THE ROLE OF REGIONAL ORGANIZATION IN ADDRESSING CLIMATE CHANGE AS AN EMERGING SECURITY THREAT IN AFRICA: A CASE STUDY OF IGAD

MUTEGI AGABIO MUTEMBEI
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DECLARATION

This research project is my original work and has not been submitted for the award of a degree to any other university

…….. **……**

Agabio M. Mutegi **Date**

This research project has been submitted for examination with my approval as the university supervisors

……. **……**

Prof. Maria Nzomo **Date**

……. **……**

Mr. Martin Nguru **Date**

DEDICATION

To my parents and particularly my mother Nasarena Ukima Mutegi for the pillar she has been in my life. To all climate change campaigners and foot soldiers who continue to champion the climate change agenda against all odds, not least, a parallel campaign to deny the existence of climate change, and this, notwithstanding the its impacts which are so real and potentially devastating in our time.

ABSTRACT

There is growing evidence that climate change will have severe consequences on the lives and livelihoods of millions of people around the world. And these impacts are arriving faster than many climate scientists predicted. As science has revealed the speed and scope of climate change, the world has begun to realize that it holds potentially serious implications for international security. Some analysts have labeled it the 'mother of all security problems'. A 2007 report by UNEP warned of "a succession of new wars across Africa" unless more is done to contain the danger of climate change. Yet the world's efforts to date fall short. Through the primary forum for negotiating global efforts to address climate change, the UNFCCC, countries are delivering modest progress at a pace that many commentators consider too slow. The need for solutions that can catalyze efforts to address climate change is combined today with a need to answer the question of which avenues offer the greatest promise of moving countries forward. Regional institutions such as the IGAD have acquired a substantive role in peace and security affairs in various parts of the world and have already attained a level of effectiveness in this area. The study seeks to investigate whether emphasis on regional organizations can give rise to better cooperation among countries within the current and future governance for climate change to address the climate change-security nexus. It will assess the relationship between climate change and security in the IGAD region and identity the challenges and capacity of the IGAD in managing the adverse effects of climate change to ensure they do not become security threats.

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ACRONYMS

ACMAD	African Centre of Meteorological Application for Development,
AMESD	African Monitoring of the Environment for Sustainable Development
ASAL	Arid and Semi-Arid Lands
AU	African Union
CAADP	Comprehensive Africa Agriculture Development Programme
CBD	United Nations Convention on Biological Diversity
CO2	Carbon Dioxide
COMESA	Common Market for East and Southern Africa
DfID	Department for International Development
DMCN	Drought Monitoring Centre
EAC	East Africa Community
EC	European Commission
EIT	Economies In Transition
FAO	Food and Agriculture Organization
GEF	Global Environmental Facility
GHACOF	Greater Horn of Africa countries
GHG	Green House Gases
ICPAC	IGAD Climate Prediction and Application Centre
ICRAF	International Center for Research in Agroforestry
IGAD	Inter Governmental Authority on Development
IGADD	Intergovernmental Authority on Drought and Development

IPCC	Intergovernmental Panel on Climate Change
LULUCF	Land use, land-use change and forestry
MDG	Millennium Development Goals
MEAs	Multilateral Environmental Agreements
NMHS	National Meteorological and/ or Hydrological Services
NEPAD	New Partnership for Africa's Development
OCHA	UN Office for the Coordination of Humanitarian Affairs
OECD	Organisation for Economic Co-operation and Development
ProBEC	Programme for Basic Energy and Conservation
RECs	Regional Economic Communities
REDD	Reduced Emissions from Deforestation and Forest Degradation
SADC	Southern Africa Development Community
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UN-HABITAT	United Nations Human Settlements Programme
WB	World Bank
WBGU	German Advisory Council on Global Change
WMO	World Meteorological Organization
WWF	Worldwide Fund for Nature

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CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Background to the Study

Climate change represents the latest in a series of environmental drivers of human conflict that have been identified in recent decades.[1] There is now a significant body of research that demonstrates that climate change is and will increasingly have dramatic impacts on ecological and social systems that support human well being and such impacts have been defined as a threat to 'security'.[2] Political momentum behind the idea of climate change as a security threat has also progressed quickly, even reaching the United Nations Security Council. In February 2013, the Council met for the third time in UN history to discuss the subject of climate change. Even the global theme for Earth Day 2013 is "The Face of Climate Change," a recognition of the enormity of the impacts of climate change around the world.[3] Yet judging from the early signals of the 2011 United Nations Framework Convention for Climate Change (UNFCC) negotiations in Durban the future of the global efforts to address climate change still remains uncertain.[4]

Africa, though the continent least responsible for greenhouse gas emissions is seen as the most vulnerable to climate change because of its heavy dependence on climate-sensitive

[1] Homer-Dixon T.,' On The Threshold: Environmental Changes As Causes Of Acute Conflict', *International Security* 16:2, 1991, Pp. 76–116;
[2] Barnett, J. (2003). Security And Climate Change, *Global Environmental Change*, 13, 7-17.
[3] http://Earthday.Org/2013
[4] Bodansky D. & Rajamani L., Evolution And Governance Architecture Forthcoming In International Relations And Global Climate Change

economic sectors (such as crop and livestock farming) and low adaptive capacity.[5] The risk is most acute in those countries or regions which combine environmental fragility – be it arid land vulnerable to drought or low-lying land vulnerable to flooding– with fragile governance and security. Graham observes that the "IGAD Region" is one such region, with a good number of member countries experiencing or having experienced inter-community conflicts, largely driven by resources scarcity, management, allocation or accessibility.[6] For example, a UNEP report in 2007 suggested that the conflict in Darfur has in part been driven by climate change and its interaction with triggers of violent conflict.[7]

In the midst of faltering global climate regime, the enormity of the climate challenge calls for bold thinking and determined action to consider practical solutions. In Africa for example**,** sub regional organizations and regional economic communities have acquired a substantive role in peace and security affairs and over the last decade have achieved a good measure of success in dealing with traditional transnational security threats involving armed conflict, small arms and light weapons, peacemaking and conflict prevention, peacekeeping and peace building.[8] The IGAD is a good example. Recent events in the 'IGAD region', particularly drawing attention to its role in the Somali and Sudan Peace processes attest to the contribution of regional organizations to peace and security. This study takes advantage of the IGAD experiences in conflict prevention to assess the role of regional organizations in addressing climate change as an emerging security threat in the world. This is taking into account that the region falls within the Horn of Africa which is highly vulnerable to climate change and has in the past three decades

[5] Boko et al., *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change,* (Cambridge: Cambridge University Press, 2007), pp. 433–67 at p. 435.
[6] Fisher S. & Graham T. (2000), Working with conflict: Skills and strategies for action, Responding to Conflict, Birmingham. Cambridge University Press, Cambridge, 18
[7] United Nations Environment Programme, Sudan: post-conflict environmental assessment (Nairobi: UNEP, 2007).
[8] http://www.library.fes.de/pdf-files/iez/global/50186.pdf

been the stage of various violent conflicts, locally as well as on a regional and even international scale.

1.2 Statement of the Research problem

Climate change is among the top five emerging security threats to national and international security in the coming decade, others including transnational crime, nuclear weapons, cyber attacks and biological and chemical weapons.[9] Whereas efforts to confront transnational crime -including terrorism and human trafficking-, nuclear weapons, biological weapons and even cyber crimes are being fought coherently largely driven by the commitment of western countries, the topic of climate change has been hugely politicized.[10] Indeed, there is growing frustration among both climate scientists and activists over the slow pace and weakness of multilateral and unilateral efforts to address climate change. Among the identified security threats, climate change poses the greatest challenge to Africa because the continent is heavily dependent on the natural environment and climate-sensitive economic sectors e.g. crop farming and livestock keeping. Analysts have warned that Africa is the most vulnerable continent in terms of the capacity to cope with the predicted effects of climate change because adaptation mechanisms are weak or uncoordinated. Sub-Saharan Africa in particular, is one of the regions at the risk of insecurity related to water, food, energy, and natural hazards. This will be a major challenge not only for African countries but also for international partners involved in climate change mitigation and adaptation efforts.

Nearly two decades ago, governments adopted the United Nations Framework Convention on Climate Change (UNFCCC) in search for a global solution to the climate

[9] http://www.nationaldefensemagazine.org/Pages/default.aspx
[10] ibid

dilemma.[11] Almost ever since, the primary thrust of the UNFCCC negotiations has been to establish, and then to extend, a legally-binding framework. However, moving the climate change agenda forward multilaterally among the 195 parties to the UNFCCC is proving to be a serious challenge.[12] The lack of progress in UNFCCC negotiations in recent years has led many to question whether the UNFCCC is, in fact, the best and most effective forum for mobilizing a global response to climate change.[13] Hoffman contends that this current approach to negotiating a comprehensive, universal, and legally binding global agreement on climate change is unlikely to succeed.[14] The real question, at any given moment, has been which avenues offer the greatest promise of moving countries forward. Recently, there has been a call to consider the merits of other approaches to dealing with climate change to complement the UNFCCC or outside the global framework, though few studies have been carried on these up to date. The vast majority of the available literature is concentrated on the ongoing climate negotiations within the framework of the UNFCCC and the momentum at the continental levels. But even at the continental level, there are significant challenges. The African Union for example has succeeded in presenting a cohesive African position on climate change but at the regional level effectively managing consensus and divergence remains challenging. In many African countries, a climate policy is non-existent or still in the making. Divergent priorities among African countries threaten the potentials of the AU to wield influence in international climate politics.[15] Yet no country alone can take on the interconnected challenges posed by climate change. The immense and

[11] http://unfccc.int/essential_background/convention/status_of_ratification/items/ 2631.php
[12] http://unfccc.int/essential_background/convention/status_of_ratification/items/ 2631.php.
[13] Victor D., Global Warming Gridlock: Creating More Effective Strategies for Protecting the Planet (New York: Cambridge University Press, 2011.
[14] Hoffmann M., Climate Governance at the Crossroads: Experimenting with a Global Response after Kyoto (New York: Oxford University Press, 2011).
[15]AMCEN, 2011: Addressing Climate Change Challenges in Africa; A Practical Guide Towards Sustainable Development., p199

multidimensional challenge of climate change demands extraordinary ingenuity and cooperation.[16]

Regional economic communities or sub regional organizations such as the IGAD in their constitutive charters have protocols and conventions to tackle transnational challenges and have attained a level of effectiveness when it involves traditional threats including armed conflict, small arms and light weapons, peacemaking and conflict prevention, peacekeeping and peace building.[17] It is therefore reasonable to assume that such a regional body can give rise to better cooperation among member states to confront the security threats posed by climate change. Besides, for a transnational challenge such as climate change, multi-country partnerships become more effective at the sub -regional level among countries that enjoy a shared understanding , local knowledge and experience over a long period of time, and more so in this context, noting the distinctive and disproportionate regional impacts of climate change. Such organizations may then play a key role in implementing mitigation and adaptation policies and programmes whose effectiveness and application eventually determines how climate change moves from being a developmental challenge to presenting a security threat. However, the debate about considering alternative or complementary approaches to dealing with climate change is quite a recent and thus not much attention has been given to the role of sub- continental regional organizations. As the climate change debate increasingly becomes a debate about security and as efforts to break the inertia in the current climate negotiations continue, and given that regional organizations could play a critical role in the on-going efforts especially to adapt to the effects of climate

[16]World Bank, Development and Climate Change. World Development Report 2010. 2010, Washington, D.C.
[17]Kwesi Aning, Africa: Confronting Complex Threats – Coping with Crisis, International Peace Academy Working Paper, New York, IPA, February 2007, 7

change, there is a need to understand their role in any emerging framework of climate action. A better understanding of the basis of their involvement and their relationship with the current and future regime as well as how they actually get things done, would prove invaluable in assigning responsibilities, coordinating efforts, and in promoting equity, accountability and qualitative participation in the global management of climate change. Such insights are also crucial for mapping research, and in advancing or weighing different proposals for the engagement of regional bodies in both present and future environmental regimes.

This study focuses on the IGAD and seeks to investigate the role of such regional organisations in the current and future climate change governance architecture with specific focus on addressing the climate-security connection. In this regard, the study will examine the linkage between climate change impacts and regional security, the level of awareness of climate change as a security threat, the extent to which climate change programmes have been mainstreamed into policy instruments, and the institutional capacity to manage the adverse effects of climate change so that they do not become triggers of instability.

1.3 Objectives of the study

The main objective of the study is to assess the role of IGAD in addressing climate change as an emerging security threat in the region. The specific objectives of the study are to:

i. To establish whether the IGAD region has recognized climate change as an emerging security threat.

ii. To establish the relationship between climate change and security in the IGAD region

iii. To identify key challenges faced by IGAD in addressing climate change

iv. To identify the existing capacity for preventing, managing and coping with these challenges and determine the key in capacity and policy gaps.

1.4 Justification of the study

1.4.1 Academic Justification

The role of institutions which is critical for successful adaptation to climate change[18] as well as the management of security problems including conflict[19] and key determinant as to whether and how climate change moves from being a developmental challenge to presenting a security threat[20] is not well understood.[21] It is therefore an important task for research on climate change and security to identify the capacity of these institutions to manage the adverse effects of climate change so that they do not become security problems.[22] This study attempts to make a contribution to fill that knowledge gap by examining the role of IGAD – a regional organization which has attained a level of effectiveness in dealing with traditional security threats in conflict prone region- in addressing climate change as an emerging security threat.

[18] Smit, B., & Pilifosova, O. (2001). Adaptation to climate change in the context of sustainable development and equity. In
McCarthy J., Canziani O., Leary N., Dokken D., & White K. (Eds.), Climate Change 2001: Impacts, adaptation and vulnerability (pp. 877e912). Cambridge: Cambridge University Press.

[19] Keohane, R. (1989). International institutions and state power: Essays in international relations theory. Boulder: Westview Press.

[20] Oli Brown and Crawford Alec, Climate Change and Security in Africa, *International Institute for Sustainable Development*, March 2009,p4

[21] Barnett, J., & Adger, W. N. (2007). Climate change, human security and violent conflict. *Political Geography* 26, 639-655.

[22] Ibid,pp 650

1.4.2 Policy Justification

The study findings will lead to suggestions and recommendations that will help policymakers in developing concrete, responsive and effective climate change mitigation and adaptation policies to comprehensively address the security threats posed by the impacts of climate change. The study will also suggest areas where future research will need to improve further understanding and inform policy making.

1.5 Literature Review

The literature review is divided into four subheadings: concepts and definitions; climate security in context; security implications of climate change in Africa and; regional bodies and the climate change regime.

1.5.1 Concepts and Definitions

The definition of concepts will foster a common understanding of the terminologies used in the study.

Climate change: Church J. states that climate change is a significant and lasting change in the statistical distribution of weather patterns over periods ranging from decades to millions of years. It may be a change in average weather conditions, or in the distribution of weather around the average conditions, such as more or fewer extreme weather events. Climate change is caused by factors that include oceanic processes such as oceanic circulation, biotic processes, variations in solar radiation received by the earth, plate tectonics and volcanic eruptions, and human-

induced alterations of the natural world. These latter effects are currently causing global warming, and "climate change" is often used to describe human-specific impacts.[23]

According to the IPCC climate change refers to a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity.[24] This usage differs from that in the United Nations Framework Convention on Climate Change where climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.[25] This study considers the security threats of climate change arising from either natural variability or as a result of human activity.

Security: Within the international relations' sub-discipline of security studies, security is regarded as being an "essentially contested concept" with different meaning for every tradition within security studies.[26] Dabelko and Dabelko hold that security ''equates to the effort to protect a population and territory against organized force while advancing state interests through competitive behaviour.''[27] But Wolfers argues that security ''in an objective sense measures the absence of threats to acquired values in a subjective sense, the absence of fear that such values must be attacked''. This definition accommodates the concept of human security which is now

[23] Church, J. A. and White N. (2006), A 20th century acceleration in global sea level rise, Geophysical Research Letters, 33, L01602, doi: 10.1029/2005GL024826.
[24] IPCC Fourth Assessment Report, Working Group I, Glossary of Terms: http://ipcc wg1.ucar.edu/wg1/ Report / AR4 WG1_Print_Annexes.pdf.
[25] UNFCCC Article 1, Definitions: http://unfccc.int/essential_background/convention/background/items/1349.php.
[26] Gallie B., cited in Buzan, *People, States and Fear,* 7.), Buzan, B. *People, States and Fear.* 2nd edition. London: Harvester Wheatsheaf, 1991
[27] Dabelko G. & Dabelko D., Enviromental security: Issues of Conflict and Redefinition, Enviromental change and security project report, Spring 1995**.**

widely applicable to demonstrate the climate -security connection.[28] According to Hutchful human security also involves national security, political security and social security.[29] The study will use a broad definition for security to include all aspects that impact global and state stability. This is includes consideration of both 'human security' issues such as food security as well as more traditional concepts of security such as violent conflict and state security. This approach is more instructive and constructive because it covers a more relevant range of potential security implications of climate change.

Regional organisations: For the purpose of this study, 'regional bodies' should be understood as sub-continental organizations including sub-regional organizations and regional economic communities recognized as affiliates to a continental intergovernmental organization recognized under the UN Charter.

*Climate change regime***:** This is a set of international, national and sub-national institutions and actors involved in addressing climate change such as the UNEP and UN-Habitat.

