Counties to show the prevalence of these gases. This report and research has been borrowed from the research of Mr. Engineer Paul Yebei[71]who gave permission

to the researcher herein to have a look at that research and report. The same has been attached herein with the full authority and permission from the said Mr. Engineer Paul Yebei. The Main issues and report will be discussed under headings as below; -

1.2 Analysis of Climate Change in Kenya

Evidence of climate change is based on statistical analysis of trends in historical records of temperature, rainfall, sea level rise, and Mountain glacier coverage and climate extremes.

Temperature and rainfall records from the over the last fifty years provide clear evidence of climate change in Kenya, with temperatures generally showing increasing trends in many parts of the country starting from the early 1960s[72]. This evidence is also provided in the State of the Environment Reports published by the National Environment Management Authority.

Rainfall patterns indicate increased irregularity and variability with neutral to slightly decreasing trends in annual rainfall over most areas. Decreasing rainfall trends have been observed in the total annual rainfall and during the long rainfall season (March – May) in recent years. This season contributes the higher proportion of the total rainfall for most parts of the country. A general increase in rainfall amounts has, however, been observed during the months of September to February in some parts of the country. This increase has been attributed to a tendency of the short rainfall season (October-December) to extend into the normally hot and dry months of January and February. Generally, the 24-hour rainfall intensity has shown a decreasing trend[73].

Impacts of temperature increase include the depletion of glaciers on Mount Kenya and sea level rise. These temperature increases will have negative implications on biodiversity and ecosystem services in the country.

A changing climate impacts the frequency, intensity, spatial extent, duration and timing of extreme weather and climate events. In recent years, evidence of higher frequency and intensity of extreme climate events such as droughts and floods has been noted in Kenya. The country's drought cycles have been reduced from 20 years (1964-1984), to 12 years (1984-1996), to two years (2004-2006), to a yearly occurrence of drought recorded in the period between 2007 and 2012[74], which comprise 83 per cent of Kenya's landmass, are fragile ecosystems and the lack of investment in public goods and services in ASAL areas increases the country's vulnerability to climate change.

The impacts of climate change cut across diverse aspects of society, the economy and the environment. The adverse impacts of climate change have the potential to significantly inhibit the sustainable development of Kenya in key priority areas.

Areas that may be affected by Climate Change in Kenya include; -

- Agriculture, Livestock and Fisheries
- Environment, Water and Forestry
- Trade
- Physical Infrastructure
- Extractives Industry
- Tourism
- Trade

- Coastal and Marine Eco systems
- Energy.

And as it can be seen these named zones are the pillars of any constructive positive development in a country like Kenya, Especially Agriculture and livestock as this is the backbone of the Kenyan Economy.

Deforestation and forest Degradation has been listed as one of the causes for carbon emission. Although Kenya is classified as a low forest cover country, it loses about 54,000 hectares of forest cover every year. The major reasons for this loss are: Conversion of forest land to agriculture, settlements and other uses; Unsustainable utilization of forest products (including charcoal); Forest fires; and shifting cultivation.

1.3 HCFC Use in Kenya and Effects

Hydro-chlorofluorocarbons (HCFCs) are ozone depleting substances and are classified as controlled substances by the Montreal Protocol. Their use in Kenya shall be controlled by the year 2013, followed by 10% reduction of their consumption (imports)in 2015 and eventually phased-out in line with the phase out schedules summarized here below: -

Montreal Protocol Control measures of HCFC22 (R22);

- By mid-2011, Kenya shall choose and /or calculate the R22 baseline consumption (imports). The baseline shall be based on the average consumption (imports) of R22 during the 2009 and 2010 levels.

- There shall be a freeze of R22 imports, to be in tandem with the baseline level, in 2013

- In 2015, imports of R22 will be reduced by 10% of the baseline consumption (imports)

- In 2020 imports of R22 will be reduced by 35% of the baseline consumption (imports)

- In 2025 imports of R22 will be reduced by 67.5% of the baseline consumption (imports)

- In 2030 R22 will be phased out while allowing for servicing an annual average of 2.5% during the period 2030 to 2040

Globally, HCFCs are used in Refrigeration and air-conditioning, Foams, solvents, aerosols, and fire-fighting sectors. In order to assist companies as well as private and public institutions which have invested in HCFC, the Government of Kenya, in collaboration with GIZ (formerly GTZ), conducted a survey to determine the quantities of HCFC gas in the Country with specific focus on Turkana and West Pokot Counties, the table below shows the pattern as was seen and a report of the survey will be attached later on.

