

CLIMATE CHANGE AND CONFLICT: A CASE STUDY OF DARFUR CONFLICT

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DECLARATION

This Research Project is my own work and has not been presented for a Degree in any other University.

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Signature

Date

This Research Project has been submitted for examination with my approval as University Supervisor

Mr. Patrick Maluki

Signature

Date

DEDICATION

I dedicate this thesis to my parents; Mr. and Mrs Onyango. I did this for you!!!

ACKNOWLEDGEMENT

First of all I would like to thank God for everything in my life whose protection and unfaltering love have helped me pursue academics to this level. My heartfelt appreciation goes to my parents who nurtured me with love and even encouraged me to pursue this advanced degree.

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ABSTRACT

Climate change is expected to bring about major change in freshwater availability, the productive capacity of soils, and in patterns of human settlement. However, considerable uncertainties exist with regard to the extent and geographical distribution of these changes. Predicting scenarios for how climate related environmental change may influence human societies and political systems necessarily involves an even higher degree of uncertainty. The direst predictions about the impacts of global warming warn about greatly increased risks of violent conflict over increasingly scarce resources such as freshwater and arable land. Dry climate/hot leads to scarcity in pastoral lands, and water being a basic commodity becomes scarce as well. It becomes a recipe for conflict when settlers in a particular locality are forced to move from a much drier area to a less familiar area, where there are chances of meeting another society moving to the same area over the same predicaments. This all means greater competition for land and scarce resources. There is already growing evidence to support the theory that the current conflict in Darfur is partly due to land degradation as a result of climate change. Less than a generation ago, Africans and Arabs lived peacefully and productively in Darfur. More recently, desertification and increasingly regular drought cycles have diminished the availability of water and arable land, which has in turn, led to repeated clashes between pastoralists and farmers. Darfur provides a case study of how existing marginal situations can be exacerbated beyond the tipping point by climate-related factors. It also shows how lack of essential resources threatens not only individuals and their communities but also the region and the international community at large. In the first chapter, the study starts by identifying the problem to be researched on which is; climate change and conflict. The problem gives a guide on the research objectives which help to lead the research study. Closely related are the research hypothesis which aids the researcher to focus on the link between climate change and the Darfur conflict. The relevance of the study is identified that will aid in linking the climate change effects to conflicts due to reasons such as rise in Human Population and increase of human activities that result to resource scarcity and thus conflicts over access and control of the scarce resources. This chapter clearly shows that not much has been done on trying to dig out the means how climate change can result to conflict in spite of the great threat of conflicts that will arise in future as a result of climate change. The study adopted the neo Malthusian Theory that argues that population growth will exceed resource growth and thus resources will end up being scarce as a result of them being depleted by the rising populations to meet their needs. Chapter two focuses on the definition of concepts and a correlation of climate change and conflict. It identifies the main causes of climate change and how it eventually results to conflicts through the impact of the climate changes. Chapter three looks at the impact of the Conflict in Darfur. It looks at the several ways in which the locals of Darfur have been affected by the conflict in one way or the other. Chapter four covers the critical analysis of the research findings from the field on various aspects of the conflict. Chapter five give the Summary, Conclusion and recommendations.

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LIST OF ABBREVIATIONS

ASAL	Arid and Semi Arid Lands
AU	African Union
°C	Celsius
CO₂	Carbon Dioxide
CO₃	Carbon Trioxide/Carbonate
CO₄	Methane
CPA	Comprehensive Peace Agreement
EM	Equality Movement
FAO	Food and Agricultural Organization
GDP	Gross Domestic Product
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
IDIS	Institute of Diplomacy and International Studies
IDPs	Internally Displaced Persons/People
IPCC	Intergovernmental Panel on Climate Change
NGOs	Non Governmental Organizations
SLA	Sudan Liberation Army
STDs	Sexually Transmitted Diseases
UNEP	United Nations Environmental Programme
UNESCO	United Nations Educational, Scientific Cultural Organization
UN	United Nations
US	Unites States
USD	United States Dollar
WFP	World Food Programme

CHAPTER ONE: INTRODUCTION AND BACKGROUND OF THE STUDY

1.0 Introduction

The conflict in Darfur has been driven by climate change and environmental degradation, which according to a UNEP report on post Conflict and Disaster Management asserts that climate change threaten to trigger a succession of new wars across Africa in future unless more is done to contain the damage. Climate change that transformed the Darfur region from sustainable agricultural land into a partial desert is behind the escalating conflict.¹ With rainfall down by up to 30% over 40 years and the Sahara Desert advancing by well over a mile every year, tensions between farmers and herders over disappearing pasture and evaporating water holes threaten to reignite the half-century war between north and south Sudan, held at bay by a precarious 2005 peace accord.²

There have been conflicts for seventy years or more between Darfur's settled farmers and nomadic herdsman, but they have become increasingly severe as a result of soil erosion and greater livestock numbers. Elements of modernization and judicial dispute resolution, which were introduced in more peaceful times thirty or so years ago, swept away traditional strategies for problem-solving or reconciliation without establishing new or functioning forms of regulation. Instead, during the last thirty years,

¹ A June 2007 UNEP Report on Post Conflict Disaster, accessed in <http://hrw.org/doc?t=africa&c=darfur> on 12th June 2013

² Ibid.

there has been a tendency for weapons to be used straightaway even in small local conflicts.³

The high toll of the brutal fighting in Darfur has all the characteristics of a climate war; it also represents a new type of simmering warfare to be found in African societies in fragile or broken states. One of the main differences between the civil wars of today or tomorrow and classical interstate wars is that the parties have no interest in ending the conflict and many political and financial interests in keeping it alive. Violence markets and violence economies have come into being non state areas in which business are done with weapons, raw materials, hostages, international aid, and so on. Obviously, no trader in violence is keen to see his business come to an end; he will therefore regard any attempt to restore peace as an unwelcome disturbance.

A study published in June 2007 by the United Nations Environment Programme noted that in Darfur, environmental problems, combined with excessive population growth, have created the framework for violent conflicts along ethnic lines between Africans and Arabs.⁴ So, conflicts that have ecological causes are perceived as ethnic conflicts, including by the protagonists themselves. The social decline is triggered by ecological collapse, but this is not seen by most of the actors. What they do see are armed attacks, robberies and deadly violence hence the hostility of them to us.

The UN Secretary General Ban Ki-Moon provocatively identified climate change as an underlying cause of the disaster in Darfur. The UN Environment Programme's assessment argues that there is a very strong link between land degradation,

³ <http://www.unsudanig.org/> on accessed on 13th June 2013

⁴ A June 2007 UNEP Report, accessed in <http://hrw.org/doc?t=africa&c=darfur> on 12th June 2013

desertification and conflict in Darfur. In Northern Darfur, exponential population growth and related environmental stress have created the conditions for conflicts to be triggered and sustained by political, tribal or ethnic differences. These can be considered a tragic example of the social breakdown that can result from ecological collapse. Other scholars see Darfur as a bleak future of people fighting for survival over dwindling resources across the globe.⁵

In April this year, the UN Security Council held its first-ever debate on climate change as a global security issue, and the ambassador of Denmark cited Darfur as an example of a conflict driven by resource shortages. These claims have enough truth to be interesting. But they run the danger of oversimplifying Darfur, and therefore need to be investigated carefully. Anyone who has seen the circle of desertification that spreads out from each town in Darfur, as the forests are felled for firewood, will recognize that human activity has also damaged the Darfur environment. It is continuing to do so as millions of displaced people depend upon wood for fuel and housing. This destruction is more a consequence of dislocation and displacement than a cause of it. It is an indicator of how the current crisis is putting further strain on the environment. The reconstruction of the villages in Darfur after the conflict has been resolved will put further strains on the region's wood supply.

In Darfur, the strongest case for this argument would be that groups affected by declining rainfall migrated to other wetter areas of the region and thereby sparked conflict. The motive for that migration may have been fear of impoverishment and

⁵ Ibid.

famine, but it was not a consequence of actual famine. It is the adaptation to actual or impending climatic change that is the key factor.⁶

1.1 Statement of the Problem

The danger of conflicts that is passed by mankind rapidly expanding populations and human activities such as industrialization that is aimed at meeting their basic needs have led to exhausting the natural resources such as forests and have led to emissions of green house gasses and this is what has led to climate change that has led to droughts as a result of the world getting warmer. This has in turn led to scarcity of resources such as water, and thus resulted to conflicts over access and control over these vital resources. With the end of cold war, a lot of attention is now being paid to conflicts that are generated from the depletion of the environment or scarcity of resources as a result of the growing populations. The deadly carnage in Darfur for example, which is almost always discussed in political and military terms, has roots in an ecological crisis directly arising from climate shocks. Darfur provides a case study of how existing marginal situations can be exacerbated beyond the tipping point by climate-related factors. It also shows how lack of essential resources threatens not only individuals and their communities but also the region and the international community at large.

Competition between pastoralists and agriculturalists over access and control of resources is key to so many conflicts in East Africa, including the crisis in Darfur. Violence between tribes and ethnic groups are the most visible dividing lines, but the

⁶ <http://www.scientificamerican.com/article.cfm?id=can-climate-change-cause-conflict> accessed on 5th August 2013.

stories of these conflicts cannot be told without including underlying environmental and demographic stresses

1.2 Objectives of the Study

1.2.1 General Objectives

To analyze the relationship between climate change and conflicts and Identify the issues behind climate change that result to conflicts.

1.2.2 Specific Objectives

1. Identify the climate change issues that are behind the conflicts in Darfur like rise in population.
2. To establish how population growth has contributed to Darfur conflict
3. To Identify the cause, nature and the impact of Darfur Conflict

1.3 Hypothesis

1. Climate Change has directly contributed to the Darfur conflict
2. Population growth has increased the effects of climate change in Darfur
3. Human activities are the main contributors of climate change in Darfur

1.4 Justification

The climate plays a key role in human insecurity, and is expected to do so even more in Future as climate impacts manifests themselves. Climate change is increasingly been called a security problem, and there has been speculation that climate change may increase the risk of violent conflict. Climate change is expected to bring about major change in freshwater availability, the productive capacity of soils, and in patterns of human settlement due to the increase in their population. Climate change is also likely to undermine the capacity of states to provide the opportunities and services that help people to sustain their livelihoods. In certain circumstances, these direct and indirect impacts of climate change on human security may in turn increase the risk of violent conflict.

It is important to note that the prospect of human-induced climate change encourages drastic neomalthusian scenarios. A number of claims about the conflict-inducing effects of climate change have surfaced in the public debate in recent years. Climate change has so many potential consequences for the physical environment that we could expect a large number of possible paths to conflict. However, the causal chains suggested in the literature have so far rarely been substantiated with reliable evidence. Given the combined uncertainties of climate and conflict research, the gaps in our knowledge about the consequences of climate change for conflict and security appear daunting. This is why this study will aid to identify the relationship between climate change and conflict and contribute to the pool of knowledge on previous work that has been done on this area. This area has not achieved a lot in pointing out the correlation between climate change and conflict more so in Darfur. This is because many studies

tend to argue that the conflict in Darfur is politically triggered and that is why this study seeks to contribute a different opinion.

This study will try and attempt to provide a synthesized argument and analysis of the relationship of climate change and the Darfur Conflict and further identify the issues beneath the climate change debates that result to conflicts. This will aide better focus on the understanding of their correlation and focus on the underlying issue of climate change that cause conflicts.

1.5 Literature Review

This section will examine the debates of various scholars who argue around the subjects of climate change and conflicts with reference to the Darfur Conflict. It will cover various debates from published literature, internet sources, reports from the relevant agencies that deal with matters of environment and articles that focus on the variables mentioned above.

1.5.1 Literature on climate change and conflicts

Darfur lies on the edge of a desert, in an area that suffers both from an overall paucity of resources and from a high degree of variability in the availability of resources. As a result of population growth, climate change, poor governance and conflict, it faces immense environmental challenges. Given the role of environmental degradation and the failure of environmental governance in undermining Darfur's livelihoods, these issues must be addressed under the humanitarian programme and as the focal points of a subsequent longer-term programme of support to Darfur. Humanitarian and early

recovery programming must be undertaken in a manner that builds capacity to respond to these challenges. In sum, the massive overarching environmental narrative of the Darfur crisis calls for a new approach to environmentally sensitive relief and recovery programming and peace-building.⁷

Climate change is a long-term shift in weather conditions identified by changes in temperature, precipitation, winds, and other indicators. Climate change can involve both changes in average conditions and changes in variability, including, for example, extreme events. As consensus on the existence of global climate change has grown over the past several decades, debate has shifted to the consequences of climate change such as conflicts. The collective work of social scientists offers a varied picture of the ways in which climate change may impact humans. Although difficult to unpack, the implications climate change may have for human rights and conflict are particularly important to understand given the gravity of those issues.

Most climate scientists agree the main cause of the current climate change trend is human expansion of the greenhouse effect warming that result when the atmosphere traps heat radiating from Earth toward space. Certain gases in the atmosphere block heat from escaping. Long-lived gases, remaining semi-permanently in the atmosphere, which do not respond physically or chemically to changes in temperature are described as forcing climate change. On Earth, human activities are changing the natural greenhouse. Over the last century the burning of fossil fuels like coal and oil has increased the concentration of atmospheric carbon dioxide. This happens because the coal or oil burning process combines carbon with oxygen in the air to make. To a lesser extent, the clearing of land

⁷ Ibid

for agriculture, industry, and other human activities have increased concentrations of greenhouse gases.

Since the beginning of the Industrial Revolution, these human influences on the climate system have increased substantially. In addition to other environmental impacts, these activities change the land surface and emit various substances to the atmosphere. These in turn can influence both the amount of incoming energy and the amount of outgoing energy and can have both warming and cooling effects on the climate. The dominant product of fossil fuel combustion is carbon dioxide, which is a greenhouse gas. The overall effect of human activities since the Industrial Revolution has been a climate change effect, driven primarily by emissions of carbon dioxide and enhanced by emissions of other greenhouse gases.⁸

The build-up of greenhouse gases in the atmosphere has led to an enhancement of the natural greenhouse effect. It is this human-induced enhancement of the greenhouse effect that is of concern because ongoing emissions of greenhouse gases have the potential to warm the planet to levels that have never been experienced in the history of human civilization. Such climate change could have far-reaching and/or unpredictable environmental, social, and economic consequences.

Climate change is increasingly been called a security problem, and there has been speculation that climate change may increase the risk of violent conflict. Climate change is also likely to undermine the capacity of states to provide the opportunities and services that help people to sustain their livelihoods, and this again might result to conflicts that

⁸ Cyril J. Obi, (2009) Resources, *Population and Conflict: Two African Case studies*, Oxford, London, p. 69

result over the access and control of these opportunities and services that sustain the human existence. In certain circumstances these direct and indirect impacts of climate change on human security may in turn increase the risk of violent conflict.

The prospect of human-induced climate change encourages drastic neomalthusian scenarios. A number of claims about the conflict-inducing effects of climate change have surfaced in the public debate in recent years. Climate change has so many potential consequences for the physical environment that we could expect a large number of possible paths to conflict. However, the causal chains suggested in the literature have so far rarely been substantiated with reliable evidence. Given the combined uncertainties of climate and conflict research, the gaps in our knowledge about the consequences of climate change for conflict and security appear daunting.⁹

Dry climate/hot leads to scarcity in pastoral lands, and water being a basic commodity becomes scares as well. It becomes a recipe for conflict when settlers in a particular locality as forced to move from a much drier area to a less familiar area, where there are chances of meeting another society moving to the same area over the same predicaments. This all means greater competition for land and scares resources. Climate change is considered a security issue as much as it is a human right issue or environmental issue.¹⁰

One of the gravest effects of climate change may be those on human migration. Extreme weather events and environmental crises have always existed, but the

⁹ <http://www.sciencedirect.com/science/article/pii/S0962629807000856>

¹⁰ <http://www.youtube.com/watch?v=gxrb-89Af8A>

overwhelming scientific thinking is that the man-made climate change will exacerbate and intensify these events.

Understanding all the causes of the Darfur crisis may need a more nuanced approach. Julie Flint, who with Alex de Waal, wrote the book “Darfur: The Short History of a Long War,” argue that there is some truth in this the link between conflict and the demand for natural resources. They note that the great drought and famine of 1984-85 in Darfur led to localised conflicts that generally pitted pastoralists against farmers in a struggle for diminishing resources, culminating in the Fur-Arab war of 1987-89.¹¹

Climate change may be one of the causes of the Darfur crisis, but to consider it the single root cause would obscure other important factors and could hamper the search for solutions, climate and conflict analysts say. Darfur provides a case study of how existing marginal situations can be exacerbated beyond the tipping point by climate-related factors. It also shows how lack of essential resources threatens not only individuals and their communities but also the region and the international community at large

The UNEP report also listed the erosion of natural resources caused by climate change as among the root causes of social strife and conflict acknowledges that many elements contributing to the conflict in Sudan have little or no link to the environment or natural resources. These include political, religious, ethnic, tribal and clan divisions, economic influences, land tenure deficiencies and historical feuds. In addition, where

¹¹ <http://www.irinnews.org/report/72985/sudan-climate-change-only-one-cause-among-many-for-darfur-conflict>

environment and natural resource management issues are important, they are generally contributing factors only not the sole cause for tension.¹²

Inequitable distribution of resources has brought about conflicts in Africa over the competition and access of these scarce resources. It is the scarcity and/or abundance of these resources that has led to conflicts in Africa. Competition over the scarce resources in the overcrowded regions has produced volatile social situations for group conflicts. Population growth has also exacerbated the existing tension more so in Africa.¹³

The Zartman School of thought points out that a number of the Eastern and Central African countries have witnessed some of the most violent conflicts and human rights abuses in recent history and this could be as a result of the effects of climate change that have hit the globe lately.¹⁴ Africa is characterised by widespread and deeply entrenched poverty, armed conflict, slow economic development until recently, and agricultural systems proven to failure during frequent and persistent drought. With its tremendous natural resources and remarkable social and ecological diversity, the continent reflects a close dependency of people on natural resources which are at risk of being scarce as a result of the effects of climate change.¹⁵

Hezron Mogaka (2005) notes that a specific pattern of droughts and floods due to climate change have been identified with the appearance then disappearance of a large pool of roman water in the Western Equatorial pacific. This phenomenon alters major

¹²<http://www.unep.org/disastersandconflicts/CountryOperations/Sudan/Environmentalpolicy/Climatechange/tabid/79464/Default.aspx>

¹³ Richard M. *Conserving the Peace; Resources Livelihood and Security* (Calipnonia: Sage Publications, 2002) p. 78-79.

¹⁴ Daniel D. *Environment and Security* (New York, Bulletin of the Atomic Scientists, 1991) p. 21.

¹⁵ Ibid.

pacific currents and affect global weather patterns including the Southern pacific and the Indian oceans. The persistent droughts in the Sudan could be as a result of this.¹⁶

Jacky Cilliers (2007) points out that most conflicts in Africa have tended to revolve around water resources. For the last three decades, serious ecological changes have taken place in Sudan as a result of the climate change. Prolonged and severe climatic conditions have been experienced here and coupled with intensive exploitation of natural resources. Sudan has also experienced an increase on population of human beings and livestock, and this has degraded the environment of the Darfur regions. Infact, most of the conflicts in Darfur have tended to take the shape of conflicts fought from the richer ecological zones to the poorer zones. Droughts have also been persistent and severe in these regions and have resulted to overgrazing and migration of people to other areas. Many scholars have tended to ignore the root causes of these conflicts and have focused more on the likely causes of the conflicts in these areas.¹⁷

Golden (2009) further argues that climate change is likely to have a wide range of interrelated impacts for the environment and well being of the people. The effects of climate change on the well being of people can be vast ranging from depletion of the environment to conflicts over scarcity of resources. Whilst these impacts are negative there may also be beneficial outcomes such as increased grazing area for livestock with increased rainfall or opportunities to grow more profitable crops. Sudan and particularly Darfur is vulnerable to climate change impacts on water resources. Beyond its reliance on

¹⁶ Hezron Mogaka et al, *Climate Variability and Weater Resources degradation in Kenya; Improving Water Resources Development and Management*, the World Bank working paper No. 69, Washington DC, 2005, p. 30

¹⁷ Jacky Cilliers, cited in <http://www.africaportal.org/dspace/articles/climate-change-population-pressure-and-conflict-africa> on 15th June 2013.

water for energy and agricultural production the burgeoning mining sector and the fledging manufacturing sector almost entirely reliant on reliable water availability to support processing.¹⁸

Osman (2007) notes that the past global efforts at dealing with the problem of climate change concentrated on mitigation, with the aim of reducing and possibly stabilizing the green house gas concentrations in the atmosphere but due to a slow pace, adaptation was viewed as a possible option to reduce the vulnerability to the anticipated negative impacts of global warming like conflicts. Africa, especially in Sudan is characterised by perennial and persistent drought, have seen the local population in this region suffer from the effects of the droughts. Through their indigenous knowledge systems, they have developed and implemented extensive mitigation strategies, however, integration mitigation and adaptation into climate change concerns is not a completely new idea in the Darfur area of Sudan.¹⁹

Jonathan on the other hand asserts that with the onset of droughts as a result of climate change, rural economies began to collapse. The result of these droughts is that the people's only investment which is livestock end up dying in large numbers or maybe they sell the remainder at throws away prices. At this point, the society here is prone to dislocation, turbulence and conflicts.²⁰

Robert (1990) notes that the droughts of 1970's and 1980's in Darfur were indeed devastating and these resulted to some dramatic consequences in some nomadic and

¹⁸ Golden, Mconway, *Adaptation to climate change in international River Basins in Africa: A review Hydrological Sciences –Journal des Science Hydrologiques*, 2009, 54 (5).