1.5.2 Climate Security in Context

Security analysts and academics have warned for some time now that climate change threatens water and food security, the allocation of resources, and coastal populations, threats which in turn could increase forced migration, raise tensions and trigger conflict.[30] Climate change was seen by security organizations as an issue lurking somewhere over the horizon, to be studied and monitored. With regard to media attention, after Pentagon had commissioned two scenario analysts in 2003 to consider the implications of abrupt climate change for international

[28] Wolfers A, Discord and collaboration (Baltimore: John Hopkins University Press,1962, p 150
[29] Hutchful, E. (2008) From military to human security. In: Akokpari, J. et al. (eds) *The African Union and its institutions*. Auckland Park, Jacana Media, pp. 63–81.
[30] Levy A., 'Is the environment a national security issue?' *International Security* 20, 1995, pp. 35–62.

security, a flurry of breathless news stories ensued, one going so far as to label climate change as the 'mother of all security problems'.[31]

The international community has since paid increasing attention to the security implications of climate change. In 2004, for example, the British government's chief scientist, Sir David King, suggested that 'climate change is a far greater threat to the world's stability than international terrorism'. Margaret Beckett, the British Foreign Secretary between May 2006 and June 2007, consciously made 'climate security' a cornerstone of British foreign policy during her short stint at the Foreign Office. In a major foreign policy address in Berlin in October 2006, Mrs Beckett noted: 'Today, being a credible foreign minister means being serious about climate security.' [32] A group of eleven high-ranking, retired American admirals and generals released a report in April 2007 arguing that climate change will act as a 'threat multiplier' that makes existing concerns, such as water scarcity and food insecurity, more complex and intractable and presents a tangible threat to American national security interests. In March 2013, Commander of the U.S. Pacific Command, (PACOM) Admiral Samuel Locklear said:

> "significant upheaval related to the warming planet 'is probably the most likely thing that is going to happen . . . that will cripple the security environment, probably more likely than the other scenarios we all often talk about."[33]

Across the African continent scientists, public personalities, farmers, environmental activists and even presidents have added their voices to the growing climate-change as a security-threat debate. In his address at the World Economic Forum in 2011 ahead of the United Nations

[31] Oli Brown, Anne Hammill, Robert McLeman, 'Climate change: the new security threat', *International Affairs* 83: 6, November 2007, pp. 1141
[32] Ibid p1142
[33] http://www.climatesciencewatch.org/2013/03/1,Climate Change is Top Threat according to the Commander of US Forces Pacific

Framework Convention on Climate Change Conference in Durban, South Africa's President Jacob Zuma described climate change as "..a question of life or death".[34] At the 2007 African Union Summit Yoweri Museveni, the President of Uganda, called climate change an 'act of aggression' by the developed world against the developing world.[35] Kaire Mbuende, the Namibian representative to the United Nations, in September 2007 called the developed countries' emissions of greenhouses tantamount to 'low intensity biological or chemical warfare'.[36]

Meanwhile, political momentum behind the idea of climate change as a security threat has progressed quickly, even reaching the United Nations Security Council. On 15 February 2013 the UN Security Council for the third time in UN history met to discuss the subject of climate change.[37] The global theme for Earth Day 2013 is "The Face of Climate Change," a recognition of the need to highlight the mounting impact of climate change on individuals around the world.

In short, the issue of the security implications of climate change has caught the political imagination, generating a perceptible shift in the way growing number of decision-makers are talking about the subject.

1.5.3 Security Implications of Climate Change in Africa

Recent research broadly agrees that four main climate links to conflict in Africa may emerge. First, reduced water supply and growing demand will, in some places, lead to increasing

[34] http://www.weforum.org/news/africa2011
[35] Clark A., 'Climate change threatens security UK tells UN', *Guardian*, 18 April 2007.
[36] United Nations Security Council Department of Public Information, 'United Nations Security Council holds fi rst ever debate on impact of climate change on peace, security hearing over 50 speakers', UN Security Council 5663rd meeting, 17 April 2007, http://www.un.org/News/Press/docs/2007/sc9000.doc.htm,
[37] www.un.org/news/press/docs/2013

competition between different sectors of society, different communities and different countries. Under certain conditions, such as poor governance and existing ethnic division, these stresses may turn violent. Secondly, reductions in crop yields and increasingly unpredictable weather patterns around the world may lead to higher prices for food and greater food insecurity, and increase the stakes for control over productive agricultural land. Thirdly, changes in sea level, increased natural disasters and the reduced viability of agricultural land may cause large-scale and destabilizing population movements. Finally, the cumulative impact of all these challenges on the prevalence of poverty and the ability of governments to provide services to their citizens could be a factor that tips fragile states towards socioeconomic and political collapse. [38]

1.5.4 Regional Bodies and the Climate Change Regime

The difficulty of achieving and implementing a global climate change agreement has stimulated a wide range of policy proposals designed to favour various approaches to advancing climate challenge and capable of delivering adequate mitigation action. The failure of COP-15 in Copenhagen led many in and outside governments to begin rethinking the best way to mobilize an effective international response to climate change.[39] U.N. Secretary General Ban Ki-moon, who had been among the most ardent voices for a comprehensive binding outcome in Copenhagen, focused more on the need for "tangible progress" in specific areas.[40] Similarly, Christiana Figueres, a former UNFCCC Executive Secretary, has eschewed the "big bang

[38] Oli Brown and Crawford Alec, Climate Change and Security in Africa, *International Institute for Sustainable Development*, March 2009,p4
[39] Bodansky D. & Diringer E., The Evolution of Multilateral Regimes: Implications For Climate Change , *Pew Center on Global Climate Change*, December 2010
[40] http://www.un.org/News/Press/docs//2010/sgsm13051.doc.htm.

theory" of climate treaty-making in favor of "incremental steps" that gradually strengthen the global effort.[41]

Raustiala et al argues that international issues such as climate change are often addressed through "regime complexes" rather than by a single integrated agreement.[42] Rayner contends that on pragmatic grounds, non-universal negotiating forums might be better suited to implementing governance strategies to tackle global climate change, on the premise that not every climate-related issue requires the cooperation of nearly 200 countries and also implementing measures at the lowest possible level of regulation also has advantages in terms of ease of implementation.[43]

Given the distinctive and disproportionate regional impacts of climate change, the regional approach to confronting climate change finds an appreciation in arguments such as those by the scholars cited above. Regional approaches to confronting climate change through regional economic blocs like IGAD, which is the focus of this study can become important building blocs for effective multilateralism and contribute significantly to achieving consensus on the development and implementation of the international climate change efforts. As the GATT Uruguay Round agreements of the world trade regime illustrate, however, after states have engaged in a period of flexibility and experimentation, they may be ready to integrate the different pieces of a regime into a single framework, as they did in moving from the GATT a la carte approach to the single, integrated agreement that established the WTO. Similarly, as the climate change regime matures, states might find some elements of integration to be desirable.[44]

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[41] http://www.clintonglobalinitiative.org/ourmeetings/2010/meeting_annual_multimedia_player.asp?id=26&Section=OurMeetings&PageTitle=Multimedia.

[42] Raustiala, Kal and David G. Victor. 2004. "The Regime Complex for Plant Genetic Resources." *International Organization* 59:277-309.

[43] Rayner, S. "How to eat an elephant: a bottom-up approach to climate policy". Climate Policy. 2010:10

[44] Bodansky Daniel. and Diringer Elliot. 2007. *Towards an Integrated Multi-Track Framework.* Pew Center on Global Climate Change, Arlington, VA.

Smaller negotiating venues including countries in various stages of development already influence what occurs within the UNFCCC. The rationale for developing compromises within smaller coalitions and subsequently integrating these into an international agreement is that this approach offers relative ease of negotiation and implementation of agreed measures, and the associated potential to further adequacy in the regime.[45] Galvanizing and coordinating the actions of a broader constellation of actors, as a complement to the UNFCCC and in support of objectives, can help build an effective climate change regime.[46] Technology research, development, and transfer is another domain ripe for collaborative action among a subset of countries with proponents arguing benefits in terms of ease of implementation and reduced cost based on the efficiency of coordination.[47] Small coalitions of actors offer advantages for facilitating positive spillovers, including knowledge-sharing that leads to innovation and technology development. Targeted investment in research, development, and deployment of new technologies may also be easier in smaller groups.[48]

1.5.5 Literature Gap

While much work by policy analysts and academics alike has gone into examining the causal connections between climate change and security, there are few region specific studies to support the climate-security linkage, an issue that still remains a point of contention among

[45] Victor, D. 2011. Global Warming Gridlock, Creating More Effective Strategies for protecting the Planet
[46] United Nations Environment Programme, Building the climate change regime survey and analysis of approaches, World Resources Institute (2011)
[47] Aldy, J. and Stavins, R. (eds). 2010. Post-Kyoto International Climate Policy Research from the Harvard Project on International Climate Agreements. Cambridge University Press.
[48] Barrett.S 2008. Climate change negotiations reconsidered Progressive Governance, London. Available at: http://tria.fcampalans.cat/images//Scott_Barrett.pdf.

scholars.[49] The study aims to increase understanding of the linkages and impacts of climate change and security and how climate change could contribute to insecurity in the future.

On the important area of the work of governance of climate change there is biased focus on the ongoing climate negotiations within the framework of the United Nations Convention on climate change and the momentum at the continental level at the expense of other alternative or complementary frameworks addressing climate change. However, arising from the growing frustration with the current climate regime other complementary approaches have been suggested but again few studies have been carried out on their merit. This study will take note of the important contribution made by regional bodies in Africa in dealing with traditional security threats involving armed conflict, small arms and light weapons, peacemaking and conflict prevention, peacekeeping and peace building to establish whether regional bodies can translate such experiences in addressing the security threats posed by impacts of climate change within the context of the climate regime complex or the global regime.

1.6 Hypotheses

The study will test the following hypotheses;

i. There is a significant correlation between the impacts of climate change and security

ii. Regional bodies have an important role to play in addressing security threats posed by climate change

[49] Gleditsch, N. P. (2012). Whither the weather? Climate change and conflict. *Journal of Peace Research, 49,* 3-9. http://dx.doi.org/10.1177/0022343311431288

1.7 Theoretical Framework

The proponents of the human security approach to the study of environmental security who prefer to focus on climate change's potential to impede development agree that effects of climate change can undermine livelihoods, lead to scarcity of key resources, poverty levels may rise and an overall decline in the quality of life may result. The 2007-08 UN Human Development Report, argues that ''climate change is a massive threat to human development and in some places it is already undermining the international community's efforts to reduce extreme poverty''.[50] The net effect will be to exacerbate socio-economic vulnerability undermining people's ability to cope with life in a more hostile climate.

Once an environmental issue, then an energy problem, climate change is now being recast as a security threat. The idea that environmental issues poses a security threat has received much attention in the environmental security literature and today several approaches to environmental conflict exist. The most prolific of these focuses on the role of environmental scarcity as an independent variable in conflict. This thesis has most prominently been developed by the Toronto Group under the leadership of Thomas Homer-Dixon. Thomas Homer-Dixon argues that when scarcity of renewable resources (such as cropland and river water) interacts with harsh social effects (for example, population displacement or economic decline) it can lead to conflict.[51] Kaplan popularized the idea that environmental pressures can contribute directly or indirectly to conflict therefore bringing about environmental insecurity. He proclaimed the

[50] United Nations, *Human Development Report: Fighting climate change: Human solidarity in a divided world*, 2007-08. New York: UNDP, 2008. http://hdr.undp.org/en/media/hdr_20072008_en_complete.pdf

[51] Homer-Dixon, T. *The Project on Environment, Population and Security: Key Findings of Research*, Environmental Change and Security Project Report no. 2. Washington DC: Woodrow Wilson Center, 1996: 45-8.

environment as being "the national security issue of the early twenty-first century".[52] The Brundtland Commission argued that the security concept "must be expanded to include the growing impacts of environmental stress locally, nationally, regionally, and globally".[53] These arguments are also supported by the neo-Malthusian models of human–resource relations, which warn that human impacts on the environment are multiplied by increases in human population numbers, levels of consumption and the sophistication of consumer technologies.[54] In the pre-climate change era, such analyses led to the conclusion that high rates of population growth in Africa and other developing regions would lead to collapse of the resource base supporting them and consequent instability and risk of conflict.[55] Today, climate change creates an alternative path to scarcity and collapse.[56] The common conceptualization of security impacts of environmental changes here suggests that when conditions of scarcity arise, through either increased consumption or environmental change, competition may emerge between users of scarce resources. Where adaptive capacities are weak or conflict resolution institutions and mechanisms fail, this competition may give rise to a state of conflict between rival user groups.[57] A state of conflict or violence acts as a negative feedback mechanism on scarcity, since rival groups may increase their consumption of resources to fund further conflict, and refugees fleeing areas of violence may create new demands for resources elsewhere.

[52] Kaplan, R. "The Coming Anarchy." Reprinted in *The Geopolitics Reader*, edited by G.O. Tuathail, S. Dalby and P. Routledge. London: Routledge, 1998.
[53] See, Brundtland Report of 1987
[54] Ehrlich P., *The population bomb* (New York: Ballantine, 1968).
[55] Meadows D., Meadows D., Randers J. and Behrens W., *The limits to growth: a report for the Club of Rome's project on the predicament of mankind* (New York: Universe Books, 1972).
[56] Dupont A.and Pearman G., *Heating up the planet: climate change and security*, paper 12 (Sydney, Australia: Lowry Institute, 2006).
[57] Oli Brown, Hammill A., McLeman R., 'Climate change: the new security threat', *International Affairs* 83: 6, November 2007, pp. 1148

While the conceptualization above depicts a straight-line progression from scarcity to conflict, it is also notable that whether or not climate change contributes to states into conditions of violence and conflict will be heavily influenced not only by the nature of the biophysical impacts of climate change, but also by a given area's susceptibility to conflict and the capacity of the states to adapt to changing conditions.[58] Mitigation and adaptation policies and programs, if implemented quickly and at multiple scales, could help avert climate change and other environmental stresses becoming triggers for conflict. Clearly, the challenge of climate change stemming from its complexity and transnational nature is one that is beyond the capacity of any one country to tackle. Ultimately, its shared security implications will be best resolved through cooperation at a myriad of levels. Keohane and Victor' consider the role of institutions as critical for successful adaptation to climate change as well as the management of security problems, including conflict.[59] Regional bodies such as the IGAD can play an important role in the climate-security continuum both in terms of early warning, adaptation and or mitigation, conflict resolution and peace building. Countries in a regional bloc often share similar economic, political, and resource-related concerns and are thus particularly well-positioned to assist in efforts to mollify regional tensions. Furthermore, they are better equipped to deal with inter-state conflicts than intra-state conflict.

Drawing from the discussion above, the conceptual basis of this study is guided by a 'scarcity-vulnerability-conflict' framework to security based on human- resource relations and which considers environmental threats brought about by climate change and vulnerability in its analyses.

[58] Oli Brown, Hammill Anne, McLeman Robert, 'Climate change: the new security threat', *International Affairs* 83: 6, November 2007, pp. 1149

[59] Keohane, Robert O. and Victor D. 2010. The Regime Complex for Climate Change. Harvard Project on International Climate Agreements, Discussion Paper 10-33, Cambridge, MA.

1.8 Research Methodology

The study was undertaken through primary sources and secondary information on climate change programmes and issues in the IGAD region.

1.8.1 Primary Sources

Primary data on the sub-regional programmes was gathered through structured interviews with government officials, officials of IGAD including the IGAD liaison office in Nairobi and representatives of the civil society organisations working in the area of climate change in the region. Open and closed ended questionnaires were also be used.[60] Relevant information concerning national programmes was solicited through questionnaires circulated to national climate change focal points in IGAD member states. In addition to data sources, intensive email and phone correspondence will be used to reach as many as possible stakeholders in the region. Questionnaires were formulated in the SurveyMonkey.com [61]online software to enhance feedback. The study employed descriptive design.

1.8.2 Secondary Sources

Secondary data constituted an important source of information for the study. Books, journals, organization's newsletters, and internet searches will be used to collect secondary data.

[60] Orodho A., Essentials of educational and social science research method (2003) Nairobi: Masola publishers.
[61] Saunders, M. Lewis, P. and Thornhill, A. (2009) *Research Methods for Business Students*: UK, Prentice Hall

1.8.2 Scope and Limitations

The major limitation to the study was the feedback on the questionnaires circulated. However, all effort was made to administer sufficient number of questionnaires where possible to ensure that the element of a ‘reprentative sample’ is not compromised.

1.9 Chapter Outline

The study consists of five chapters. A summary of each chapter is given below.

Chapter One: Introduction to the Study: Examines the climate-security connection in the background to the study and states the research problem, from which stems the objectives, theoretical framework and justification for the study. It also reviews literature on the study area

Chapter Two: Link between climate change, security and regional bodies: reviews existing research on the security threat posed by climate change in Africa and assess effectiveness of the current international climate change regime and the role regional organization within that framework.

Chapter Three: Regional organisations and climate change and security : A Case study of IGAD in tackling climate change- Narrows down the focus and discusses initiatives by IGAD and within member countries to obtain further insight into the role of regional organisations in addressing climate change as an emerging security threat.

Chapter 4: Regional bodies and climate change: A critical analysis- analyzes the role of regional bodies in climate change and potential security threats and the challenges in the implementation of climate change- security initiatives.

Chapter 5: Conclusions: presents a summary of the study findings and conclusions, implications for policy, recommendations and suggestions for further research.

CHAPTER TWO

LINKING CLIMATE CHANGE, SECURITY AND REGIONAL BODIES

2.1 Introduction

As science has revealed, the speed and scope of climate change holds potentially serious implications for international security. Given its urgency and enormity, the only choice is to confront the climate challenge on all practical fronts. This chapter will review research on the security threat posed by climate change in Africa and assess the effectiveness of the current international climate change regime. In this context, the role regional bodies within the existing climate change regime is discussed. It also explores some regional bodies' initiatives to address climate change.