From the foregoing report, it can be deduced that Public Institutions account for over 60% 0f HCFC consumption rate with Kengen’s Turkwell Power Generating Station leading the pack at almost 64% whereas the service sector i.e. shops, hotels etc. account for less than 4%, The Refrigeration and Air Conditioning Sector is the predominant

consumer of HCFCs namely R22 and R12, the sector contributed to over 38% in West Pokot County as well as over 65% in Turkana County. HCFC-22 (R22) is the dominant ozone depleting substance that is widely used in both counties mainly for air conditioning – domestic, commercial as well as industrial air conditioning. R134a refrigerant is used predominantly in freezers, fridges and dispensers in both counties. End users of the HCFCs and HCFC related appliances/equipment are not aware of these gases (and of the green gases also) as depicted by the higher percentage of ozone depleting substances (R22/12 and HCFC141b) in both counties. Kengen's Turkwell Power Generating Station accounts for over 96% of HCFC use in West Pokot County whereas Non- Governmental Organizations account for over 76% of HCFC consumption in Turkana County.

1.4 LOW CARBON CLIMATE RESILIENT DEVELOPMENT

Transitioning to a low carbon climate resilient development means the country fully acknowledges the implications of climate change for sustainable development objectives and is committed to adopting the necessary corrective actions.

The pathway would take into consideration future risks, and thus improve Kenya's ability to prosper under a changing climate while reducing the emissions intensity of a growing economy. An integrated low carbon climate resilient emphasizes:

Sustainable Development – Achieving sustainable development and poverty alleviation should be at the forefront of all climate actions. The plan recognizes that climate change and development are intricately linked.

Adaptation – Reducing vulnerability to avoid or cushion the impacts of climate change and enable people to respond to climate risks by moving toward a climate-resilient society.

Mitigation – Taking actions, where possible, to encourage GHG emissions that are lower than business-as-usual practice; and to reduce the human causes of emissions by moving towards a resource efficient economy that is as low carbon as possible

In Kenya, low carbon actions should be considered as priority actions only if they also have climate resilience or significant sustainable development benefits. A low carbon climate resilient development pathway should be tailored to the country's unique circumstances. Kenya has little historical or current responsibility for global climate. Change and emissions are low relative to global emissions. Kenya's low carbon climate resilient development strategy recognizes that national emissions will increase with Population and economic growth. However, the strategy can help ensure that Kenya remains a low emitter as the country develops and takes steps to reduce vulnerability to climate change.

1.5 CLIMATE CHANGE GOVERNANCE IN KENYA

Climate governance goes beyond the science of climate change to look at the social, economic and political issues related to climate change.

It approaches climate change from a rights and sustainable development perspective and interrogates political and financial processes involved toward achieving change from the global perspective to the national and local.

Article 3, Paragraph 1 (Principles) of the UNFCCC states: “The Parties should protect the Climate system for the benefit of present and future generations of humankind, based on equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.” Geopolitics is at the Centre, given the power relations involved in negotiating priorities, commitments to obligations and resourcing for adaptation and mitigation

Climate governance is the measure by which we ensure that the interests of those most affected by climate change are met, that the different parties to the international instruments that govern climate actions live up to their obligations and the relations between them; the manner in which decisions are made and decision makers are held accountable; the policies, plans and measures that the state and its citizens put in place to address climate change and their implementation in a just and effective manner. Climate governance also deals with how inclusive the decision-making process is in the exercise of power and responsibilities, that is, whether all stakeholders, including civil society, private sector and governments, have a voice. In short, it is about ensuring: legitimacy through transparency, accountability, fairness and equity; effectiveness through the right mix of strategies and tools; and sustainability of the policies and actions.

CONCLUSION

Climate change issues should generally be mainstreamed into all sectors; however, in Kenya, they have not yet been mainstreamed into sectors that include land-use planning, agriculture, natural resource management, industry, energy and transport. Thus, there is generally a limited supportive environment to respond to climate change issues at national level.