¹⁹ Osam Elashs et al, *The value of indigenous knowledge in climate change mitigation and adaptation strategies in Africa*, 2007 Springer Press, p. 1

²⁰ Jonathan R. "Desertification and Disarray: The threats to plant genetic resources of south Darfur, Western Sudan" *Journal of conflict* vol. 3 No. 1, 2002 pp. 75-100.

agricultural activities like clearance of forests as a result of increased demand for fuel by the locals. This led also to the higher demand for pressure of higher food production that led to shorter fallow periods hence the removal of vegetation cover and dismantling of the top soil layer. The ultimate result of this case is the reactivation of the consolidated sand dunes and the advancement of moving sands, with all their ecological and socio-economic consequences.²¹

Although regional conflicts and world tensions characterize the present international climate, the fact that all countries have managed to set aside their divergences, the Rio and Johannesburg World Summits on Sustainable Development respectively in 1992 and 2002 have shown that the international community indeed has realized many of the labours in Sudan have ended up migrating from one agricultural scheme to another in search for employment. This is estimated to have begun from the condominium period the vulnerability of our planet and started to understand the necessity of jointly managing the world resources in a United Nations framework.²²

The paradigm for sustainable development is a growing strategy for interest for many of the international affairs scholars and environmental activists and practitioners. The paradigm covers how nations dialogue on issues of such as environmental stress, resource scarcity, poverty, population change, development crisis and violent conflicts.

According to the findings of the Proceedings of the international conference on environment in Tehnan, many people in Sudan will gladly confirm that the climate has become drier for the last thirty years and they blame this on the industrialized countries.

²¹ Robert C. *The waters of Nile* (New York, Clarendon press 1990) p. 97.

²² *Ibid.* p.28.

No one is sure whether this is part of another long term climatic change in Sudan but drought is obviously not a new phenomenon in Sudan.²³

Increase in green house emissions through human activities has resettled into additional warming of the earth's surface with several anticipated disasters such as conflicts that arise from the scarcity of resources. The Darfur area has been characterized by recurrent droughts for the last 100 years and consequently in the destruction caused by it. Records have shown that the region has experienced marked rainfall declines and droughts exceed those predicted by models of future climates.²⁴

Robinson (2001) notes that traditional societies in many cases have built up knowledge over long periods about changes in the environment and have developed elaborate strategies to cope with these changes, however traditional knowledge systems in mitigation and adaptation have for a long time been neglected in climate change policy formulation and implementation and have result only been taken up by climate change discourse, thus has led to severe impacts of conflicts. Traditional and indigenous people who have survived over long periods to many kinds of environmental changes, including climate change may have valuable lessons to offer action successful and unsuccessful adaptations which could be vital in the context of climate change.²⁵

Elinor (2011) notes that there is evidence in environmental change and that there is clear evidence of build-up of earth warming gases that threaten to change the climate by changing the circulation of the climate and the air. He further argues that these changes

²³ Proceedings: International Conference on Environment, Peace and the Dialogue among Civilizations and Cultures, Tehan May, 2005, Environmental Management Support Project (EMS) Publishers, p.135.

²⁴ Ibid.

²⁵ Robinson J. Hebert, *Integrating Climate Change and Sustainable Development, Int. Glob Environmental Issues*, Iowa State University Press,2001, p. 130.

are as a result of human activities that range from use of fossil fuel, tropical deforestation in the case of carbon and from reusing of vast populations animals. Changes in climate associated with changes in Earth's atmosphere and water cycles threaten the occurrence of conflicts over access and control of natural resources of all the consequences of climate change, one seems to have the greatest consequence, both for humans and for other species. Forest for example provides a large source of ecological services that stabilize the climate. He further notes that forests may have changed in spatial coverage and composition due to natural climatic changes occurring commonly over long period of time.²⁶

Chris (1995) argues that the economic policies that rendered the rural people of Darfur as sources of cheap labour stipulates the direct investments to certain areas, to the exclusion of other areas that are considered less productive.²⁷ The policies have not focused on designing how the people can adapt to the constraints of the harsh environment that result from the effects of climate change. Traditional methods of cultivating that helped to conserve and regenerate marginal lands have gradually been replaced by intensive farming for cash crops which involves the clearance of large areas of marginal land in development areas. As populations increase, people in Sudan have increasingly found that they have less land for their subsistence needs. In 1960, hundreds of boreholes were drilled by the government of Sudan in a 'freedom from thirst' campaign that was funded by the western donors.²⁸ The intensions of the project was good, but the result was that many nomadic groups flocked around these boreholes with

26 Elinor Ostrom, *Thinking About Climate Change as a Commons*, University of Massachusetts Amhers, on <http://www.umass.edu>, accessed on 08th July 2013.

²⁷ Chris Peters, *Sudan, A nation in the Balance*, OXFAM publishers, Sudan, 1995, p. 24.

²⁸ Chris Peters, *Sudan, A nation in the Balance*, OXFAM publishers, Sudan, 1995, p.25.

their herd of cattle. This resulted to trees around that area being cut down, overgrazing because the herds were concentrated in one place. The project was well intended with its policies but over the years, it slowly destroyed the natural resources around these boreholes; but it was only when a prolonged drought occurred that the full effect of the policy was left.²⁹

The drought that occurred in 1910-1917 in Sudan that affected the Darfur region was dubbed the ‘time of the half-gourd’ denoting the meager ration of grain given to large parts of the population. The rains also failed between 1940 and 1945, and again in 1970-1973. The drought of 1984/85 was the worst in the century and it affected ten million people. The drought of 1990/91 was equally intense. Since then, Sudan and especially in Darfur has experienced periods of long and persistent droughts as a result of climate change. It has rendered the people of Sudan and more so Darfur have no chance to recover and they have become increasingly unable to cope. The poor policies that have been improvised has rendered the relationship between the nomads and farmers go against their symbiosis where the farmers provided grains to the nomads and the nomads provided meat drought animals to the farmers. Unfortunately, the climate change effects like perennial droughts in Darfur have resulted to deteriorating status of the environment over the past decades.³⁰

Farming is the main economic activity for the 80% of the people living in Darfur and droughts that have been perennial as a result of global warming have had a far reaching effect on agricultural productivity. The many agricultural products farmed in

²⁹ Ibid. pp. 26-30.

³⁰ Bachler G. *Desertification and Conflict; the Marginalization of Poverty and of Environmental Conflicts* (Swiss Peace Foundation, 2001). p.56.

Darfur such as millets; maize, groundnuts as well as national cash crops largely depend on rainfall and the recent deterioration in both rainfalls as a result to global warming has led to the sharp decline in production of rain fed crops.³¹

Robert (2001) notes that the droughts of 1983-1984 caused a precipitation drop in food production in Darfur and this has since been followed by years of collapse in production yields which is linked to global warming. Prolonged droughts and desertification in the North Darfur has the nomadic groups south whereby one in contact with the agricultural groups and conflicts arise over the access of water resources. Infact, it has further been noted by Robert that rainfall has tremendously reduced in Sudan since 1967 and large increase in human and livestock population and persistent drought which is as a result of global warming is a major cause of war in the Nuba Mountains where pastoralists Arab nomads who are not local to the area, are seeking prolonged shelter in the wet hills.³²

Thomas Homes Dixson (1999) argues that negative environmental change as a result of climate change has led to conflicts especially in the third world countries in Africa.³³ He explains that climate change has led to resource scarcity through various effects that lead to environmental degradation and issues such as population growth has further propelled intergroup tension's and human displacements which has in turn lead to instability and conflict.

³¹ Ibid. p 97.

³² Ibid. p 98.

³³ Thomas H. *Environment, Scarcity and Conflict*, (Prince University press, 1999) p. 12.

Libiszewski (1992) on the other hand states that conflicts which result from simple resource scarcity and those that result from environmental degradation are useful because resource conflicts are common in Africa.³⁴ He further argues that conflicts that are from the depletion of these resources are largely as a result of manmade or effects of men activities.

It has been noted by Nick Hepworth that Africa has contributed very little to global warming but it is adversely affected by climate change. Whereas Africa has a role to play in the mitigation of the greenhouse gas emissions, Africa's major focus is on issues of adaptation.³⁵ He further notes that human induced climate change is likely to have severe consequences especially in African countries like Sudan that has been experiencing severe and perennial droughts. He also notes that Climate change has been an area of increasing debate in the media all over the world. The subject has been increasing and getting more media airtime over the last couple of years. The debates mirrored among the civil societies and political institutions. However, it has been noted that increased coverage and awareness doesn't necessarily translate to increased understanding or action within the group that is affected or able to affect change³⁶

A report on global humanitarian forum on human impact notes that scientists have detected a gradual warming and wetting trend in the horn of Africa over the past 100 years. They further note that exceptionally wet years were at the beginning of 1960's and

³⁴ Libiszewski S. *What is environmental conflict?* Journal of Peace Research vol. 35 No. 3, 1992 pp. 51-77:62.

³⁵ Nick Hepworth, *Climate Change Vulnerability and Adaptation Preparation in Tanzania*, Heinrich Boll Stiftung Publishers, 2010, p. 54.

³⁶ Ibid, p. 52.

this is why there has been an increase of rainfall and this cannot be attributed to human induced global warming with any certainty³⁷

As part of its Africa talks climate initiative, the BBC world service trust, concluded a research to explore public understanding of climate change in 2009. The findings were that majority of Africans have noted changes in the weather, seasons and droughts most have very little understanding of their issues and the climate. Many of Africans are unfamiliar with the concepts of climate change and global warming. Many also believe that human beings are to blame for climate changes because of local deforestation and local pollution that are primary of drought and environmental degradation. Many Africans also look up to the governments and non-governmental institutions for help and they feel that they have done very little to combat the situation. Finally, many Africans have learnt the issues of climate change through the social media and they do not see the link of climate change and conflicts.³⁸

Clearly depletion of forests have greatest consequence for both humans and other species this is because forests provide a large number of ecological services that stabilize the climate, protect plants and animals for a very long time, forests may have changed in spatial coverage and composition due to natural climatic changes occurring commonly over a long period of time.

In a UNDP report on gender equality strategy, they note that women because of social roles, discrimination and poverty are affected differently by climate change and

³⁷ Global humanitarian forum impact report: Climate change, the anatomy of a silent crisis, 2009. Accessed from <http://www.ghfgeneva.org> on 10th July 2013.

³⁸ The BBC world service trust, concluded a research to explore public understanding of climate change in 2009 BBC world service trust 2010: The public understanding of climate change, research report, British council, accessed from www.africatalksclimate.com on 10th July 2013

extreme weather events. This could be because women are not adequately represented in the decision making processes or in the development of adaptation or mitigation strategies. Without a robust handling and integration of gender issues within the climate change response, there is a risk of lost opportunities and that unequal impacts and deepen gender inequity may result. The report notes that improved understanding and analysis of gender and climate change must be integrated into examining the issues and response; information must be gathered, documented and effectively communicated; that international policies and plans must be influenced to integrate gender issues and that women should participate when developing strategies such as conflict strategies because it is the same women that are worst affected by the effects of conflicts that are brought about by the effects of climate change.³⁹

Elinor (2005) argues that the study of global environmental change was carried out largely by earth science disciplines such as meteorology, atmospheric chemistry, atmospheric sciences, geology among others, but the discipline has now been an area of focus in subjects such as conflict management.⁴⁰

Moran (2010) further argues that climate change subject has deep notes in the social sciences. The Greco- Roman, Arab enlightenment and later philosophers laid basis about the impact of the environment on people. The three main themes can be observed in Western intellectual history up to the 1950's that sought to explain human interactions with nature, environmental determinism, possibilism and adaptationism. The first view overemphasized the influence of nature, while the second view over emphasized the role

³⁹ UNDP Gender Equality Strategy 2008-2011

⁴⁰ Elinor Ostrom et al, *Seeing the forests and the trees; Human – Environment interactions in forest eco system* ,MIT Press, London, 2005, p. 5.

of culture while the third view bridged the gap these two and emphasized the mutual interaction of people with nature as they to adopt from this interaction.⁴¹

Environmental determinism was a dominant view from at least Greco-Roman times to well in the twentieth Century. This view came up from observations of the apparent link between psychological tenancies and climate. However it is curios that while the views of Greco-Roman and Arab thinkers credited their superior achievements in their heyday to the superb dry Mediterranean climate in later centauries when temperate countries were ascendant politically, temperate countries were viewed as a reason for lesser power of those people. This brought an appearance in that for example, given poor soil dooms a people to poverty or that oppressive heat as a result of climate change saps people of their energy to work and achievement. Environmental determinism is however mostly directed today.⁴²

Neo Malthusians theorists, who assert that the earth has no capacity to sustain the natural growth of populations, argue that the environment on earth sets limits but does not determine the character and direction of human decisions. They argue that the notion is that the earth has limited productive capacity and the file spectre of famine that comes as a result of climate change is just around the Conner.⁴³

⁴¹ Moran, J.E., Singleton, M.J., Shaw, G., Conklin, M. (2010), *A Comparison of the Vulnerability of Groundwater to Climate Change in Two High Elevation Catchments of the Sierra Nevada*. Abstract H21B-1046 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec

⁴² Ibid.

⁴³ Malthus Tr, 1989, *an Essay on the principle of population*: Reprint with the variorums of 1806, 1807, 1817 and 1829, P. James, Cambridge, UK: Cambridge University Press.

A UNDP report on the impact of climate change on agriculture points out that climate change poses risks to the survival of the people in Darfur area because their traditional lifestyles contribute very little to greenhouse gas emissions.⁴⁴

Human needs theorists on the other hand argue that the primary cause of conflicts is the peoples drive to meet their unmet needs on the individual group and societal level.⁴⁵ Climate change is obviously as a reaction or as a result of human activities in the industries that end up emitting greenhouse gases which in turn deplete the ozone layer and thus why areas such as Sudan have perennial and severe droughts.

1.6 Theoretical Framework.

This study used the Neo Malthusian Theory. The original Malthusian model focused on the demand for food. While the model is no longer credited in its original form elements of it can be found or built on ideas of resource constraints. Thomas Malthus is the main proponent of the theory and he argues that population growth would exceed resource growth, leading to catastrophic checks on overpopulation. This would occur because population grew exponentially while food supply grew arithmetically. The theory assumes that without population control, the population would be reduced by catastrophes such as famine which is as a result of climate change or war according to the theory.

⁴⁴ United Nations Development Programme Report on Case Study on the Impact of Climate Change on Agriculture on an Indigenous Community in Guyana.

⁴⁵ Burton J. *Conflict Resolution and Prevention* (New York: St. Martin's Press, 1990) p. 67.

The temptation to assume to a direct, causal relationship between population and food supply is characteristic of the neo-Malthusian treatment of every aspect of the population debate. The related issues of natural resources and environment are no different in this respect. The main argument of neo Malthusian model is that resources are scarce on earth as a result of climate change that are as a result of the human activities and the increasing population growth that increase resource consumption per capita combine and deplete these resources; the result is competition and this is seen through conflicts.

The neo-Malthusianism perspective is essentially the application of Malthus theories on current world systems in order to investigate trends and make predictions. The implications of a neo-Malthusian model are that the Earth can only sustain the agricultural needs of a limited population and that as overpopulation occurs, there are significant social and economic consequences. Neo-Malthusian perspective has also been extended beyond agricultural sustainability to describe the need and depletion of all resources. These interpretations suggest that overpopulation may in fact be a direct cause of poverty and starvation in societies around the world.⁴⁶

In contrast to this theory, scholars have been or have become concerned over the effects of resource abundance. Sach & Warner (1995) have noted that countries with abundant resources tend to be less developed. The motivation of conflict can be generated by the prospect of gaining control of valuable resources. Ayoud argued that conflicts are motivated more by greed than grievance and that this runs counter to the neo-Malthusian

⁴⁶ <http://www.efiko.org/material/Population%20and%20Security-%20How%20demographic%20Change%20can%20Lead%20to%20Violent%20Conflict%20Jack%20A.%20Goldstone.pdf> accessed on 1st Aug 2013.

view, the two are not necessarily contradictory. Local abundant resources can only be scarce if they are scarce elsewhere and thus making the resources valuable, and therefore it is theoretically possible to have conflicts that are as a result of abundant resources and conflicts that are as a result of scarce resources.⁴⁷

The reason why this study used this theory is because Population growth can give rise to conflicts over increasingly scarce resources, such as farmland, water, and pasture among other resources. Human activities such as industrialization are aimed at meeting the rising population's needs, and these activities have led to emissions of green house gases that are responsible for climate change; that has been the cause of droughts in areas such as Darfur. As the theory argues, the rise in population will lead to rise in Human activities such as industrialization to meet their basic needs, and industrialization will lead to emissions of green house gases that are responsible for climate change, which in turn brings about famine due to drought that causes scarcity of resources such as water, and conflicts may arise over access and control of these vital resources.

1.7 Methodology

This section looks at the research design to be adopted by the researcher, the data collection methods employed and how data was analyzed. It further describes the type and sources of the data to be employed. The target population, sampling methods, techniques used to select sample size and kind of data analysis envisaged.

⁴⁷ Ayoub, A.T. *Land Degradation, Rainfall Variability, and Food Production in the Sahelian Zone of the Sudan; Land Degradation and Development*, New Delhi Press, New Delhi, 1999, pp. 489-500.

1.7.1 Research Design.

This research adopted the descriptive research design. Gay describes descriptive research as a process of collecting data in order to test hypothesis or to answer questions concerning the current status of the subjects in the study. Mugenda and Mugenda (1999) explain that descriptive research determines and reports the ways things are. This type of research attempts to describe such things as possible behavior, attitudes, values and characteristics.⁴⁸

According to Kothari (2004), descriptive studies are not only restricted to fact finding but may often result in the formulation of important principles of knowledge and solutions to descriptive research design will be obtained on the current status of the phenomenon. Kothari explains that in *ex post facto* research, as they describe descriptive research, the researcher has no control over the variables; hence he/she can only report what has happened or what is happening.⁴⁹

The researcher was inclined to adopt this design method because it answers to who, what, how, which, when and how much. Data collection instrument developed probed into facts, human behaviour and attitudes and their views on how climate change can contribute to conflict.

Random sampling of the target population was used to sieve through the participating respondents. Data was collected through a developed questionnaire, open-

⁴⁸ Mugenda and Mugenda, *Research Methods: Quantitative and Qualitative Approaches*, African Centre for Technology Studies Press, Nairobi, 1999, pp. 12-18.

⁴⁹ Kothari. C.R *Research Methodology Methods and Techniques*, New Age International Limited Publishers. 2004, p. 23.

ended and closed-ended questionnaires. Quantitative data was analyzed through tables, graphs and charts whereas unstructured data was qualitatively analyzed thus giving a wealth of information through context analysis.

1.7.2 Sample design

Kothari (2004) has defined a sample design as a definite plan for obtaining a sample from a given population. It refers to the technique or the procedure the researcher would adopt in selecting items for the sample.⁵⁰ Random sampling was used to ensure that different groups of the population are adequately represented in the sample so that the level of accuracy in estimating parameter is increased. It provided an accurate picture and a true representation of the population.

There are merits and demerits that come as a result of using samples as a way of generalizing the entire population. Samples are used to reflect the entire population and are very time efficient, fast and less costly. The demerits have can include bias in the selection of subjects and that is why they are supposed to be randomly selected. When they are not randomly selected, then the results may reflect errors and inaccuracy thus it loses the findings credibility. In sampling, it is important for a researcher to use purposive sampling where he/she targets a specific group of people randomly pitched for the objective of the research findings. The sample must be representative of the entire population.⁵¹

Interviews on the other hand are very easy to administer and to analyse because one is at liberty to pick the relevant content and leave out the others that are irrelevant.

⁵⁰ Ibid.

⁵¹ Mugenda and Mugenda, *Research Methods: Quantitative and Qualitative Approaches*, p. 13

The answers can also be categorized because every question is answered differently with various interpretations. Face to face interview here is the most preferred as one can also gauge the weight of the answers by the facial impressions and other signals such as the hand signals that may come by during the interviews. Face to face interviews also have an advantage of getting immediate responses. Phone or telephone interviews can be used when the interviewee is perhaps geographically far and it may be applicable in this study. Regardless of the means, the objective of this study must be achieved from the questions that will be asked.

1.7.3 Data collection procedures.

The research used primary data collection techniques of administration of questionnaires to the respondents and interviews guided by a pre-tested questionnaire. The questionnaires were semi-structured, meaning they had both open-ended and closed-ended questions. This was important because they are inexpensive methods and allows the respondents to complete the questionnaires at a convenient time.

Kothari (2009) argues that questionnaire generates data in a very systematic and ordered fashion. Specific questions will be asked to verify some particular aspects on Climate change and conflict. The self-administered questionnaires are not only easy to administer but also to analyze.⁵²

Under the secondary data, this study used both published and unpublished materials that contain relevant data to the study as source of secondary data. These include; books, journals, officials surveys from previous surveys, reports from

⁵² Kothari. C.R, *Research Methodology Methods and Techniques*, New Age International Limited Publishers, 2009, New York, p. 69.

organizations or institutions and internet sources. The reason for the use of secondary data is mainly to prove or supplement data when there is need for more because not all information will be obtained from the primary data.