In its 2007 assessment, the Intergovernmental Panel on Climate Change (IPCC) stated that 'Africa is one of the most vulnerable continents to climate change and climate variability, a situation aggravated by the interaction of "multiple stresses", occurring at various levels, and low adaptive capacity'[62]. A number of analysts have pointed to positive longer-term trends in conflict in Africa—referring to a reduction in armed conflict but are concerned that climate change will trigger a succession of new wars across Africa and reverse the recent progress made. In fact, some argue that climate change is already playing a role in existing conflicts. A June 2007 report by the UNEP suggested that the conflict in Darfur has been in part driven by climate

[62] M. Boko et al., "Africa," in *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change,* (Cambridge: Cambridge University Press, 2007), pp. 433–67 at p. 435.

change and environmental degradation. The report warned of "a succession of new wars across Africa" unless more is done to contain the danger of climate change. The report concluded that "Darfur… holds grim lessons for other countries at risk."[63] In a 2007 Washington Post editorial UN Secretary General Ban Ki-moon argued:

> "Almost invariably, we discuss Darfur in convenient military and political short-hand—an ethnic conflict pitting Arab militias against black rebels and farmers. Look to its roots, though, and you discover a more complex dynamic. Amid the diverse social and political causes, the Darfur conflict began as an ecological crisis, arising at least in part from climate change"[64]

2.2 Manifestations and Dynamics of Climate Change

The scientific basis for climate change is increasingly well established.[65] There is now widespread agreement that the changes now underway in the earth's climate system have no precedent in the history of human civilization.[66] In most parts of the world, the impacts of climate change on social ecological systems will be experienced through both changes in mean conditions (such as temperature, sea-level, and annual precipitation) over long-time scales, but also through increases in the intensity and in some cases frequency of floods, droughts, storms and cyclones, fires, heat waves, and epidemics. Outside of these short- and long-term changes, which are projected to occur with high levels of certainty, there also exist somewhat more

[63] United Nations Environment Programme, *Sudan: post-conflict environmental assessment* (Nairobi: UNEP, 2007).
[64] B. Ki-moon,'A climate culprit in Darfur', Washington Post, 16 June 2007, http://www.washingtonpost.com/wp-dyn/content/article/2007/06/15/AR2007061501857.html, accessed 2 July 2007.
[65] Boko, et al (2007). Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, eds., Cambridge University Press, Cambridge U.K., 433–467.
[66] IPCC (Intergovernmental Panel on Climate Change). (2007). Climate Change 2007: Synthesis report. Contribution of Working Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge: Cambridge University Press.

unquantifiable risks of high-impact events. These include melting of glaciers and permafrost which may add several meters to global sea-levels, collapse of the thermohaline circulation which may cause significant regional climate changes in the northern hemisphere, and large scale shifts in the Asian monsoon and the El Nino Southern Oscillation phenomenon.[67]

While climate change is expected to have severe consequences on the lives and livelihoods of millions of people around the world, its effects will not be evenly distributed. Africa is most vulnerable and is almost universally seen as the continent most at risk of climate-induced conflict—a function of the continent's reliance on climate-dependent sectors (such as rain-fed agriculture) and its history of resource, ethnic and political conflict.[68] Africa's vulnerability is driven partly by geography—by the fact that its location and environmental features make it susceptible to climate change's most severe physical effects. But the continent's vulnerability also derives from the low adaptive capacity of many African countries—the result of longstanding challenges in countries' economies, healthcare and education systems, infrastructure, and governance.

The expected manifestations of climate change will have a range of consequences for social and economic well-being in many parts of Africa: current adaptations of food producers to cope with climatic variability may become inadequate, agricultural production may fall, particularly in semi-arid regions; existing water shortages will be aggravated, and new nations may join the list of those experiencing shortages; rates of ecosystem change will increase,

[67] Barnett, J., & Adger, W. N. (2007). Climate change, human security and violent conflict. *Political Geography* 26, 639-655

[68] Brown, O. and Crawford, A. (2008). 'Climate change: a new threat to stability in West Africa? Evidence for Ghana and Burkina Faso', *African Security Review*, Vol. 17 No. 3, September 2008; 39–57.

especially in southern Africa; the risks of inundation in low-lying settled areas will increase an risks to human health from vector-borne diseases are likely to increase.[69]

2.3 Climate Change as a Security Threat in Africa

Access to clean water is a major problem in many African countries. One-third of all people in Africa live in drought-prone regions. One-quarter (about 200 million people) currently experience significant water shortages.[70] Drought accounted for 31 per cent of all natural disasters in Africa between 1975 and 2002. Floods accounted for another 26 per cent. Ethiopia, Eritrea and Somalia have suffered more deaths through drought over the last century—600,000 by one estimate—than any other part of Africa. These countries have also experienced persistent conflict, internally and regionally. Drought and famine remain major underlying threats to security. Even before factoring in climate change many African countries are heading towards a crisis in terms of their economically usable, land-based freshwater resources as a result of population growth and increased demand. In some regions of Africa water interdependence is very high; for example, the 17 countries in West Africa share 25 transboundary rivers[71], the Nile Basin extends over 10 countries and the Nubian sandstone aquifer is shared by four countries. This means that economic progress is intimately tied to water management elsewhere—often a rationale for better cooperation, but also a cause for tension and conflict.

[69] Boko, et al (2007). Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, eds., Cambridge University Press, Cambridge U.K., p.446.
[70] IPCC (Intergovernmental Panel on Climate Change). (2007). Climate Change 2007: Synthesis report. Contribution of Working Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge: Cambridge University Press.
[71] ibid

There is widespread agreement that climate change and variability are likely to impose additional pressures on water availability and accessibility in Africa .Using a range of scenarios the IPCC estimates that by 2020 an additional 75 to 250 million people in Africa are likely to be at risk of increased water shortage. By 2050 this population is projected to be between 350 and 600 million.[72] The twin pressures of demand growth and climate change may put existing international management mechanisms, such as those governing the Nile, under severe strain. Gleditsch et al. found that shared river basins increase the likelihood of conflict between neighbouring countries.[73] According to Garcia "the water equation in these countries is complicated by numerous inter- and intra-state conflicts, lack of cooperative regimes for water sharing, or antiquated international laws."[74]

In 2004, 1.1 billion people were undernourished in the world—230 million of whom were in Africa.[75] Although global food production more than doubled between 1961 and 2003 the growth in agricultural production in Africa has not kept pace with population growth.[76] Within the last decade food shortages have affected 25 African countries and placed as many as 200 million people "on the verge of calamity".[77] Since 2001 consecutive droughts in southern Africa have led to serious food shortages. According to the UN's Office for the Coordination of Humanitarian Assistance (OCHA), the 2002–03 drought alone left an estimated 14 million people in need of food aid.

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[72] ibid

[73] Gleditsch, N. P., Furlong, K., Hegre, H., Lacina, B., and Owen, T. (2006). 'Conflicts over shared rivers: resource scarcity or fuzzy boundaries?' in *Political Geography*, 25(4),361–382.

[74] Garcia, D. (2008). 'The climate security divide: Bridging human and national security in Africa', *The African SecurityReview*, 17.3, Institute for Security Studies: 2–17.

[75] UNDP (2007). 'Fighting climate change: Human Solidarity in a divided world'. *Human Development Report 2007/2008*. UNDP: New York.

[76] WBGU. (2007). *Climate change as a security risk*, German Advisor Council on Global Change (WBGU), Earthscan, London

[77] CNA Corporation (2007). *National Security and the threat of climate change*, Washington: CNA Corporation.

According to a study quoted in WBGU climate change will result in an increase in drylands and areas under water scarcity by 2080.[78] As a result of climate change this arid and semi-arid area could expand by five to eight per cent, equalling a loss of productivity in another 50 to 90 million hectares of arable land. In countries that rely on agriculture in coastal zones such as Kenya (mangoes, cashew nuts and coconuts); Benin (coconuts and palm oil); Guinea (rice); and Nigeria, where coastal agricultural land accounts for about 75 per cent of the total arable land, rising sea levels will impact negatively on food supplies.[79]

If climate change leads to drops in agricultural production on a wide scale, prices of many agricultural commodities may rise, leaving individuals and countries financially overstretched. The German Advisory Council on Global Change argues that drops in food production could trigger regional food crises and further undermine the economic performance of weak and unstable states.[80] Nyong and Fiki argue that conflict in sub-Saharan African countries has been associated with per capita annual declines in food production of over 12 per cent.[81]

More than 30 per cent of the world's refugees and internally displaced people are housed by African countries.[82] North Africa is already a migration destination (for internal as well as

[78] WBGU. (2007). *Climate change as a security risk*, German Advisor Council on Global Change (WBGU), Earthscan, London

[79] ECOSOC (2008). Climate change: African perspectives for a post-2012 agreement. Addis Ababa, Ethiopia, 26–29 March. UN Economic and Social Council. UN E/ECA/COE/27/8

[80] WBGU. (2007). Climate change as a security risk, German Advisor Council on Global Change (WBGU), Earthscan, London

[81] Nyongo, A. and Fiki, C. (2005). 'Drought-Related Conflicts, Management and Resolution in the West African Sahel', paper presented at international workshop on Human Security and Climate Change, Oslo.

[82] Garcia, D. (2008). 'The climate security divide: Bridging human and national security in Africa', The African Security Review, 17.3, Institute for Security Studies: 2–17.

cross-border migrants), and is a transit area for people from sub- Saharan Africa and Asia attempting to reach Europe.

Climate change and its impacts will affect a growing number of people, and migration hotspots around Africa are likely to increase. Climate change will cause population movements by making certain parts of the world much less viable places to live in by causing food and water supplies to become more unreliable; undermining livelihoods; through sea-level rise and flooding that reduces available land; and by increasing the frequency and destructive power of storms.[83] This in turn may force large numbers of people to leave their homes and communities. Often living on marginal land, in disaster-prone areas and with few resources in reserve, Africa populations are particularly vulnerable. One-third of the African population already lives in drought-prone areas. This migratory pressure can be expected to increase due to heightening stress and tensions in the rest of Africa, and in the Sahel in particular. By 2020 the population of the Sahelian countries will have quadrupled since 1960. Migration itself is not inherently problematic. However, experience shows that migration can increase the likelihood of conflict in transit and target regions.[84] Barnett and Adger argue that the influx of migrants into new areas has been a significant factor in many 'environmental conflicts'.[85] What does seem to be the most important factor in violent conflict are the political and institutional responses to migrants.

Large population movements are already recognized by the UN Security Council as constituting a potential threat to international peace and security, particularly if there are existing

[83] Brown, O. (2008b). *Migration and Climate Change*, IOM Migration Research Series, Geneva: international Organization for Migration.
[84] WBGU. (2007). Climate change as a security risk, German Advisor Council on Global Change (WBGU), Earthscan, London
[85] Barnett, J. and Adger, N. (2005). 'Security and Climate Change: Towards an improved understanding' paper presented at international workshop on *Human Security and Climate Change*, 21–23 June 2005, Oslo

social and ethnic tensions.[86] Large scale population displacement will redraw the ethnic map of many countries, bringing previously separate groups into close proximity with each other and in competition for the same resources. In the context of poor governance, poverty and easy access to small arms these situations may turn violent.[87] Nyongo and Fiki note that over the course of the twentieth century decreasing rainfall in the Sahel has pushed northern pastoralists southwards into land occupied by sedentary famers, leading to conflicts and widespread destruction of farmland and cattle. Meanwhile, to meet the growing needs for food, farmers are expanding into marginal lands traditionally used by pastoralists, heightening competition between livestock and agricultural production.[88]

Africa is the world's poorest continent. Almost half the population of sub-Saharan Africa lives on less than one dollar a day. There are many complex reasons for this: inadequate governance, crippling debt, limited infrastructure, disease and inadequate healthcare, reliance on natural resources and ongoing cycles of conflict. Life expectancy remain slow at 49.6 years; no other region in the world has a life expectancy of less than 60 years.[89] Together these factors inhibit the ability of many countries and communities to adapt to the impacts of climate change. Poorer countries are likely to have fewer resources and less stamina to deal with climate change, even in its early, modest manifestations.[90] Meanwhile, seventeen countries in Sub-Saharan Africa are included in lists of the world's most fragile states: Burundi, Chad, Central African

[86] Sindico, F. (2005). 'Ex-post and ex-ante [Legal] approaches to climate change – threats to the international community', *New Zealand Journal of Environmental Law*, Vol. 9; 209–238.
[87] Brown, O. (2008b). *Migration and Climate Change*, IOM Migration Research Series, Geneva: international Organization for Migration.
[88] Nyong, A. (2007). 'Climate-related conflicts in West Africa', *Environmental Change and Security Program Report, Issue 12 2006–2007*, Woodrow Wilson International Center for Scholars, Washington: 36–43.
[89] UNDP (2007). 'Fighting climate change: Human Solidarity in a divided world'. *Human Development Report 2007/2008*. UNDP: New York.
[90] (Campbell et al., (2007). *The Age of Consequences: The Foreign Policy and national Security Implications of Global Climate Change*, Center for Strategic and International Studies (CSIS)and Center for a New American Security (CNAS).

Republic, Côte d'Ivoire, Democratic Republic of Congo, Liberia, Nigeria, Sudan, Angola, Ethiopia, Guinea, Sierra Leone, Somalia, Zimbabwe, Cameroon, Guinea-Bissau and Malawi.[91] Natural disasters already have devastating impacts; for example, the two cyclones that hit Mozambique in 2000 displaced 500,000 people and left 950,000 people dependent on humanitarian assistance. Beyond the human toll (an estimated 500,000 dead from the Sahelian droughts spanning the 1960s to the 1990s, for example), the economic losses are significant: several hundred million U.S. dollars were lost in the African droughts of the mid-1980s, primarily in the Sahel, the Horn of Africa and across the south of the continent.[92]

Climate change could undermine economic growth and inhibit poverty reduction in numerous ways. Droughts will impact hydroelectric power generation, which accounts for 80 per cent of total electricity production in 18 African countries. Tourism will also be affected. In the western Indian Ocean region a 30 per cent loss of corals from a coral bleaching event in 1998 and 1999 during an El Niño episode resulted in reduced tourism in Mombasa and Zanzibar, and caused financial losses of US$ 12–18 million.[93] The World Health Organization has argued that the spread of infectious diseases is likely to be a major consequence of climate change. Malaria represents a particular and additional threat in Africa; a high proportion of the world's 300–500 million cases of malaria are found on the continent.[94] The Stern Review estimated that by 2100

[91] Smith, D. and Vivekananda, J. (2007). *A climate of conflict: The links between climate change, peace and war*, International Alert, London.
[92] Boko et al., (2007). *Climate Change 2007: Impacts, Adaptation andVulnerability. Contribution of Working Group II to the FourthAssessment Report of the Intergovernmental Panel on Climate Change,* Cambridge University Press, Cambridge U.K., 433–467.
[93] IPCC. 2007. Fourth Assessment Report: climate change 2007. –synthesis report. Available at: http://www.ipcc.ch/publications_and_data/ publications_ipcc_fourth_assessment_report_synthesis_ report.htm.
[94] Simms, A. (2005). *Africa – Up in smoke: the second report from the Working Group on Climate change and Development*, New Economics Foundation, London.

between 165,000 to 250,000 more children may die each year from a variety of causes than would be the case in a world without climate change.[95]

The cumulative impacts of increasing food and water insecurity, mass population movements, more extreme natural disasters and the burden of more prevalent diseases threaten to strain or overwhelm the capacity of governments to meet the basic needs of their people. Fundamentally, climate change threatens to exacerbate these trends and undermine governments' ability to ensure security and stability. A general link between a country's level of economic development and its propensity for conflict is widely acknowledged.[96]

Natural disasters have also been linked to conflict. From a study of 171 storms and flood disasters since 1950, each involving at least 1,000 victims, a clear connection was established in 12 cases between the natural disaster and the intensification of conflict or a political crisis.[97] Military analysts have also made a link between state fragility and the appearance of radical movements.[98] Like East Africa, the Indian Ocean coast of southern Africa (Madagascar and Mozambique) is exposed to storms and sea-level rise, and remains vulnerable to flooding. Regionally, it is clear that growing water and food insecurity, coupled with the impact of migratory flows, will put increasing pressure on the provision of basic needs and may exacerbate existing ethnic and political tensions.

[95] Stern, N. (2006). *The Economics of Climate Change. The Stern Review.* HM Treasury, London.
[96] Collier, P. and Hoeffler, A. (2004). 'Greed and grievance incivil war'. *Oxford Economic Papers* 56(4): 563–95
[97] CRED (2006). *'Emergency Events Database'* (EM-DAT); WHO Collaborating Centre for Research on the Epidemiology of Disasters.
[98] CNA Corporation (2007). *National Security and the threat of climate change*, Washington: CNA Corporation

2.4 The Current Climate Change Regime

The past two decades have seen the creation and evolution of an international climate regime, with the United Nations Framework Convention on Climate Change (UNFCC) and the Kyoto Protocol as the main pillars. The climate change regime today can be said to consist of the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Bali Action Plan. It serves as the 'constitution'for the international climate change regime.[99]

The United Nations Framework Convention on Climate Change was adopted in 1992 and entered into force in 1994 and set an ultimate objective of stabilizing atmospheric concentrations of greenhouse gases at levels that would prevent "dangerous" human interference with the climate system. It divided countries into three main groups with different types of commitments: *Annex I parties* include the industrial countries that were members of the OECD (Organisation for Economic Co-operation and Development) in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic states, and several Central and Eastern European states. They commit to adopt climate-change policies and measures with the aim of reducing their greenhouse gas emissions to 1990 levels by the year 2000. *Annex II parties* consist of the OECD members of Annex I, but not the EIT Parties. They are required to provide financial resources to enable developing countries to undertake emissions reduction activities under the UNFCCC and to help them adapt to adverse effects of climate change. In addition, they have to "take all practicable steps" to promote the development and transfer of environmentally friendly technologies to EIT parties and developing countries. Non–Annex I parties are mostly developing countries. They undertake general obligations to

[99] World Bank, Development and Climate Change. World Development Report 2010. 2010, Washington, D.C.

formulate and implement national programs on mitigation and adaptation. The ultimate decision-making body of the Convention is the Conference of the Parties, which meets every year and reviews the implementation of the Convention, adopts decisions to further develop the Convention's rules, and negotiates substantive new commitments.[100]

The *Kyoto Protocol* supplemented and strengthened the UNFCCC. Adopted in 1997, it entered into force in February 2005, with 184 parties as of January 14, 2009. At the heart of the Protocol lie its legally binding emissions targets for Annex I parties, which have individual emissions targets. In addition to emissions targets for Annex I parties, the Kyoto Protocol contains a set of general commitments (mirroring those in the UNFCCC) that apply to all parties, such as taking steps to improve the quality of emissions data; mounting national mitigation and adaptation programs; promoting environmentally friendly technology transfer; cooperating in scientific research and international climate observation networks, and supporting education, training, public awareness, and capacity-building initiatives. The Protocol broke new ground with three innovative mechanisms—Joint Implementation, the Clean Development Mechanism, and Emissions Trading all of them designed to boost the cost-effectiveness of climate-change mitigation by opening ways for parties to cut emissions or enhance carbon sinks, more cheaply abroad than at home.[101] Parties with commitments under the Kyoto Protocol have accepted targets for limiting or reducing emissions. Joint Implementation allows a country with a target to implement projects counted toward meeting their own target, but conducted in other countries that also have targets. The Clean Development Mechanism (CDM) allows a country with commitments to implement an emission-reduction project in developing countries that do not have targets. Emissions Trading allow countries that have emission units to spare—emissions