Kenya recognizes that climate change mainstreaming represents the best strategic approach to ensure that action on climate change results in meeting the overall policy objective of attaining low carbon and climate resilient development. Given that climate change affects fundamental economic, social and environmental aspects of Kenya's development, and an effective cross-sectoral climate change response must place mainstreaming at the core of Kenya's climate change response efforts.

A climate change mainstreaming approach will provide the various coordinating and sectoral agencies of the Kenyan national and county governments with the tools to effectively respond to the complex challenges of climate change. In this context, mainstreaming implies the integration of climate change policy responses into national, county and sectoral planning, budgeting and management processes. This is the stage at which Kenya is currently in.

CHAPTER 5

DATA PRESENTATION AND ANALYSIS

1.1 Introduction

In the year 2015, Kenya had pledged to cut its carbon emissions by 30% below business as usual levels by 2030. This was ahead of a land mark UN climatic Summit in Paris later in the year of 2015.[75] The East African country is a very small carbon emitter in global rankings, on a par with Singapore and Mongolia. This was hailed by campaigners as evidence that developing countries could develop without fossils.[76]

Kenya promised to abide by its pledge to cut down carbon emission by 2015 ahead of a visit to the country by Barack Obama the president of the United States of America as he then was. The Kenyan government said it would meet the target by expanding solar, wind and geothermal power, and bring forest cover up to 10% of the country. It also pledged to reduce too much dependency on wood fuel. This pledge and promise by Kenya was echoed by Mohamed Adow[77] , a Kenyan climate expert and a senior climate adviser to Christian Aid.

It should be noted that Kenya has submitted its commitment much earlier than many rich countries. This shows that Kenya is more ambitious and much ready to combat issues to do with climate change more than the richer countries (emphasis mine).

Kenya has proved to the world that African countries do not need to be slaves to fossil fuels as the plot their future development out of poverty. Kenya has demonstrated this by investing heavily on renewable energy. The only challenge that is foreseen is that Kenya

will need financial and technological support from richer countries. Per Professor Shem Wandiga[78], the Kenyan pledge was fair and achievable.

Several dozens of other countries have submitted their pledges and promises known as the Intended Nationally Determined Contributions {INDCs} in the Jargon of climate talks, to the UN. This was just before the previously held Paris Summit on Climate Change. This represented 59% of world carbon emissions. It was estimated that Kenya required 40 billion US Dollars over the next 15 years from the year 2015 most of it in the form of foreign aid to fully implement its climate mitigation and adaptation plans. Per professor Wandiga this was just an estimate and the actual cost was to be worked out.

In his article Njenga Hakeenah said that Kenya earn nearly $200 million per year and slash its greenhouse gas emissions by using carbon finance to improve its forest management, modernize its charcoal production, and disseminate clean burning cook stoves, per a new report issued jointly by Kenyan government and the UNEP[79]

It has been noted also that increasing efficiency in Kenya's forestry sector could cut greenhouse gas emissions by 27% thus assisting Kenya meet its climate commitments and obligations under the Paris Agreement and bringing economic benefits of $188 million per year.[80] The report finds that investing in efficiency measures in forest product processing and operations could contribute to reducing deforestations and forest degradation while delivering a reduction of 20 million tons of carbon dioxide equivalent (tCO2e) per year. Kenya's emissions were 73 tCO2e, most which came from land-use, Agriculture and Forestry. Three key areas have been highlighted to bring major socio-economic benefits approaches which include the role of conservation, sustainable

management of forests and enhancement of forest carbon stocks. These key areas of enhancing fuel efficiency in charcoal burning and production, household fuel wood consumption and industrial fuel wood consumption. The government of Kenya through the REDD+Policy has been seen to work out in reducing emissions from deforestation and forest Degradation. The Forest Carbon Partnership Facility (FCPF), Natural Resources Management Project under KFS, and other bilateral supported programmes have been instrumental in providing technical and financial support for these efforts. Kenya has also benefited from the global programme support of the UN-REDD Programme in support of its REDD+ readiness activities. The Ministry of Environment, Water and Natural Resources coordinates the Readiness process, and a National REDD+ Coordination Office has been established within the Ministry to offer secretariat services for the activities. Kenya has a sound Forest Act that should also be used to mitigate the problems that faces forests in general. The Kenya Constitution 2010 too has provisions and regulations regarding forests in Kenya. Vision 2030, the country's economic blueprint, identifies forestry as one of the key drivers of the economy through its support to the primary sectors including agriculture, infrastructure, tourism and energy. Under Vision 2030, the country aims to protect the five water towers (Mt. Kenya, Aberdares, Mau, Cherangani and Mt. Elgon) and increase the forest cover to a minimum 10% through an aggressive afforestation, reforestation and restoration program. In addition, the country is addressing climate change through the development of a National Climate Change Response Strategy (NCCRS) and supporting Action Plans. This strategy provides a framework for re-orienting national programmes towards a low carbon development pathway and has identified the forestry sector as a strong vehicle for supporting this