1.7.4 Testing the Validity and reliability of the data instruments.

Pre-testing was carried out to enable the researcher ascertain the clarity of the instrument and its ease of use. Mugenda and Mugenda (1999) suggests that pretesting allows errors to be discovered as well as acting as a tool for training a research team before the actual data collection begins. They further argue that the effective revision is the result of determining participant's interest discovering if the questions have a meaning for participants, checking for participants modification of questionnaire intent, examining the questions continuity and flow, experimenting with question sequence patterns, collecting early warning data on item variability and fixing the length and timing of the instrument.⁵³

Validity and reliability of data collected was ensured for good quality research. According to Patton, reliability has to do with the quality of measurement. In its every day sense, reliability is the consistency or repeatability of your measure. Validity concerns that whether the concept really measures the aimed concept. Questionnaires will be randomly distributed during the data collection and selected samples and information evaluated to assess their reliability.⁵⁴

⁵³ Opcit.

⁵⁴ Patton, M, *Qualitative evaluation and research methods*. SAGE Publications. Newbury Park London New Delhi, 1990, p.78.

1.7.5 Data analysis.

According to Pettinger (1990), data analysis is a process of gathering, modeling and transforming raw data with the goal of highlighting useful information, suggesting conclusions and supporting decision-making. The purpose of data analysis is to prepare crude data into interpretable design. Qualitative and quantitative analysis methods were used to get a clear and comprehensive picture of the relationships of the different independent variables and how they affect the dependent variables.⁵⁵

Before the returned questionnaires are analyzed, they were checked for completeness such that only the fully completed questionnaires were analyzed. They were also checked for correct entries, errors and missing data. Data was then analyzed using qualitative techniques through content analysis and a final report compiled.

1.8 Scope of the Study

This study limits its self to the case study of Darfur Conflict in Sudan and only tackled the climate change factors that have caused the conflicts in Darfur.

⁵⁵ Pettinger Robert Cited in Patton, M, *Qualitative evaluation and research methods*. SAGE Publications. Newbury Park London New Delhi, 1990, p. 78

CHAPTER OUTLINE

Chapter one looks at the introduction to the study. It also has a Statement of the problem that is being researched here. It further gives the objectives for this research, and a comprehensive literature review on issues around climate change and conflicts. In addition, the chapter looks at the Malthusian theory review and there after justify the study. It outlines the methodology and gives a scope of the study.

The second chapter examines the relationship between the climate change and conflicts. It also elaborates and explains further on the concepts such as definition of conflict, and definitions of climate change for better understanding. The third chapter discusses the cause, nature and impact of the Darfur conflict.

The Fourth Chapter looks at the critical analysis of the correlation and impact of climate change and the Darfur conflict. The Fifth Chapter looks at the summary, conclusions and recommendations.

2.0 CHAPTER TWO: RELATIONSHIP BETWEEN CLIMATE CHANGE AND CONFLICT

2.1 Conceptualizing Conflict

Conflict is generally defined as a clash of interests between individual groups. In the theory of conflict Karl Marx (1875) who is the father of social conflict theory understood conflict in the human society to be between social classes, that is the haves and have not's, in capitalist societies it was between those who owned the means of economic production and those who did not have⁵⁶. Conflicts are inevitable in one's organizational life and personal life. Conflict in itself is not necessarily negative it should be perceived as part of the social transformation of societies in a positive direction and it is not conflict that presents a big problem for our societies but what is actually done with it. In sociology there are three sociological perspectives explaining how societies behave and these perspectives give insight on how conflict arises. These are symbolic interactionism, functionalism and conflict perspective⁵⁷. Ken Birch asserts that conflict could be struggle between two or more people with different interest, motive over a value, competition to the status of power or over scarce resources. It is incompatible behavior between two or more parties whose aim or interest are seen to be different.⁵⁸

According to Makumi Mwangi (2010), conflict arises when two or more parties have incompatible goals about something. The incompatibility arises because they may both have different perceptions, goals and ideas about how to achieve them.

⁵⁶Marx.K.:Critique of the Gotha Programme Mark/Engels Selected Works: Volume 3,Moscow:Progress Publishers,(1875) pp13-30

⁵⁷[Http://www.cliffnotes.com/study-guide/Threemajor-perspectives-in-sociology](http://www.cliffnotes.com/study-guide/Threemajor-perspectives-in-sociology) accessed on 18th august 2013.

⁵⁸ Dr. ken birch, David Oginde, Managing conflict-Practical Resources For Resolution And Reconciliation, Evangelical Publishing House Nairobi, p.61

Underlying that situation is a conflict of visions and often an inability or unwillingness to see the other person's point of view.⁵⁹ This incompatibility of goals also defines more complex conflicts be they organizational, communal or international. Political conflicts are those conflicts between groups and their major characteristics are a high degree of organization. Political conflicts have increased with the role of the state which had punctuated all sections of life, even social conflicts has become particularized with developments in modern communications, and so it is easier for parties in conflict to master support for their cause.⁶⁰

According to Donelson (1999), the word conflict denotes disorder and impediment to development processes. Violent conflicts have diverse effect on economy which in turn complicates the governing system of the society or state and its surrounding environment. For example the main causes of conflict among the pastoral communities Darfurin Sudan, is but dwindling ranging/grazing land. The scarce resources for both livestock and human being brought about by miseries of drought and diseases reduces many pastoralist to impoverished states, forcing the community to adopt rigid ways of reclaiming back wealth through banditry and cattle raiding. The changing economic market and the demand for the livestock product both internally and externally, have attracted middlemen and traders who establish extensive external and internal networks connecting the commoditized livestock to the wider market. This has led to the expansion and penetration of criminal networks selling small arms has

⁵⁹MakumiMwagiru; *Diplomacy: Concept, Actors, Organs, Process and Rules* (co-author with Dietrich Kappeler and Josephine Odera) (Nairobi: Institute of Diplomacy and International Studies, University of Nairobi) 2010, p. 22.

⁶⁰WafulaKisasa and HadijaMurenga, *Conflict resolution and Management, an Introduction*, Egerton University Press, 1999, p. 19

transformed then traditional raids and conflicts into more deadly raids for purpose of accumulating livestock for wider markets.⁶¹

The causes of conflicts are as diverse as the conflicts themselves, there are interpersonal conflicts as well as intergroup conflict. Conflicts can be caused by, desertion, adultery, violence in the home and the like. The causes of conflict in industrial set ups include poor working conditions, remuneration and bad interpersonal relations. In political conflicts, particularly in the 3rd world, the causes of conflict include the illegitimacy of governments and regimes and conflicts of constitutions as these regimes resist challenge to their legitimacy and authority. In international conflicts, diverse causes of war and conflict have been identified. These include the search for resources, territory and the need for raw materials. There is also lack of fulfillment of needs, both biological and ontological and include of course the need for recognition, participation and dignity.⁶²

Causes of conflicts are therefore a question of motives and reasons for conflict. At the individual level, the concern is with the motivation of individuals, and what leads them to engage in conflictual and aggressive behavior. At the level of states the concern is with decision making process which can lead to conflict. If the Conflict is within the context of religion, social and cultural settings, and if there is certain interests, power, rights, position from parties involved.

⁶¹Donelson R. Forsyth, *Group Dynamics* (third edition).USA: Belmont Publishing Co, 1999, p. 4.

⁶²Ibid, pp 14-16

Most parties participate in conflict either directly or indirectly depending on their interests, if something is at stake or their needs are threatened.⁶³

Conflict is not an abrupt action or event that occurs accidentally, but it passes through five stages. The first stage is the Pre-Conflictstage. This is period when goals between the parties are incompatible and it eventually turns to open conflict. The second stage is Confrontation. Here, the conflict opens or manifests itself between the warring groups, or mobilization for resources. Third stage is the Crisis stage. This is at the peak of conflict, which leads to killings, injuries or displacement. The fourth stage is the Outcome stage. There is an assumption that all conflict will have an end result, either one side will win, and the other one will lose, there could be cease fire and may be one of the opponent will Surrender and retreat. The final stage is Post conflict. At this stage, the violence has reduced and the parties have gone past the crisis stage.⁶⁴

Defined otherwise, Staub (2000) conflict as the demonstration of incongruity over something deemed important to the disputing parties. This comes about as a result of the perception and points of view of parties involved. It also depends on the act upon encountering differing points of view. Thus, the difference of opinion may result to a conflict. A number of factors contribute to conflict. They include poverty, economic stagnation, uneven distribution of resources, weak social structures, lack of good

⁶³Costatine M. nyamboga and Joseph N. Kiplangat, *Conflict Resolution: the role of information and knowledge*, Kenya library association, Nairobi, 2001, pp 39-42

⁶⁴Koffisan M, Adossi, *Conflict resolution and Transformation*, Pauline Publishers Africa, Nairobi, 2004, pp 31-32

governance, systematic discrimination, oppression of minorities, ethnic antagonism, religious and cultural intolerance, social injustice among others.⁶⁵

Conflict can also be referred to as the contradictions inherent in power relations and which manifest themselves in individual and group interactions with one another and with nature in the pursuit of limited resources or opportunities. Conflict is thus the motor of transformation and is either positive or negative. It can be creatively transformed to ensure equity, progress and harmony; or destructively transformed to engender acute insecurity.⁶⁶

According to the UN Report on World Population Monitoring (2001), conflict works through four channels, which may act concurrently. In this conceptual model, conflict is more likely when two or more of the following channels work together facing certain auxiliary conditions. The first channel is Competition. The arrival of environmental migrants from conflicts can burden the economic and resource base of the receiving area, promoting native emigrant contest over resources. Pressures are expected to rise with the number of migrants and residents, particularly when resources are scarce in the receiving area and property rights are underdeveloped. The excess demand for resources may also generate lateral pressure, expansion of economic and political activities beyond the region's or state's borders in order to acquire resources, which increases the risk of conflict.⁶⁷

The second channel is Ethnic tension. When environmental migrants and residents belong to different ethnic groups, the migration may promote tension.

⁶⁵Staub, E. *From Genocide and Mass Killing: Origins, Prevention, Healing and Reconciliation*. In *Political Psychology*, Vol. 21, No. 2, 2000, pp 20-23.

⁶⁶Ibid. p. 24.

⁶⁷<http://www.un.org/en/development/desa/population/> accessed on 26th August 2013

Residents may feel threatened, host countries may fear separatism, migrants may attempt to reunify with their home country, and residents may respond aggressively. Situations involving long-standing ethnic disputes between migrants and residents are likely to be particularly prone to conflict.

The third channel is Distrust. Environmental migration may generate distrust between the area of the migration's origin and host area. For example, the migrants' origin country may suspect that the receiving country accepts migrants in order to upset the ethnic balance in the origin. The receiving government may suspect that the origin seeks to penetrate the host, while the origin side may resent actual or perceived mistreatment of migrants by the receiving side.

The fourth channel is the Fault lines. The conflict may also follow existing socioeconomic fault lines. For example, migrant pastoralists and resident farmers may compete over land, or migrants and residents may compete over jobs. Additionally, migration from rural to urban areas is another fault line that presents competing effects. Rebels may mobilize poor and frustrated rural migrants to challenge the state, which may respond with force. However, urban settings may offer migrants more opportunities, defusing tensions.

The final channel is the Auxiliary conditions. Whereas developed economies can absorb migrants in various sectors, underdeveloped economies, reliant on the environment for survival, are limited in this regard, particularly if their resources are scarce. Therefore, they are more prone to conflict due to the arrival of environmental

migrants. Political instability and civil strife in the receiving area also increase the likelihood of conflict. For example, migrants may join antagonizing groups or intensify the violence through any of the above channels.⁶⁸

2.2 Conceptualizing Climate Change

The Department of Ecology in the State of Washington (2013) defines Climate rising levels of carbon dioxide and other heat trapping gases in the atmosphere that are causing wide ranging impacts, including rising sea levels; melting snow and ice; more extreme heat events, fires and drought; and more extreme storms, rainfall and floods. But the climate we've come to expect is not what it used to be, because the past is no longer a reliable predictor of the future. Our climate is rapidly changing with disruptive impacts, and that change is progressing faster than any seen in the last 2,000 years.⁶⁹

A change in climate can affect many related aspects of where and how people, plants and animals live, such as food production, availability and use of water, and health risks. For example, a change in the usual timing of rains or temperatures can affect when plants bloom and set fruit, when insects hatch or when streams are their fullest. This can affect historically synchronized pollination of crops, food for migrating birds, spawning of fish, water supplies for drinking and irrigation, forest health.

The Earth's climate can be affected by natural factors that are external to the climate system, such as changes in volcanic activity, solar output, and the Earth's orbit around the Sun. Of these, the two factors relevant on timescales of contemporary

⁶⁸ Ibid

⁶⁹ <http://www.ecy.wa.gov/climatechange/whatis.htm> accessed on 21st August 2013

climate change are changes in volcanic activity and changes in solar radiation. In terms of the Earth's energy balance, these factors primarily influence the amount of incoming energy. Volcanic eruptions are episodic and have relatively short-term effects on climate. Changes in solar irradiance have contributed to climate trends over the past century but since the Industrial Revolution, the effect of additions of greenhouse gases to the atmosphere has been about ten times that of changes in the Sun's output.⁷⁰

Climate change can also be caused by human activities, such as the burning of fossil fuels and the conversion of land for forestry and agriculture. Since the beginning of the Industrial Revolution, these human influences on the climate system have increased substantially. In addition to other environmental impacts, these activities change the land surface and emit various substances to the atmosphere. These in turn can influence both the amount of incoming energy and the amount of outgoing energy and can have both warming and cooling effects on the climate. The dominant product of fossil fuel combustion is carbon dioxide, a greenhouse gas. The overall effect of human activities since the Industrial Revolution has been a warming effect, driven primarily by emissions of carbon dioxide and enhanced by emissions of other greenhouse gases.⁷¹

Ominde (1991) argues that Carbon dioxide is the main cause of human-induced climate change. It has been emitted in vast quantities from the burning of fossil fuels and it is a very long-lived gas, which means it continues to affect the climate system during its long residence time in the atmosphere. However, fossil fuel combustion, industrial processes, agriculture, and forestry-related activities emit other substances that also act as

⁷⁰<http://www.climatechange.gc.ca/default.asp?lang=En&n=65CD73F4-1> accessed on 21st August 2013

⁷¹ Ibid

climate forcers. Some, such as nitrous oxide, are long lived greenhouse gases like carbon dioxide, and so contribute to long-term climate change. Other substances have shorter atmospheric lifetimes because they are removed fairly quickly from the atmosphere. Therefore, their effect on the climate system is similarly short-lived. Together, these short-lived climate forcers are responsible for a significant amount of current climate forcing from anthropogenic substances.⁷²

The burning of fossil fuels alone accounts for the injection of about 6 billion tonnes of carbon per year; deforestation and land clearance contribute another one billion tonnes. Indeed, the pace of destruction is such that fossil fuel contribution to atmospheric carbon rose from 2.5 billion tonnes per year in 1960 to 5.6 billion tonnes per year in 1987, an overall increase of 12%. And, from 1860 to the present, a total of 180 billion tonnes of carbon has been injected into the atmosphere as a result of fossil fuel burning, and an another 150 from deforestation and land clearance.

The greenhouse effect is not a new phenomenon. The planet Venus for example, has oven-like temperatures of the order of 450⁰C because of its extremely dense carbon dioxide atmosphere, and our own planet, planet earth, would be over 30⁰C cooler than it is today, if it were not for the greenhouse effect. The greenhouse effect is in actual fact, an enhanced greenhouse effect. Our concerns, and those of others are real and justified, and the subject continues to generate considerable debate in various for a, and at all levels of society. Indeed, it has not escaped my attention that a good deal of the deliberations will be devoted to the impact of climate change on human activities and

⁷² Ominde S.H, *A Change in the Weather; An Perspective on Climate Change*, ACTS Press, Nairobi, 1991, p. 34.

ecosystems. Africa is particularly vulnerable to climate stresses. It is a poor continent, both in financial resources and technology, and when disruption occurs as a result of climate change, it will not have the capacity to respond effectively.⁷³

Saro (1993) asserts that the build-up of greenhouse gases in the atmosphere has led to an enhancement of the natural greenhouse effect. It is this human-induced enhancement of the greenhouse effect that is of concern because ongoing emissions of greenhouse gases have the potential to warm the planet to levels that have never been experienced in the history of human civilization. Such climate change could have far-reaching and/or unpredictable environmental, social, and economic consequences.⁷⁴

Changes have been observed in the amount, intensity, frequency, and type of precipitations. Widespread increases in heavy precipitation have occurred, even in places where total rain amounts have decreased. With confidence we can conclude that human influences had contributed to an increase in heavy precipitation events at the global scale. Projections of future changes in precipitation show overall increases in the global average, but with substantial shifts in where and how precipitation falls.⁷⁵

Within the predicted global climatic change, it is difficult to predict any type of change accurately on a regional basis or even more specifically on an island basis. According to recent studies, global temperature anomalies would affect regional temperature patterns which have impacts on rainfall generating systems. There could be an increase in the occurrence of tropical cyclones and, depending on the distribution of

⁷³ <http://www.theguardian.com/environment/climate-change> accessed on 26th August 2013

⁷⁴ Saro-Wiwa K, *A Month and a Day, A Detention Diary*, Penguin Press, London, 1993, p.74.

⁷⁵ Ibid. p. 75.

temperature increases within the oceans, a change in cyclone tracks. Enhanced precipitation would occur in regions already experiencing heavy rainfall, but dry periods will become longer, and zones where rainfall is already scanty will suffer more droughts; hence conflicts.

Since the 1950s, it is very likely that the number of cold days and nights have decreased globally. There have been other changes in climate extremes like floods and tropical cyclones, but these changes are more difficult to identify. As previously stated, human influences appear to have contributed to some of the observed changes. The impacts of extreme events on the environment and human society will vary. Some impacts will be beneficial, for example, fewer cold extremes will probably lead to fewer cold deaths. Overall impacts will probably be mostly negative. In the case of rising temperatures, this may result to conflict because hot temperatures result to water evaporating thus resulting to rising sea levels and when water becomes scarce for human use, then conflicts can be triggered revolving around access and control of the scarce water, which in this case is; access and control of water.⁷⁶

2.3 Relationship between Climate Change and Conflict

Climate change is not just affecting the natural world. Researchers have long understood that rising levels of greenhouse gas emissions will also have cascading ramifications on the dynamics of human society, whether by forcing refugees to flee from newly flood-prone areas or arid regions, by causing spikes in the prices of food crops, or by reducing the productivity of livelihoods based on fishing or grazing in certain regions.

⁷⁶ Ibid, p. 76.

Recently, studies and journalistic investigations have focused on one particularly chilling potential social consequence of climate change: an increased frequency of armed conflicts around the world. By studying the link between various climactic factors and rates of historical violence, researchers have speculated that the climate trends we'll experience over the next century hotter overall temperatures, more erratic rainfall patterns and a rising sea level could make conflict and war more common in the future.⁷⁷

Changes have been observed in the amount, intensity, frequency, and type of precipitations. Widespread increases in heavy precipitation have occurred, even in places where total rain amounts have decreased. With confidence we can conclude that human influences had contributed to an increase in heavy precipitation events at the global scale. Projections of future changes in precipitation show overall increases in the global average, but with substantial shifts in where and how precipitation falls.

The various scenarios of climatic change suggest that human economies can benefit or suffer from climatic change, depending on its nature. Wildlife and biological diversity will, in contrast, decline with any shift in rainfall due to the fixity of park boundaries and mounting human pressures. There are more reasons to be concerned about the climatic threats to the earth's remaining large mammal fauna concentrated in the savannas than to the overall biodiversity of the tropical forests. What little large mammal diversity and abundance remains will become economically more valuable to Africa in future. It is also the greatest inspiration there is to preserve earth's biological wealth and beauty.

⁷⁷ <http://blogs.smithsonianmag.com/science/2013/08/climate-change-could-increase-armed-conflicts-by-50-percent-worldwide/#ixzz2d4Bc8QT1> accessed on 25th August 2013

A drier climate would have the reverse effect, with the marginal lands and dry savannas marching into the present moist savannas. The agricultural boundaries would contract, small stock would replace cattle economies over much of Africa and, overall, the agricultural production would shrink. The marginal agricultural societies and cattle economies in the present mid-rainfall belt would become unsustainable. A drier climate would be particularly harsh on wildlife. The mid-rainfall, high diversity belt would lose the diversity and abundance of its wildlife, with little prospect for relocation in the wetter areas where the human pressures would be acute.