[100] ibid
[101] UNFCCC 2005; UNFCCC decision 1/CP.13, http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf

permitted to them but not used—to sell this excess capacity to countries that are over their permitted targets.[102]

The Bali Action Plan, adopted in 2007 by the parties to the UNFCCC, launched a comprehensive process to enable the full, effective, and sustained implementation of the UNFCCC through long-term cooperative action then and beyond 2012 in order to reach an agreed outcome at the UNFCCC's 15th session in Copenhagen in December 2009. The Bali Action Plan centered negotiations on four main building blocks—mitigation, adaptation, technology, and financing. Parties also agreed that the negotiations should address a shared vision for long-term cooperative action, including a global goal for emission reductions. [103] Despite intense negotiations at the highest levels in the two years leading to Copenhagen, COP -15 could not reach an 'agreed outcome.' After years of uncertainty about the future of the Kyoto Protocol, COP-17 in Durban finally extended the Kyoto Protocol for a second commitment period. At COP--17 in Durban in 2011, UNFCC Parties operationalized many of the promises of the Copenhagen Accord and Cancun Agreements, and also launched a new process, to create a new legal climate regime under the Convention –terminating the Bali Action Plan- to be adopted in 2015 and implemented in 2010. Notwithstanding the adoption of a second commitment period, the future of the Kyoto Protocol beyond the second commitment period remains dim.[104] Some countries have withdrawn while others have expressed reservations with some of the provisions especially on targets. The outcomes of the post--2012 negotiations, the non-binding Copenhagen Accord and the Cancun Agreements, the rapidly diminishing support for the Kyoto

[102] http://unfccc.int/kyoto_protocol/mechanisms/items/1673.php, accessed August 5, 2009.
[103] ibid
[104] Bodansky& Rajamani, Evolution and Governance Architecture Forthcoming in International Relations and Global Climate Change

Protocol, as well as early signals from the Durban Platform negotiations suggest that the future of the climate change regime still remains uncertain.[105]

2.5 Moving the Climate Agenda forward

Moving the climate change agenda forward multilaterally among the 195 parties to the UNFCCC is proving to be a serious challenge.[106] The lack of progress in UNFCCC negotiations in recent years, especially the failure to obtain an international agreement on emissions limitations targets and timetables by all the major developed and developing country emitters, has led many to question whether the UNFCCC is, in fact, the best and most effective forum for mobilizing a global response to climate change.[107] The current approach to negotiating a comprehensive, universal, and legally binding global agreement on climate change is unlikely to succeed.[108]

Falkner notes that international efforts to negotiate a comprehensive, universal and legally binding treaty on climate change have "been producing diminishing returns for some time" and that an alternative approach to this top-down fashion of law-making is needed "which develops different elements of climate governance in an incremental fashion and embeds them in an international political framework."[109] Two leading scholars of international governance, Keohane and Victor argue that there is no integrated, comprehensive regime governing efforts to

[105] ibid
[106] Currently, there are 195 Parties (194 States and 1 regional economic integration organisation) to the UNFCCC. See *http://unfccc.int/essential_background/convention/status_of_ratification/items/* 2631.php.
[107] Victor D., Global Warming Gridlock: Creating More Effective Strategies for Protecting the Planet (New York: Cambridge University Press, 2011.
[108] Hoffmann M., Climate Governance at the Crossroads: Experimenting with a Global Response after Kyoto (New York: Oxford University Press, 2011).
[109] Falkner R., Stephan H. and Vogler J., "International Climate Policy after Copenhagen: Towards a 'Building Blocks' Approach," Global Policy, Vol. 1 no. 3 (October 2010), p.253)

limit the extent of climate change. They argue that the diverse range of institutions involved in climate change governance constitutes a regime complex. They contend that for a challenge as complex as addressing climate change ‘‘the structural and interest diversity inherent in contemporary world politics tends to generate the formation of regime complexes rather than a comprehensive, integrated regime.’’[110] It is in this regime complex that the role of regional bodies as an important actor in climate change architecture becomes evident. A regional approach would seem a logical and fair as a mechanism to move forward the climate change agenda, given that little time is spent on procedural matters when dealing with a small group of countries. Moreover, based on international negotiating experience from other fields, the only way to get any real business done is in small meetings (sometimes tête-à-tête meetings between key leaders). Borrowing from a similar scenario concerning the case in the multilateral trading system, it is evident that the multilateral trading system—just like climate negotiations—has been besieged with institutional difficulties, resulting in an enormous proliferation of RTAs as a way to progress. Low notes that ‘‘deeper integration is always much easier at the regional level than it is at the multilateral level. Furthermore, as we know from previous experience, multilateral negotiations can take a very long time and are very complex, whereas Regional Trade Agreements (RTAs) move much faster”.[111] The regional approach is more realistic than aiming for a global climate agreement particularly with respect to adaptability and flexibility especially in an environment of high uncertainty, such as in the case of climate change where the most demanding international commitments are interdependent yet governments vary widely in their interest and ability to implement such commitments. Both approaches (regional and global)

[110] Keohane, Robert O. and Victor D., “The Regime Complex for Climate Change” Discussion Paper 2010-33, Cambridge, Mas.: Harvard Project on International Climate Agreements, January 2010.

[111] Low Patrick, WTO Decision-Making for the Future (World Trade Organization, 2009), available at http://www.wto.org/ english/res_e/statis_e/tait_sept09_e/tait_sept09_e.htm.

share the objective of creating an international framework for climate action. However, they differ on how to achieve the goal. Besides regional blocs can constitute important building blocks for effective multilateralism or even complement global efforts.

Hereunder, the research discusses some Let us now look at some climate change initiatives within the context of regional organizations.

2.6 The COMESA Climate Initiative

The Secretariat for the Common Market for East and Southern Africa (COMESA) has developed a comprehensive approach and program initiative to address climate change within the context of its responsibilities and strategy for promotion of the Comprehensive Africa Agriculture Development Programme (CAADP). African Heads of State – in cooperation with the New Partnership for Africa's Development (NEPAD) - launched CAADP to address the pressing livelihood and landscape needs of the African continent. The NEPAD Secretariat has developed a road map to facilitate implementation of the CAADP agenda. While recognizing its own role as a facilitator and catalyst for resource mobilization, it assigned the major responsibility for implementation to the regional economic communities (e.g., COMESA) and their member countries. [112]

The COMESA Climate Initiative is put forward as an integral part of CAADP's, Pillar One. The overarching goal of the COMESA Climate Change Initiative is to contribute to the establishment of sustainable landscapes and livelihoods, including adaptation and mitigation to climate change. The multiple benefits of this Initiative will include promotion of sustainable agriculture and land use practices, biodiversity conservation, maintenance of environmental

[112] http://programmes.comesa.int/index.php?option=com_content&view=article&id=80&Itemid=110

services, successful adaptation to climate change, and improvements in rural livelihoods, in addition to the delivery of cost-effective and verifiable reductions in greenhouse gas emissions. COMESA has developed partnership arrangements with the International Centre for Research in Agroforestry (ICRAF) and Worldwide Fund for Nature (WWF) to support its work related to CAADP, Pillar One. The project is focused on addressing biodiversity loss, deforestation, land degradation, agricultural productivity, and climate change.

The initiative will address climate, conservation and livelihoods through two complementary approaches. The Frameworks and Tools arm of the project will include components on Measuring and Monitoring, Best Practices, and Institutions and Policies. The Measuring and Monitoring component will resolve existing difficulties associated with measuring carbon sequestration in agroforestry systems—including sequestration in vegetation and soils—and with monitoring sequestration over the long-term. A Best Practices Toolbox will bring together in an easily accessible format existing knowledge and experience about agroforestry and other sustainable livelihoods that support climate change mitigation and adaptation. An Institutions and Policy Users Guide will likewise gather existing knowledge and experience regarding appropriate institutional and policy arrangements for promoting sustainable land use and carbon sequestration. This arm is already substantially financed through the Global Environmental Facility (GEF) and World Bank.[113]

The Applications and Learning arm of the project will support the development of necessary institutions and policies, the integration of sustainable agricultural and land-use practices into agricultural development strategies, and the development of a market for LULUCF-based carbon credits. The components include: technical support for the Working

[113] ibid

Group for Climate, Agriculture, Forestry, Land Use and Livelihoods; Country Operations with a view to carbon-proofing all terrestrial activities under the CAADP umbrella and to developing a pipeline of carbon eligible projects (i.e., carbon readiness); a Financial Instruments component that will support the establishment of an African Carbon Fund to invest in carbon credits for LULUCF activities; and a Learning and Outreach strategy. The Applications and Learning arm is not yet funded.[114]

2.7 SADC and Climate Change

SADC is an inter-governmental organization established by the SADC Treaty of 1992. The SADC member States include Angola, Botswana, the Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.

It is widely accepted, based on future climate modelling findings, that the sub-region's climate will be hotter and drier in the future than it is today. Ragab and Prudhomme observed that by 2050, the sub-region's average annual temperature is expected to increase by between 1.5°C and 2.5°C for countries in the southern end of the sub-region and by between 2.5°C and 3.0° C for countries in the northern end of the sub-region if compared to the 1961-1990 average.[115] Furthermore, more recent climate modelling findings from the National Centre for Atmospheric Research and the National Oceanic and Atmospheric Administration of the United

[114] ibid
[115] Ragab, R., and Prudhomme, C., 2002. *Climate Change and Water Resources Management in Arid and Semi-arid Regions: Prospective and Challenges for the 21st century.* Biosystems Engineering 81: 3-34

States revealed 'very clear and dramatic warming of the Indian Ocean into the future, which means more and more drought for southern Africa'.[116]

The extreme climatic events that the sub-region has been experiencing, especially the El Nino related droughts, are negatively impacting the inhabitants and economies of the southern Africa sub-region. For instance, El Nino events that occurred between 1965 and1997 resulted in significant decreases in agricultural production, thereby accentuating the food insecurity situation in the sub-region. Furthermore, the warming of the Pacific ocean in 1991 and 1992 caused one of the worst droughts the sub-region has ever experienced in the last century.[117] These events resulted in crop losses and death of cattle herds that subsequently led to widespread food shortages. Since 2001, consecutive dry spells in some areas of the sub-region also led to food shortages. For example, in 2001 and 2002 six countries, namely Lesotho, Malawi, Mozambique, Swaziland, Zambia and Zimbabwe faced a food deficit of about 1.2 million tonnes of cereals and non-food requirements. These were estimated to cost US$611 million.[118]

There are several programmes, projects and initiatives on climate change that are being implemented in the southern Africa sub-region in response to climate change. Most of the programmes address a combination of components of climate change adaptation, mitigation, and supporting measures as well. Southern Africa hosts a number of sub-regional programmes with activities focusing on various aspects of climate change.

[116] NCAR, 2005. *A Continent Split by Climate Change: New Study Projects Drought in Southern Africa, Rain in Sahel*. National Center for Atmospheric Research Press Release, May 24,2005, Boulder, CO
[117] Glantz, M.H., Betsill, M. and Crandall, K., 1997; *Food security in Southern Africa. Assessing the Use and Value of ENSO Information*. National Center for Atmospheric Research, Boulder,CO, USA.
[118] SADC, 2002. Annual Report 2001-2002, Southern Africa Development Community

2.7.1 SADC Programmes on Climate Change

The SADC Drought Monitoring Centre (DMC) is a SADC institution whose main objective of is to carry out climate monitoring and prediction for early warning and mitigation of adverse impacts of extreme climatic events on agricultural production, food security, water resources, energy, and health among other socio-economic sectors. The centre has played an important role in providing the sub region with weather and climate advisories and more importantly, timely early warnings on droughts, floods and other extreme climate related events.

The Southern Africa Regional Climate Outlook Forum (SARCOF brings together Climate scientists from SADC National Meteorological and/ or Hydrological Services (NMHSs) and the Drought Monitoring Centre (DMC) to prepare reports on seasonal climate status and outlook.

The Programme for Basic Energy and Conservation (ProBEC) is a SADC project that manages and stimulates the establishment of various projects based on basic energy conservation in 10 member states in SADC. Currently ProBEC is actively involved in Malawi, Lesotho, Mozambique, Tanzania, Swaziland, Zambia, Botswana, Namibia and South Africa.

The SADC 24th Plenary Assembly of the SADC Parliamentary Forum Communiqué of 20th to 27th of November 2008, Paragraph 6 notes that, as a result of the Climate Change the SADC region is periodically faced with floods and droughts and that the current energy crisis in the SADC has exacerbated poverty in the region. The Forum acknowledged that there is need for parliamentarians to raise their commitment to fighting poverty, climate change and other regional crises and challenges.

The SADC Task Force for Monitoring Weather Conditions is found under the Food Security, Technical and Administrative Unit. It is specifically there to monitor weather

conditions. The task force comprises the SADC's Regional Early Warning Unit, the Regional Remote Sensing Project, the Drought Monitoring Centre and the Famine Early Warning System Project, all based in Harare, Zimbabwe. The early warning unit issues alerts to help member countries prepare for the prospect of drought or flooding and consider ways of mitigating their effects.

The SADC Regional Environmental Programme is charged with the responsibility of enabling environmental education practitioners in the SADC region to strengthen environmental education processes for equitable and sustainable environmental management choices. This will be achieved through enhanced and strengthened environmental education policy, networking, resource materials, training capacity, and research and evaluation.

Article 3 of the SADC Protocol on Forestry spells that to achieve the objectives of the Protocol, State Parties shall co□operate by: (a) assisting and supporting each other to address issues of common concern including deforestation, genetic erosion, climate change, forest fires, pests, diseases, invasive alien species, and law enforcement in a manner that makes the best use of the technical, financial and other resources in the region.

SADC Regional Early Warning System provides advance information on food crop yields and food supplies and requirements. The information alerts Member States and stakeholders of impending food shortages/surpluses early enough for appropriate interventions. National Early Warning Units have been established in all Member States to collect, analyse and disseminate early warning information at country level; AIMS produces regional reports.

The SADC Meeting of Ministers of Environment and Sustainable Development Communiqué of 13th November 2009, Paragraph 4 notes that despite the fact that the SADC region has contributed very little to global warming, it is more affected by the impacts of climate

change. Ministers resolved that adaptation to climate change remains a top priority for the region. In this regard, Ministers called upon the SADC Member States to support the common position of Africa. On mitigation, the Ministers resolved that it should be voluntary on the part of the region and other Developing Countries. Ministers called upon developed countries who are responsible for most of the green house gas emissions to undertake strict mitigation measures to reduce emissions. With regard to "Reduced Emissions from Deforestation and Forest Degradation" (REDD), Ministers resolved to support the SADC position.

The SADC Groundwater and Drought Management project is designed project for SADC member states to develop cooperatively a strategic regional approach to support and enhance the capacity of its member states in the definition of drought management policies, specifically in relation to the role, availability (magnitude and recharge) and supply potential of groundwater resources. This will assist in reconciling the demands for socio economic development and those of the principal groundwater dependent ecosystems. Tools will be elaborated for regional cooperative management of transboundary aquifers and to guide sustainable downstream investments in proactive drought mitigation.

The SADC Regional Drought Fund has not been launched yet, but it is intended to provide funds to drought affected member countries. Consultations with the World Bank and other donor agencies have already been initiated. The Fund, once established, is expected to operate like an export import guarantee scheme and will enable affected countries to borrow and repay within a stipulated time frame.

The African Bio Carbon Fund is part of the Africa Bio Carbon Initiative which seeks to advocate for broader eligibility for bio carbon in the Kyoto and related regional and national frameworks for climate change. This objective will contribute to the overarching goal of

increasing the benefits for sustainable agriculture and land use practices, biodiversity conservation, maintenance of environmental services, successful adaptation to climate change, and improvements in rural livelihoods, in addition to the delivery of cost effective and verifiable reductions in greenhouse gas emissions in Eastern and Southern Africa and beyond.

2.8 Conclusion

Clearly there is every reason to worry about the impacts of climate change on human systems given that the rate of change is unprecedented in the past 10,000 years. Climate change reduces people's access to natural resources that are important to sustain their livelihoods in the present day, and will increasingly do so in the future. 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 which help to maintain and build peace. In certain circumstances, these direct and indirect impacts of climate change may in turn increase the risk of violent conflict.

The inherent inertia of the climate system means that the uncertainty in managing the changes is very real. Regardless of what happens, African governments and communities will need to manage these shifts to ensure that competition for resources does not break out into violent conflict over resources. They will also need to put in place the skills and infrastructure that will be needed to cope with increasingly frequent natural disasters and new health problems. This is where regional organizations can play a role, in helping to forge collaboration among states to anticipate and respond to these challenges. The political momentum behind climate change and the way in which the climate change debate is becoming a debate about security provides the international community with a new entry point to re-evaluate the current and future climate change governance architecture, and to give attention to regional organizations as

important players in this process and indeed in the on-going efforts to mitigate and/or adapt to the effects of climate change.

CHAPTER THREE

REGIONAL BODIES AND CLIMATE CHANGE AND SECURITY: A CASE STUDY OF IGAD

3.1 Introduction

This chapter identifies and discusses the sources of climate change vulnerability in the IGAD region and the security risks posed by the impacts of climate change to development, peace, security, and stability of the region. It also looks at the need and scope for security cooperation in the IGAD region to address the problems posed by climate change and assess whether an opportunity exists for the IGAD to play an important, leadership role in meeting that need. In so doing, the chapter further takes stock of the programmes, projects, decisions and initiatives focused on climate change action, adaptation and mitigation of its impacts in the region.

IGAD region comprises the countries of Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan and Uganda. The region stretches over an area of 5.2 million km^2 and a population of over 210 million. By 1999, the combined gross domestic product (GDP) of the IGAD region was estimated at US$ 35.9 billion, representing an average per capita GDP of US$ 233. The economic mainstay of the IGAD region is agriculture with heavy reliance on environment and natural resources.

Four fifths of the region is dry lowlands comprising of arid, semi arid & dry sub humid. The region has great variety of climates and landscapes including mountain glaciers, tropical rain forests, and grasslands as well as arid and semiarid areas among other features. The sub region is

the home of about 20 million pastoralists– the largest number in the world. The region is prone to recurrent hazards such as droughts and floods making it one of the most vulnerable regions on the African continent to climate variability and change. The region experiences increasing pressures from the growing human and livestock populations on land & water resources and there is ever increasing degradation of the natural resources.