effort. Significant policy, legislative and institutional changes have occurred over the last few years in Kenya that complements the REDD+ efforts in the country. The Constitution, National Development Plan (Vision 2030), The Arid and Semi-Arid Lands (ASALs) Policy, the National Land Policy and the National Climate Change Response Strategy (NCCRS) and Action Plan (NCCAP) identify forestry as one of the key sectors for delivering national sustainable development and climate change goals. The Environment and Forest Policies and supporting legislation are currently under review to align them with the Constitution and to embrace emerging issues like climate change, participatory management and REDD+. Capacities of key institutions like Kenya Forest Service (KFS) and Kenya Wildlife Service (KWS) are also being strengthened to provide the required support and guidance for sustainable management and conservation of forestry resources. Similar efforts are being directed to community associations to strengthen their engagement in forest conservation efforts. The KFS has also undergone significant transformation, in line with the Forests Act[81], to embrace a modern, decentralized and transparent approach to forest management that ensures full participation of stakeholders. The World Bank, United Nations Development Programme (UNDP) and the Finnish Government have significantly supported forestry conservation efforts in the dry lands, aware that these areas hold most of the country's forest resources and equally hold the greatest potential for reducing carbon emissions and enhancement of forest carbon stocks. The REDD+ readiness process should reinforce these activities and future sector engagements. Kenya hosts several land-based carbon projects, including Wildlife Works Kasigau Corridor REDD Project that has sold carbon credits in the voluntary market.

In December 2105 Strathmore University approved the development of a roof top grid tied solar PV project as part of its sustainability initiative. This is one of the ways in which sustainable energy in form of solar energy can be utilized at the expense of carbon emitting source of energy. Even though the project encountered challenges such as lack of a net metering policy and the existing FiT (Feed in Tariffs) regime[82] was not suitable to the University solar energy has proved cheap and sustainable.

More than 16,000 scientists from 184 countries have published a second warning to humanity advising that we need to change our wicked ways to help the planet[83]. This is happening after a similar one in the year 1992 where 1,700 scientists signed the World Scientist Warning to Humanity[84]. The contents of the letter were to the effect that Human beings and the natural world were in a collision course and if environmental damage was not stopped, the future was at risk.[85] The letter made headlines 25 years ago, but the world still faces daunting environmental challenges.

Environmental scientist William Ripple [86]and his colleagues have decided to create a new letter that has struck a nerve. This is because since it was published in the Bio-Science journal on Monday, hundreds more scientists have signed on the letter. The contents of the letter are to the effect that if there is no groundwork of public pressure to change human behavior, the planet will sustain substantial irreversible harm.

1.2 THE ROLE OF THE KENYAN GOVERMENT

In a nutshell Kenya, has tried in bringing up mechanism to combat climate change by enacting certain legislations and coming up with National policies and strategies.

Current Government policies, plans, strategies and initiatives that provide a supportive framework for implementing climate change responses include:

I. The Constitution of Kenya 2010:[87] it provides ground for the formulation of adaptation and mitigation legislation, policies and strategies by guaranteeing the right to a clean and healthy environment under the bill of rights.

II. The Climate Change Act[88]: This Act shall be applied for the development, management, implementation and regulation of mechanisms to enhance climate change resilience and low carbon development for the sustainable development of Kenya. In its section 5 it has set out a council to monitor climate change.

III. The National Climate Change Response Strategy:

Developed in the year 2010, The National Climate Change Response Strategy (NCCRS), also referred to as the 'Strategy', is the culmination of a year-long process to develop a comprehensive and concerted suite of strategies to respond to the challenges climate change is posing to Kenya's socioeconomic development. The NCCRS is a significant step in the recognition that climate change is a threat to national development. It has presented evidence on climate change and associated impacts. In addition, it has proposed a concerted programme of activities and actions to combat such impacts and an enabling implementation framework.