Suliman (1994) argues that Desertification or desert encroachment can result from a change in climate or from human action, and it is often difficult to distinguish between the two. This has commonly led to confusion and misconceptions. A temporary or long-continued deterioration of climate may accentuate the harmful consequences of human occupation of the land and vice versa. It has often been suggested that man's activities have resulted in climatic deterioration, but this is difficult to substantiate. In any case it is important to attempt to assess the relative contribution of climate and man in the process of desertification in order to decide on the ameliorative measures that can best be taken and to estimate the likelihood of their success.⁷⁸

For many decades scientists have known that a buildup of carbon dioxide in the atmosphere has the potential for warming the earth's climate through the so-called greenhouse effect. Over the past ten years, awareness has grown that other greenhouse

⁷⁸ Suliman M and Omer Osman, *The Environment: A New Dimension in Sudans Political and Social Landscape*, *Africa Review*, November, 1993 April-1994, p. 23.

gases can contribute in total to climate warming at a level comparable to that of Carbon dioxide. The atmospheric concentrations of these gases are currently increasing at a rate sufficient to produce substantial atmospheric consequences over the next century. These other greenhouse gases are known to contribute to very significant changes in the atmospheric ozone structure and amount. Their potential to add to the Carbon Dioxide climate warming effect is not as universally appreciated. The carbon content in the atmosphere is increasing annually by approximately seven billion tonnes as a result of utilization of fossil fuels, although the situation is further aggravated by deforestation which removes forest Carbon Dioxide sinks.

Pearce (1991) argues that Carbon dioxide is the primary substrate for photosynthesis. Carbon Dioxide frequently limits photosynthesis and productivity of plant systems. Laboratory experiments have found that increasing Carbon Dioxide concentration increases photosynthetic rate per unit leaf area in single leaves and plant canopies. In greenhouse farming, raising Carbon Dioxide levels has been shown to promote crop growth and yield, thus resulting to abundance of food and lesser conflicts. Global increase in Carbon Dioxide concentration is therefore expected to raise productivity and yield of both agricultural plant products and forests; hence a reduction of conflicts. However, given the diversity in plant types, there will be interspecific and even intervarietal differences in the extent of gain.⁷⁹

On the negative side, Porter (1995) observes that increasing Carbon Dioxide concentration will also boost growth rate of weeds, many of which grow more rapidly than crop plants even at the current Carbon Dioxide levels. Furthermore, increased

⁷⁹ Pearce T.O, *Reproductive Practices and Biomedicine: Cultural Conflicts and Transformations*; A Paper presented at the Nenner-Gren Conference, Brazil in 1991.

growth rate of plants will lead to rapid exploitation of soil nutrients and water so that application of higher levels of fertilizers will be necessary. Considering that most African farmers operate at low input levels, crop yields may drop and this could be a perfect recipe of conflicts. In areas with low rainfall rapid growth rate early in the season may utilize much of the soil water so that there is little left for reproductive growth which comes later in the season.⁸⁰

African governments must ratify the Montreal Protocol on Substances that Deplete the Ozone Layer. As of March 1990, only nine African countries had ratified the Protocol. Another four signed but have not ratified as yet. Changes in climate have been observed in the amount, intensity, frequency, and type of precipitations.

Widespread increases in heavy precipitation have occurred, even in places where total rain amounts have decreased. With confidence we can conclude that human influences had contributed to an increase in heavy precipitation events at the global scale. Projections of future changes in precipitation show overall increases in the global average, but with substantial shifts in where and how precipitation falls.⁸¹

As earlier mentioned, it is very likely that the number of cold days and nights have decreased globally. There have been other changes in climate extremes like floods and tropical cyclones, but these changes are more difficult to identify. Furthermore, human influences appear to have contributed to some of the observed changes and they

⁸⁰ Porter G, *Population Policies and the Creation of Africa, Africa Development*, Vol XIX, No 3, 1994, p.66

⁸¹ Ibid, p. 66

are the ultimate bearers of the effects of climate change because they have suffered conflicts as a result of the effects of the climate change.

Rosenzweig (2007) argued that physical and biological systems on all continents and in most oceans had been affected by recent climate changes, particularly regional temperature increases. Impacts include earlier leafing of trees and plants over many regions; movements of species to higher latitudes and altitudes in the Northern Hemisphere; changes in bird migrations in Europe, North America and Australia; and shifting of the oceans' plankton and fish from cold to warm-adapted communities.⁸²

Demaree (2001) elaborates that the impacts of climate change on conflicts can be thought of in terms of sensitivity and vulnerability. Sensitivity is the degree to which a particular system or sector might be affected, positively or negatively, by climate change and/or climate variability. Vulnerability is the degree to which a particular system or sector might be adversely affected by climate change.⁸³ The sensitivity of human society to climate change varies. One of the sectors that are sensitive to climate change includes water resources because of its ability to trigger conflicts over access and control of the water resource. Industries sensitive to climate change include agriculture, fisheries, forestry, energy, construction, insurance, financial services, tourism, and recreation.

⁸²Rosenzweig P. Cited in Porter G, *Population Policies and the Creation of Africa, Africa Development*, Vol XIX, No 3, 1994, p.67.

⁸³G. Demaree et al, *Tropical Climatology, Meteorology and Hydrology; A Climate Related Risk Analysis and Sustainable Development in Tropical Areas*, Royal Academy of Social sciences, Brussels, 2001, pp. 24-55.

Demaree further argues that climate change will impact agriculture and food production around the world due to the effects of elevated Carbon Dioxide in the atmosphere, higher temperatures, altered precipitation and transpiration regimes, increased frequency of extreme events and modified weed, pest, and pathogen pressure and this might. In general, low-latitude areas are at most risk of having decreased crop yields. So far, the effects of regional climate change on agriculture have been relatively limited. Decreased food yields have direct relation.

Redclift(1987) argues that temperature influences growth and development of plants; the higher the temperature the faster plants grow and mature. Increased temperatures will therefore enhance agricultural and forest productivity. High temperatures will also increase the atmospheric evaporative demand, and the resulting high rates of evaporation will place more demand on irrigation water and limit dryland farming. Where moisture is not limiting, higher temperatures and higher CO₂ concentrations will lead to increased crop yields; hence reduced conflicts.⁸⁴

Salih (1999) further notes that high temperatures accelerate mineralization of organic matter, thus reducing organic matter content of the soils. The problem is already significant in areas such as Darfur in Sudan and leads to reduced soil fertility and poor soil structure. Higher temperatures will have the impact of increasing post-harvest spoilage of crops and putrefaction of animal products such as meat and milk. High temperature coupled with high atmospheric humidity also favours development of animal and crop pests and crop diseases and will accentuate these problems which are

⁸⁴ Redclift M, *Sustainable Development: Exploring the Contradictions*, Methuen, London, 1987, pp 44-46.

already contributing to a large extent to agricultural and forestry losses that lead to conflicts in Africa. The problem of forest fires is a common one in hot areas and it is expected that higher temperatures will increase their frequency, particularly when the forests are water-stressed as a result of high atmospheric evaporative demand. This will contribute to atmospheric CO₂ reserves that further accelerate climate change.⁸⁵

It is predicted that the doubling atmospheric CO₂ level and the resulting greenhouse effect will raise the mean global rainfall by 7 to 11%. This would be welcome news to Africa which has large expanses of semi-arid and arid lands. However, unless there is a change in the direction, duration and occurrence of the rain-causing winds, the added rainfall will only fall in the already wet areas and may cause more havoc than good to agriculture. Forests stand to gain from increased rainfall and thus increased forest productivity.

Williams (2007) assessed studies that made quantitative projections of climate change impacts on food security that is also an essential cause of conflicts. It was noted that these projections were highly uncertain and had limitations. However, the assessed studies suggested a number of fairly robust findings. The first was that climate change would likely increase the number of people at risk of hunger compared with reference scenarios with no climate change. Climate change impacts such as hunger and conflicts may depend strongly on projected future social and economic development, and conflicts may arise from the scarcity of food as a resource for human and animal

⁸⁵ Sahil M. A, *Environmental Politics and Liberation in Contemporary Africa*, Kluwer Academic Publishers, London, 1999, p. 3

consumption. Additionally, the magnitude of climate change impacts was projected to be smaller compared to the impact of social and economic development.⁸⁶

Droughts have been occurring more frequently because of climate change and they are expected to become more frequent and intense in Africa, southern Europe, Middle East, most of the Americas, Australia, and Southeast Asia. Their impacts like conflicts are aggravated because of increased water demand, population growth, urban expansion, and environmental protection efforts in many areas. Droughts result in crop failures and the loss of pasture grazing land for livestock and conflicts result here as a result of access and control of the pasture and water resources.

On the other hand, Confalonieri et al, (2007) notes that human beings are exposed to climate change through changing weather patterns such as temperature, precipitation, sea-level rise and more frequent extreme events and indirectly through changes in water, air and food quality and changes in ecosystems, agriculture, industry and settlements and the economy. According to an assessment of the scientific literature, he argues that conflicts that arise due to the effects of climate like to date have been small, but are projected to progressively increase in all countries and regions.⁸⁷

Kundzewicz (2007) note that precipitation during the 20th century and up through 2008 during climate change, there have been changes in precipitation, the cryosphere and surface waters like changes in river flows. Observed and projected

⁸⁶ Williams M. *International Political Economy and Environmental Change*, Cited in Sahil M. A, *Environmental Politics and Liberation in Contemporary Africa*, Kluwer Academic Publishers, London, 1999, p. 57.

⁸⁷ Confalonieri D. et al, *Climate Change and Cities: First Assessment Report of the Urban Climate Change Research Network*, C. Rosenzweig, W. D. Solecki, S. A. Hammer, S. Mehrotra, Eds., Cambridge University Press, Cambridge, UK, 2007, pp. 179–213 .

impacts of climate change on freshwater systems and their management are mainly due to changes in temperature, sea level and precipitation variability. Sea level rise will extend areas of salinization of groundwater and estuaries, resulting in a decrease in freshwater availability for humans and ecosystems in coastal areas, and hence possible conflict over the scarcity of the water resource. In an assessment of the scientific literature, Kundzewicz (2007) concluded that the negative impacts of climate change on freshwater systems outweigh the benefits. All of the regions assessed in the IPCC Fourth Assessment Report that include Africa, showed an overall net negative impact of climate change on water resources and freshwater ecosystems. He further noted that semi-arid and arid areas such as Darfur are particularly exposed to the impacts of climate change on freshwater.⁸⁸

General circulation models project that the future climate change will bring wetter coasts, drier mid-continent areas, and further sea level rise. Such changes could result in conflicts through sudden human migration. Millions might be displaced by shoreline erosions, river and coastal flooding, or severe drought. Migration related to climate change is likely to be predominantly from rural areas in developing countries to towns and cities. In the short term climate stress is likely to add incrementally to existing migration patterns rather than generating entirely new flows of people

Willbanks (2007) argues that environmental degradation, loss of access to resources such as water; and resulting human migration could become a source of political and even military conflict. Factors other than climate change may, however, be

⁸⁸ Ibid

more important in affecting conflict. He suggested that major environmentally influenced conflicts in Africa such as the Darfur conflict were more to do with the relative abundance of resources like oil and diamonds, than with resource scarcity.⁸⁹ Scott (2001) on the contrary placed only low confidence in predictions of increased conflict due to climate change.⁹⁰

The potential impact of global climatic change on agriculture and forests in Africa has been highlighted. However, the discussion has assumed that the climatic change will arrive swiftly, taking agricultural and forests managers and environmental policy-makers by surprise. This assumption is not realistic because climatic change will arrive gradually and agriculture is continually adapting to climatic variation and does so relatively quickly. For example, it takes only about a decade to develop and introduce a new crop variety. By the time there is a rise in average temperature of a degree or two agriculture will have already adapted to the change. The interaction of human activities and climatic changes can therefore be discussed in terms of human factors which enhance climatic change and those which decelerate the change or ameliorate its effects.

Timberlake (1985) observes that the contribution of Africa to global CO₂ pollution is very low due to low levels of industrialization, but the upper atmosphere is a continuous and dynamic system so this makes Africa about as vulnerable to CO₂ pollution as any other continent. Africa's contribution to increasing world levels of CO₂, however, comes in the form of the continent's destruction of timber and fuel. The

⁸⁹ Wilbanks J, <http://www.esd.ornl.gov/people/wilbanks/>, accessed on 24th August 2013

⁹⁰ Ibid.

equatorial forests of Central Africa and coastal West Africa, together with montane forests dotted all over the continent, serve as major global CO₂ sinks. Preservation of these forests is therefore essential to forestall rapid development of the climate change effects through the green house phenomenon. He further argues that the increased precipitation will change the flow characteristics and sedimentation rates of African rivers. Extensive soil erosion in Africa is an outcome of overgrazing, shifting and extensive cultivation practices and unplanned rural settlement patterns. Large herds of livestock are found in semi-arid African areas which are highly prone to wind and water erosion. The determination of national governments to develop river basins for agriculture, hydro-power and flood control measures is a very expansive exercise.⁹¹ Unfavorable climatic change in the next 50 years in conjunction with undesirable human activities will reduce the life of the associated structures such as dams and dykes and obviously increase vulnerability of the humans to conflicts.

Within the predicted global climatic change, Ahmad (1982) argues that it is difficult to predict any type of change accurately on a regional basis or even more specifically on an island basis. According to recent studies, global temperature anomalies would affect regional temperature patterns which have impacts on rainfall generating systems. There could be an increase in the occurrence of tropical cyclones and, depending on the distribution of temperature increases within the oceans, a change in cyclone tracks. Enhanced precipitation would occur in regions already experiencing heavy rainfall, but dry periods will become longer, and zones where rainfall is already scanty will suffer more drought thus limiting resources for human consumption and

⁹¹ Timberlake L, *Africa in Crisis: The Causes, the curses of environmental Bankruptcy*, IIED London, 1985, pp. 18-19.

hence a recipe for conflicts. He further argues that the link between violence and resource availability may be an outcome of climate change on livelihoods in sub-Saharan Africa, but the event must be analyzed in the context of political, social, economic and geographic considerations variables that are often ignored as key controls⁹²

It has not been found possible to distinguish clearly any simple long term trends or regular periodicities in the climate and its relationship with conflicts, though many attempts have been made to do so, and it is necessary to adopt an empirical historical approach to the subject. In tracing what is known of the history of Africa's climate it is useful to gain perspective by looking at the changes over the past century against the background of the last several thousand years. As pointed out by R. O. Whyte (1963), one should distinguish major changes in climate, in or out of pluvial lasting thousands of years, from minor changes lasting hundreds of years, and from variations or trends which are experienced for 10 to 50 years. Each time-scale has its own biological significance. The shorter period variations are superimposed on the longer period fluctuations and one therefore must recognize that as any attempt to penetrate further into the past, so our ability to distinguish minor oscillations diminishes and only the major changes can be detected.⁹³

⁹² Ahmad Y.J and F. G Muller, *Integrated Physical, Social-Economic and Environmental Planning*, Tycooly International Publishing, London, pp. 82-83.

⁹³ *Ibid*, pp. 94.

3.0 CHAPTER THREE: CAUSE, NATURE AND IMPACT OF DARFUR CONFLICT

3.1 The Cause of the Darfur Conflict

Since 1994, the Darfur region has been divided administratively into three states: North Darfur, with its capital Alfasher, South Darfur with its capital Nyala, and West Darfur with its capital al-Genaina. Darfur is inhabited by six million people, drawn from some eighty different tribes and ethnic groups. From a subsistence point of view, they could be divided into livestock herders - who for the most part are Arabic speakers and farmers who are bilingual and perceived as Africans. The ethnic groups in Darfur include the Fur, Bani Halba, Tanhor, Borty, Habaniya, Zaghawa, Zayadia, Rizaigat, Masaleet, Taaishya, Maidoub, Bargo, Dajs, Bani Hussain, Tama, Mahria, Mohameed, Salamat, Messairia, Eraighat, Etafab, Fallata, Ghimir, Bani Mansour, Ab-Darag, Selaihab, Mima, Turgom, Marareet and other African and Arabiantribes. Some tribes extend into Chad, Central Africa and Libya.⁹⁴

Inter ethnic marriages for centuries have blurred the ethnic differences between the black Darfurians and Darfur Sunni Muslims. Ecological and demographic transformation had a negative impact on inter-tribal relations where drought and desertification led to conflicts and often violence over scarce resources. During the 1970s and 1980s these tribal conflicts became more intense and bloody, especially between the farmers and cattle herders who in search of water and pasture invaded agricultural land.⁹⁵

⁹⁴ <http://sudanwatch.blogspot.com/2006/07/root-causes-of-darfur-conflict.html> accessed on 1st Sept 2013

⁹⁵ Ibid.

Adding to the complexity of the situation is the increased migration of nomadic groups from Chad, Libya, and other states. Tougher living conditions coupled with the absence of or diminishing tolerance resulted in more tension between the locals and the newcomers which led to violence with cross-border implications. Increased access to weapons from southern Sudan, Chad, Libya, and Eritrea aggravated the inter-tribal conflict with the emergence of tribal militias. Some tribes believe that the government was not able to defend them against other tribes and armed criminal gangs who have more sophisticated weapons, which led several nomadic tribes to form their own defense groups. As a result the region became an open arms market attracting arms dealers to smuggle in all kinds of weapons such as small arms, heavy and light artillery, and including armoured vehicles.

Between 1983 to 1987, fighting broke out between Fur, Zaghawa and Ma'aliyah communities which resulted in 5,000 deaths, tens of thousands of displaced people and the destruction of 40,000 homes. The conflict was mediated and settled by government and local tribal leaders. In 1990 the southern Sudan People's Liberation Army inspired an insurgency led by Daud Bolad from the Fur tribe. The insurgency was defeated in few months. In 1996 the Rezeigat and Zagawa tribes came in to armed conflict. In 1997-99 there was fighting between Massaleit and some Arab tribes.

According to the UNEP report on Disasters and Conflict, Darfur was marked as the world's worst Humanitarian crises by the United Nations in the recent past with more than two million people fleeing away from their homes, with what the world claimed as an ethnic conflict between the government backed Arabs Janjaweed militia and the black African farmers forcing them off their lands. Climatic changes is also

cited as a factor, where water resources are getting scarce and arable land shrinking despite the ever growing population.⁹⁶ The population of Darfur is generally divided into Arabs and non-Arabs. The separation along such lines is probably more based on cultural heritage than on true ethnic separation. Although what is called Arabic tribes may have some Arabic roots, generations of immigration and intermarriage have rendered such separation almost meaningless.⁹⁷

The Darfur conflict has multiple interwoven causes. While rooted in structural inequity between the center of the country around the Nile and the peripheral areas such as Darfur, tensions were exacerbated in the last two decades of the twentieth century by a combination of environmental calamity, political opportunism and regional geopolitics. Darfur is itself a very diverse place, made up of over 90 tribes and countless sub clans. It is situated in western Sudan, with a pre conflict population of 6 million people. Darfur was an independent sultanate until it was incorporated into the rest of Sudan by British forces in 1916. However, it never received nearly the level of investment and development that Eastern Sudan and the Nile River Valley did under British rule. This marginalization continued under the string of central Sudanese governments that followed independence in 1956.⁹⁸

While the conflict in Darfur is most frequently described as one between distinct Arab and non Arab or African tribes, the more accurate distinction between population groups in Darfur is not ethnic, but economic. The incredibly arid northern part of Darfur is populated mainly by tribes claiming Arab descent developed an economy based on nomadic cattle and camel herding. The more arable south, where the majority of the

⁹⁶<http://www.unep.org/disastersandconflicts/CountryOperations/Sudan/Environmentalpolicy/Climatechange/tabid/79464/Default.aspx> accessed on 3rd Sept 2013

⁹⁷ Ahmed Abdel Ghaffar et al, *Beyond Conflict in the Horn*, The Hague, 1992, p. 96.

⁹⁸ <http://www.jewishworldwatch.org/conflictareas/sudan/overview/sudan-genocide> accessed on 28th August 2013

population traces African descent, developed a subsistence farming economy. Centuries of intermarriage and slave trading have blurred the lines between distinguishing physical ethnic characteristics, but for the most part this economic division has remained.