Map of the IGAD Region: *Source: http://www.africa-union.org/Recs/IGAD_Profile.pdf*

3.2 IGAD: Establishment and Mandate

The Intergovernmental Authority on Drought and Development (IGADD) was formed in1986 with a very narrow mandate to co-ordinate the efforts of the member states in combating desertification and promoting efforts to mitigate the effects of drought. Since then, and especially in the 1990s, IGADD became the accepted vehicle for regional security and political dialogue.[119]

Thereafter, at an extra-ordinary Summit held on 18th April 1995, the Heads of State and Government resolved to re-vitalize the Authority and to expand its mandate to cover political as well as economic issues. Consequently, the Authority was re-named the Intergovernmental Authority on Development in 1996 and the Agreement Establishing IGAD was amended accordingly. The new Agreement gave IGAD an expanded mandate that includes inter alia, the following areas of cooperation among the member states: enhancing cooperation and co-ordinating their macro-economic policies; Promoting sustainable agriculture development and food security; Conserving, protecting and improving the quality of the environment; Ensuring the prudent and rational utilization of natural resources; Cooperating in increased sustainable utilization and development of energy resources in the sub-region, and in the gradual harmonization of their national energy policies and energy development plans; and Cooperating in the gradual harmonization of their national policies in scientific and technological research and development, transfer of technology, and their policies on capacity building in science and technology in the sub-region.

While the new Agreement establishing IGAD identified some twenty areas of cooperation among the member states, the following three priority areas were selected as the immediate entry points for cooperation: Food security and environmental protection; Conflict

[119] http://www.africa-union.org/Recs/IGAD_Profile.pdf

prevention, management and resolution; and Economic cooperation and integration.IGAD has been designated one of the pillars of the African Economic Community in terms of the AEC Treaty. IGAD signed the Protocol on Relations between the AEC and Regional Economic Communities on 25 February 1998.[120]

3.3 Climate Change in the IGAD Region

Climate change poses significant threats on ecology and human life worldwide. The IGAD region is seen as highly vulnerable to climate variability and change, e.g. due to the strong dependence on rainfed agriculture, the limited capacity of people and institutions to adapt to changing circumstances, as well as high poverty levels[121]. In the IGAD region climate has also shown some changes during the past decades. These changes included: an accelerating rise in night time temperature[122]; day time temperature seems to remain stable; an intensifying bipolar rainfall pattern, with increasing rainfall over the northern sector of the Greater Horn of Africa, and declining amounts over the southern sector (large parts of Kenya, Uganda, as well as Burundi, Rwanda and Tanzania)[123]; an increase in the frequency of anomalously strong rainfall, causing floods[124]; large geographical and temporal variation in the observed rainfall trends; this variability can largely be explained by the occurrence of El Nino.[125] Reports by the IPCC suggest that in eastern Africa (including the IGAD region): temperatures will rise; average rainfall is

[120] ibid
[121] Slingo, J., Challinor A., Hiskins B.. and Wheeler T.R (2005). "Introduction: food crops in a changing climate" *Philosophical Transactions of the Royal Society,* Series B 360, 2005, pp. 1983–1989.
[122] Christy, J.R. Norris W.B., and McNider R.T. (2009). "Surface Temperature Variations in East Africa and Possible Causes." *J. Climate*, in press
[123] Schreck, C.J. and Semazzi F.H. (2004). "Variability of the recent climate of eastern Africa". *International Journal of Climatology*, 24 (6), pp. 681-701
[124] Shongwe, M.E., Van Oldenborgh and Van Aalst (2009). *Projected changes in mean and extreme precipitation in Africa under global warming, Part II: East Africa.* Nairobi, 2009
[125] Butterfield, R. (2009). *Extreme rainfall seasons in East Africa.* Available at: http://www.weadapt.org/wiki/Extreme_rainfall_seasons_in_East_Africa

expected to increase in the long term[126] ; extreme weather events will occur more frequently; sea levels will rise; and marine acidification will increase. The report cites restricted computational facilities, lack of human resources and insufficient climate data are blamed for the fact that very few regional to sub-regional climate change scenarios have been developed in Africa.

3.4 Implications of Climate Change for Security in the IGAD Region

Climate change has the potential to affect both environmental security and economic security through its impacts on the natural and built environments. Those threats to human security, in turn, pose traditional security threats to the governments that must deal with them. Climate impacts on environmental security as seen above are direct: changes in precipitation, sea- level rise, and extreme weather events can degrade food production and fresh water supplies in vulnerable regions. Impacts on the built environment occur through riparian flooding, coastal storms, or the melting of permafrost. Threats to economic security follow as a consequence of environmental degradation, and also from the impacts of climate change on food, energy, and infrastructure costs. For instance in Lake Victoria reduced rainfall compounded by excess releases at the outflow of the lake made in order to meet power generation demands has led to a drop in water levels which in turn has affected various economic sectors.[127]

Unfortunately, these climate trends will interact with other global trends in negative ways. In the IGAD region, increasing populations will create growing needs for food, water, and energy. Economic development and a rising middle class will further increase demand. Urbanization of coastal areas will increase climate vulnerability, while air and water pollution

[126] IPCC. 2007. *Mean Temperature - Climate Change 2007: Working Group I: The Physical Science Basis - IPCC Fourth Assessment Report* [cited October 18, 2010]. Available from http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch10s10-es-1-mean-temperature.html.

[127] Hepworth, Goulden, 2008. *Climate Change in Uganda: Understanding the implications and appraising the response.* DFID Uganda. http://www.dfid.gov.uk/Documents/publications/ugandaclimate-change.pdf

will further stress water supplies and human health. Deforestation, desertification, and agricultural land degradation will decrease terrestrial carbon sequestration, contributing to the greenhouse effect. Climate change thus threatens economic security by narrowing the window for achieving sustainable development.

The IGAD region is one of the regions of the world most severely affected by climate change and variability. Recurrent drought has altered the biophysical and socioeconomic landscape of the region during the past four decades. Impacts of drought on human security include famine and migration. There are a variety of associated factors that make the region especially vulnerable to the projected effects of climate change, including population growth, poverty, rainfed agriculture, food insecurity, health problems, and low technology. The situation in the Darfur region of Sudan reflects the complex interaction of factors that can produce environmentally linked conflict under the stresses produced by climate change. Climate variability has had negative impacts on water availability and the productivity of subsistence crops. The population's livelihoods depend on natural resources, and there are inter-tribal tensions. The nomadic system has been under pressure due to declining rainfall and loss of traditional routes. These factors have intertwined with a lack of security, changing social structures, land tenure disputes, and rising tensions between resource users. Violence in Darfur is causing the further deterioration of natural resources.[128]

The security issue of concern is an increased risk of significant social, economic or political instability in one or more countries in the region. As noted above, climate change and related disasters which threaten human security can induce forced migration and produce competition among communities and nations for water and basic needs resources, with potential

[128] de Waal, Alex 2007. *Is Climate Change the Culprit for Darfur?* SSRC, June 25 .Available from http://www.ssrc.org/ blog/2007/06/25/is-climate-change-the-culprit-for-darfur/.

negative consequences for political stability and conflict resolution. Changing climatic patterns are expected to pose great threats to food and water security, public health, natural resources and biodiversity the IGAD region.[129] The climate security risks that may arise from the primary drivers of climate change referred in the previous section are described below.

3.4.1 Food Security

Severe and prolonged droughts, flooding and loss of arable land due to desertification and soil erosion are reducing agricultural yields and causing crop failure and loss of livestock, which endangers rural and pastoralist populations. IGAD region pastoralist areas of the Ethiopia-Kenya-Somalia border have been severely hit by recurrent droughts; livestock losses have plunged approximately 11 million people dependent on livestock for their livelihoods into a crisis and triggered mass migration of pastoralist's out of drought-affected areas. The impacts of climate change on agriculture and other key economic sectors in the food production and supply chain, such as forestry and energy, threaten food security across sub-Saharan Africa.[130] With a heavy reliance on rainfed agriculture in much of the Moreover, rising temperatures are expected to have an adverse effect as well contributing to food insecurity in the region. Climatic changes may however, also have some positive effects on agricultural development and food security in the region. The expected increase in rainfall including during dry seasons may for instance compensate the negative impacts caused by temperature rise.

[129] Hendrix, Cullen S., and Sarah M.. 2007. Trends and Triggers: Climate Change and Civil Conflict in Sub-Saharan Africa. *Political Geography* 26 (6):695-715.
[130] UNEP, 2009

3.4.2 Health

Increases in temperature, and poor water and sanitation linked to climate-induced droughts and floods, are major contributors to the spread of infectious and water-borne communicable diseases in the region. Floods for instance increase the risk for spreading diseases such as water borne diseases such as cholera and gastrointestinal disorders, diarrhoea, rodent-borne diseases and vector-borne diseases such as malaria and dengue.[131] Due to increase in temperature and intensifying rains, vector-borne diseases have extended to higher altitudes and higher latitudes such as previously malaria-free areas such as the Kenyan and Ethiopian highlands. Reports have indicated for instance that temperatures in the Kabale district of Uganda have also shot up by 2ºC in the last three decades enabling g malaria vector mosquitoes to find new habitats in the highlands.[132]

Evidence from the 1997/1998 El Niño indicates that the malaria epidemic months correspond with the onset of abnormally high short rains proceeded with a season of abnormally high maximum temperatures. Moreover, floods may limit people to reach public health services, and may deteriorate public health infrastructure directly or indirectly. Furthermore, the declining food security situation is anticipated to cause malnutrition and related disease.[133] Climate change is likely is likely to increase mortality due to heat stress, and cardiovascular illness due to smoke haze. These may lead to increasing mortality and morbidity, epidemics that may cross borders, impacts on economic growth, and problems of border control.

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[131] Red Cross Red Crescent Climate Centre (year unknown), *Health risk management in a changing climate: a global approach to building local capacity.* Available at: http://www.climatecentre.org/downloads/File/programs/Rockefeller%20short%20project%20description%20for%20website.pdf

[132] Wandiga *et.al* 2004. *Vulnerability to climate induced highland malaria in East Africa.* Report of the assessment of impacts and adaptation to climate change in multiple regions and sectors

[133] UNEP (2006), *Africa Environment Outlook 2 – Our Environment, Our Wealth*. Division of Early Warning and Assessment (DEWA), United Nations Environment Programme (UNEP). Nairobi, Kenya.

3.4.3 Ecology

The changes in local and regional climates may accelerate extinction of endangered species and vulnerable ecosystems. Prolonged drought is causing animal migration and conflict between wild life and people in parts of Ethiopia, Kenya and Sudan. Temperature variations are expected to affect seasonality of the breading and flowering of fauna and flora. Forest fires are increasing in places where summers become warmer and drier. Prolonged periods of summer drought would transform areas already sensitive to fire into regions of sustained fire hazard. Mount Kenya and the Gambella region of Ethiopia, for instance, are already subject to frequent fires, which may intensify. Also, marine ecosystems and marine species may be significantly affected by marine acidification. Calcifying organisms such as corals and shellfish are very vulnerable, due to their sensitivity to changes in carbon chemistry.[134] Moreover, the reproductive capabilities of some marine species are at risk.

3.4.4 Migration and Population Displacement

There is growing recognition that environmental degradation and climate change hold the potential to result in significant population migration and displacement of people which the IGAD region is presently ill-equipped to prevent or respond to in an effective manner. Climate change will aggravate this problem complex.[135] Climate change is likely to contribute to the movement of people within and across borders, over short and long periods of time, through its effects on livelihoods, health, and the sustainability of settlements. Large scale unplanned

[134] Intergovernmental Panel on Climate Change (2001). Third Assessment Report of Working Group II on Climate Change Impacts, Adaptation and Vulnerability, Summary for Policy Makers, 2001.
[135] IPCC. 2007b. *Climate Change Impacts, Adaptation and Vulnerability*, Report of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, U.K., and New York.

migrations may lead to social disruption by increasing: pressure on public goods and services, rivalry over resources, and problems of border control.[136]

Already, droughts and the drying of river basins in IGAD region have induced migration of individuals and communities in search of alternative livelihoods. Examples of climate change-related migration in the region include the continuous movement of pastoralist communities of northern Kenya ravaged by both droughts and floods; rural-urban migration in Ethiopia due to adverse environmental changes in its highlands and internal displacement of population in the low-lying and flood-prone plains of Kano and Budalangi in Kenya.

3.4.5 Livelihoods and Economy

The livelihoods of the people in the region strongly depend on rainfed agriculture, pastoralism and fishery. Agriculture employs about 80% of the population in Ethiopia, Eritrea and Sudan, 75 % of the population in Kenya and 65 % of the population in Somalia.[137]Yet this sector is challenged by many factors, among which are climate-related disasters like droughts and floods.[138] The occurrence of more frequent droughts in the Horn of Africa would cause tremendous problems for those depending on agriculture for their livelihoods. As pastoralism is highly vulnerable to drought, the estimated 25 million pastoralists living in the Horn of Africa are expected to be among the major victims of climate change. Due to severe drought caused by a shortage of rainfall for a prolonged period in 2009, 20 million people in the Horn of Africa

[136] Raleigh, Clionadh, Lisa Jordan, and Idean Salehyan. 2008. *Climate Change, Migration and Conflict.* World Bank Social Development Group [cited September 24, 2010]. Available from http://siteresources.worldbank.org/EXTSOCIALDEVELOPMENT/Resources/SDCCWorkingPaper_MigrationandConflict.pdf.
[137] Central Statistics Agency (2004). *The Federal Democratic Republic of Ethiopia Statistical abstract for 2003.* CSA, Addis Ababa, 2004.
[138] Jones, S. P.G. and P.K. Thornton (2003). "The potential impacts of climate change in tropical agriculture: the case of maize in Africa and Latin America in 2055". *Global Environmental Change* 13, 2003, pp. 51–59.

were subject to food aid.[139] Climate change also poses a threat to other economic opportunities in the region such as tourism. Areas are becoming hotter and drier, which significantly reduces the scenic appeal for tourists and has a negative impact on tourism. The retreat of glaciers on Mount Kilimanjaro, Mount Kenya and the Ruwenzori Range may significantly affect mountain tourism, as well as animals and plants downstream, which depend on annual glacier-melt. This will directly disturb the tourism industry. Similarly, fishery may also be affected due to changes in marine ecosystems.[140] These effects outlined here clearly demonstrate how economic development can be hampered by current and future climatic change

The so-called lowlands, rangelands, or arid and semi-arid lands are the cradle of pastoralism, an important livelihood and way of life for more than 25 million people who are engaged in pastoralism on lands that cover 60 percent of the total IGAD area. The security of pastoralists is endangered by recurrent droughts, water and pasture shortages, land degradation, invasive vegetal species, population growth, agricultural expansion, sedentarization, lack of health and educational facilities, and national and transboundary conflicts. Climate change effects represent perhaps the most important threats for pastoralists and pastoralism in the future. Small-scale farmers and pastoralists who compete for resources often come into conflict. Pastoralists have been viewed as intruding on agricultural land, but are also victims themselves. In the last decade, the loss of land has led to declining productivity and the need for more land for sedentary farming. This increase in land for farming has blocked natural routes for pastoralists, threatening their livelihoods.

[139] WFP (2009), *Hunger Lingers In Horn Of Africa Despite Rains.* Available at: http://www.wfp.org/stories/hungerlingers- horn-africa-despite-rains

[140] Brander, K. (2006), *Assessments of possible impacts of climate change on fisheries.* Berlin, 2006. Available at: http://www.wbgu.de/wbgu_sn2006_ex02.pdf

3.4.6 Conflict

From above impacts, its clear that climate change may seriously threaten political and economic stability, as, for example, when communities and nations struggle to access scarce water resources or when forced migration puts previously separate groups into conflict over the same resources. Given the history of ethnic, resource and political conflicts in the IGAD region, climate change could aggravate territorial and border disputes and complicate conflict resolution and mediation processes. Conflict zones and potential flashpoints such as Darfur, and northern Kenya, all have populations living in fragile and unstable conditions making them vulnerable to climate change's effects and the risk of violent conflict. Declining water resources and diminishing arable land are already intensifying competition for those resources, and creating tensions for displaced populations or those moving in search of improved livelihoods. Armed conflict and intensified national security concerns minimize capacity to cope with climate change.

3.5 Sample Scenario in the IGAD: Vulnerability Assessment in Kenya

A 2010 climate change study commissioned to look into Kenya's vulnerability to climate change impacts and its preparedness to deal with those impacts showed that climate change has and will severely impact the country.[141] The country's economic and livelihood systems are highly dependent on natural resources, which are very sensitive to any slight changes in climatic conditions which makes the country very vulnerable to climate change.[142]

An example of the country's vulnerability to climate change is the spread of climate-sensitive diseases such as malaria to new, higher altitude zones such as Kericho and Nairobi

[141] Stiftung Heinrich (2010) *Climate Change Vulnerability and Adaptation Preparedness in Kenya*.
[142] Kenya National Environmental policy, 2013 available at www.enviroment.go.ke, pp 22

where the disease is not known to be endemic. Other impacts deduced include increasingly intense and frequent drought episodes, successive seasons of crop failure, dwindling energy resources including drying biomass, suboptimal electricity production capacity during droughts and increased episodes of torrential rains and floods with detrimental impacts on the physical infrastructure such as roads, telecommunication, railways, ports. The Kenyan coastline for example is characterized by a rich diversity, including fish, coral reefs and mangrove forests. But the Kenyan coast is one of the most vulnerable to sea level rise in the world. For example, it is estimated that about 17% of Mombasa or 4600 hectares (ha) of land area will be submerged with a sea level rise of only 0.3 metres [143]. Others impacts include social settings with effects on mortality and displacement by landslides, mudslides and submergence of homes; increased climate-induced migrations (e.g. rural-urban migration), diminishing pasturelands due to droughts, i.e. desertification, and scramble over diminishing resources (e.g. droughts that push pastoralists to drive their animals to farmlands), among others.