IV. The National Climate Change Action Plan

Formulated by the former retired president H.E Hon Mwai Kibaki and the Right Hon Raila Odinga former prime minister in recognition of the serious

threats by climate change formulated the National Climate Change Action Plan 2013-2017. This action plan sets out Kenya's first comprehensive effort to achieve low carbon climate resilient development. The action plan provides a road map for the necessary enabling conditions in the form of policy, legislation and institutional framework.

I recommend that this Action plan must be adhered to by all be National Government, County Governments, Multi-Nationals and the Non-Governmental Organizations {NGOs} and private developers who have come up with industries.

V. Vision 2030

Kenya Vision 2030 is the country's new development blueprint for the period 2008 to 2030. It aims to make Kenya a "middle income country providing high quality life for all its citizens by the year 2030". The first phase of the Kenya Vision 2030 covers the period 2008 to 2012 during which several "flagship" projects will be implemented. Vision 2030 is based on three pillars: the economic pillar, the social pillar, and the political pillar. In one way or another, these pillars are all interrelated and the fiber that binds them together is the natural environment, with its inherent supply of renewable and nonrenewable goods and services. Development objectives and the need to protect and maintain the natural environment must go hand in hand. This is because environmental sustainability, including the conservation of biodiversity, underpins human well-being (UN 2005). The vision 2030

therefore talks about steps that Kenya has taken to combat adverse effects of climate change in Kenya.

VI. The Water Act[89]

This Act provides for overall governance of the Water sector, regulations and strategies from this Act recognize climate change implications on health, sanitation and water

VII. The Forest Act[90]

This Act has formulated necessary laws that helps conserve preserve and sustain our forests. Acts of deforestation and forest degradation have been prohibited.

The cabinet secretary in charge of Environment has been mandated to formulate a forest strategy.

VIII. The Kenya Forestry Master Plan 1995-2020

This master plan provides for a framework for forestry development in the country for the 25-year period up to 2020. It recognizes the environmental role of forests. It has been known to be the father of the current Kenyan Forest Act.

IX. National Policy for Sustainable Development of Northern Kenya and other Arid Lands

The government is tasked with finding solutions to address climate challenges. It should come out with the requisite measures to manage drought and strengthen livelihoods

X. National Disaster Management Policy 2012

When adverse effects of climate change occur, situations such as tsunamis, hurricanes, heavy thunderstorms and heavy rain falls resulting in floods occur. A disaster Management system should be in place to provide solutions to disasters and serious injuries that follows. Kenya has adapted the National Disaster Policy which aims at increasing and sustaining resilience of vulnerable communities to hazards.

XI. Environmental Management and Coordination Act

This is the Kenyan Principle instrument for management of the Environment. It provides for the institutional and the regulatory body that conserves preserves and sustains the environment in Kenya. It has established the National Environment Management Authority (NEMA)[91]

XII. Threshold 21(T21) Kenya

It's a vital tool designed to support comprehensively the integrated long-term national development planning. The T21-Kenya model has been developed to integrate the analysis of the risks and impacts of climate change across the major sectors of the economy, society and environment.

XIII. The Energy Policy and Act

Every economy roots for sustainable and renewable energy sources to enhance the country's electric supply capacity. Kenya is not an exception and to promote that it has implemented through the energy Act of 2006, which provides for mitigation of climate change, through energy efficiency and promotion of renewable energy.

CONCLUSION

Finally, Kenya has tried its level best to put up mechanisms to combat climate change especially by way of legislation, policies, strategies and several action plans. It has not been easy though especially when it comes to implementation since the same requires lots of monies local and foreign to achieve. Foreign Aid should either be through bilateral or multilateral agreements.

CHAPTER 6

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

In this, the concluding chapter, we bring together the main messages from this research and provide recommendations for specific adaptation and mitigation activities as well as general recommendations for Kenya and the way forward.

It should be noted that Kenya hosted the UNEA3 for 2 days from 5th to 6th December 2017. Attachments has been provided in the list of attachments in this research of the resolutions and important deliberations from that conference.