According to a UNEP assessment on the Causes of Darfur Conflict, Sudan, along with other countries in the Sahel belt, has suffered several long and devastating droughts in the past few decades. The most severe drought occurred in 1980-1984, and was accompanied by widespread displacement and localised famine. The UNEP report also listed the erosion of natural resources caused by climate change as among the root causes of social strife and conflict. The scale of historical climate change, as recorded in Northern Darfur, is almost unprecedented: the reduction in rainfall has turned millions of hectares of already marginal semi desert grazing land into desert. The impact of climate change is considered to be directly related to the conflict in the region, as desertification has added significantly to the stress on the livelihoods of pastoralist societies, forcing them to move south to find pasture.⁹⁹

Drought, famine and the spread of the deserts caused increased competition for land, severely upsetting the structure of Darfuri society. Farmers had claimed every available bit of land to farm or forage for food, closing off traditional routes used by the herders. The herders, desperate to feed and water their animals in a dwindling landscape, tried to force the southern routes open, attacking farmers who attempted to block their paths. Traditionally, conflicts were settled with little or no violence by respected local

⁹⁹ <http://www.unep.org/disastersandconflicts/CountryOperations/Sudan/tabid/54236/Default.aspx>
accessed on 25th August 2013

councils. These were abolished by the Bashir regime after it came to power in a coup in 1989, leaving no mechanisms for resolving disputes peacefully.¹⁰⁰

Spurred by this increasing conflict over scarce resources and wedge politics played by the central government in Northern Sudan, nomadic and farming tribes began to polarize along ethnic lines. To Darfuris facing starvation, the dichotomous ideology of African versus Arab began to have explanatory power. Amongst some sedentary Africans, the ideas that uncaring Arabs in Khartoum had let the famine happen and then Darfuri Arabs armed by their Libyan allies had attacked African farmers began to gain credence. Similarly, semi-nomadic Darfuri Arabs began to seriously consider that Africans had vindictively tried to punish them for the famine by trying to keep them from pastureland.¹⁰¹

Frustration and anger at this situation exploded into violence in 2003, when rebel groups called the Sudan Liberation Army (SLA) and the Justice and Equality Movement (JEM) attacked government installations in Darfur. In response, the Sudanese government recruited local Arab militias known as Janjaweed who themselves had interest in gaining control over territory occupied by the rebel Fur, Zaghawa and Masaalit ethnic groups. Within a year, scorched earth tactics like the bombing of hospitals, clinics, schools and other civilian sites and systematic targeting of civilians for displacement,

¹⁰⁰ Ibid

¹⁰¹ Baxter P. *When the Grass is Gone: Development Interviews in Africa Arid Lands*, Uppsala, Bohuslanigend, 1991, p.3.

murder, torture and rape had left tens of thousands dead, while hundreds of thousands of others fled westward to neighboring Chad.¹⁰²

A ceasefire declared in 2004 and the arrival of African Union (A.U.) troops in Darfur failed to stop the violence and the ensuing humanitarian crisis in the region. In January 2005, the signing of the Comprehensive Peace Agreement (CPA) formally ended the Sudanese civil war between north and south, but the conflict in Darfur lay outside of the accord. In July 2007, the United Nations authorized a joint U.N and A.U. peacekeeping mission to replace the A.U. mission, though troop deployment did not begin until 2008. By 2009, the U.N. estimated that some 300,000 people had been killed and 2.7 million displaced since 2004.¹⁰³

3.2 The Nature of the Darfur Conflict

Darfur has been the site of inter communal conflict for generations. However, in the eighties, the conflicts in Darfur became more vicious and many of them acquired an ethnic dimension, between the Arabs on the one hand and non-Arab identity groups. The transformation of conflict, which occurred in the eighties, was caused by several factors. First, the extent of the drought forced many Darfurian tribes to change their Nomadic lifestyle and seek settlement in lands considered by other tribes as their homeland. The decades of drought led to migration of more nomads into Darfur in search of water and grass. Secondly, the introduction of new traditions and new ways of fighting conflict, including the spread of modern firearms. Finally, in the eighties the traditional rule,

¹⁰² Ibid, p. 4

¹⁰³ The memo entitled “*Ideas on the Background to the Present Conflict in Darfur*”, University of Bayreuth, Germany, May 2004. 23

which provided the main conflict resolution mechanisms, suffered from occasional political and administrative upheavals.¹⁰⁴

Resource conflicts are not strange to land-based subsistence societies in Sudan or elsewhere in the developing world. Historically, Darfur region has its share of resource conflicts which to some extent shaped its present state of affairs and probably its future destiny, including the mingling of resource conflicts and ethnic cleansing. The question where resource conflicts end and ethnic cleansing begins is an important one because it will determine to what extent the Sudan Government or the liberation movements are responsible for transforming resource conflicts into a modern warfare for political gains. The conflict in Darfur is popularly known as an egregious humanitarian crisis and horrific ethnic conflict between Arab and Black Africans. On the surface, the conflict appears to be fueled by ethnic tensions and racism; however, there are multiple factors which escalated preexisting tensions into the complicated and violent situation which exists today. Ecological change in the form of cyclical drought and desertification is one of the few agreed upon sources of the conflict.

As a result of reoccurring droughts throughout the 1980s, competition over diminishing fertile land and water contributed to tribal conflict and social unrest in Darfur, and ultimately a massive humanitarian crisis. Mounting frustration of decades of economic and social marginalization finally erupted into a full scale conflict in February of 2003 when rebel organizations successfully attacked Sudanese military posts in Darfur. The ongoing crisis in Darfur is commonly described as an ethnic conflict; however, the diminishing accessibility of natural resources, mainly water and

¹⁰⁴ Environmental Degradation as a Cause of Conflict in Darfur; Conference Proceedings, Dec 2004, University of Peace, pp. 7-8.

land, and the desertification of the western most region of Sudan contributed to the escalation of a massive regional humanitarian crisis.

Historically, the nomadic tribes like the Rizeigat, resided in the drier northern reaches of Darfur and traveled with their animals south into the more temperate southern farmlands during the dry season. They would then migrate back north with the onset on the rains; but with water holes and seasonal rivers vanishing, the nomads gradually ventured farther south searching for fertile land to pasture.¹⁰⁵ Before the droughts in the 1980s, the nomadic and farming tribes relied on one another, and their families intermarried, but eventually conditions deteriorated. Many of the nomads settled into a semi-pastoral existence, establishing permanent villages amid the farming communities, the Fur, Masalit and Tunjur.¹⁰⁶ During periods of drought, the dramatic decrease in rainfall enabled Darfur's farming community to produce local crops, resulting in a substantial decrease in the food supply. The nomadic populations also suffered because their livestock died from the lack of available water. Evidently, the southern regions of Darfur were overpopulated and the available natural resources stretched. With increasing competition over the diminishing pool of natural resources water, grassland, arable soil conflicts increased.

Economically, western Sudan has been and still is largely agrarian. According to Robinson (2004), before drought and civil conflict plagued the region, Darfur operated by three major agricultural systems: sedentary rain fed agriculture, sedentary irrigated

¹⁰⁵ Braun, Josh. "A Hostile Climate: Did Global Warming Cause a Resource War in Darfur?" *SeedMagazine.com* (Aug. 2006), p. 13.

¹⁰⁶ Bilsborrow, Richard E. and Pamela F. DeLargy. *Land Use, Migration and Natural Resource Deterioration: The Experience of Guatemala and the Sudan*, "Population and Development Review, Vol. 16 (1990), pp. 125-147.

agriculture and nomadic pastoralism. The ecological balance which once existed between sedentary agriculture and nomadic pastoralism suffered as repeated periods of drought due to climate change led to desertification and environmental degradation. Rainfall patterns changed, leading to a decline in rainfall intensity and rainfall duration. This led to conflicts between the pastoralists and the agrarian societies over the control and access of the scarce resources such as water for their animals and for irrigating their plants.

On a critical view, Fouad (1998)¹⁰⁷ argues that it is often said that the cause of the war in Darfur is the conflict between pastoralists and farmers over limited natural resources: water, agricultural land and pasture. No doubt, conflicts have always existed over these resources. But they are not the true cause of the current brutal war. In fact, the natural resources of Darfur are not meager at all.

Administratively Darfur is divided into three states: South Darfur with its capital in Nyala; North Darfur with its capital in Al-Fashir and West Darfur with its capital in Genina close to the Sudanese Chadian border. These divisions do not correspond to clear ethnic divisions because first, *diar* are loosely demarcated; second, due to the desert conditions which prevail in North Darfur coupled with recurrent drought and famines since the 1970s, people migrate to fertile agricultural and grazing lands. Even without drought season movements of nomadic groups in response to variations in

¹⁰⁷ Ibrahim, Fouad, *The Zaghawa and the Midob of North Darfur: A comparison of migration Behavior*, in *GeoJournal*, 1998, vol. 46, no. 2, pp. 135-140.

waterfall and availability of grazing lands population mobility is so common that it is the rule rather than the exception.¹⁰⁸

Ibrahim (1998) proceeds to provide four data sets on water resources, groundwater, farming potential and grazing potential to substantiate his claim that the problem is not resource scarcity but central government neglect of Darfur region. He also shows that the livestock wealth of Northern Darfur is estimated at two billion US Dollars with an annual productive estimate of half a billion US Dollars. Although the people of Darfur and Northern Darfur in particular are poor, their region is not. By and large, Professor Ibrahim concludes that the problem is not resource scarcity; it is a problem of underdevelopment that has inflicted the region. Therefore, the current peace efforts will be futile without putting in place long-term policies to tackle this problem. In a sense, Darfur rebel groups' demand for power and wealth sharing could also be understood as a direct plea for developing the region in order to be able to utilize its development potential.¹⁰⁹

3.3 The Impact of the Darfur Conflict

According to the 2005 Nutrition survey of the conflict affected populations, a significant proportion of mothers are malnourished due to the impact of climate change on Reproductive Health and Basic Nutrition. The survey of the conflict affected populations found that 6.4% of mothers with children aged 6 to 9 months are malnourished. The current levels of maternal mortality are thought to be extremely high. Utilization of most basic child health services was low in Darfur before the crisis.

¹⁰⁸ <http://www1.american.edu/TED/ice/darfur.htm> accessed on 28th August 2013

¹⁰⁹ See Sharif Harir, 2004; Fouad Ibrahim 1998; Mohamed Suliman 1992.

The humanitarian operation increased access to basic curative care for conflict affected populations, while utilization of government hospitals and clinics remains low. Since 2003, the crisis in Darfur caused child mortality to increase dramatically. The evidence clearly points to a decrease from 2005. Child malnutrition has increased with the crisis according to the report.¹¹⁰

According to a Medicine San Frontiers survey on Doctors without Borders (2005), Gendered violence and rape has been used as a weapon of genocide in Darfur. Women from young girls to graduation have been raped and brutally assaulted during the attacks on their villages, as they attempt to flee. Gang rape, abduction and sexual slavery are all prevalent forms of sexual violence in Darfur which has affected a lot of women. The report reported that 28% of the women they interviewed reported being assaulted. Women and girls as young as eight are abducted and held in sexual slavery in militia camps where soldiers would rape them. It is also reported women who tried to escape or resist attack were beaten, tortured or killed. Rape as a weapon of genocide has led to seven health consequences when it has exposed women to an increased risk of HIV /AIDs and other STDs. In other cases, such women who have survived rape attacks are subsequently disowned by their husbands and families leaving them vulnerable to future attacks because they lack the, economic, social and physical protection that men can provide. Furthermore, because children ethnicity is determined by their father's women who become pregnant as a rape result are considered to carry enemy children.

¹¹⁰ Motherhood survey – 1997, survey by FMOH, WHO, UNICEF, WF (2003 -2006), accessed via <http://www.odihpn.org/humanitarian-exchange-magazine/issue-39/environmental-degradation-and-conflict-in-darfur-implications-for-peace-and-recovery> on 30th August 2013

In this conflict; rape does damage far beyond the scope of physical harm: It intentionally breaks apart social structure of Darfurian communities.¹¹¹

The conflict in Darfur has also greatly accelerated the processes of environmental degradation that have been undermining subsistence livelihoods in the area over recent decades. The implication of this is that environmental drivers of conflict have worsened as a result of the current crisis. An understanding of the physical and social processes involved must inform humanitarian programming, recovery planning and peace processes at local and national level so that this accelerated environmental degradation may be slowed and its impacts mitigated.

The debate over the environment in Darfur illustrates the complexity of a conflict that has numerous levels. The lowest level of conflict, between neighbouring tribes and villages, displays the environmental aspect of the conflict most acutely, as different livelihood groups seek to adapt their ways of life to increasing resource scarcity. This is happening in a context where traditional rules of environmental management have been weakened, and in places rejected altogether. However, even the conflict between different tribes has both local dimensions, over control of resources, and higher-level political dimensions. The local conflicts over resources have become a dimension of the wider conflict between Darfur and central Sudan, relating to long-term issues of political and economic marginalization, amid regional tensions relating particularly to Chad. Ethnicity complicates the conflict at all levels. The interaction of these different levels of conflict is

¹¹¹ Medelins Sans Frontieres (Doctors without Border) “*The Crushing Burden of Rape: Sexual violence in Darfur*” March 8, 2005.

one of the defining complexities of the Darfur crisis. Thus, while resource scarcity is not solely responsible for conflict at the tribal level, it is a major driver, and must be seen in the context of wider political and economic marginalization.¹¹²

Darfur lies on the edge of a desert in an area that suffers both from an overall paucity of resources and a high degree of variability in the availability of resources. This scarcity and variability have required a high level of community management, given that different groups use resources in different ways for their livelihoods. The environmental aspect of the conflict therefore must be analyzed with reference to governance and livelihoods. The crisis has left land increasingly uninhabitable and intensifying tensions with no end to the drought in sight. The war has caused destruction on fields and soil erosion has worsened. Nomads and refugees are rapidly destroying forests around the camps cutting trees for firewood and also for wood to reinforce the mud walls of their homes.¹¹³ These trees being chopped down are crucial to farmers, because they help stabilize the soil and provide shade for crops. They also help to attract rain. Majority of farmers, who left their lands, started regarding timber trade as the only way to make a living. Amount of wood used in biggest towns of the region such as EL Fasher, EL Geneina, and Nyala has increased since the beginning of the conflict. This has led to destruction of forests around this area as trees are being cut to provide construction materials for accommodation of the refugee camps and peacekeeping bases.

¹¹² <http://www.odihpn.org/humanitarian-exchange-magazine>, accessed on 30th August 2013

¹¹³ Shanet P, *The conflict in Darfur has a negative impact on Environment* Thursday, 11 Dec, 2008): accessed on <http://www.intonial-.com/environment/the-conflict-in-Darfur> on 30th August 2013.

Environmental pressure was identified earlier by the UN as an important underlying cause of the current conflict. Large scale population displacement has led to concentrations of people in and around towns generating towards environmental degradation where vegetation has been rapidly exhausted and there has been pressure on water resources. Restrictions on livestock migrations have also contributed to localized concentrations of livestock, also causing over-grazing and further pressures on water resources. The trade of firewood and grass for fodder has become a hot issue in areas hosting large numbers of IDPs. In several areas, firewood collection has long represented a major threat to IDPs from violent attacks and rape. The trade is lucrative and in some areas is controlled by certain groups thus access to these vital natural resources is controlled by parties to the conflict. ¹¹⁴Many camps earn money by producing mud bricks which requires a lot of water along with still more wood to fire the kilns for making bricks for making bricks.

Through the cutting of trees and digging of land to provide raw materials for making bricks, environmental degradation has increased, as this contributes to soil erosion. Kunduwa forest in Nyala for example, has completely been destroyed although it was possible to prevent the destruction. The environment degradation has contributed a lot to climate change. This has increased the level of drought around regions of Darfur. The growing populations are straining for a very limited water supply due to draught. Data have shown rainfall steadily declining in the regions possible because of the weather changes linked to global warming.¹¹⁵

¹¹⁴ UNICEF “Sudan- Darfur Review” 2007 Georgina Cranston (online) www.unicef.org/infobycountry/sudan-darfuroverview.html.

¹¹⁵ Ibid.

According to the Medians Sans Frontieres (1997), about 200,000 to 300,000 people died in Darfur since the start of the conflict in 2003. Some 4.7 million people are currently directly affected by the conflict, out of a total population of around 6.2 million. There is also displacement of around 310,000 or more, people around 2008 bringing total of displaced person to 2.7 million. The conflict has also increased tensions in neighbouring Chad and the Central African Republic as hundreds of thousands of refugee's stream over the two countries borders to escape violence. In Kasi, Sudan, Hundreds of Darfurians fled violence in their home villages to seek shelter in Kass, a camp of displaced people. The conflict has resulted to refugee camps being overcrowded by the genocide victims. This has made some camps not safe places for refugees in terms of diseases and attacks.¹¹⁶ Refugee Camps such as Breidjing Camp, East of Chard, hosts approximately 250,000 refugees from the Darfur regions according to the report.

Saurin (1996) points out that changing climatic conditions and dramatic increases in carbon dioxide will put our ecosystems to the test, threatening supplies of fresh water, clean air, fuel and energy resources, food, medicine and other matters we depend upon not just for our lifestyles but for our survival. Evidence shows effects of climate change on physical and biological systems, which means no part of the world is spared from the impact of changes to land, water and life. Scientists are already observing the bleaching and death of coral reefs due to warming ocean waters, as well as the migration of vulnerable plants and animals to alternate geographic ranges due to rising air and water

¹¹⁶ Medians Sans Frontieres, "*Refugees Health: An Approach to emerging situation*," Macmillan Oxford 1997, pp. 20-53.

temperatures and melting ice sheets.¹¹⁷ Models based on varied temperature increases predict scenarios of devastating floods, drought, wildfires, ocean acidification and eventual collapse of functioning ecosystems worldwide, terrestrial and aquatic alike. Forecasts of famine, war and death paint a dire picture of climate change on our planet. Scientists are researching the causes of these changes the vulnerability of Earth not to predict the end of days but rather to help us mitigate or reduce changes that may be caused by humans.¹¹⁸

Georgina (2007) observes that the humanitarian community remains under intense pressure with continuing violence and rising numbers of attacks on humanitarian convoys of great concern. As of September 2008, 225 humanitarian vehicles have been hijacked or stolen during the year; 32 convoys attacked, 144 humanitarian compounds broken into and 11 humanitarian workers killed all impacting on provision of vital services. The attacks on convoys had led WFP to reduce its general food ration by 25%. Without safe access to communities, aid agencies cannot guarantee sustained quality programmes on the ground, resorting instead to using windows of opportunity for example, using helicopters missions to visit area inaccessible by road to deliver what they can.¹¹⁹

Plan of Action for North Sudan Emergency response and rehabilitation for food and agriculture (2010) pointed out that the most direct impact of the crisis on the

¹¹⁷ Saurin J, *International Relations, Social Ecology and the Globalization of Environmental Change*, Volger and Imber, Lagos, 1996, p. 86

¹¹⁸ Ibid, pp 87

¹¹⁹ Georgina Cranston “UNICEF: Sudan–Darfur Review” 2007. (Online) www.unicef.org/infobycounty/sudan-darfuroverview.html, accessed on 30th August 2013.

economy of Sudan is reduction in factors that aid its economy such as labour force. Mortality rates seem to reduce labour force either through death and injury. The destruction of infrastructure has increased the transport and energy costs of economic activity. There are also diversions of the government reasons away from productive to destructive expenditure. This leads to double loss: not only are resources not spent on infrastructure, health and education, they are also paying for destructive activities that damage the economy. This has seen the GDP of Sudan drop in 2004 and the stripping of their power was a major challenge for international humanitarian community in 2005. Newly appointed leaders do not necessarily carry the same authority and respect as their previous leaders and therefore people lack representation.¹²⁰

For people living in developing countries like Sudan, and in particular in least developed countries and small island developing countries, the impact of climate change can be catastrophic. With little ability to plan for disasters or adjust to shifting weather patterns, poor people and countries bear the brunt of more frequent droughts, intense storms, and floods. While citizens in developed countries too must dig increasingly deep to fund elaborate flood defence systems, compensate farmers, and adjust their thermostats to accommodate hotter summers, changing weather patterns in Africa mean that crops fail, people go hungry, and girls spend less time in school and more time collecting water.

¹²⁰ Plan of Action for North Sudan Emergency response and rehabilitation for food and agriculture, August 2010 – August 2012, Published by Emergency Operations and Rehabilitation Division Food and Agriculture Organization of the United Nations Rome 2010

The food insecurity crises in the Horn of Africa last year and the Sahel this year have been very serious, and the effects of drought are being felt far south of there.¹²¹

Helen Young (2006) notes that markets have been seriously impacted by the conflict, affecting trade in all of Darfur's principal commodities. Access to markets for buyers and sellers has been severely restricted as a result of insecurity and limited mobility. Additional restrictions are associated with government border closures, restrictions on moving goods between Government of Sudan and Sudan Liberation Movement controlled areas, the fuel embargo and frequent checkpoints, random taxation and or protection related payments. This has resulted in a reduction in trading between primary and secondary markets with more producers only serving local markets. In the past livestock marketing was one of the mainstays of the economy, but with the advent of conflict its demise has affected livelihoods across Darfur. Traders have adapted to some extent, and trade routes have changed although these have become longer, more circuitous and expensive. A further development is the ethnic polarization between traders, with certain groups controlling specific marketing or routes.¹²² A high proportion of traders, have been forced out of business and left Darfur, including, the large traders in cash crops such as groundnuts. Some markets have also suffered a loss of infrastructure through conflict, and also the closure of customs offices. The decline in trading activity

¹²¹ Ibid.

¹²² Helen Young and Abdal Monim Osman, *Challenges to Peace and Recovery in Darfur*, Oxfam Publishers, London, 2006, pp. 22, 23, 24, 26, 27, 30.

has a knock affect on the availability of credit for farmers and also of course falling prices.¹²³

In some rural areas under Government of Sudan Control including the corridor extending from Western Darfur up into North Darfur towards Kutum, where there are higher concentrations of Arab groups, these groups control access to natural resources. This includes land occupation and frequently includes allowing livestock to grace the fields of neighboring farmers and thereby destroying crops. The practice of Arab groups exhorting protection payments from local residents (rent seeking) in these areas has been widely reported.¹²⁴

Erosion of the tribal administration has occurred particularly among the displaced who have become separated from their traditional leaders or because their leaders have been killed or because they have fled. The appointment and even self appointment of new leaders has often been linked with managing the highly profitable food distributions and targeting. In some instances, leaders have misused their authority to manipulate and profit form aid distributions. Sheikh Cartels in some of the more politicized camps were able to develop in the past couple of years.¹²⁵

Insecurity, with variety of causes, has restricted the mobility of all groups and therefore limited the core livelihood strategies in Darfur, including cultivation of crops, seasonal livestock migration, trade and access to markets for buyers and sellers, labour transfers and travel to rural areas for the collection of firewood, fodder and wild food.