The economic impact of these climate change threats to the country is enormous. A recent study by the Stockholm Environment Institute on the Economics of climate change in Kenya revealed that the future economic costs of the impacts of climate change on market and non-market sectors might be close to 3% of GDP per year by 2030 and potentially much higher than this (more than 5% of GDP per year) by 2050.[144]

[143] Kenya Climate Change Response Strategy, 2010

[144] Stockholm Environmental Institute, 2009. Economics of Climate Change in Kenya. htt p://sei-international.org/ mediamanager/documents/Publications/Climate-mitigation-adaptation/kenya-climatechange.pdf

3.6 The Role of IGAD in Climate Change Security

Climate change is an emerging phenomenon, complexly related to other global trends impacting the physical and social environments. It poses a threat to both economic and environmental security. Political response to the threat can be addressed three categories: mitigation, adaptation, and knowledge creation and dissemination. Mitigation, adaptation, and research activities will take place within the international order of sovereign nations, but the transnational nature of the problem and its threat to the stability of states make international collaboration to address the problem a necessity. Accordingly, global organizations provide forums to craft international agreements on GHG mitigation, although specific solutions will depend on national actions within local and regional economic and environmental contexts**.**

Adaptation for instance is a more local and sub regional enterprise of infrastructure strengthening and behavior modification to resist environmental degradation increase resilience to disaster. Because environmental phenomena are geographic, not political, regional cooperation of states with shared geographies can increase the efficiency and effectiveness of adaptation activities, through collaborative knowledge creation and dissemination, and the sharing of best practices. For example, the IGAD region has numerous shared natural resources, and proper integration between member states will be critical for their effective management. Lake Victoria, which is important for fishing, domestic water withdrawal, industry, and other uses in Kenya and Uganda, is one major example. The use of the waters of the Nile is another. have the potential to contribute to economic cooperation and regional integration through helping to require a variety of institutional partners, a proper legal framework, capacity building, and enforcement mechanisms for addressing climate change and its effects in the region. Building trust and ownership is essential to overcoming longstanding mistrust in participating

states. Adopting a gradual approach in implementing regional agreements on joint environmental management could restore confidence, while promoting outreach and communication. This could support the efforts of IGAD countries to harmonize policies relevant to climate change more broadly, including those related to trade, customs, transport, energy, communications, and agriculture.

Because climate change is both an emerging and a complex phenomenon, knowledge creation and dissemination is needed at levels all sectors and regions," and to prioritize policy relevant research. As a leading regional security organization, IGAD can bring unparalleled institutional strength and resources to support adaptive planning and management to meet the economic, climate change and environmental security threats. This, in addition to the foundational mechanisms, experience, and ability to find political consensus among its members and mobilize them to deal with the economic and environmental security challenges of climate-related global change, and achieve a higher level of regional cooperation.

Environmentalist Stewart Brand has said, "Dealing climate change "...involves a level of global cooperation that has never happened and the mechanisms for that are not in sight." [145] Regional response to climate change in the IGAD region is consistent with Brand's observation. His analysis helps point the way toward regional development of mechanisms for regional collaboration to address the problems of global change.

[145] Joel Achenbach, "Spaceship Earth: A new view of environmentalism," *Washington Post* (January 2, 2012), available at: http://www.washingtonpost.com/national/healthscience/ spaceship-earth-a-new-view-of environmentalism /2011/12/29gI QAZhHWP_ story.html.

3.7 Addressing Climate Change and its Security Threats in the IGAD: Organizations and Initiatives

IGAD aims to expand the areas of regional co-operation, increase the members' dependency on one another and promote policies of peace and stability in the region in order to attain food security, sustainable environment management and sustainable development. The IGAD strategy aims to attain sustainable long-term collective self-sustaining and integrated socio economic development for its member countries. The Strategy constitutes a framework for strengthening regional cooperation and integration. The programmes which derive from the Strategy constitute the regional architecture through which many of the Strategy priorities are implemented including climate change and security.

3.7.1 Climate change and the IGAD Peace and Security Strategy

While drought and development were IGAD's main emphases when it was created, its current institutional mandate incorporates peace, security, and economic cooperation. The core issues of environment, drought, and desertification are now being handled in a comprehensive way that takes into consideration the introduction of these new issues.

Under the auspices of IGAD, the peace processes in Somali and Sudan have achieved some results. While Somalia still faces problems, there is hope that the achievements can be sustained in Sudan. These examples have helped demonstrate why IGAD needs a strategy to cover peace and security issues. When IGAD participated in these peace processes, it was without institutional frameworks or proven strategies. In the wake of these peace efforts, one recommendation was that IGAD needed to build a strategy to cover its peace and security efforts. IGAD believes that to continue as a peaceful region, it must use the natural resources it has to

promote peace and security. This is reflected in IGAD's draft Peace and Security Strategy, which includes such components of environmental security as natural hazards, environmental refugees, shared rivers and lakes, the development and use of energy, pastoralist conflicts, and natural resource management. CEWARN provides ongoing early warning with respect to cattle-rustling. Given that climate changes linked to drought, migration, pastoralism, and other issues, climate change also is an important consideration in relation to peace and security.

3.7.2 IGAD Climate Prediction and Applications Centre

IGAD Climate Prediction and Applications Centre (ICPAC) is a specialized institution of the Intergovernmental Authority on Development (IGAD) working with the National Meteorological Services, World Meteorological Organization (WMO) and other partners to address regional challenges of climate risks including climate change.[146] It has its headquarters in Kenya. In 1989, 24 countries in Eastern and Southern Africa established a Drought Monitoring Centre with its headquarters in Nairobi (DMCN) and a sub-center in Harare (Drought Monitoring Centre Harare – DMCH) in response to the devastating weather related disasters. In October 2003, the Heads of State and Governments of the Intergovernmental Authority on Development) held their 10th Summit in Kampala, Uganda, where DMCN was adopted as a specialized IGAD institution. The name of the institution was at the same time changed to IGAD Climate Prediction and Applications Centre in order to better reflect all its mandates, mission and objectives within the IGAD system. A protocol integrating the institution fully into IGAD was however signed on 13th April, 2007. The centre is responsible for ten member countries namely: Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan and Uganda as well as Burundi,

[146] http://www.icpac.net/index.html

Rwanda and Tanzania. The vision is to become a viable regional centre of excellence in climate prediction and applications for climate risk management, environmental management, and sustainable development. The mission of ICPAC is the provision of timely climate early warning information and supporting specific sector applications to enable the region cope with various risks associated with extreme climate variability and change for poverty alleviation, environment management and sustainable development of the member countries.

The objectives of the Centre are: to provide timely climate early warning information and support specific sector applications for the mitigation of the impacts of climate variability and change for poverty alleviation, management of environment and sustainable development; to improve the technical capacity of producers and users of climatic information, in order to enhance the use of climate monitoring and forecasting products in climate risk management and environment management; to develop an improved, proactive, timely, broad-based system of information/product dissemination and feedback, at both sub-regional and national scales through national partners; to expand climate knowledge base and applications within the sub-region in order to facilitate informed decision making on climate risk related issues; and to maintain quality controlled databases and information systems required for risk/vulnerability assessment, mapping and general support to the national/ regional climate risk reduction strategies.

The functions of the Centre include: Acquisition of climate and remotely sensed data; Develop and archive national and regional climate databanks including calibration of remote sensing records; Process data and develop basic climatologically statistics required for baseline risk scenarios and other applications; Monitor, predict and provide early warning information of the space-time evolutions of weather and climate extremes over the sub-region; Hazards and

climate risk mapping of the extreme climate events thresholds; Networking with WMO, the National Meteorological and Hydrological institutions as well as regional and international centers for data and information exchange; Capacity building in the generation and applications of climate information and products; Applications of climate tools for specific climate sensitive sector risk reduction, environment management, and sustainable development, including integration of indigenous knowledge; Monitor, assess, detect and attribute climate change and associated impacts, vulnerability, adaptation and mitigation options; Develop relevant tools required to address the regional climate challenges through research and applications in all climate sensitive socio-economic sectors including addressing linkages with other natural and man-made disasters; an Networking and exchange of information regarding disasters in the sub-region. The Centre products are: Ten day, monthly and seasonal climate/weather bulletins, climate watch/El Niño updates, and Annual climate summaries; Produce tailor made forecast depending on requests; Perform analysis to predict Onset and cessation dates and probability of dry and wet spells during the season; Perform Climate scenarios up to 50 years; Prepare National Climate Atlas containing several variables including rainfall variability, mean etc. and they are now compiling a Regional Atlas.

Within its core programs, it has computer services and climate data bank that is constantly updated. It has been involved capacity building in data processing, climate monitoring and modeling, and prediction. Upgrading of ICPAC computing facilities has improved regional climate modeling and prediction capacity. One of its major activities is the organization of Regional Climate Outlook Forum for the Greater Horn of Africa countries, the GHACOF, where the cooperating Institutions include Institut Géographique du Burundi; Météorologie Nationale de Djibouti, Eritrea Meteorological Service, National Meteorological Services Agency of

Ethiopia, Kenya Meteorological Department, Rwanda Meteorological Services, Somalia Meteorological Services, Sudan Meteorological Authority, Tanzania Meteorological Agency, Uganda Meteorological Agency, ACMAD, Korea Meteorological Administration, World Meteorological Organization, UK Met Office/Hadley Centre; OCHA and among others.

Within the national level ICPAC deals with Government Ministries of Agriculture, Disaster Management, Health, Water Management, tourism, energy, livestock, gender as well as the media. With a view to enhancing their linkages with their users ICPAC organizes capacity building through visiting scientists program, workshops and On the Job Training. Initially the products of ICPAC were disseminated through hardcopy bulletins, but now the current mode of dispatch include; web, e-mail, forums and workshops and personal conducts if the product required is of regional scale. All information with regard to national level products is normally referred to the NMHSs. To integrate climate information dissemination systems within the local communities, ICPAC has started a pilot project on “Integration of Traditional indigenous Knowledge with Modern Science” in Western Kenya. In this regard, the downscaled forecast is compared with that of made by Traditional predictors and a consensus is reached to arrive at the final forecast.

3.7.3 Conflict Early Warning and Response Mechanism (CEWARN)

CEWARN is an initiative of the Inter-governmental Authority on Development designed to serve the Region as a mechanism that systematically anticipates and responds to violent conflicts in a timely and effective manner. CEWARN’s mission is to establish itself as an effective and sustainable sub-regional mechanism that undertakes conflict Early Warning and Early Response and fosters cooperation among relevant stakeholders in order to respond to

potential and actual violent conflicts in the region in a timely manner. ICPAC and CEWARN have close collaborations due to close interactions of the issues being addressed by the individual institutions. A meeting of regional conflict experts and officials held in Addis Ababa in 2012 under the auspices of IGAD's Conflict Early Warning and Response Mechanism to craft a new strategic approach to identifying and preventing threats of violent conflict in the IGAD region recognized climate change as one of the key factors combining with other dynamics to produce and threaten violent conflict in the region.[147]

3.7.4 IGAD Environment and Natural Resources Strategy

IGAD clearly recognizes the relationship between environment and intra- and interregional conflicts. The IGAD Environment and Natural Resources Strategy states that "Environmental quality and sustainable natural resources management is a pre-condition for peace, security and development".[148] It specifically provides a comprehensive and coherent framework aimed at guiding IGAD programmes in the area of environment and natural resources. The development of this strategy was complemented by the previous one whose main focus was drought and desertification; and by others that addressed issues of peace and security, food security, gender, etc. It also tapped from regional and international development processes, conventions and agreements. In preparing the strategy, IGAD has embraced and employed the principles of ownership, participation and partnership. With this in mind, IGAD visited all member states except the Republic of Somalia where conditions could not allow and consulted with over eighty technical experts, political leaders and legislators.

[147] CEWARN press release:http://www.cewarn.org/index.php?option=com_content&view=article&id=153:igad-regional-experts-consult-on-emerging-threats-of-violent-conflict-and-priorities-for-regional-cooperation-on-prevention-&catid=1:latest-news&Itemid=82

[148] igad.int/attachments/159_IGAD_ENR_Strategy.pdf

The overall goal of the IGAD Environment and Natural Resources Strategy is to assist and complement the efforts of the member states in environment and natural resources management. The strategy also highlights the main environmental and natural resources management challenges. This will be done by promoting: Harmonization of compatible environmental governance systems; Provision of reliable, timely and readily available environment and natural resources data and information; Capacity building for environment and natural resources management; and Research into and adoption of new, appropriate and affordable technologies. The operationalization of the Strategy will be guided by a number of principles including: subsidiary, variable geometry, gender sensitivity, equity, and precautionary and polluter pays principles; The supremacy of national programmes; Recognising environment as an integral pillar of sustainable development; and Responsiveness to the MDGs, PRSPs and other multilateral environmental agreements and treaties.

3.7.5 IGAD Disaster Risk Management Programme

Recent IPCC assessments have shown that climate change is real and IGAD region is one of the most vulnerable locations in the world due to the negative impacts of future climate changes such as floods owing to its low coping capacity. Climate change adaptation is therefore not an option for the region. Few efforts are currently on going in the region.

IGAD currently has a disaster risk management programme that seeks to recuperate, systematise, make express and conscious move to improve the strategies that the communities have developed (many times in an isolated manner) within a social, economic and environmental context in permanent change. The objective of the programme is to enhance the disaster risk management capabilities of IGAD and improve the capacity of member states to develop

comprehensive disaster risk management strategies and plans through managing the risks rather than the disaster itself. The programme strategies include elaboration of supporting policies, legislation and agreements for disaster management; development of disaster preparedness strategies and the contingency planning process; improvement of regional collaboration for preparedness and response; strengthening of early warning and information systems and vulnerability analysis; development of education and training for disaster mitigation; improving preparedness for impact and needs assessment and resource mobilisation; and improving preparedness for targeting, implementation and monitoring and evaluation of relief and rehabilitation assistance.

3.7.6 IGAD Community Based Natural Resources Management

Environmental quality and sustainable natural resources management is a pre-condition for peace, security and development. One of the approaches that IGAD is promoting is Community Based Natural Resources Management (CBNRM) for the joint management of environmental resources.[149]It is a strategy for creating a climate of cooperation and promoting and maintaining peace, whose dividends are already known – allowing for investment in various sectors, implementation of environmental programmes and the development of science and technology.

3.7.7 IGAD's Livestock Policy Initiative

The IGAD has joined forces with the Food and Agriculture Organization (FAO) of the United Nations with the financial support of the European Commission (EC) to establish

[149] Edmund G. C. Barrow, & IGAD Secretariat,2004 , Community based natural resource management in the IGAD region, IGAD Secretariat

IGAD's Livestock Policy Initiative. The objective of the Initiative is to enhance the contribution of the livestock sector to sustainable food security and poverty reduction in the IGAD region. Its purpose is to strengthen the capacity in IGAD, its member states, and other regional organizations and stakeholders, to formulate and implement livestock sector and related policies that sustainably reduce food insecurity and poverty.

3.7.8 The IGAD Regional Consultative Process on Migration (RCP)

The process was launched in 2008 and is responsible for promoting acontinuous migration dialogue for the region and supporting information exchange on migration related issues ofcommon interest such as migration and development;social integration of migrants; protection of migration rights; migration data and research; migration and environment and movement of pastoral communities.

3.7.9 Regional and International Actions

The IGAD countries are signatories to and have ratified a number of regional and multilateral environmental agreements (MEAs) and conventions which to varying degrees provide for regional and subregional approaches to implementation. Of particular significance are the United Nations Convention to Combat Desertification (UNCCD), United Nations Framework Convention on Climate Change and the United Nations Convention on Biological Diversity (CBD).

3.8 Conclusion

Climate change issues already have had a major impact on the IGAD region.There have been change effects massive displacements of populations due to water scarcity, agricultural land shortage, fuelwood needs, and depletion of grazing and other resources. Inter-ethnic and neighbouring states border conflicts have erupted as a result of spontaneous movements of people from one region moving into neighboring regions caused by land and other resource depletion. For example, the 1999/2000 La Niña droughts resulted in 4.7 million Kenyans facing starvation, while according to unofficial reports, the effects of the 2006-2009 successive drought episodes caused 10 million people – over a fourth of Kenya's population – to starve.[150]

From the above initiatives, it is possible to discern that IGAD has recognised the link between climate change and security. However, perhaps a lot more needs to be done and good progress can be achieved if IGAD played a leading role in addressing climate issues especially in regional programme development for mitigation and adaptation. Clearly, an opportunity exists for IGAD to expand upon current mechanisms and activities to enhance regional integration, economic cooperation, adaptation and mitigation capacity to cope with security effects of climate change. Such efforts can help can help to improve livelihoods, increase production and income, expand markets, and encourage investment.

[150] Kenya National Climate Change Response Strategy, 2010

CHAPTER FOUR

REGIONAL BODIES, CLIMATE CHANGE AND SECURITY: A CRITICAL ANALYSIS

4.1 Introduction

This chapter analyzes the role of regional bodies in confronting climate change as an emerging security threat, highlights the peace building potential of the regional organisations and the challenges in the implementation of security initiatives.

4.2 IGAD

Stakeholders feel that IGAD can play an important role in addressing climate change and conflicts, both financially and policy-wise. There is broad agreement that IGAD is the right REC that can adequately forge regional approaches to address ASAL specific issues. However, the current capacity level of the Secretariat is very low, which makes it difficult to adequately coordinate and facilitate these processes. This increases the risk that the REC level could become a proxy arena for a battle over paradigms and developmental visions linked to what approach should be adopted to better address drought, resilience and food security challenges in the Horn. Added to this, the speed at which the regional IGAD compact process- alongside the other regional drought resilience processes- are moving might mean that the IGAD Secretariat is overstretched and might not be able to provide the necessary guidance and direction, given its current capacity shortcomings. Yet a good starting point for the Secretariat is its very strong mandate by member states and other partners, to strengthen drought resilience in the Horn of

Africa. From here, efforts are being made to strengthen the institutional foundations of the Secretariat, upon which the drought resilience initiatives can be built. Most stakeholders generally agreed that while capacity building will take time, IGAD could already start engaging with those areas where it has a real comparative advantage, and build up credibility and legitimacy steadily by starting with the low-hanging fruit, for example, fast-tracking regional climate change adaptation responses and management of shared natural resources.