Kenya is a country of abundant natural resources and highly educated, resilient people. Most of its people live in rural areas and are highly dependent on natural resources for their lives and livelihoods. Due to a naturally variable climate and heavy flash rains plus a poverty history, the country has experienced many hardships. This has left the environmental resilience weak, the environment degraded and many of its people economically vulnerable. Climate change is already having a profound effect throughout the world. In Kenya, average temperatures have risen, rainfall appears to be declining, the rainy season is starting later and mid-season dry spells are more common. Extreme events such as droughts, floods and storms appear to be becoming more frequent and less predictable. By 2050 and until the end of the century, it is likely that Kenya will experience:

- A modest decrease in total amount of rainfall

• Changes to the on-set and end of the season

• More frequent and longer mid-season dry periods

• Reduced groundwater recharge

• Erratic rainfall distribution throughout the country

• More droughts and floods, which may occur year after year

• Temperature increase of between 1°C and 3 °C

These changes are likely to lead to; -

• Reduced water supply for domestic and agriculture from both surface and groundwater sources

• Degradation of natural resources, especially soil, water, natural vegetation, crops, livestock and wildlife

• Reduced food security, possibly leading to increased under-nutrition, particularly among children

• Increases in the incidence of diseases such as diarrhea, malaria and cholera due to declining water quality, warmer temperatures and flooding

• The rural poor, particularly women, children and the elderly, and the disabled will most likely bear the brunt of the impacts.

The NCCRS details mechanisms for addressing climate change in the following sectors: natural systems, economic sectors and physical and social infrastructure.

RECCOMENDATIONS

These recommendations are drawn from chapters 4 and 5 on adaptation and mitigation followed by some general recommendations for Zimbabwe as a nation. Many are already proposed in the NCCRS.

a) ADAPTIVE RECOMMENDATIONS

Kenyans will have to adapt to survive the changes in the climate. Adaptation should involve building the resilience of human communities and ecosystems to environmental shocks as well as implementing sustainable development measures that focus on improved natural resource management and strengthening of social networks.

Adaptation should be tailored to specific environments and communities. It should be driven by local communities in participation with development agencies supported by local and national government structures. Local adaptation initiatives should be built on indigenous knowledge in combination with scientific research and technological advances. Communities should be helped to prepare disaster risk reduction plans.

i. Water, Land, Vegetation and Communities.

Sectoral adaptation measures for Kenya should focus on management of water, land use and vegetation, and on strengthening human communities.

• In water management, priority should be given to protecting and conserving underground water resources by reducing soil erosion and conserving wetlands and aquifers.

• In land management, the focus should be on soil protection by controlling mining activities and improving agriculture. The formation of a Ministry for Mining and Natural Resources is a powerful measure that can have far-reaching benefits.

• In vegetation management, it is vital to conserve forests since vegetation has beneficial impacts on weather, soil and water systems. Agroforestry, control of wildfires and encouraging crop diversification are equally important.

• Human communities can be strengthened by raising awareness about climate change and building capacity for adaptation strategies that build on indigenous knowledge. Strengthening the abilities of communities to deliberate and act collectively by encouraging participation is a way to achieve this. Protecting the most vulnerable individuals and diversifying livelihoods are crucial for building community resilience.

b) MITIGATION RECOMMENDATIONS

• Kenya needs stronger representation in international climate change negotiations in order to secure technical support and funding for adaptation.

• At a national level, Kenya needs to explore options for more efficient and cleaner power generation and encourage the use of renewable energy, particularly solar power and biogas.

• Coal-fired power generation needs to be made more efficient, preferably with some form of carbon capture.

• Mining, manufacturing and other industrial enterprises should be encouraged to improve the energy efficiency of their operations and reduce emissions.\

• Companies that emit harmful gases should be encouraged to invest in mitigation and adaptation measures through corporate social responsibility projects.

• REDD+ and other forestry conservation and expansion measures need to be expanded to conserve all our national forests. A concerted nationwide campaign to promote energy-efficient stoves needs to be launched

c) GENERAL RECOMMENDATIONS

• Collection of meteorological and water resource data should be improved; the data should be disseminated widely to enable communities to plan their adaptation and mitigation strategies.

• Veterinary officers, village health workers and other community workers should be trained in climate change adaptation measures. Ideally, climate change officers should be deployed in each district to help communities to monitor climate change and the state of natural resources and advise on adaptation and mitigation measures.