¹²³ Ibid.

¹²⁴ <http://www.infoniac.com/environment/the-conflict-in-darfur-has-a-negative-impact->, accessed on 30th August 2013

¹²⁵ “The cost of Future conflict in Sudan” 2010 pages 15 Frontier Economics Report.

The lack of mobility arising from insecurity was and remains the key factor in loss of livelihoods and in people's extreme vulnerability restrictions on mobility because of insecurity affects IDPs more than and other group as they have fled to urban areas for safety, but also restricts the activities of a much wider group of both urban and rural dwellers. Insecurity has also impeded and restricted the humanitarian response. Humanitarian trucks, staff, compounds and vehicles have been targeted on a daily basis.

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In Darfur, there has been a loss of public infrastructure, as a result of the destruction of health centers, schools and water supplies as part of the tactics of the counter insurgency, many public gains banks were looted and have not been re-established. The availability of public services has been further decimated as civil servants, teachers, health workers and others have either become displaced or decided not to remain in Darfur. This lack of human resources perhaps represents one of the biggest challenges in establishing processes or recovery and rehabilitation. Access to schools is further restricted because families can no longer afford school fees.¹²⁷

The FAO report on Food Security observes that over the past decade, despite considerable economic and agricultural potential, between 1.5 and 3 million people have required some form of food aid each year. Food insecurity remains essentially a rural phenomenon linked to the fragility of rural livelihoods. In North Sudan, agriculture is characterized by four categories of farming system: irrigated, semi-mechanized, rainfed traditional, and livestock. The highest levels of poverty and food

¹²⁶ Ibid

¹²⁷ <http://senweb.lr.k12.nj.us/Library/class%20projects/Stapleford/Darfur910/adria%27s%20page.htm> accessed on 29th August 2013

insecurity are recorded among traditional, rainfed farmers and pastoralists (World Bank, 2003). In North Sudan, Darfur, Red Sea, southern parts of Southern Kordofan and parts of Blue Nile, Kassala and North Kordofan states face moderate to high levels of food insecurity due to poor harvests in 2009 and the ongoing conflict in Darfur.¹²⁸

For FAO, the impact of the Darfur crisis is a powerful demonstration of what happens to rural livelihoods in protracted crises. The initial years of the conflict were marked by the rapid destruction of livelihoods as millions of people became displaced when their villages were attacked or threatened. Pastoralists in North Darfur lost over half their livestock in the first three

Years of the conflict. As the crisis drew on, assets continued to be lost through a gradual process of erosion and livelihood options inevitably became fewer and more restricted. Many people became dependent on marginal subsistence activities. Rural people could not migrate for work or send remittances home, which had a serious impact on their livelihoods in the initial stages of the conflict. Furthermore, competition between pastoralists and farmers over the natural resource base in Darfur intensified as both groups become increasingly dependent on strategies such as collecting grass and firewood to replace pre conflict livelihood strategies that were no longer possible.

¹²⁹The protracted crisis has meant that the Sudan is currently the largest operation globally, with the international community providing USD 1.3 Billion in humanitarian assistance during 2009.¹³⁰

¹²⁸ Plan of Action for North Sudan Emergency response and rehabilitation for food and agriculture, August 2010 – August 2012, Published by Emergency Operations and Rehabilitation Division Food and Agriculture Organization of the United Nations Rome 2010

¹²⁹ Ibid.

¹³⁰ United Nations Office for the Coordination of Humanitarian Affairs [UNOHCA], July 2010.

As a result of Climate change, warmer temperatures along with associated floods and droughts are encouraging worldwide health threats by creating an environment where mosquitoes, ticks, mice and other disease-carrying creatures thrive. The World Health Organization reports that outbreaks of new or resurgent diseases are on the rise and in more disparate countries than ever before, including tropical illnesses in once cold climates such as mosquitoes infecting residents of Darfur. While more than 150,000 people die from climate change related sickness each year, everything from heat related heart and respiratory problems to malaria are on the rise. Cases of allergies and asthma are also increasing. Climate Change fosters increased smog which is linked to mounting instances of asthma attacks and also advances weed growth, a bane for allergy sufferers.

It is clear that the Declining amounts of quality food, water and land may be leading to an increase in global security threats, conflict and war due to climate change. The current conflict in Sudan's Darfur region suggest that while climate change is not the sole cause of the crisis, its roots may be traced to the impact of climate change, specifically the reduction of available natural resources. The violence in Darfur broke out during a time of drought, after two decades of little to no rain along with rising temperatures in the nearby Indian Ocean. Scientists and military analysts alike are theorizing climate change and its consequences such as food and water instability pose threats for war and conflict, suggesting that violence and ecological crises are entangled. Countries suffering from water shortages and crop loss become vulnerable to security trouble, including regional instability, panic and aggression.

4.0 CHAPTER FOUR : CORRELATION AND IMPACT OF CLIMATE CHANGE AND THE DARFUR CONFLICT

4.1 Introduction

The research was conducted in Darfur between 10th to 20th September 2013 to assess the current situation of how the effects of Climate Change have contributed to the conflict in Darfur-Sudan. The research interviewed 70 respondents randomly. This Chapter will look at the research findings from the field analytically.

In statistics, a frequency distribution is an arrangement of the values that one or more variables take in a sample. Each entry in the table contains the frequency or count of the occurrences of values within a particular group or interval, and in this way, the table summarizes the distribution of values in the sample. A frequency distribution shows us a summarized grouping of data divided into mutually exclusive classes and the number of occurrences in a class. Cross tabulation or crosstabs on the other hand is a statistical process that summarizes categorical data to create a contingency table. They provide a basic picture of the interrelation between two variables and can help find interactions between them.

Table 4.1 Distribution by Gender,

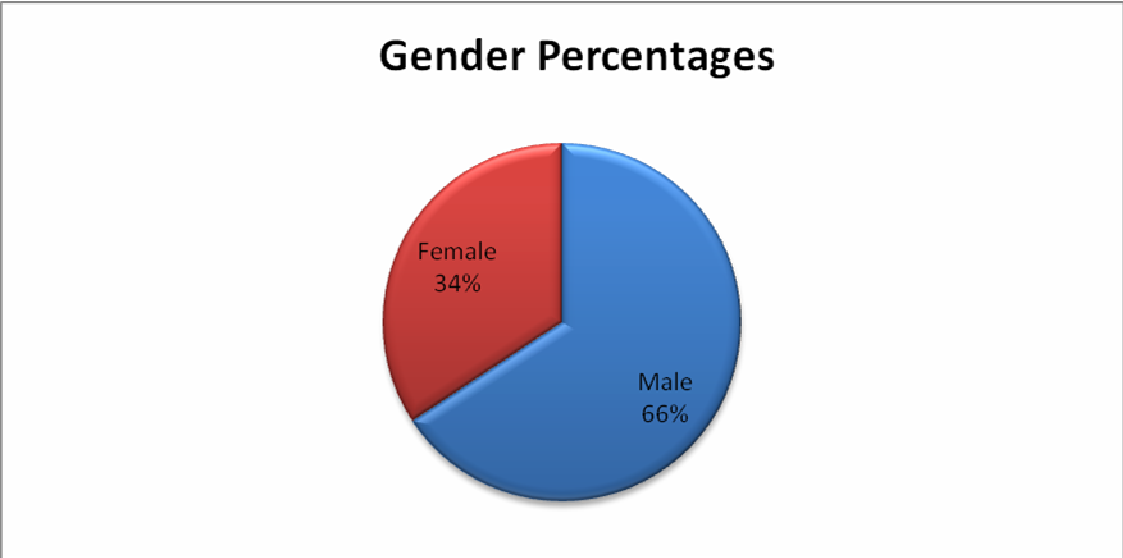
Sex		
Sex	Frequency	Percent
Male	46	65.71%
Female	24	34.29%
Total	70	100%

Source: Field Data

The above table shows the frequency distribution of sex as per the sample. Out of the total sample size of 70 that were interviewed, 46 were Male representing 65.71% of the total, the remaining 24 were female representing 34.29% of the total sample size.

Below is a Pie chat of the sample distribution per gender.

Figure 4.1 Gender Distribution



Source: Field Data

Table 4.2 Highest level of education attained

	Frequency	Percent
Primary	2	2.9%
Secondary	22	31.4%
Tertiary	26	37.1%
Degree	20	28.6%
Total	70	100%

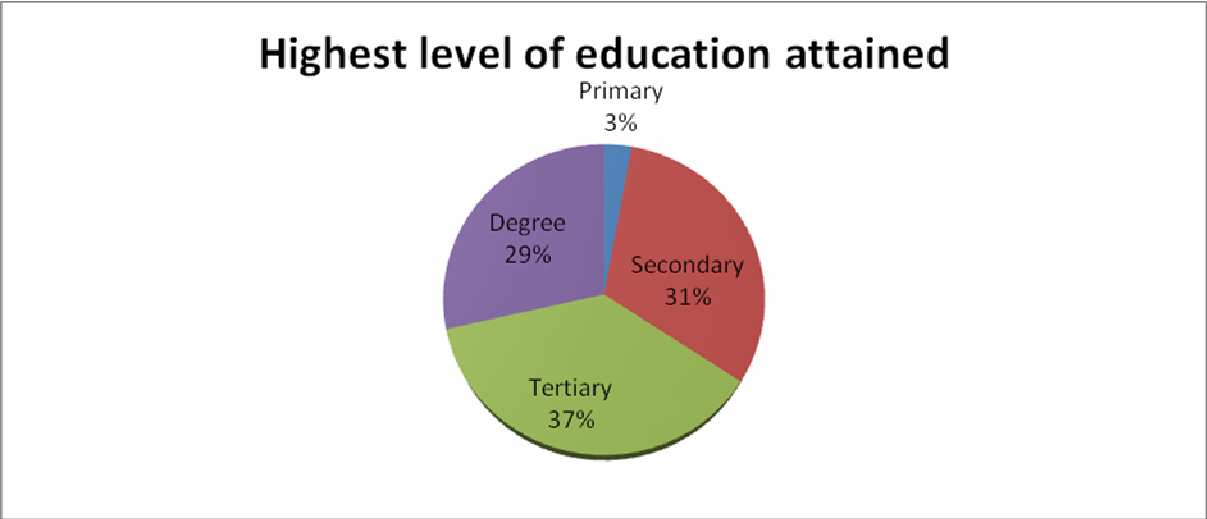
Source: Field Data

Above is the frequency distribution of the sample as per the level of education attained, out of our total sample size of 70 respondents; only 2 had primary level as their highest education level representing 2.9%, 22 had attained secondary education as their highest level of education representing 31.4%. 26 and 20 answered that their highest level of education as Tertiary and degree respectively representing 37.1% and 28.6% respectively.

This hence shows us that the research has quite a large number of respondents who had completed over secondary level of education compared to those who had below secondary level of education thus enough confidence on the literacy levels especially on matters of climate change and conflict.

Below is the pie chart representing the distribution of highest level of education attained by our respondents.

Figure 4.2 Level of Education



Source: Field Data

4.1.3 Distribution by residents of Darfur,

Out of the 70 people that were interviewed, the following responses were received.

66 of the 70 were residents of Darfur representing a 94.3% while only 4 were not, representing 5.7% of the sample size. Below is the tabulation.

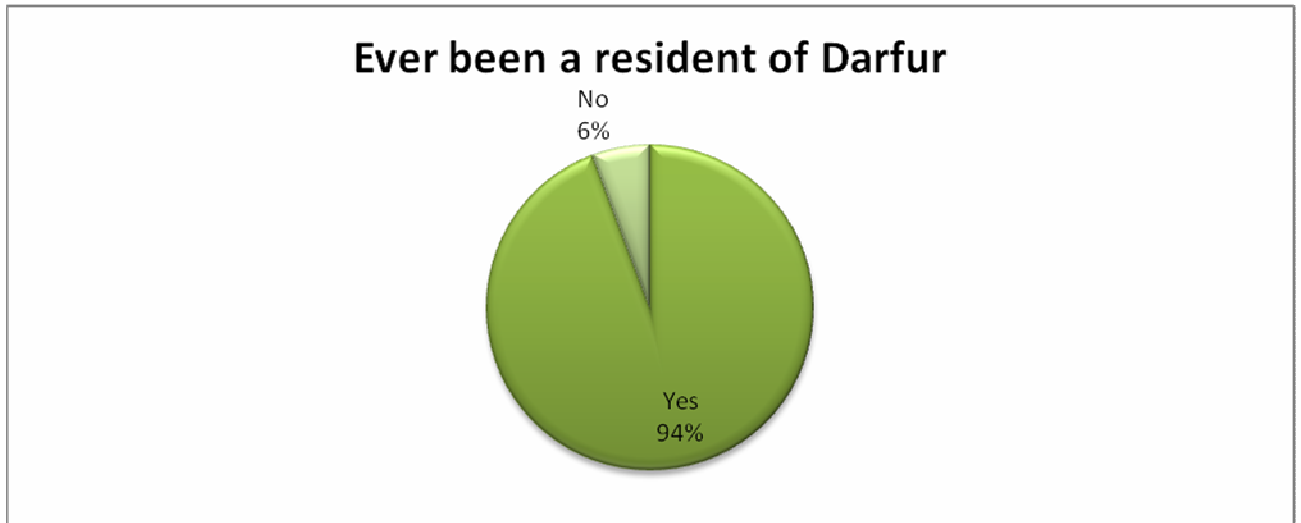
Table 4.3 Resident of Darfur

	Frequency	Percent
Yes	66	94.3%
No	4	5.7%
Total	70	100.0

Source: Field Data

Below Is a pie chat showing the distribution of those who have ever been residence against those who have never been residence.

Figure 4.3 Resident of Darfur



Source: Field Data

Above being residents of Darfur, below is a crosstab of those respondents who answered yes for being residents and the time they have spend in Darfur or the duration they have ever lived in Darfur.

Table 4.4 Time Lived in Darfur

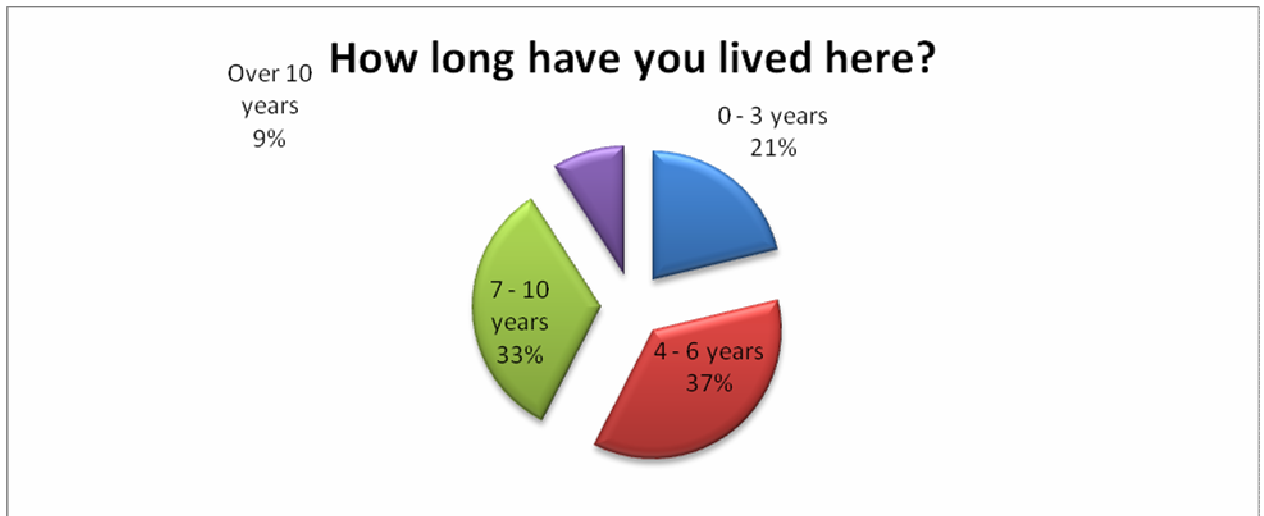
		If Yes, how long have you lived here?				
		0 - 3 years	4 - 6 years	7 - 10 years	Over 10 years	Total
Are you a resident of Darfur?	Total	14	24	22	6	66
	Yes	21.2%	36.4%	33.3%	9.1%	100.0%

Source: Field Data

Out of the total of 66 respondents who have ever lived in Darfur, 14 of them have lived for 0 to 3 years representing 21.2% of the 66, 24 have lived for 4 to 6 years representing 36.4% of the 66, 22 have lived for 7 to 10 years representing 33.3% of the 66 and only 6 have lived for over 10 years representing 9.1% of the 66 who answered that they have ever lived in Darfur. This implies that more than 50% of the respondents have ever lived in Darfur for more than 4 years.

Below is a pie chart representing the table above

Figure 4.4 Duration stayed in Darfur



Source: Field Data

As for the distribution of the respondents who answered that they have ever lived in Darfur and the time duration for living in Darfur, their gender was distributed as follows;

Table 4.5 Gender verses time lived in Darfur

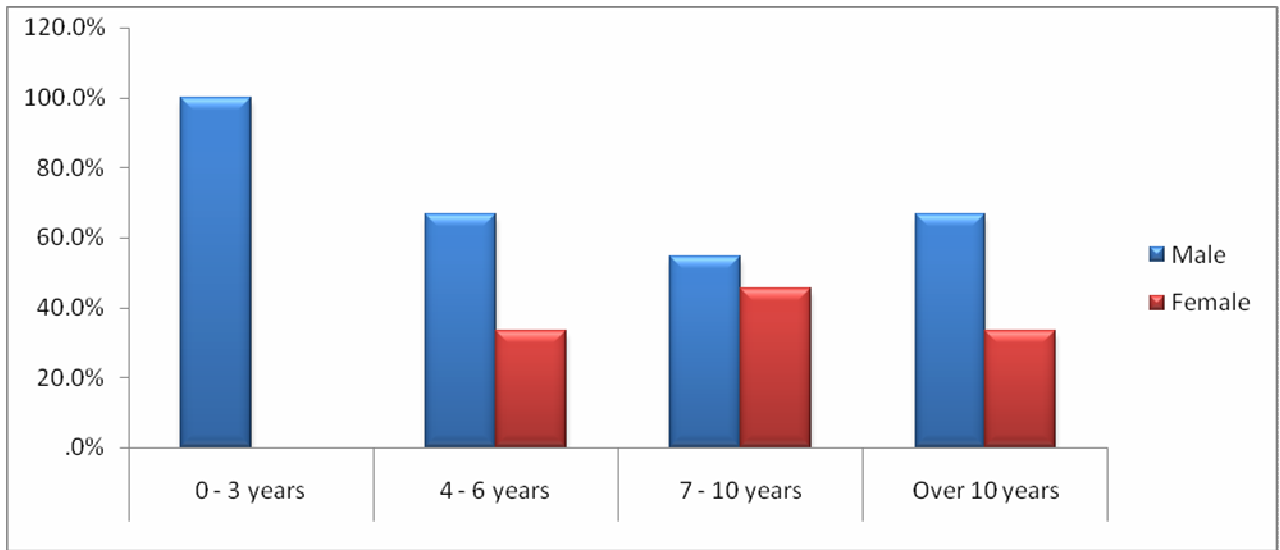
			If Yes, how long have you lived here?			
			0 - 3 years	4 - 6 years	7 - 10 years	Over 10 years
Have you ever been a resident of Darfur? Yes	Sex	Total	14	24	22	6
		Male	100.0%	66.7%	54.5%	66.7%
		Female	.0%	33.3%	45.5%	33.3%

Source: Field Data

Out of the total of 66 respondents who have ever lived in Darfur, then out of the 14 who have lived Darfur for 0 to 3 years, 100% have been male. Out of the 24 who have lived Darfur for 4 to 6 years, 66.7% have been male while the remaining 33.3% have been female. As for those who have ever lived in Darfur for between 7 to 10 years then 54.5% are male and 45.5% are female, finally for those who have lived in Darfur for more than 10 years, they are 6 in total whereby 66.7% are male and 33.3% were female.

Below is a graph representing the dataset;

Figure 4.5 Gender verses Duration lived in Darfur



Source: Field Data

4.1.4 Crosstab between Education level and time lived in Darfur,

Comparing the education level and time or duration of stay in Darfur is shown in the table below. This may assist in determining if the time duration of stay in Darfur is influencing the education level of the residents of Darfur or perhaps they seek education elsewhere.