The IGAD‘s conflict prevention program, the Conflict Early Warning and Response Mechanism which has been operational since 2003 if empowered has huge potential to support the Organizations initiatives to address the effects of climate change in the region. Its mandate is to collect information on possible and imminent security threats and disseminate those reports to member states, and facilitate rapid response to conflict. The Conflict Early Warning and Response Units (CEWERUs) which are national reporting units based in country capitals are led by a government focal point. Field monitors in border areas are responsible for gathering and relaying early warning information to Local Peace Committees (LPCs) who in turn report to the CEWERUs.[151]

The CEWARN program has considerable promise, but also faces predictable challenges. Many of these challenges are not unique to CEWARN but constitute universal difficulties of conflict early warning. Governments everywhere are often reluctant to share sensitive information even with close allies, and East Africa is no exception. In addition, the capacity of the institution at both headquarters and field reporting levels has been variable. Poor and irregular output for some reporting channels such as the Rapid Response Fund (RRF) and monitoring and evaluation systems has led to some growing donor frustration.

[151] ibid

One of the biggest challenges faced by IGAD in addressing climate change security impacts relate first to the problem of natural resources and the environment in complex conflict situations, and the constructive role actors can play in natural resource, environmental and conflict management. The the level of integration of natural resources and environmental factors in conflict prevention, management and peace building is quite low in IGADS mechanisms. Conflict management approaches should increasingly take the environment and natural resources into account when attempting to prevent violent conflict from erupting; negotiating and implementing durable peace agreements; deploying peace support operations; and establishing preventative and post-conflict peace building mechanisms. Yet, integration has been a slow process, particularly since this requires an interdisciplinary and multi-sectoral approach.[152]

There is also a real sense among donors and other key stakeholders in the IGAD region that there is a need for a new approach to the recurrent droughts in the region. This shared sense of urgency and acknowledgement of the changes required is an unprecedented opportunity that should be seized. However, the direct engagement of donors in the formulation of the IGAD regional Comprehensive Africa Agriculture Development Programme (CAADP) compact has been relatively limited, although there is interest in the process. So far, no donor coordination mechanism has shaped up around the regional CAADP, which seems to be mostly due to the high degree of confusion around the parallel processes, including the Regional Platform. Donor attention predominantly centers on the Regional Platform as the mechanism for coordination. Considering that the role of CAADP in the Regional Platform is still unclear, some development partners do not yet see CAADP as the main framework on which investment will be based. There is however a strong sense among donors that improved regional coordination is of utmost

[152] Interview with Kizito Sabala, Head and Political Officer, IGAD liaison office Nairobi, 15th June 2013

importance, to guide this process well. Donor coordination is necessary at a number of levels: sectoral programming including agriculture, natural resource management, conflict, disaster risk management sectors; country programming, and between regional and national programming. A regional CAADP can potentially serve as a framework for coordination between these levels, as it does provide a useful template that is already established at continental level, in which expertise has been built up and building blocks have already been prepared.

4.3 United Nations

4.3.1 United Nations - REDD programme

The UN-REDD programme on Reducing Emissions from Deforestation and Forest Degradation (REDD) was launched in September 2008 to assist developing countries to prepare and implement national strategies to prevent deforestation. REDD is an effort to create financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands by preserving forests and investing in low-carbon sustainable development. Both Kenya and preindependence Sudan are UN-REDD partners, which means that, though not currently receiving funding for national programmes, they participate in many REDD activities and will likely have the opportunity to seek funding for national programmes in the near future.

Uganda is in the process of developing a REDD proposal. UN-REDD can be an important mechanism for minorities, especially those who depend on forests for their livelihoods. But minorities and activists must be vigilant in relation to the way in which states engage, or fail to engage, with communities in the REDD process. In Uganda for example, as the government

prepared its REDD efforts, a review of the consultation process revealed that the Batwa had not been effectively included in the consultation process.[153] Once included through NGO facilitation, however, the Batwa had important recommendations to make. Specifically, the Batwa recommended clarification of carbon rights in law before funds from the programme start flowing in the state, that the government of Uganda should use any potential revenues to ensure benefit to local communities, in particular supporting alternative livelihoods for Batwa, and that revenues from any programme should flow directly to the Batwa instead of being administered through local government institutions which have engaged in historic discrimination.[154]

4.3.2 United Nations Environmental Programme

To support the UN's peace and security architecture, UNEP is providing technical expertise on now natural resources and the environmental can contribute to more effective conflict prevention, resolution and peacebuilding. UNEP's goal is to ensure natural resource and environmental risks and opportunities are fully considered and integrated into stabilization and peacebuilding strategies.

UNEP has been working at the global policy level to help the UN system understand climatic change, insecurity and peace building linkages and to adopt new policies and programmes. This has involved the development of a joint policy report with the UN Peace building Support Office, [155]providing technical inputs to the Secretary General's annual report on peace building, and chairing the development of a UN-wide guidance note on natural resource management in post-conflict transition settings as part of a dedicated task team within the UN

[153] Interview with John Kisitu, United Nations REDD Programme (July 2013).
[154] ibid
[155] UNEP, 2009: From Conflict to Peacebuilding: The Role of Natural Resources and the Environment.

Development Group. Based on its analysis, UNEP's report draws three key conclusions for future UN peacemaking and peace building operations. First, climatic changes can contribute to security concerns by fuelling outbreak of conflict and to hampering the prospects for peace. The way the environment is managed has a determining influence on peace and security. Secondly, investing in environmental management and the governance of natural resources such as forests and water other water catchment areas are an investment in preventing insecurity. Finally, cooperation over environmental management provides new opportunities for or peacebuilding that should be pursued. [156]

UNEP has also established a global research programme on post-conflict peace building together with the Environmental Law Institute and the Universities of Tokyo and McGill. This four-year research project has yielded more than 150 peer-reviewed case studies and analyses by over 230 scholars, practitioners, and decision makers from 55 countries. In their diversity and number, the books represent the most significant collection to date of experiences, analyses, and lessons in managing climatic changes in order to support post-conflict peace building. One of the main operational activities of this pillar is conducted through the EU-UN Partnership on conflicts, in which UNEP, five UN partners and the European Union are working to support countries to improve natural resource management for conflict prevention and peace building. Through this partnership, technical assistance will be provided to help national stakeholders, as well as UN and EU staff in conflict-affected countries, to better understand and prevent tensions over environmental issues and the management of natural resources.

In 2013, in collaboration with the EU-UN Partnership, UNEP will begin work in both C*ô*te d'Ivoire and complete an assessment from Afghanistan on risks and opportunities related to

[156] Nick Nuttall, Director of Communications and Public Information, and Spokesperson United Nations Environment Programme (UNEP) Nairobi, Kenya, 3rd July 2013.

natural resources. UNEP will also engage in the Great Lakes region with the EU-UN Partnership to help build civil society capacity to participate in natural resource decision making, dispute resolution, and concession monitoring. Past field operations on Conflict Prevention, Peace building and Natural Resources have taken place in Sierra Leone and the Central African Republic as agenda countries of the Peace building Commission. In both countries, UNEP provided technical analysis and support to peace building plans. The output documents of both of these field operations were "Central African Republic: Environment, Conflict and Peace building Assessment", and "Sierra Leone: Environment, Conflict and Peace building Assessment." In Sierra Leone, UNEP was then requested to implement an Environmental Cooperation for Peace building programme as part of the agenda for change.[157]

4.3.3 United Nations Development Programme

UNDP coordinates peace dialogues and initiatives between states and communities in the region by coordinating structures such as District Peace Committees, Local Administration and Peace Monitors. In addition various NGO's working for peace provide a coordinating platform for dialogues and peace initiatives. UNDP especially works with a broad range of actors at regional, national and communities' levels including RECSA, IPTC, Oxfam. Some of the challenges faced by UNDP include lack of adequate resources, sabotage by conflict profiteers, widespread poverty which makes it difficult to negotiate win-win deals and poor legal and policy frameworks that do not encompass equity, fairness and dialogue.[158]

[157] Corli Pretorius, Executive Assistant to the Executive Director, Executive Office United Nations Environment Programme (UNEP), Nairobi, Kenya, 3rd July 2013.
[158] ibid

According to Emmanuel Ole-Sayiorry politics is perceived to be intricately tied to economics and livelihoods or satisfiers of people's basic needs. This, in reference to situations where political contests based ethnic affiliations means the winner tribe is perceived as gaining access to benefits and resources at exclusion of other tribes. [159] UNDP supports dialogue between conflicting parties to facilitate cessation of hostilities and crafting of long term plan actions to curb insecurity. The organization also builds the capacities of the parties to resolve conflicts amicably by addressing the root causes of conflict. UNDP's interventions in areas such as poverty eradication, cultural transformation and structural reforms have the potential to result in significant reduction in incidences and severity of violent conflicts and promotion of peaceful means of addressing conflicts.

4.4 Africa Union

African Union policy frameworks were mentioned by minority rights activists and policy makers as helpful instruments for informing their efforts at the national level.[160] In an era of 'African solutions to African problems' these home-grown policy models can be particularly powerful for national advocacy efforts. In particular, African Union policies on land and pastoralism are of particular relevance to minority rights and climate related conflicts.[161]

The African Union Framework and Guidelines on Land Policy in Africa addresses the legitimacy of indigenous land rights systems. The Chair of the South Sudan Land Commission noted that the AU framework had formed the basis of South Sudan's draft land policy. The

[159] Emmanuel Ole-Sayiorry , Programme Officer, Peace Building and Conflict Prevention Programme, UNDP – Kenya, 28th July 2013.
[160] Interview with Martin Orem, Coalition of Pastoralist Civil Society Organizations – Uganda Land Alliance, Kampala, Uganda, 10 August 2013
[161] Interview with Mary Nzioki and Hannah Chira, ACORD-Kenya, Nairobi, Kenya, 30 June 2013

African Union Policy Framework for Pastoralism is a powerful recognition of the value of pastoralism across the continent. Using the Framework to push for recognition and policy change at the national level is being undertaken by civil society in Uganda, as part of Uganda's process of developing pastoralism and rangelands policies.[162]Kenya has followed a slightly different route, through development of a Draft National Policy for Sustainable Development of Arid and Semi-Arid Lands.

It seems clear that there exist strong policy frameworks and special mechanisms for integrating human rights, climate change management and conflict resolution in Africa. The mechanisms present non-violent modes of conflict resolution through which minorities and neighbouring communities, governments and corporations can address conflict. However, minority communities often have little if any knowledge of these frameworks and are unable to access them directly because of resource and other capacity deficits.

Communities and advocacy organizations are making efforts to use many of the mechanisms mentioned. For example, Minority Rights Group International has focused resources on enabling minority communities and indigenous people to effectively bring communications to the African Commission on Human and Peoples' Rights. The International Work Group on Indigenous Affairs (IWGIA) works closely with the African Commission's Working Group on Indigenous Populations and Communities to facilitate the working group's visits to indigenous communities across Africa. Development actors are working in partnership with IGAD and CEWARN to bring local conflict-resolution actors from across the horn of Africa together to share best practices and conflict resolution models that can be adapted to other contexts or

[162] Interview with Robert Ladu Luki, South Sudan Land Commission Chair, Nairobi, Kenya, 19 August 2013

adopted as state policy. Nevertheless, much work remains to ensure that minorities can claim their rights through these frameworks.[163]

The African Union has also stepped up its role in the prevention and management of conflict, particularly through the establishment of the Peace and Security Council (PSC), which is a critical institutional component of the Union's peace and security architecture. The PSC is a collective security arrangement to facilitate timely and efficient response to conflicts and crisis situations in Africa; anticipate and prevent conflicts; promote and implement peace building and post-conflict reconstruction activities; and coordinate and harmonize efforts in the prevention and combating of terrorism.[164]

Furthermore, it is also expected to promote close harmonization, coordination, and cooperation between regional mechanisms and the Union in the promotion and maintenance of peace, stability and security in Africa. While RECs, civil societies and other organizations are working hard to stymie conflicts, the AU as the principal regional organization has undergone a normative shift by positing that non-interference does not mean indifference.[165]

On this basis, the AU has moved towards a more preventive, principled and coercive role. The complexity of challenges faced by the African continent has contributed to the 'new' idea that "the notion of non-interference must be revised because it must be never associated with indifference. And this non-indifference must lead to coercive measures, to well-adapted and active policies."[166] In whatever sense one examines this statement, this is a radical departure from the nature of traditional African international relations since 1963. It is important to

[163] 35 Proceedings of the Dialogue Workshop on Best Practices on Local Response Strategies (IGAD/GIZ 2011).
[164] African Union Protocol Relating to the Establishment of the Peace and Security Council of the African Union, Art.3
[165] Alpha Oumar Konare,"Security is the African Union's priority," African Geopolitics, (2013)
[166] Ibid

appreciate the context within which the African Union is developing such specific 'principles' to guide community action. What can be deduced is that by emphasizing issues of security (among a panoply of other issue-areas), the African Union is developing into a regime with specific rules and principles.[167]

Although the concept, as has been enunciated, will be challenging to implement, it is not impossible. However, what is critical in this discussion is the political will to apply coercive measures when this becomes imperative. Situations may also arise where there is a need to disaggregate the type of coercive measures that are anticipated in terms of state size, influence, and power. Although this issue has not yet arisen, it is critical that there be advance thinking about how best to respond coercively to a large powerful state. However, since 2004 these norms, values, and principles have been unevenly applied to states that have fallen afoul of them. In the case of Togo for example, it took the combined leadership of ECOWAS and the AU to bring about a reversal of the palace coup d'état that took place after the death of the President in February 2005.[168]

Unlike its environmental regime, the AU's efforts to introduce and maintain a climate change regime are a relatively recent development. The AU's efforts to establish and maintain its climate change regime is characterized by its application of various strategies to engage international actors. The AU's efforts are reminiscent of its 'management' of its 'interdependence' and 'internationalization'. The AU has followed various strategies and cooperated with a variety of actors on climate change issues such as through:

[167] Olonisakin, F. and Ero C. (2003) 'Africa and the regionalization of Peace Operations' In Pugh, M. and Sidh W. (eds.) *The United Nations and Regional Security: Europe and Beyond*. Colorado: Lynne Rienner

[168] Powell, K. (2005) The Africa Union's Emerging Peace and Security Regime: Opportunities and Challenges for Delivering on the Responsibility to Protect. The North- South Institute.

At the AU there is a feeling that the Regional Economic Communities (RECs) are not always fully committed to AU leadership. Conversely, in the regions the AU is sometimes felt to be overstepping itself. The internal dynamics of each region impact on their effectiveness. Sequencing decision-making, liaison and timing each play a role. There are crises which the regions are able to deal with, but other crises will need UN and international support beyond the RECs and AU.

The five regions designated by the AU for the purposes of APSA do not correspond directly with the existing eight RECs. For example, East Africa has the Common Market for East and Southern Africa (COMESA) and the East African Community (EAC); neither organization has a security element or a comprehensive regional membership. Responsibility for coordinating the East Africa Brigade (EASBRIG), drawn from Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Seychelles and Uganda was given to the Intergovernmental Authority on Development (IGAD); but Seychelles, Madagascar and Rwanda are not members of IGAD, so a new EASBRIG mechanism has had to be established.[169]

SADC and ECOWAS both have a security arm within their structure. Tanzania, which is a member of the EAC and SADC, is listed as a member of EASBRIG, yet is also a signatory of the memorandum establishing the SADC Brigade. Angola, another member of SADC and signatory of the SADC Brigade memorandum, is seen as a key state in the Central African Brigade. It may be some time before the exact make-up of the brigades becomes clear. These regional incoherencies need not mean that the peace and security architecture cannot be established, but they make it harder. Moves to rationalize the regional organizations have been discussed, but there seems little political will to do so. It well suits Angola, for example, to sit in

[169] Ibid

two regions and be able to choose what initiatives to support on an ad hoc basis in accordance with its own interests.[170]

The internal dynamics of the regions are worth examining, especially the role played by key states. In ECOWAS, Nigeria has in the past taken a lead role on security issues and, as it is by far the largest country in the region, this seems a natural position. However, while Nigeria claims to be interested in a stable neighbourhood, other West African states see Nigeria as trying to position itself as a regional hegemon. The difficult relations between Nigeria and Côte d'Ivoire, dating back to the Nigerian civil war, have at times made military cooperation between the two states difficult. Nevertheless, whatever the hopes of other countries in the region, Nigeria is, and will remain, the pre-eminent power in West Africa and programmes that include Nigeria are more likely to succeed. South Africa's role in Southern Africa is central: its military is well equipped and trained, and it has the economic resources necessary to conduct sizeable missions. Although South Africa takes a less prominent role in pushing forward the Southern African peace and security structures than that taken by Nigeria in West Africa, it has been noted that some nations are reluctant to rely on it. This is largely owing to fears of South African dominance in the region and intraregional competition for influence.

4.5 Regional Centre on Small Arms

The Regional Centre on Small Arms (RECSA) was set up to coordinate the implementation of the Nairobi Declaration on the problem of the Proliferation Illicit Small Arms and Light Weapons (SALW) in the Great Lakes Region and the Horn of Africa. The main activity of RECSA is to reduce the circulation of small arms and weapons that fuel violent

[170] Daley, P. (2006) Challenges to Peace: Conflict Resolution in the Great Lakes Region of Africa.' *Third World Quarterly*, 27 (2). pp 1360-2241.

conflicts in the Great Lakes region. To date, RECSA has supported the destruction of over three hundred thousand small arms and light weapons in the region. RECSA has a memorandum of understanding with regional bodies that work toward the mitigation of violent conflicts. The organization coordinates peace initiatives between states and communities in the region through public awareness campaigns aimed at peace building and encouraging a culture of co-existence.[171]

Ten countries were joined by Seychelles in signing the legally binding Nairobi Protocol for the Prevention, Control and Reduction of SALW in the Great Lakes Region, the Horn of Africa and Bordering States in April 2004. Somalia later joined the initiative. Currently, RECSA has 15 Member States after the admission into membership of the Republic of Congo in 2009 and the Central African Republic and the Republic of South Sudan in 2011. RECSA is coordinating national efforts in its Member States to implement the Protocol. RECSA Member States are committed to fighting the proliferation and trafficking of illicit SALW in the Great Lakes Region and the Horn of Africa by implementing the Nairobi Declaration and the Nairobi Protocol. By so doing they contribute to increasing prospects for sustainable development in the region. RECSA implements its programmes along three main result pillars of the RECSA Strategy 2009/2014: Institutional Development, Stockpile Management, and Generation and Provision of Information. Some challenges faced by RECSA including high illiteracy levels among warring communities, limited organizational budget and political related factors. [172]

[171] Theoneste Mutsindashyaka, Executive Secretary, The Regional Centre on Small Arms (RECSA), 29th July 2013
[172] ibid

4.6 Danish Refugee Council

According to the Technical Advisor on Conflict Management at Danish Refugee Council, conflicts resulting from climatic changes occur mainly in those pastoral zones where livestock keeping is the mainstay and which depends mainly on scarce natural resources including pasture, water and natural vegetation.[173] Recurrent droughts have over the years increased the pressure among the communities in regards to access and control of environmental resources. These communities often violently clash when they converge in dry season grazing points. Disregard for grazing plans, pacts and agreements is a key grievance where at any time communities receiving other communities during dry periods feel that there is always a lack of consultation over the use of grazing resources and a complete disregard for peace pacts resulting in violent confrontations.