• Nationwide awareness-raising campaigns supported by government and civil society should be conducted in the mass media.

• Education ministries should introduce climate change training for all teachers and teaching materials made available in primary and secondary schools.

CONCLUSION

It is hoped that the information in these pages will persuade planners and decision makers of the urgent need to prepare Kenyans to face up to climate change and its attendant risks. The most important message of this paper is that we must act now to address the biggest threat to humanity today. For the sake of future generations of developing and poor nations, including Kenya, we cannot afford to delay.

However, Kenya has begun to act through its NCCAP, SDGS, VISION 2030 and NCCRS, and the task for future generations is to turn this strategy into concrete action. The biggest immediate threat is that policy makers do not act and that citizens do not appreciate the risks so that they might support policy makers in their task to deal with the threat of climate change. It will be the synergies between citizens and policy makers that may change the future for Kenya.

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[58]This can be seen in the recent events of Hurricane Maria, Hurricane Irma that has pounded the Virgin Islands, Puerto Rico and some states in the United States of America.
[59]The Kyoto Protocol was adopted in 1997 but entered force in 2005.
[60]UNFCCC (2011) Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010. Decision 1/CP.16 The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention")
[61]Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC) dealing with greenhouse gas emissions mitigation, adaptation and finance starting in the year 2020.
[62]This evidence is drawn from data that has been collected and analyzed with the help of the KMD, the Kenya Agricultural Research Institute (KARI), and other research organizations such as the Kenya Institute for Public Policy and Research Analysis (KIPPRA). KARI, a semiautonomous government agency helps in assessing adaptation in relation to food security.
[63]Democratic Candidate Bernie Sanders responding to a question in the American Presidential Debate.
[64]Shockwaves: Managing the Impacts of Climate Change on Poverty.
[65]//tcf.org/content/commentary/climate-change-as-a-development-security-threat/
[66]The parent Ministry of the Kenyan Government responsible for diplomacy and initiating engagements with other sovereign states on any issue in Kenya that has a global effect.
[67]NASA
[68]. In fact, in May 2016, the residents of Isle de Jean Charles were given $48 million to move – the first U.S.-based climate refugees.

[69]Nordhaus, 1991; Stern, 2006
[70]The Intergovernmental Panel on Climate Change (IPCC) is the leading international body for the assessment of climate change. It was established by the United Nations Environmental Programme (UNEP) and the World Meteorological Organization (WMO) to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts. The UN General Assembly endorsed the action by WMO and UNEP in jointly establishing the IPCC ('Protection of global climate for present and future generations of mankind',UNGA Res. 43/53 (1988)').

IPCC initiated its work in 1988.

71 BSc (Hons) Mechanical Engineer University of Nairobi 1987.
He is the current CEO Technical Air Solutions Limited

72 Data from the Kenya Meteorological Department.

73 Supra note 62

74 ISDR (2002); Living with Risk, A global Review of Disaster Reduction Initiatives, Preliminary version, Geneva, Switzerland

75 Kenya Pledges to cut Carbon emmissions 30% by 2030
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76 ibid

77 Mohamed who hails from a pastoralist community in northern Kenya has seen the impact of climate change first hand. He worked for a partner organization of Christian Aid doing frontline hunger relief work before moving to work for Christian Aid in its Nairobi office. Since 2010 he has been following the international climate negotiations, becoming one of the world's most respected voices on global efforts to tackle climate change.

78 Professor Shem Wandiga is the director of the University of Nairobi Institute of Climate Change and Adaptation

79
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80 This was according to a joint united Nations and Kenyan government report released on Monday 23rd March 2016, the international Day of Forests.

81 Act No 34 of 2016

82 Formulated in the year 2008 and revised in the year 2012

83 https://t.co/U7GgGwmDyI?amp=1

84 ibid

85 ibid

86 William J. Ripple is a Distinguished Professor of Ecology at Oregon State University in the Department of Forest Ecosystems and Society. He is a widely published researcher and a prominent figure in the field of ecology.

87 Article 42 and Article 69-72 have provisions relating to the environment conservation.

88 Act No 11 of 2016.

89 Cap 372 Laws of Kenya. The Act has since been repealed by Legal Notice No 8 of 2002

90 Act No 34 of 2016

91 Cap 387 laws of Kenya but repealed by Act No 5 0f 2015