First I will give a table showing the comparison per level of education;

Table 4.6 Education level verses Stay in Darfur

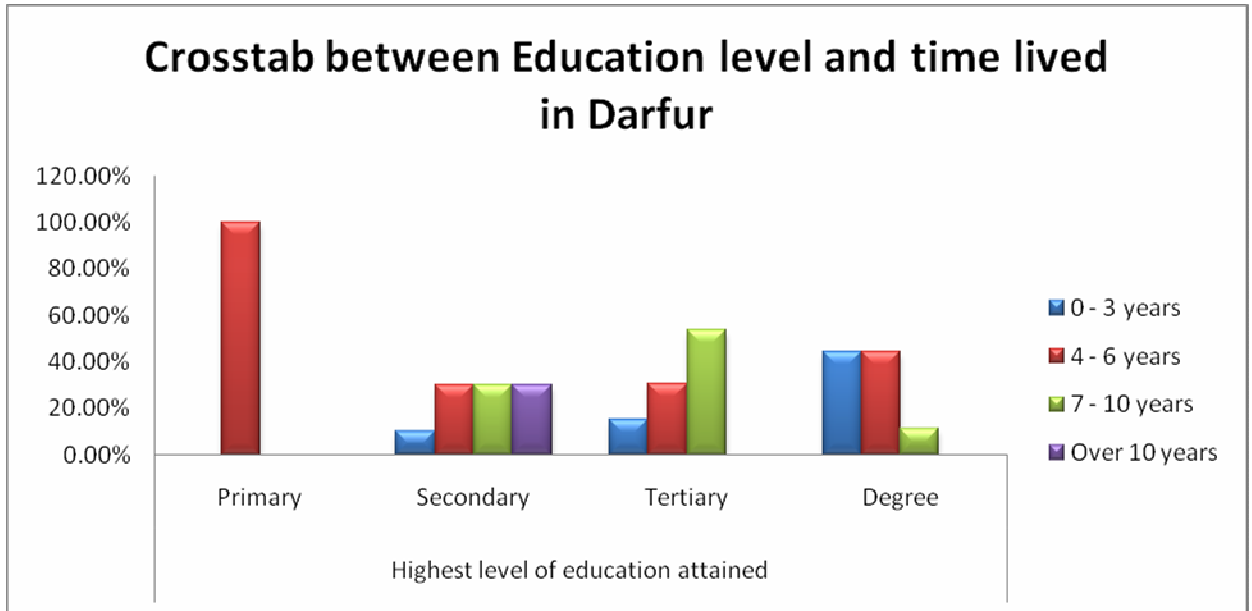
		Highest level of education attained				
		Primary	Secondary	Tertiary	Degree	Total
If Yes, how long have you lived here?	Total	2	20	26	18	66
	0 - 3 years	.0%	10.0%	15.4%	44.4%	21.2%
	4 - 6 years	100.0%	30.0%	30.8%	44.4%	36.4%
	7 - 10 years	.0%	30.0%	53.8%	11.1%	33.3%
	Over 10 years	.0%	30.0%	.0%	.0%	9.1%

Source: Field Data

As per the table above; then for the 2 respondents whose highest level of education is primary, both of them stayed in Darfur between 4 and 6 years. As for the respondents who had secondary as their highest level of education, 10% lived in Darfur for 0 to 3 years, 30% lived for 4 to 6 years, 30% lived for 7 to 10 years, and 30% lived for over 10 years hence the distribution for secondary is considered relative between 4 to over 10 years. As for the respondents who had tertiary as their highest level of education, then 15.4% lived in Darfur for 0 to 3 years, 30.8% lived for 4 to 6 years, 53.8% lived for 7 to 10 years, hence more than half of the respondents who have tertiary level of education have lived in Darfur for between 7 to 10 years. As for the respondents who had degree as their highest level of education, then 44.4% lived in Darfur for 0 to 3 years, 44.4% lived for 4 to 6 years, 11.1% lived for 7 to 10 years, hence this shows that out of the 18 respondents who have degree as their highest level of education quite a majority have lived in Darfur for 6 or less years, thus a possibility that they get education elsewhere apart from Darfur.

Below is a graphical illustration of the table;

Figure 4.5 Education and Time lived in Darfur



Source: Field Data

The next table will show the comparison and between the total respondents who have ever lived in Darfur hence in this case, the total number of respondents will be equal to 66.

Table 4.7 Education level verses the Respondents living in Darfur

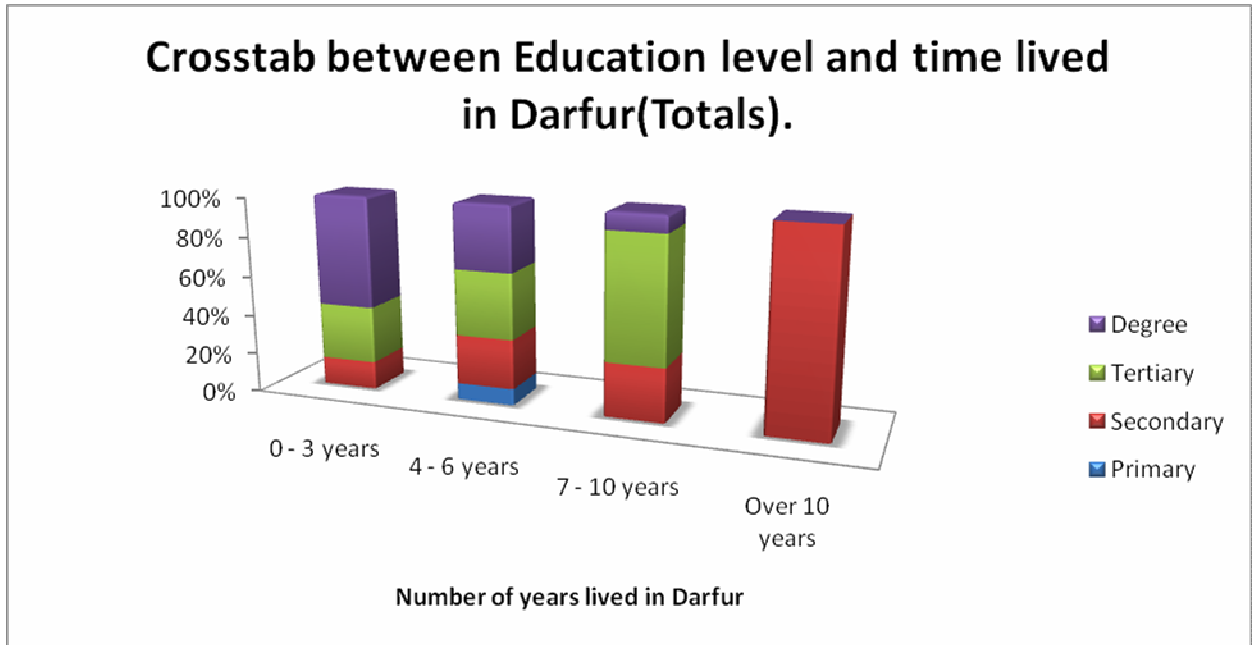
		Highest level of education attained				
		Primary	Secondary	Tertiary	Degree	Total
How long have you lived here?	Total	2	20	26	18	66
	0 - 3 years	.0%	3.0%	6.1%	12.1%	21.2%
	4 - 6 years	3.0%	9.1%	12.1%	12.1%	36.4%
	7 - 10 years	.0%	9.1%	21.2%	3.0%	33.3%
	Over 10 years	.0%	9.1%	.0%	.0%	9.1%

Source: Field Data

Out of the total of 66 respondents the table above shows the respective representative percentage of each level of education against its respective years lived in Darfur, 3% who have lived in Darfur have primary as their highest level of education and have lived in Darfur for 4 to 6 years. As for those who have secondary as their highest level of education, their distribution is relative even as we analyze the general number of respondent hence out of the general respondents who have lived in Darfur for 4 to 6 years similar to 7 to 10 years same as over 10 years all of them have 9.1% who have completed secondary as their highest level of education. As for those who have stayed in Darfur for 7 to 10 years and have tertiary as their highest level of education they have the highest percentage generally which is 21.2%. this implies that to some extent it can be shown that education level is affected with the duration one have stayed in Darfur since considering the total percentages then those who have lived in Darfur for over 10 years have only secondary as their highest level of education.

A graphical representation to demonstrate it better is shown below;

Figure 4.6 Education Level and Time lived in Darfur



Source: Field Data

4.1.5 Crosstab between Education level and sex,

Comparing different gender with the highest education level attained will give us the following crosstab table. This was important in the research because different gender have different ways in which they perceive Conflicts and how they are affected with the conflicts. The table below shows how our respondents are distributed as per gender in terms of education level.

Table 4.8 Highest level of Education and Gender of Residents of Darfur

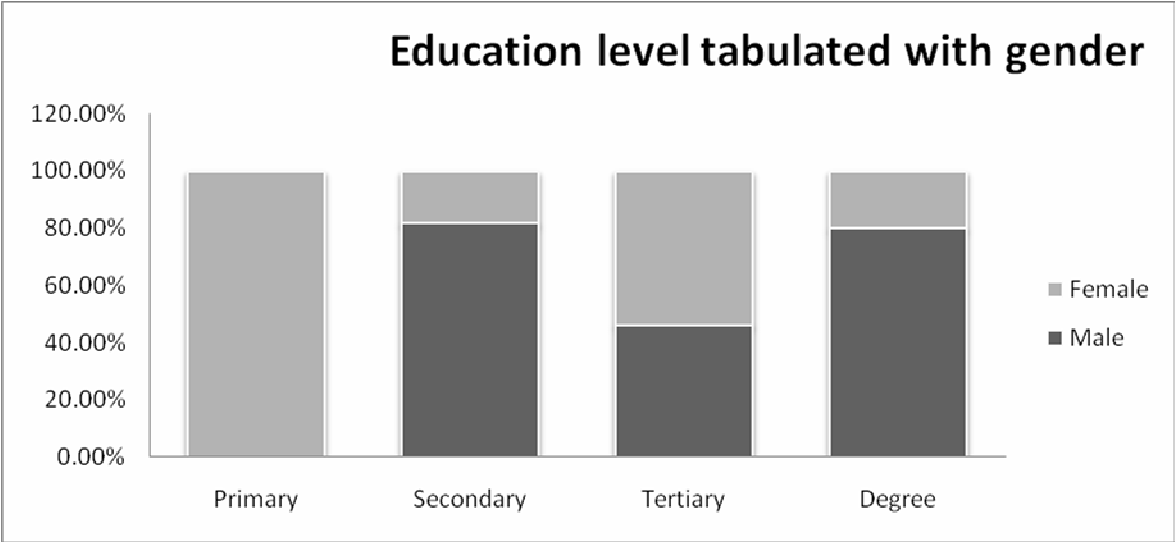
		Highest level of education attained				Total
		Primary	Secondary	Tertiary	Degree	
Sex	Male	.0%	81.8%	46.2%	80.0%	65.7%
	Female	100.0%	18.2%	53.8%	20.0%	34.3%
	Total	2	22	26	20	70

Source: Field Data

The table above shows that out of the total of 2 respondents who answered that their highest education level is primary then 100% of them are female hence there were only female respondents who did not go past primary level of education. Out of the 22 respondents who have secondary as their highest level of education, 81.8% of them were male and 18.2% were female, this shows us that the number of male respondents who had secondary as their highest education level is higher than female. But for the Tertiary level we had a different summary since out of the total of 26 respondents who had tertiary as their highest level of education, 53.8% were female while 46.2% of the respondents were male. As for the 20 respondents who had degree as their highest level of education the distribution was that 80% were male while 20% were female.

The data can be represented in graph as shown below, showing the different levels of at which the respondents are distributed in terms of education and gender;

Figure 4.7 Education Level and Gender



Source: Field Data

4.1.6 Climate change effect to conflict

As for the question whether the respondents knew whether climate change contributes to conflict, below are the response frequency table;

Table 4.9 Contribution of Climate Change to Conflict

Do you think Climate Change contributes to Conflict?	Total	70 100.0%
	Yes	47 67.1%
	No	23 32.9%

Source: Field Data

Out of the total 70 respondents, a total of 47 responded that they think that climate change contributes conflict. This represents 67.1% of the total respondent which is relatively higher than the 32.9% who responded that they don't think climate contributes to conflict.

The pie chart below shows the responses as per the table above

Figure 4.8 Darfur residents response on Climate Change effects to Conflict



Source: Field Data

A crosstab analysis of those who have ever been to Darfur with the responses towards if they think if climate change contributes to conflict is shown below;

Table 4.10 Darfur Residents knowledge on Climate Change

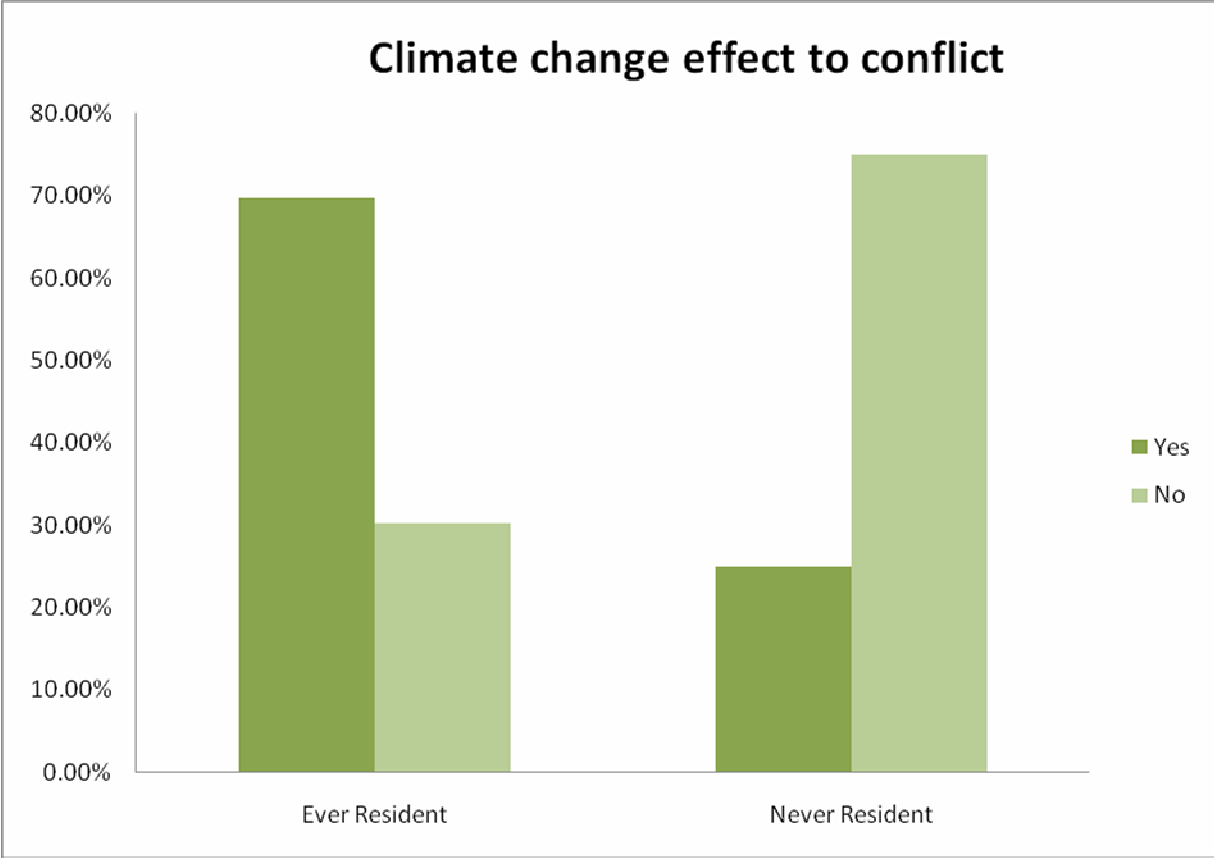
		Have you ever been a resident of Darfur?	
		Yes	No
Do you think Climate Change contributes to Conflict?	Total	66	4
	Yes	69.7%	25.0%
	No	30.3%	75.0%

Source: Field Data

Out of those who responded that they are residents of Darfur, 69.7% agreed that climate change contributes to conflicts in Darfur, and only 30.3% agreed otherwise hence this shows us that as a matter of fact that the residents of Darfur thinks that climate change affects or can be a cause of conflict since they have a higher percentage of acceptance to this that those who do not think it affects actually.

A bar graph showing how the two are compared is shown below;

Figure 4.9 Climate Change effect to Conflict



4.1.7 Climate Change contribution on Conflict;

As for the 47 respondents who answered yes for the question whether climate change contributes to conflict, then they answered the following summarized responses as per the reasons why they thought that climate change contributes to conflict;

Table 4.11 Issues that contribute to climate change

How Climate Change contributes to Conflict on the following issues	
	Yes
Scasity of resources deu to climate change	28.6%
Competition deu to resource constrain	15.9%
Leads to change in economic activity	15.9%
Leads to change in demand or production	7.9%
Leads to migration of people	7.9%
Leads to deplotion of resources	6.3%
Leads to natural disasters	6.3%
Harsh conditions deu to climate change	4.8%
Leads or promotes crime	3.2%
Strain in available resources	3.2%

Out of the responses, 28.6% of the responses showed that due to climate change results to scarcity of resources, which were initially available and hence due to the scarcity then they will always tend to conflict over the access and control for the few available resources. 15.9% of the responses showed that due to change in climate then there will be allot of competition for available resources since most of the resources will either be distinct or will be held by a few individuals leading to resource constrain and competition hence leading to conflict. Still, 15.9% of the responses given implied that due to climate change then it will lead to many people changing their economic activity/ This implies that many people will change their economic dependability means of earning a living and divert to a different mean just to both cope up with the changing climate and to still afford to sustain himself in terms of income, hence due to this there

may arise to conflict from different people engaging in similar economic activities. 7.9% of the respondents explained that it will change in demand or production. This implies that once climate has changed then the demand too will change from the initial demand to a new demand depending on what have been affected most, for example, if the people in Darfur were dependent on agriculture then a dry season hits them, then most of them will not be productive in farming anymore hence this will impact on the demand of agricultural products which will go up.

The same percentage (7.9%) also thought that climate change will lead to migration of people from one area to another. This may be perhaps for search of greener pastures for the pastoralist communities living in Darfur or even due to resource extortion from where they were initially. Because of this, then there may rise conflict between two communities either the migrants or the residents, or the agriculturalists verses the pastoralists. 6.3% had an opinion that climate change will lead to depletion of resources and the same percentage had an opinion that it would leads to natural disasters. This implies that since climate change will have a direct impact on the environment then with human activity increasing like farming and industrialization, then both will lead to resource reduction, and natural disasters will be triggered, for example, droughts may be as a result of a forestation as human beings seek to clear land for construction and farming. 4.8% believed that harsh conditions due to climate change are contributing towards conflict and 3.2% believed that due to climate change, people will get involved in crime since mostly because their productivity mode is affected by the climate change hence people will tend to engage in criminal activities for survival.

An analysis of the extent at which the given factors contribute to conflict in Darfur can be shown below;

Table 4.12 Extent of given factors contribution to conflict in Darfur through climate change

Population Growth	To a Great Extent	22.9%
	Greatly	28.6%
	Moderately	31.4%
	Poor	17.1%
	Total	70
Resources eg. Water, Pasture	To a Great Extent	57.1%
	Greatly	31.4%
	Moderately	11.4%
	Total	70
Human Activities eg Deforestation, Farming	To a Great Extent	57.1%
	Greatly	31.4%
	Moderately	11.4%
	Total	70
Religion	To a Great Extent	82.9%
	Greatly	14.3%
	Poor	2.9%
	Total	70
Politics	To a Great Extent	94.3%
	Greatly	5.7%
	Total	70
Marginalization	To a Great Extent	97.1%
	Greatly	2.9%
	Total	70
Ethnicity	To a Great Extent	51.4%
	Greatly	40.0%
	Moderately	5.7%
	Poor	2.9%
	Total	70

As per the analysis, the extent at which population growth contribute to conflict can be seen to be Moderate since 31.4% of the respondents rated it as moderate while 28.6% rated population growth that it has contributed to conflict in Darfur Greatly and 22.9% rated it as to a greater extent. Finally 17.1% rated it as poor or Population growth does not affect the conflict at Darfur so much.

As for Human activity, more than half the respondents thought it contributes to the conflict to a greater extent. This is represented by 57.1% who rated it as to a greater extent. 31.4% ranked it as greatly while 11.4% ranked it as moderately. As for religion, 82.9% ranked religion as a factor which contributed to the conflict in Darfur to a great extent, 14.3% ranked it as Greatly affecting and 2.9% ranked it as poorly affecting. 94.3% ranked politics as contributing to the Darfur conflict to a greater extent and the remaining 5.7% ranked greatly that politics contributes to the conflict in Darfur. 97.1% ranked marginalization contributed to the conflict in Darfur to a greater extent and only 2.9% ranked it Greatly. As for ethnicity as a factor contributing to the conflict in Darfur, 51.4% rated it as to a greater extend, 40% rated it greatly, 5.7% rated moderately, and 2.9% rated ethnicity as poor.

With this analysis, the respondents seemed to show that the factors given contributed much towards the conflict in Darfur since most of the factors had the the top two rank that is to a greater extent and Greatly as the highest percentage. Crosstab the different extends at which the respondents gave in how they think they contributed to the conflict in Darfur and the response if they believe climate change contributes to conflict gave the following findings;

Table 4.13 The extent of Contribution of Climate Change on given issues

		Do you think Climate Change contributes to Conflict?		
		Yes	No	Total
Population Growth	Total	47	23	70
	To a Great Extent	31.9%	4.3%	22.9%
	Greatly	34.0%	17.4%	28.6%
	Moderately	21.3%	52.2%	31.4%
	Poor	12.8%	26.1%	17.1%
Resources eg. Water, Pasture	Total	47	23	70
	To a Great Extent	76.6%	17.4%	57.1%
	Greatly	12.8%	69.6%	31.4%
	Moderately	10.6%	13.0%	11.4%
Human Activities eg Deforestation, Farming	Total	47	23	70
	To a Great Extent	68.1%	34.8%	57.1%
	Greatly	21.3%	52.2%	31.4%
	Moderately	10.6%	13.0%	11.4%
Religion	Total	47	23	70
	To a Great Extent	78.7%	91.3%	82.9%
	Greatly	17.0%	8.7%	14.3%
	Poor	4.3%	.0%	2.9%
Politics	Total	47	23	70
	To a Great Extent	91.5%	100.0%	94.3%
	Greatly	8.5%	.0%	5.7%
Marginalization	Total	47	23	70
	To a Great Extent	95.7%	100.0%	97.1%
	Greatly	4.3%	.0%	2.9%
Ethnicity	Total	47	23	70
	To a Great Extent	44.7%	65.2%	51.4%
	Greatly	46.8%	26.1%	40.0%
	Moderately	4.3%	8.7%	5.7%
	Poor	4.3%	.0%	2.9%

It can be shown from the data gathered that; for Population growth, those who did not think that climate change contributes to conflict had a high percentage or rather ranked it as a moderate and poor factor with the two taking 52.2% and 26.1% respectively, this can be seen to be different with the ones who accepted that the climate

change contributes to conflict where they ranked to a great extend and greatly higher with the two taking 31.9% and 34% respectively.