The Danish Refugee Council responds to insecurity as a result of climate changes by supporting dialogue between groups, supporting communities to come up with peace agreements, pacts and declarations. The main activities the organization undertakes in terms of mitigating violent conflicts over natural resources in the region include: establishment and capacity building of grass root conflict management structures; facilitating the linkage of Peace Committees and Grazing Committees to ensure they work closely; promoting peace, ensuring that grazing and resource use plans are shared across borders and between communities who usually converge during months of scarcity; facilitating grass root structures to undertake dialogue especially where tensions arise; conflict early warning and response; and promoting

[173] Interview with Emmy Auma, Technical Advisor on Conflict Management at Danish Refugee Council, 28th July 2013

connector initiatives to enhance interaction between traditionally conflicting groups to increase mutual trust and respect.[174]

A lot has been realized as a result of the intervention by Danish Refugee Council in terms of either the frequency or magnitude of the insecurity that occur. Communities are able to point out the fact that they know, understand and use established conflict resolution and management structures. For example community A can send word to community B when moving in their direction with their livestock and in the process the modalities of use are established. By working with local and grass root structures that are trusted by different groups, the organization facilitates capacity enhancement for such structures to ensure that they can effectively support dialogue between groups. One such initiative is enlisting the services of Mediators Beyond Borders (MBB) who build the capacity of the community structures and supports them undertake dialogue and mediation initiatives. One success area has been ensuring that grazing committees and peace committees work together closely and complement each other's efforts.

The Danish Refugee Council though mainly confines its activities to conflicting communities within Kenya, recognizes the fact that conflicts and peace building transcends borders. The organization thus always makes effort to get in touch with and work closely with other actors promoting peace across the borders to ensure that positive outcomes are realized simultaneously. The organization also depends on other regional bodies such as IGAD and CEWARN for conflict early warning information.

Since insecurity as a result of climatic changes is complex and involves actors from distant areas it is difficult for the organization to reach all required especially in the establishment and sharing of resource use plans. It is also difficult to establish just who will be

[174] Nininahazwe, D. ICGLR and its Role in Regional Peace and Security in *Regional Security Studies Course.* Nairobi, International Peace Support Training Centre.

going to what direction during pasture and water scarcity. It is also sometimes difficult to justify to donors why the project funds are being used to target populations out of the target area. Political influences also sometimes undermine credibility of structures that are in place to promote peaceful coexistence. Incidences in the past have indicated that the conflicts not only increase when there is scarcity but also when the rainy season begins and there is plenty and communities are moving back to their traditional grazing areas. This is a big challenge because the organization and even the grass root peace building and conflict management structures are very limited to respond to all the scenarios arising. In other instances, just a small trigger can completely destroy the product of efforts invested over time. Conflicting communities are also mostly poverty stricken and when there is no "tangible benefit" sometimes communities have little appreciation for the peace building interventions and tend to see other quantitative aspects or initiatives as more useful and a priority even when conflict has is considered a major challenge. Timing which is a key factor in management of resource based conflicts is a difficult variable to manage i.e. movement patterns need to be established and re popularization of for example resource use plans should be precisely timed. This is not always easy and the result is organizations being forced to step in after conflicts have occurred as opposed to the most desirable: mitigating before it happens.[175]

[175] Ibid

4.7 Conclusions

Over the years, regional bodies in Africa have not been able to develop effective 'early warning' systems to predict conflict over political, ethnic or economic issues. Adding the meteorological uncertainties of climate change to the mix adds a whole new layer of uncertainty to such an exercise. It is unlikely that the international community will ever be able to generate models of sufficient complexity and nuance to forecast where climate-induced conflict may break out with accuracy. This presents a major threat to the prospects for sustained economic growth and development in Africa. Nevertheless, there is much progress that could be made on understanding climate change and its impacts in Africa so as to generate more effective responses.

CHAPTER FIVE

SUMMARY OF FINDINGS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the findings of the study, the conclusions and recommendations and suggestions for further research.

5.2 Summary of the Findings

Considering the IGAD's region vulnerability to environmental and climate challenges, recurrent droughts and conflicts arising from use of shared natural resources, the importance of regional cooperation and integration around natural resources cannot be over emphasized. To better address the challenges of sustainable management of natural resources and environmental protection in the region, the IGAD Secretariat developed an IGAD Environment and Natural Resources Strategy in 2009. Due to recurrent droughts in the region, IGAD has also given priority to the development and implementation of Early Warning and Food Information Systems both at national and regional levels.

There is a natural link between the climate, land, livestock, rivers and waterbeds, and food security. In this sense, the climate change management strategy could have the potential to contribute to the security plans of the region, if relevant institutions are strengthened and investments better channeled to improve the sustainability of climatic management use at different levels.

In the IGAD region, the land utilization pattern is split between use for agricultural activities (farming), livestock rearing and mineral exploration. There is frequent migration of

people and livestock in search of pasture and water resources, among others. A significant proportion of the people in the region are pastoralists – the greatest number being in Sudan. In Ethiopia, about 10-12% of the total population is pastoralist, about 20% in Djibouti, 33% in Eritrea and 70% in Somalia.

The IGAD region has the potential to utilize its agricultural land resources to feed its people and plans to operationalize the Business Plan of the IGAD Sub-Regional Action Programme (SRAP) and the IGAD Food Security Strategy to achieve this. Another approach that IGAD is promoting is the Community Based Natural Resources Management (CBNRM) for the joint management of environmental resources. It is a strategy for creating a climate of cooperation and promoting and maintaining peace, allowing for investment in various sectors, implementation of environmental programmes and the development of science and technology. However, the continuous land degradation and desertification, climate variability, land tenure issues, armed conflict among other factors pose a threat to fully utilizing land and other natural resources. Another challenge is the lack of an inventory of the resources of the ASALs of the IGAD region. There is also little understanding of the environmental consequences and conflicts associated with pastoralism.

Perhaps the greatest challenge to regional peace and security in the region has its roots in the way countries pursue state security at the expense of human security. This regime- oriented militarised concept of security stands in contradiction to a holistic notion of human security, posing various challenges to issues of citizenship. These security contradictions are embodied in regional threats like cattle rustling, refugees, Internally Displaced Persons as well as conflict over water and other natural resources, proliferation of small arms and light weapons, maritime security, environmental crimes, democratic deficiencies, poverty and armed conflicts. Because

these security challenges easily transcend geographic boundaries, regional organizations stand the best chance of tackling them systematically since they can bring together various national authorities. However, because regional organizations are themselves products of the regional states, they have also traditionally committed the mistake of pursuing state security at the expense of human security. Increasingly, however, they have begun to embrace a more holistic notion of security.

In recognition of this strength, regional organisations have attempted collaboration, especially among themselves. This collaboration may be formal where agreements are entered into in areas pertaining to joint programme implementation or other support or informally where information is shared and exchanged, and members regularly meet to update each other on various undertakings. Within this context, pervasive challenges like the proliferation of small arms are addressed jointly by different organizations and across regional boundaries like the disarmament programme currently underway at the Kenya/Uganda/Ethiopia and Sudan borders. Regional organizations have also come together to mobilize resources and through comparative advantages they have specialized in implementing various sub-programmes within a wider project based on their competencies. The EU- funded project jointly implemented by IGAD (pastoralism), EAC (small arms and light weapons) and COMESA (war economies) is a case in point.

However, despite these successes, collaboration among regional organizations is bedeviled with several challenges largely emanating from the complex peace and security challenges of the region as well as the fact that most of these organizations have been initiated recently and their programming and policy are still at the draft and intent stages. Even as these

policies begin to be implemented, there will be a conscious need to thread together the different visions embodied in the numerous.

Groups and societies facing dramatic reduction in the quality of life because of a changing climate have several coping strategies from which to choose. First, they may seek to adapt to the new challenges. Adaptation is here understood as adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Adaptation can occur on any scale, from the individual to the international level. The most extreme forms of adaptation involve pursuing alternate modes of livelihood or finding substitutes for the necessary but increasingly scarce commodity. Less drastic means of adaptation include conservation programs and efforts to reduce consumption, investment in technology to enhance production/consumption efficiency, and trade.

Societies unable to adjust to the new challenges are left with two main options: fight or flee. The former strategy implies securing an increasing share of the diminishing resources. Whether an increasingly exposed society seeks adaptation, contention, or exit will depend on the nature of the changing environment, the vulnerability of the population, and contextual factors. Gradual changes, such as desertification and sea level rise, are generally likely to be met with gradual response where various forms of adaptation constitute the primary response.

Based on the findings, there is a greater commitment on the part of the states in Sub region to empower regional bodies and organizations such as the IGAD to play a lead role in supporting governments to mitigate violent conflicts over as a result of climatic changes.

The findings also revealed that the shift in the strategies of regional governments from complicity in environmental conflicts, to greater willingness to explore a new, legitimate, and peaceful conflict mitigation mechanisms is real. Independent auditing and harmonized standards

for conflict-free environmental utilization is essential in pressuring country governments to mitigate exploitation of natural resources by armed groups and in signifying to conflict-affected communities that human rights infractions matter to central and regional governments.

5.3 Conclusions

Research on climate change and its potential effects on human security has many parallels with research on the risks and causes of violent conflict. Bearing this in mind, and informed by the discussion thus far, we now propose three key areas of research on climate insecurity, some of the important issues associated with each aim, and suggest some places where such research might profitably focus.

The Assessment of Impacts and Adaptations to Climate Change (AIACC) project is an initial attempt at the kind of comparative vulnerability assessment process that is required to enhance understanding and improve policies to address climate insecurity. The AIACC project is revealing that the most potentially devastating impacts of climate change arise from a combination of multiple stresses acting in concert of which climate stresses are but one, and which also include ecosystem degradation, failed governance systems, and economic decline.

The emerging lessons from this and other vulnerability research are, for example, that elderly and young people are particularly at risk everywhere in the world e in the developing world from impacts on agriculture and nutrition, and everywhere from the physiological impacts of heat waves and extreme weather. Some places are more exposed to new risk than others. But a starting point for security-oriented vulnerability research could be places where exposure is high and climate change seems to be having the greatest effect notably the semi-arid tropics and the high arctic e and in places where the magnitude of impacts seems likely to be greatest.

Present research on vulnerability to climate change investigates the diverse array of social and environmental factors operating over time, and across an array of spatial scales, that structure vulnerability. These factors include the sensitivity of resources such as freshwater, soils, reefs and fisheries to sudden and incremental changes in climate, the degree to which households and communities rely on these resources to meet their needs and values, and the capacity of social systems to adapt to changes in the temporal distribution and abundance of these resources so that households' and communities' needs and values can continue to be satisfied. This adaptive capacity depends on, inter alia, the ability to access commodity markets and labour markets and the prices paid on these markets, the ability of communities to pool resources to collectively respond to change, access to information, population health, and the existence and effectiveness of national and international policies and measures to sustain resources and livelihoods in vulnerable places.

5.4 Recommendations

Adapting to climate change impacts needs to be a local process, and one that is tailored to each community. Local discussions are needed to determine which projects and priorities are most important to meet the needs and challenges of each community. Land use planning provides an excellent milieu for these discussions and actions because it is an inherently local institution that is highly stable, and it is the venue where local governments make policies and regulations regarding land use, development, and storm and wastewater management.

Regional organizations should strive to be more people centered and have a wider mandate from the community by reaching out to civil society, the private sector, etc and avoid a

narrow political base; this way they are not affected by the whims of politics and can survive political changes and down turns in countries.

Given the potential range and scope of consequences of climate change, it is not surprising that there is widespread concern about its security implications. In part, this concern should be directed at raising awareness about 'environmental security' in a broad sense. Climate change will have many serious effects, particularly transition effects, on peoples and societies worldwide. The hardships of climate change are particularly likely to add to the burden of poverty and human insecurity of already vulnerable societies and weak governments.

However, the use of such wider concepts of security must not stand in the way of a focused effort to analyze empirically the possible link between environmental change and violent conflict. Assuming such a link without the necessary evidence may lead peacemaking astray and can eventually also undermine the credibility of some of the regional bodies and the efforts to reach a consensus of knowledge about human-made climate change and a concerted global effort at mitigation and adaptation. The climate-conflict discourse is easily exploited by cynical governments and ruthless rebels who would like to evade any direct responsibility for atrocities and violence and prefer to put the blame on developed countries and their greenhouse gas emissions.

The regional organizations should have better projections of climate change in Africa, and a better understanding of the interaction between climate change and conflict. This will help to delineate potential 'hotspots' and assist policymakers in taking appropriate measures to prevent or manage conflict. More investment in climate data and analysis capabilities on the continent (more down-scaled, sub-national climate data and projections through investments in

establishing and maintaining weather stations, in human resources and in capacity for meteorology.

Extremely low probability hazards should not be promoted to major threats under the precautionary principle. For adaptation to climate change, clarifying the conflict effects may also be important. Preventing armed conflict is likely to require countermeasures that are different than preventing biodiversity loss. For the need to mitigate the effects of climate change, however, the effects of climate probably matter very little. There are many other reasons to reduce the human impact on the climate and to prevent global warming from getting out of hand.

The regional organizations should also build the capacity of national governments to address climate risks, by *inter alia*, ensuring better water management, promoting agricultural development and developing more effective disaster management and early warning systems and provide substantial and predictable financial support from development partners to help meet the additional costs of adaptation, including the development of climate-related information and early warning systems.

Despite numerous accounts of single events and well-developed theoretical models, there is still little knowledge about general linkages between environmental factors and various forms of armed conflict. Case studies can provide some advance warning of deteriorating problems in selected areas. But global climate change policy is crucially dependent upon the early warning of events in areas that have not necessarily had such problems in the past. Precise point predictions are not realistic, but general models can provide guidance as to the probability of future problems and thus help to select priority areas for remedial action.

The debate so far has rightly focused on negative impacts of climate change. This is defensible, given that the prevailing opinion is that the negative effects will outweigh the

positive. However, in order target countermeasures and mitigation most effectively, the policy community needs to have a more systematic assessment of negative and positive effects. Heat waves are likely to claim additional lives in some environments, while milder climates may prevent the loss of life in very cold environments.

Some of the proposed measures to restrict the greenhouse effect may also have security effects and these need to be assessed in order to find the best countermeasures overall. For instance, draconian measures to reduce carbon dioxide emissions in developing countries might make trading-state strategies less attractive relative to strategies of regional warfare. It would also very likely lead to a stagnation or even reversal of their economic growth, with political instability and civil unrest as probable outcomes.

Any negative security implication of climate change is thought to work through economic and sociopolitical aspects of society. Besides, national poverty is one of the strongest correlates of civil war, and low per capita income is also strongly linked to lack of democratic governance. Until systematic research succeeds in uncovering specified and robust associations between climate change and armed conflict, investing in sustainable development in vulnerable societies may be the best instrument for promoting peace and security.

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QUESTIONNAIRE

Dear Sir/Madam,

My name is Agabio Mutegi. I am a Masters student at the Institute of Diplomacy and International Studies, University of Nairobi where I'm pursuing a degree in International studies. In completion of the degree program, I am undertaking a research on **''The Role of Regional Organisations in Addressing Climate Change as an Emerging Security Threat in Africa: A Case Study of IGAD.''**

I kindly request your assistance in researching on the topic. I'm therefore pleased to invite you to participate in the survey by completing the questionnaire below. I wish to assure you that responses provided in the survey will be kept confidential and shall by no means be used for any other purpose beyond the academic goal of the study. Your participation in the survey will be much appreciated.

SECTION A: DEMOGRAPHIC INFORMATION OF THE RESPONDENTS

1. Organization: ……

2. Rank: ……..

3. Gender: Male [ ] Female [ ]

4. Age (*Tick where appropriate*)

18-24 years [ ] 25-34 years [ ] 35-44 years [ ] 45-54 years [ ] Over 55 years [ ]

5. Education (*Tick where appropriate*)

Bachelors Degree [ ] Masters Degree [ ] PHD [ ]

6. How many years have you worked at the Organization? (*Tick where appropriate*)

1-5 years [ ] 6-10 years [ ] 11-15 years [ ] Over 16 years [ ]

SECTION B: REGIONAL ORGANISATIONS, CLIMATE CHANGE AND SECURITY

7. Do you think climate change poses any security threat in the IGAD region? (*note: IGAD member states are Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan and Uganda*?)

   Yes [ ] No [ ]

8. In your opinion, what are the security threats posed by climate change in the region?

……

……

9. Are you aware of any activities spearheaded by the IGAD to address climate change and its security threats in the region?

   Yes [ ] No [ ]

10. If yes could you briefly describe the activities/initiatives or programmes. Have initiatives been mainstreamed in the IGAD and IGAD member countries policy and enabling instruments and programmes?

……..

…….

11. To what extent has IGAD's interventions been effective in addressing climate change and its security threats in the region?

……

……

12. What are the challenges faced by IGAD in addressing climate change?

……..

……

13. In your opinion, how would you describe the existing capacity of IGAD in coping with these challenges?

……

……

14. How would you describe the level of awareness of the security threats posed by climate change in the region?

……

……

15. What kind of policies and interventions would you suggest for IGAD in addressing climate change as an emerging security threat?

……

……

16. Would you then say IGAD has a long-term approach for addressing climate change in the region?

Yes [ ] No [ ]

17. Taking stock of the above, do you think a focus on regional bodies such as IGAD in the global effort to address climate change would result in better cooperation and outcomes in addressing the security impacts of climate change. Please explain briefly.

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