As for Religion as a factor contributing to conflict in Darfur, the respondents who answered no to the question whether climate change contribute to conflict, 91.3% ranked to a greater extend, as for Politics and Marginalization 100% ranked them as affecting to a great extend, as for ethnicity 65.2% raked it as affecting or contributing to the conflict in Darfur to a biger extend. This shows that they believe that the factors contributing to the conflict are in a way not caused by environmental impacts alone but mostly human issues.

As for the extent at which the respondent thought that Population growth, Resources, Human activities and Industrilaization are causes of climate change that result to conflict, then summarizing the ranking can be done as shown in the table below,

Table 4.14 Extent at which issues cause climate change that result to conflict

Industrialization	Total	70
	To a Great Extent	60.0%
	Greatly	22.9%
	Average	17.1%
	Poor	11.4%
Resources eg. Water, Pasture	Total	70
	To a Great Extent	62.9%
	Greatly	31.4%
	Average	5.7%
Human Activities	Total	70
	To a Great Extent	68.6%
	Greatly	28.6%
	Average	2.9%

As for population growth as a factor, 54.3% ranked it at the Greatly level while 14.3% ranked it at to a greater extend level, 20% ranked it at average level and 11.4% ranked it as a poor factor. Comparing this with the factors influence in conflict in Darfur will show us that the respondents think that Population growth affects conflict in a greater level since the two analysis show the high rankings being Moderately and Greatly. As for resources as a factor, 62.9% ranked it as a factor to a greater extent, while 31.4% ranked it at the Greatly level and 5.7% ranked it at average level. Comparing this with the factors influence in conflict in Darfur will show us that the respondents think that resources affects conflict in to a greater level since the two analysis show the high rankings being to a greater extend.

As for human activity as a factor, 68.6% ranked it at to a greater extend level while 28.6% ranked it at the Greatly level and 2.9% ranked it at average level. Comparing this with the factors influence in conflict in Darfur will show us that the respondents think that human activity affects conflict to a greater level since the two analysis show the high rankings being to a greater extend.

Generally 60% of the respondents ranked Industrialization to be affecting climate change to a great extend and result to conflict, 22.9% and 17.1% ranked Industrialization to be affecting in Greatly and Average manner. A comparison between the extents to which the issues are the cause of climate change that result to conflict and if climate change contribute to conflict can be shown below

Table 4.15 Issues that cause climate change

		Do you think Climate Change contributes to Conflict?	
		Yes	No
Population Growth	Total	47	23
	To a Great Extent	21.3%	.0%
	Greatly	48.9%	65.2%
	Average	17.0%	26.1%
	Poor	12.8%	8.7%
Resources eg. Water, Pasture	Total	47	23
	To a Great Extent	70.2%	47.8%
	Greatly	25.5%	43.5%
	Average	4.3%	8.7%
Human Activities	Total	47	23
	To a Great Extent	66.0%	73.9%
	Greatly	29.8%	26.1%
	Average	4.3%	.0%
Industrialization	Total	47	23
	To a Great Extent	61.7%	56.5%
	Greatly	17.0%	34.8%
	Average	21.3%	8.7%

It can be shown that for those who don't think that climate change contributes to conflict then they ranked population growth as a issue which causes climate change as a Greatly factor having 65.2% while only 26.1% ranked it at Average and 8.7% ranking it poor.

This is relative for both the ones who think climate change contributes to conflict and those who don't think so since both of them have Greatly as their top ranks.

4.2 How population growth been a major factor in accelerating climate change;

For the question about population growth effect on the following issues; Depletion of Resources, Increase of human activities, Resource Strain, Demographical Change.

The following are the responses tally;

Table 4.16 Population Growth in contributing to climate change

Depletion of Resources like Forests	Total	70
	Yes	94.3%
	No	5.7%
Increase of human activities like Farming, Mining	Total	70
	Yes	88.6%
	No	11.4%
Resource Strain	Total	70
	Yes	100.0%
Demographical Change	Total	70
	Yes	97.1%
	No	2.9%

94.3% said yes that population growth indeed is a factor in accelerating change on Depletion of Resources and 5.7% said they don't think that population growth indeed is a factor in accelerating change on Depletion of Resources. Hence it is seen that quite a number agree that indeed population growth is an acceleration towards depletion of resource.

88.6% said yes that population growth indeed is a factor in accelerating change on Increase of human activities and 11.4% said they don't think that population growth indeed is a factor in accelerating change on Increase of human activities. Hence it is seen that quite a number agree that indeed population growth is an acceleration towards Increase of human activities. 100% said yes that population growth indeed is a factor in

accelerating change on Resource Strain, hence it is seen that quite a number agree that indeed population growth is an acceleration towards Resource Strain.

97.1% agreed that population growth indeed is a major factor in accelerating climate change change. 2.9% said they do not think that population growth indeed is a factor in accelerating Demographical Change through migration. It was concluded that quite a number agree that indeed population growth is an acceleration towards Demographical Change.

For an elaborate explanation of the responses given above, the summary responses can be gives as shown in the table below;

Table 4.17 Reasons for Polulation growth contribution to climate change

Briefly Explain below	Total	70
	Population growth leads to scarcity of resources	30.20%
	Exploitation of natural resources	17.50%
	Increase in dependency of natural resources for livelihood	12.70%
	Deforestation due to demand of more land	11.10%
	Misuse of natural resources	9.50%
	Some means of production affect the environment	7.90%
	Migration of people leads to strain in resources	6.30%
	Form of energy consumption i.e use of firewood	1.60%
	More employment demand due to increase in population	1.60%
	Ignorance towards environmental factors	1.60%

30.2% gave their response because they thought population growth leads to scarcity of resources and 17.5% thought that population growth will lead to exploitation of natural resources since there will be more people interested in exploration due to economy constrain introduced by the population growth in order for them to meet their basic needs. 12.7% explained that it will lead to Increase in dependency of natural resources for livelihood.

4.3 The extent at which Darfur conflict have impacted on the following issues;

The question about the respondent opinion on the extent Darfur conflict have impacted on the given factors, its analysis is shown below;

Table 4.18 Impact of the Conflict

Insecurity	Total	70
	To a Great Extent	94.3%
	Greatly	5.7%
Destruction and loss of public infrastructure	Total	70
	To a Great Extent	82.9%
	Greatly	14.3%
	Average	2.9%
Environmental degradation	Total	70
	To a Great Extent	51.4%
	Greatly	45.7%
	Average	2.9%
Erosion & politicization of the tribal administration Systems	Total	70
	To a Great Extent	71.4%
	Greatly	22.9%
	Poor	5.7%
Marginalization within Darfur - Inequitable access to available resources	Total	70
	To a Great Extent	82.9%
	Greatly	17.1%
Market restrictions and the war economy- restrictive policies e.g. border closure, restrictions on movement or access to markets	Total	70
	To a Great Extent	60.0%
	Greatly	31.4%

	Average	8.6%
Land occupation, grazing and rent seeking	Total	70
	To a Great Extent	42.9%
	Greatly	42.9%
	Average	14.3%

94.3% rated the Darfur conflict to have impacted to a greater extent on Insecurity while 5.7% rated that it has impacted in a greater extent, hence it shows that many respondents feel that the conflict have impacted alot on insecurity. 82.9% rated Darfur conflict to have impacted to a greater extent. On the Destruction and loss of public infrastructure, 14.3% rated that it have impacted in a greater extent while 2.9% rated Average as the extend it have impacted on Destruction and loss of public infrastructure, hence it shows that many respondents feel that the conflict have impacted on Destruction and loss of public infrastructure to a great extent.

51.4% rated Darfur conflict to have impacted to a greater extent to environmental degradation, 45.7% rated that it have impacted in a greater extent while 2.9% rated Average as the extend it have impacted on Environmental degradation, hence it shows that many respondents feel that the conflict have impacted to a great extent on Environmental degradation. 71.4% rated Darfur conflict to have impacted to a greater Extent on erosion & politicization of the tribal administration Systems. 22.9% rated that it have impacted in a greater extent while 5.7% rated poor as the extent it has impacted on erosion & politicization of the tribal administration systems, hence this shows that many respondents felt that the conflict had impacted erosion & politicization of the tribal administration systems.

82.9% rated Darfur conflict to have impacted to a greater extent on marginalization in Darfur, while 17.1% rated that it have impacted in a greater extent

hence it shows that many respondents feel that the conflict has accelerated marginalization within Darfur to a great extent. 60.0% rated Darfur conflict to have impacted to a greater extent on market restrictions and has resulted to the war economy restrictive policies. 31.4% rated that it impacted in a greater extent while 8.6% rated average as the extent it impacted on market restrictions and the war economy-restrictive policies, hence it shows that many respondents feel that the conflict has impacted on market restrictions and the war economy-restrictive policies to a great extent. 42.9% of the respondents rated Darfur conflict to have impacted to a greater extent on Land occupation, grazing and rent seeking, 42.9% rated that it have impacted in a greater extent, while 14.3% rated average as the extent it had impacted on Land occupation, grazing and rent seeking policies and hence this shows that many respondents feel that the conflict has impacted on Land occupation, grazing and rent seeking to a great extent and greatly.

From the findings of this research, Darfur provides a case study of how existing marginal situations can be exacerbated beyond the tipping point by climate related factors such as population growth and human activities. It also shows how lack of essential resources threatens not only individuals and their communities but also the region and the international community at large. The scale of historical climate change, as recorded in Northern Darfur, is almost unprecedented: the reduction in rainfall as a result of climate change has turned millions of hectares of already marginal semi desert grazing land into desert. The impact of climate change is considered to be directly related to the conflict in the region, as desertification has added significantly to the stress on the livelihoods of pastoralist societies, forcing them to move south to find

pasture. In a nut shell, the conflict in Darfur has been driven by climate change and environmental degradation, which threaten to trigger a succession of new wars across Africa unless more is done to contain the damage.

5.0 CHAPTER FIVE

5.1 Summary

In the first chapter, the study starts by identifying the problem to be researched on which is; climate change and conflict. The problem gives a guide on the research objectives which help to lead the research study. Closely related are the research hypothesis which aids the researcher to focus on the link between climate change and the Darfur conflict. The relevance of the study is identified that will aid in linking the climate change effects to conflicts due to reasons such as rise in Human Population and increase of human activities that result to resource scarcity and thus conflicts over access and control of the scarce resources. This chapter clearly shows that not much has been done on trying to dig out the means how climate change can result to conflict in spite of the great threat of conflicts that will arise in future as a result of climate change. The study adopted the neo Malthusian Theory that argues that population growth will exceed resource growth and thus resources will end up being scarce as a result of them being depleted by the rising populations to meet their needs. The main proponent of this theory is Thomas Malthus.

Chapter two focused on the definition of concepts and a correlation of climate change and conflict. It identifies the main causes of climate change and how it eventually results to conflicts through the impact of the climate changes. Chapter three looks at the impact of the Conflict in Darfur. It looks at the several ways in which the locals of Darfur have been affected by the conflict in one way or the other. Chapter four covers the critical analysis of the research findings from the field on various aspects of the conflict. Chapter five give the Summary, Conclusion and recommendations.

5.2 Summary of Findings

The total numbers of respondents who successfully filled and completed the questionnaires to the required satisfaction of the research were 70 who comprised 100%. Out of the total sample size of 70 that were interviewed, 46 were Male representing 65.71% of the total; the remaining 24 were female representing 34.29% of the total sample size. The study also benefitted from getting respondents with high literacy levels hence giving the researcher confidence in the responses acquired. All the respondents had obtained at least Secondary Level of education; however, none of the respondents had obtained an PhD. All the respondents had enough knowledge on climate change and conflicts.

Based on the analysis, the findings have indicated that indeed population growth and human activities have contributed to climate change that has led to conflicts. The conflicts have tended to take a resource dimension where the people tend to conflict over the access and control of the scarce resources like water for their agricultural and pastoral use. Men and women also have different ways of perceiving conflicts and from the findings; women are the most affected with the conflicts. Furthermore, the research found out that the higher the education level, the higher the knowledge on climate change and conflicts. Again, the people that had the highest level of education had stayed in Darfur the shortest periods. With women having the lowest level of education, they had little or no understanding for climate change despite knowing the effects of conflicts.

5.3 Conclusion

Climate change effects are increasingly becoming evident everywhere and the international community is getting down to brass tacks to establish a successor treaty to the Kyoto Protocol. The envisaged international treaty is unlikely to hold water, should the principal carbon emitters shun or not join it. Akin to the Kyoto Protocol, the intended international treaty on climate change might not live to our expectations if key emitters are not to be covered. Climate change as a global phenomenon seeks effective international response or proactive engagement. In eliminating carbon emissions countries may have to slash the main sources of carbon emissions, primarily the driving forces of economic growth and development through industrialization.

The climate change blame game we have seen during the previous years between and among countries should not overshadow negotiations and positive decisions leading to the 2015 pact. Equally important, these countries should not attempt to sway the international community's decisions in their favour; it would be an injustice to other less affluent countries adversely affected by climate change such as Sudan. The adherence to the International treaty will compel other countries to reduce their carbon emissions and exhibit their leadership qualities by taking the initiative in spearheading climate change mitigation efforts. Decisions as to whether a climate change response is necessary should include consideration of legislative frameworks including hazard management responsibilities, liability and existing use right considerations; community expectations for the present and the future, and the relative costs and risks of delaying action. A

distinguishing feature of climate change related risks is that the underlying risks themselves change over time. It is important to consider whether future generations will be in a position to adequately address these changing risks if the present generation defers action.

5.4 Recommendations

In light of countless climatic catastrophes, public awareness on climate change repercussions seems to have peaked. Extreme weather events continue to ravage the rich and powerful countries; the poor and weak countries, with the largest segment of the world's population remain utterly the most susceptible. From a layman's perspective, every destructive climate event owes its occurrence to climate change. Most of the people interviewed in Darfur argued that climate change is not responsible for droughts. This can be attributed to low levels of awareness. No one continent is immune from climate change effects.

Developing and less affluent countries are at risk because climate change related conflicts come with utter destruction of property and extensive loss of life among other impacts. Africa ravaged by conflict simply cannot afford to be plagued by severe weather events. Action against climate change must not continue to be deferred; damage caused to the atmosphere is irreversible. This is why this study recommends that an Integrate and coordinate approach where Adaptation activities need to be implemented in an integrated way and take a long-term view, rather than involving short-term. There is also a clear need for a national sustainable development strategy to implement the activities and target all the interests and recommendations in the National Action Plan on

Desertification, the National Biodiversity Action Programme (NBSAP) and the National Adaptation Programme of Action (NAPA). All these plans contain many activities that could have significant positive impacts on the country's natural resources. There are many synergies between these programmes, and they could be integrated in a comprehensive manner for greater effect. It is also important to ensure co ordination amongst institutions working on environmental issues like agriculture, water and physical planning.

Secondly, the Government and the relevant institutions should take a bottom-up approach by working with vulnerable communities at the local level. This is very important and can generate valuable lessons, not only for adaptation success but also for sharing knowledge and experiences with vulnerable communities within and outside Darfur. This approach is likely to raise a lot of recommendations, particularly on the policies and institutions required to curb effects of climate change. Practical experiences from local communities in Sudan reveal the value of a bottom-up approach for sharing decisions and prioritizing needs. For example, in western Sudan studies showed that local institutions like traditional administration and the NGOs can give a lot of support to adaptation projects. Involving such institutions gives local communities a sense of ownership of a project and a greater stake in ensuring it succeeds.

Thirdly, it is important to ensure the effective participation of women in projects that target adaptation to climate change. As earlier noted, women and children are the greatest casualties of the conflicts because of their vulnerability and other challenges such as cultural and religious ones. Besides, they make the largest in Darfur's

population. Integrating them will ensure that they are more prepared for any eventuality and can sustain any kind of risk that results from conflict.

Fourthly, the government, NGOs and all agencies concerned should establish monitoring and early warning systems. The impact of climate related disasters is very high, thus, the provision of timely early warning by the Meteorological Authority in Darfur could help reduce these impacts.

Fifthly, the authorities in Sudan and particularly in Darfur should make land use laws consistent with customary laws. Current land use policies allocate land to various development projects, even when that land has already been allocated to tribes by customary laws. This is likely to aggravate resource conflicts tribes will be forced to compete for shrinking resources which are already affected by extreme weather events.

Sixthly, Education is an essential element of the global response to climate change. There is dire need to educate the people of Darfur and Sudan at large on Climate Change and its relation to conflict. From the field assessment, a lot of people there were clueless what climate change was all about. The government there also needs to invest in formal education because majority of the respondents could hardly read and write. Education will help the people there to understand and address the impact of climate change, encourages changes in their attitudes and behaviour and helps them adapt to climate change related trends. UNESCO is already making an effort through its Climate Change Education for Sustainable Development programme. Through this programme, UNESCO aims to make climate change education a more central and visible part of the international response to climate change. The programme aims to help people understand the impact of global warming today and increase climate literacy among young people. It

does this by strengthening the capacity of its Member States to provide quality climate change education; encouraging innovative teaching approaches to integrate climate change education in school and by raising awareness about climate change as well as enhancing non-formal education programmes through media, networking and partnerships.

Finally, Sudan needs to uphold the International treaties such as the Kyoto Protocol. They must continue to form the legal basis for emission reduction commitments beyond 2012 and be ready to stand against all attempts by developed countries to dismantle the Kyoto Protocol, which is the only instrument we have for developed countries to take the lead in cutting their increasing emissions that cause climate change.

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APPENDIX ONE

QUESTIONNAIRE

INSTRUCTIONS.

This questionnaire is designed to facilitate the assessment of the current situation of **how the effects of Climate Change have contributed to the conflict in Darfur-Sudan**. The information collected will be used for academic purpose only and will be treated with utmost confidence. To enable an accurate assessment, it is important that all information requested in the questionnaire be provided as completely and as accurately as possible.

(Please answer all questions honestly and exhaustively by ticking (✓) in the appropriate box that closely matches your view or alternatively writing in the spaces provided where necessary)

PART A: General information.

A. Occupation.....
.....

B. Sex Male [] Female []

C. Highest level of education attained:

Primary [] Masters []

Secondary [] PhD []

Tertiary []

Other.....

Degree []

D. Have you ever been a resident of Darfur? Yes [] No []

E. If Yes, how long have you lived here?

0 – 3 years []

4 – 6 years []

7 – 10 years []

Over 10 years []

PART B: ISSUES OF CLIMATE CHANGE

1. Do you think Climate Change contributes to Conflict?

Yes []

No []

If Yes, Briefly explain your answer:

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

2. To what extent do you think the following factors have contributed to the Conflict in Darfur? *(Tick where appropriate)*

		EXTENT			
	FACTORS	To a Great Extent	Greatly	Moderately	Poor
	Population Growth				
	Resources eg. Water, Pasture				
	Human Activities eg Deforestation, Farming				
	Religion				
	Politics				
	Marginalization				
	Ethnicity				

3. To what extent do you think the following issues are the cause of Climate Change that results to conflict?

		EXTENT			
	FACTORS	To a Great Extent	Greatly	Average	Poor

		Extent			
	Population Growth				
1	Resources eg. Water, Pasture				
1	Human Activities				
4	Industrialization				

4. In your own opinion, do you think the climate change debate is valid?

Yes []

No []

Briefly explain how

.....

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PART B: POPULATION GROWTH

5. Do you think population growth has been a factor in accelerating climate change on the following issues?

	POPULATION GROWTH	YES	NO
1	Depletion of Resources like Forests		
2	Increase of human activities like Farming, Mining		
3	Resource Strain		
4	Demographical Change		

6. Briefly Explain below

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PART C: IMPACT OF DARFUR CONFLICT.

7. In your own opinion, to what extent has the Darfur Conflict impacted on the following?

(MARK where appropriate)

		EXTENT			
	FACTORS	Great Extent	Greatly	Average	Poor
	Insecurity				
1	Destruction and loss of public infrastructure				
1	Environmental degradation				
4	Erosion & politicization of the tribal administration Systems.				
1	Marginalization within Darfur – Inequitable access to available resources.				
6	Market restrictions and the				

	war economy–restrictive policies e.g. border closure, restrictions on movement or access to markets				
	Land occupation, grazing and rent seeking				

THANK YOU FOR YOUR CORPORATION